

29. 11/3: AZ '1



3 1604 019 702 127

Clemson University

general management plan
development concept plan

PUBLIC DOCUMENTS
DEPOSITORY ITEM

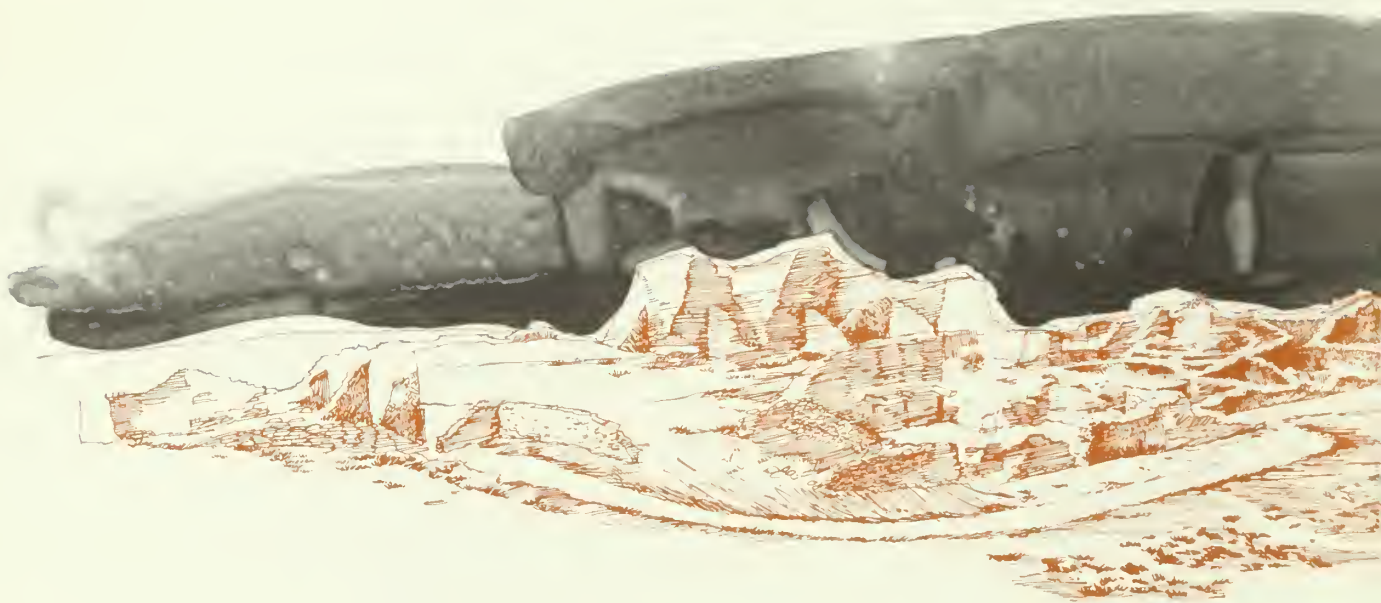
NOV 28 1989

CLEMSON
LIBRARY

AZTEC RUINS

NATIONAL MONUMENT / NEW MEXICO





Recommended:

John W. Bright
Assistant Manager, Central Team, DSC 9/8/89

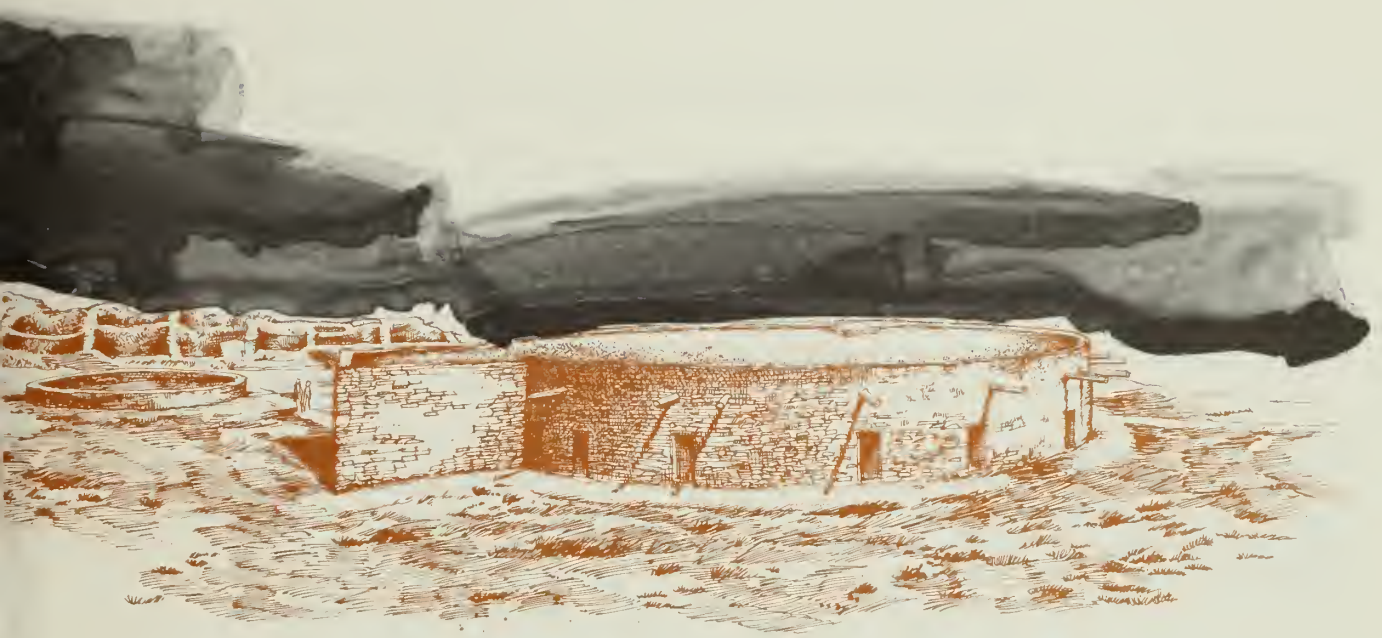
Charles B. Cooper
Superintendent 9/12/89

Approved:

John E. Cook
Regional Director, Southwest Region 9/12/89


general management plan development concept plan

september 1989



AZTEC RUINS NATIONAL MONUMENT • NEW MEXICO

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



Digitized by the Internet Archive
in 2012 with funding from
LYRASIS Members and Sloan Foundation

<http://archive.org/details/generalmanagemen00ruins>

SUMMARY

Aztec Ruins National Monument is an archeological site in northwestern New Mexico. It contains significant prehistoric/historic resources and is considered one of the most significant outlier sites affiliated with the Chacoan Anasazi of Chaco Canyon. The monument was recently designated a world heritage site in 1987.

This *General Management Plan/Development Concept Plan* (GMP/DCP) outlines actions necessary over the next 10 to 15 years to protect the integrity of Aztec Ruins, restrict further infringements on the ruins, interpret the valuable resources, and solve current management issues.

ISSUES

The major issues that will be addressed in this plan are as follows:

Legislation passed by Congress in 1988 established a new boundary for the monument, increasing its size from 27.14 acres to nearly 320 acres (PL 100-559, October 28, 1988, title VI). The secretary of the interior is authorized to acquire lands, interests in lands, and improvements thereon within the newly established monument boundary (see appendix A). Throughout the document, the 27.14-acre portion of the monument is referred to as the "original monument," while the current 320-acre monument is referred to as the "boundary established in 1988." (See Existing Conditions, 1988 Monument Boundary and Surroundings map.)

Excavated ruins are deteriorating because of water damage from previous overirrigation of fields north of the original monument, moisture from precipitation, freeze-thaw, multiple preservation treatments, eroded wallcapping, poor drainage, differential soil levels, and lack of comprehensive stabilization programs. Inadequate documentation and knowledge of prehistoric architectural stages and techniques contributes to a continued loss of integrity and scientific data.

Incompatible uses could occur adjacent to the original monument boundary in the future. These potential uses include residential and commercial development, oil and gas operations, overirrigation of lands north of the original monument, and increased traffic along Ruins Road. Some incompatible uses are already occurring within the monument boundary established in 1988.

Numerous archeological sites, well preserved but currently unprotected, are within or close to the monument boundary established in 1988. These sites are directly related to the resources within the original monument and present tremendous research/interpretive potential.

The current access road to the monument takes visitors through a neighborhood and school zone, representing a potential safety hazard to local residents. Traffic is projected to increase because of increased residential development and oil and gas operations farther north on Ruins Road and County Road 2900. The city of Aztec is studying the feasibility of constructing a new road to provide access to areas north of the monument and to provide access to the monument without going through a neighborhood.

The visitor center parking area cannot accommodate all automobiles, recreation vehicles, and buses during the peak season (May through September). In addition, the entrance to the parking area presents a safety hazard to vehicles and pedestrians.

The existing visitor center/headquarters building is too small and not properly designed to accommodate both functions.

The interpretive program and exhibits are outdated, do not represent the latest research findings, and are incomplete in the information portrayed to the visitor.

The eastern portion of the original monument, where significant archeological resources are located, is impacted by a single-family dwelling, maintenance building, a ruins stabilization work area, and numerous defacto maintenance roads. All of these NPS facilities detract from and confuse the experience of being at a national monument containing significant cultural resources. Furthermore, intense maintenance activity compacts the soil in an area that may contain subsurface resources.

Lack of full programmatic and facility access for mobility-, hearing-, visually-, and learning-impaired visitors and employees is inconsistent with public law and NPS policies; therefore total access for people who have disabilities should be provided whenever feasible. Effective and stimulating interpretive devices should be available as a substitute for an on-location experience when access is impossible. Such devices might include small or full-scale models, videos, and graphics.

THE PLAN

The plan was selected based on the existing conditions at the monument (see the draft GMP/DCP for a complete description of the existing development/facility analysis) and on an analysis of alternatives formulated by the planning team, monument, and regional office. Under the GMP/DCP, interests in lands will be acquired within the expanded boundary established in 1988, allowing the Park Service to enhance and protect the resources and to broaden interpretive programs for visitors. For a more in-depth understanding of the background study that led to the GMP/DCP, the following sections of the draft GMP/DCP should be consulted: "Proposed Plan and Alternatives, Affected Environment, and Environmental Consequences."

A major ruins stabilization and backfilling program will be instituted and supervised by a full-time, on-site archeologist. Necessary studies and research related to the structures, treatment, and history of the monument are recommended. A boundary fence will be constructed to discourage vandalism/pothunting and stock grazing. Roads and developments as well as brush and foxtail barley will be removed from the eastern portion of the original monument, and the grounds will be revegetated to evoke a sense of the historic scene/landscape.

A new access road (to be built by the city of Aztec) will provide improved access from New Mexico Highway 544 (NM 544) to the portion of Ruins Road that runs along the eastern boundary of the original national monument and to areas north of the monument. This road will also improve access and circulation and provide a transition from an urban environment through a natural/rural landscape to the monument environment. This new access road is consistent with the city's 1982 comprehensive plan. Parking will be increased from 36 auto and four RV/bus spaces to 67 auto (16 of these will be for staff parking) and

16 RV/bus spaces to accommodate existing and future use. The proposed expansion will take into consideration future enlargement of the parking lot, as necessary.

Information/orientation and interpretation will begin at the visitor center, and interpretive programs and media will be expanded. The interior of the visitor center will be redesigned to improve visitor flow, and to provide adequate space for new exhibits and a separate audiovisual room. Two new handicapped-accessible interpretive hiking trails will be constructed, and the existing trails will be rehabilitated. The picnic area will be expanded to at least 10 sites. A major improvement will be upgrading handicapped access throughout the monument. Because of its general accessibility and relatively gentle topography, the monument offers the Park Service an opportunity to provide nearly total accessibility for all visitors.

All administrative, visitor use, resource protection, and maintenance functions will be centralized to improve efficiency and to reduce impacts on resources within the monument and surrounding grounds. A new administrative office building, maintenance facility, and staff residence will be developed.

A gas well pad is within 500 feet of the area in which new administration, maintenance, and visitor facilities will be developed. For this reason, the gas well storage tanks, separator, and dehydrators of this pad will be moved to another location that poses no hazard to NPS facilities or surrounding residential/commercial development. The gas well head will remain in its present location.

The full-time equivalent (FTE) staff level will be increased from 7.6 to 16.3 work years, an increase of 8.7. This increase will meet the staffing needs of management and better serve visitors.

CONTENTS

PURPOSE OF AND NEED FOR THE PLAN	1
BACKGROUND/INTRODUCTION	1
SIGNIFICANCE OF THE MONUMENT	2
MANAGEMENT OBJECTIVES	2
Cultural Resources Management	5
Natural Resources Management	5
Visitor Use	5
Development	5
Cooperation	6
ISSUES	6
Resources Management	6
Land Protection	8
Visitor Use and Development	9
Monument Management and Operations	10
THE PLAN	15
CRITICAL AREAS OF CONCERN	16
Archeological Resources	16
Irrigation Practices	16
Viewshed	16
Visitor Use	16
MANAGEMENT ZONING	18
Preservation Subzone	18
Adaptive Use Subzone	18
Park Development Subzone	18
Landscape Management Subzone	19
Landscape Modification Subzone	19
Special Use Transportation/Utilities Subzone	19
LAND PROTECTION	19
RESOURCES MANAGEMENT	23
Cultural Resources Management	24
Natural Resources Management	35
VISITOR USE AND INTERPRETATION	36
Access/Parking	36
Information/Orientation	37
Interpretive Programs	37
GENERAL DEVELOPMENT	40
Visitor Center and Headquarters	41
Housing	43
Maintenance Facilities	43
Maintenance Roads	44
Utilities	44
STAFFING REQUIREMENTS	44
COST ESTIMATES	44
PHASING	44
APPENDIX A: LEGISLATION	47
APPENDIX B: LEGAL COMPLIANCE	52
APPENDIX C: RECOMMENDED STUDIES AND RESEARCH	54
APPENDIX D: REVEGETATION TECHNIQUES	56
APPENDIX E: CONSTRUCTION OF EARL MORRIS HOUSE	57

APPENDIX F: CONDITION OF CULTURAL RESOURCES	59
APPENDIX G: NPS CONSIDERATIONS IN LOCATING FACILITIES NEAR EXISTING GAS WELL	61
APPENDIX H: TRAIL SURFACES/TRAIL ACCESS	65
APPENDIX I: FINDING OF NO SIGNIFICANT IMPACT	66
BIBLIOGRAPHY	70
PLANNING TEAM AND CONSULTANTS	73

TABLES

Table 1: Staffing for Aztec Ruins National Monument	45
Table 2: Cost Estimates (1988 Dollars)	46

MAPS

Region	3
Location	4
Existing Conditions – 1988 Monument Boundary and Surrounding	11
Existing Conditions – Original Monument Boundary	12
Aerial Photo – Original Monument Boundary	13
Existing Conditions – Visitor Center Floor Plan	14
Critical Areas	17
Management Zoning – 1988 Monument Boundary and Surroundings	20
Management Zoning – Developed Area Enlargement	21
GMP/DCP – 1988 Monument Boundary and Surroundings	25
GMP/DCP – Detail of Original Monument Vicinity	26
GMP/DCP – Developed Area Enlargement	27
GMP/DCP – Option A – 1988 Monument Boundary and Surroundings	28
GMP/DCP – Option A – Developed Area Enlargement	29
GMP/DCP – Option B – 1988 Monument Boundary and Surroundings	30
GMP/DCP – Option B – Developed Area Enlargement	31
GMP/DCP – Visitor Center Floor Plan	42

PURPOSE OF AND NEED FOR THE PLAN

This section explains the background of the current planning effort for Aztec Ruins National Monument, states the purpose and objectives of the plan, and discusses the issues addressed by the plan.

BACKGROUND/INTRODUCTION

Aztec Ruins National Monument was established in 1923 by Presidential Proclamation 1650 (January 24, 1923, 42 stat. 2295, appended). In recognition of a "ruin of great antiquity and historical interest", President Warren G. Harding established the national monument "with a view to the preservation of said ruin for the enlightenment and culture of the Nation." Executive orders 1840 (July 1, 1928, 45 stat. 2954) and 1928 (December 19, 1930; 46 stat. 3040) added 14.4 more acres, including the East Ruin, the museum's field headquarters, and Earl Morris's home in the southwest corner of the monument. Executive Order 1928 included an additional 6.87 acres purchased from the heirs of H.D. Abrams, the original owner of the entire site. A 1948 donation of the 1.25-acre Hubbard site from the Southwestern Monuments Association (Presidential Proclamation No. 2787, May 27, 1948, 62 stat. 1513) brought the monument to a size of 27.14 acres, which lasted until Public Law 100-559, October 28, 1988, title VI, established a boundary for the monument, which expanded it to nearly 320 acres. Throughout the document, the 27.14-acre portion of the monument is referred to as the "original monument," while the current 320-acre monument is referred to as the "boundary established in 1988."

Planning for the monument began in 1956, with a *Mission 66 Prospectus and Master Plan*. In 1964 another *Master Plan* was prepared. Those documents reflected many of the same issues as described in this document. The *Mission 66 Prospectus* concluded that oil and gas development had escalated local rental rates beyond affordable levels for the monument staff, and as a result, the present housing was constructed. The 1964 plan recommended that the outdated maintenance and housing structures be removed from the monument and that staff find living quarters in town. Groundwater problems caused by overirrigation from the Farmers Ditch, the need to protect surrounding open lands from incompatible development, and the need to cooperate with the city of Aztec and San Juan County were also identified in the plan. An *Interpretive Prospectus* that addressed programs and exhibits in the visitor center and interpretation of the grounds was approved in 1977. The prospectus will need to be updated to reflect objectives identified in this plan.

Current conditions, trends, and the results of new research created a need for a new management philosophy for the monument which could provide a workable program and support facilities necessary for resource preservation, efficient monument operations, and visitor use. This GMP/DCP will provide direction for future management, development, and visitor use of the monument for the next 10 to 15 years. Estimated costs and staffing requirements are presented at the end of this section. The lands and/or interest in lands that are necessary or desirable for resource protection, visitor use, and administration of the site are discussed under the land management and land protection sections of the plan.

All reasonable ways for addressing the issues and, ultimately, achieving the monument's management objectives have been considered. In developing a plan for the monument, the views of other federal, state, and local agencies; Indian tribes; private landowners; organizations; and individuals were sought. A newsletter, requesting input on future management, protection, and use of the monument, was distributed to interested parties in August 1987. Formal scoping meetings were held at Aztec in September 1987. A

separate meeting for surrounding private landowners was held on September 22, 1987. Public meetings to discuss the draft plan were held on May 4, 1989, and written comments were received by the superintendent until May 21, 1989, who submitted them to the regional director of the Southwest Region. The regional director considered public and agency comments and directed that appropriate revisions be made to the GMP/DCP before final approval. All necessary environmental and cultural resource compliance steps have been completed.

SIGNIFICANCE OF THE MONUMENT

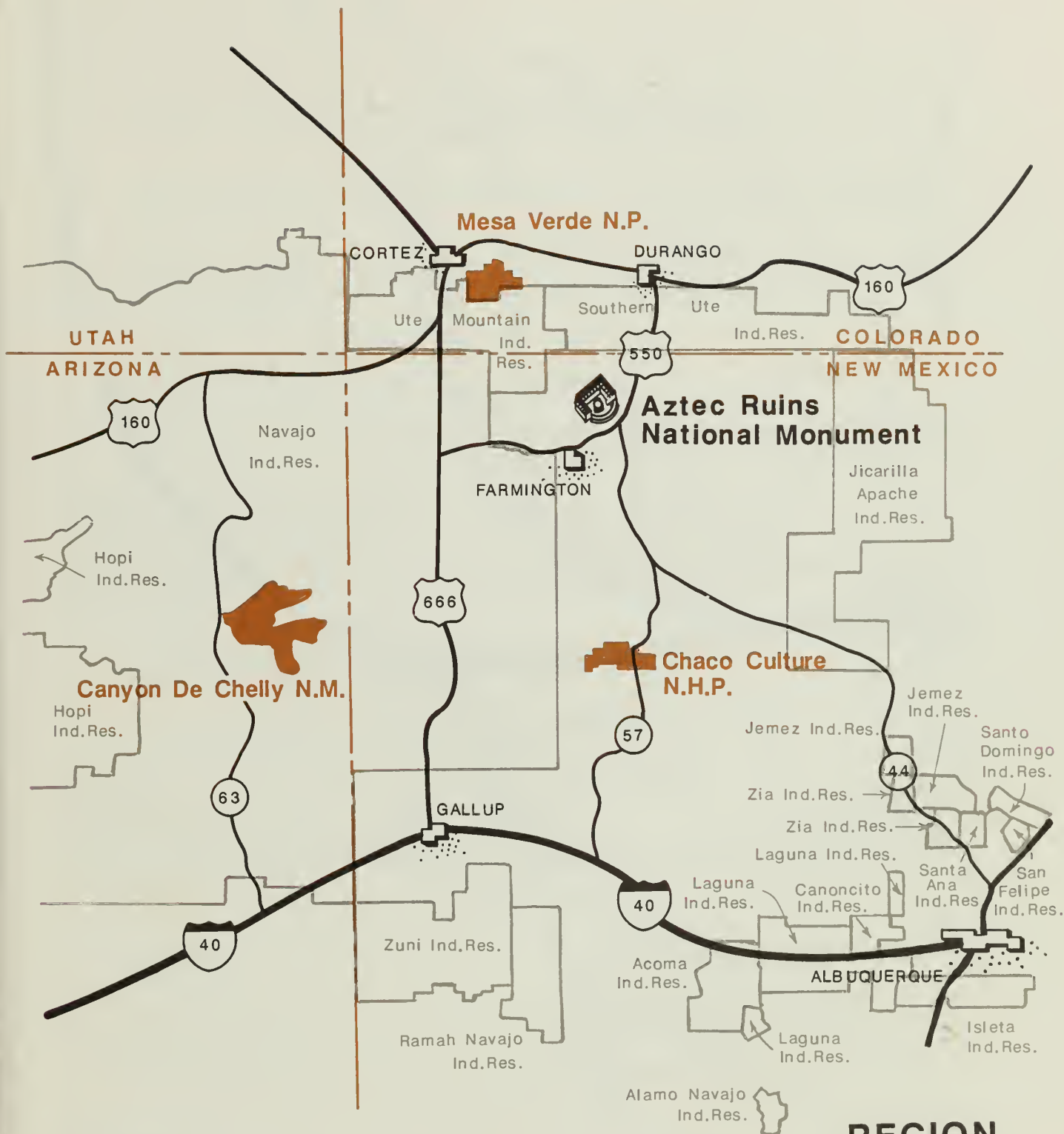
The Animas River valley in northern New Mexico is in a portion of the American Southwest that has been long renowned for its colorful vistas and significant prehistoric resources. Aztec Ruins National Monument is within the Animas River valley in San Juan County on the northern boundary of the city of Aztec. (See Region map.)

Following enactment of the National Historic Preservation Act of 1966, various national parks and monuments established for their historic and prehistoric values were added to the National Register of Historic Places. Because of its significance in the prehistory of North America, Aztec Ruins was one of those added to the register. The monument was also inscribed on the World Heritage List in 1987. The significance of the monument lies in its great physical remains, the stories of past cultures that occupied the Animas River valley, and its role in a larger regional prehistoric context. Because of its many unexcavated features, the monument holds great potential for future scientific inquiry into the archeology of the American Southwest. In addition, because of its association with early-day archeologist Earl Morris, the story of Aztec Ruins encapsulates the history of American archeology throughout the Southwest.

Resources at the monument offer the visitor an opportunity to experience the unusual blending of prehistoric architectural styles of the Chacoan culture (northwestern New Mexico between A.D. 900 and 1200) and the Mesa Verdean culture (southwestern Colorado between A.D. 1130 and 1300). The last occupants abandoned the pueblo in the latter 13th century. This blending offers significant insights into relationships between the Chacoan and Mesa Verdean peoples and into the cultural history of the Four Corners region of the Southwest. The Aztec ruins were one of the Chacoan outliers connected by a system of prehistoric roads to Chaco Canyon. Aztec Ruins National Monument, like many other large Anasazi ruins, holds special meaning for the Pueblo Indians of Arizona and New Mexico, and is included in their migration stories and oral histories.

MANAGEMENT OBJECTIVES

Management objectives are based on legislative mandates and management policies of the National Park Service along with the existing resources of the monument. The following objectives provide a framework for preserving monument resources, accommodating public use, providing interpretive opportunities, and integrating the monument into the local environment. These objectives will provide a standard for measuring progress on the plan's actions.



REGION

AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE



LOCATION

AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

319	20,024
DSC	JULY 89

Cultural Resources Management

Maintain and perpetuate the inherent integrity of the cultural resources:

- identify, evaluate, protect, preserve, and mitigate deterioration and vandalism of prehistoric and historic resources that trace human use of the area

- investigate and fully document/record the monument's cultural resources to benefit future scientific research and interpretation and facilitate ongoing stabilization and maintenance operations

- operate an ongoing, comprehensive cultural resource maintenance program cognizant of the cultural affiliations, integrity, and scientific value of the ruins

- obtain sufficient knowledge of the story of Aztec Ruins and related areas, and of the role of Aztec Ruins in American Southwest archeology to ensure an adequate data base for full interpretive development

- eliminate or mitigate all significant external and internal threats to the cultural resources of the monument

Natural Resources Management

Manage the natural resources to preserve and protect cultural resources and enhance the visitor experience:

- manage the natural resources to preserve the scene and to complement the monument's cultural resources, visitor uses, and facilities

- ensure an adequate supply of water for current and future needs

Visitor Use

Provide for the enjoyment, appreciation, and understanding of the monument by the public and to control uses that could impair monument resources or their enjoyment:

- provide each visitor with the opportunity for a safe and enjoyable visit

- provide each visitor with an opportunity to appreciate and understand the Aztec Ruins story

- encourage visitor enjoyment of recreational facilities related to the ruins

- facilitate enjoyment of the resources by special populations

Development

Develop the minimum facilities necessary for appropriate visitor use, resource protection, and safe and efficient management of the monument:

maintain development within the optimum social or physical carrying capacity of the resources

provide for sensitive and professional design of facilities that recognizes the need to blend structures with the environment

Cooperation

Achieve harmonious integration of activities inside and outside the monument by participating with members of the public, private organizations or interests, other government agencies, and native Americans to ensure that

land uses near the monument are compatible with long-term perpetuation of monument values

recreational opportunities, visitor services, and public facilities in the area are complementary and that they efficiently serve visitors and regional residents

structures and sites of cultural significance within the region are preserved and interpreted in a manner that complements an understanding of the monument and its relationships with other regional prehistoric resources

ISSUES

To accomplish the purposes of the monument, a number of issues involving resources management, land protection, visitor use and development, and monument management and operations must be resolved.

Resources Management

Cultural Resources Preservation and Protection. There are severe problems with the excavated ruins, particularly the West Ruin and the Hubbard site. The major deteriorating agents that damage the ruins include moisture from precipitation; freeze-thaw; multiple preservation treatments, many of which are incompatible with the resource or past treatments; eroded wall capping; poor drainage; and differential soil levels throughout the excavated ruins. These actions have resulted in basal and wall capstone erosion; formation of voids; fallen veneer; moving or extensively cracked walls; eroded plaster; stone deterioration; and accelerated erosion from uneven deterioration of previous treatments.

Surface runoff and groundwater, primarily related to overirrigation of fields north of the original monument also contribute to deterioration of the ruins walls. Moisture in walls causes efflorescence of salts on wall surfaces, which is unsightly and may contribute chemically to erosion.

Some portions of the ruins have been excavated below current ground level, creating a differential fill problem. Groundwater travels through the walls, creating erosional problems over the entire surface of the wall backed by fill and can also increase static load on the walls. Rain and snow seep into the cracks where the freeze/thaw cycle contributes to further erosion and breakdown.

A number of other factors have contributed to the gradual loss of resource integrity. In some cases, walls were rebuilt despite the lack of precise data on prehistoric architectural techniques or style. Archeological investigations of the ruins, especially the rubble cores inside the masonry walls, did not always proceed in tandem with stabilization. Routine maintenance has been delayed by budgetary and staff limitations. Lack of training for stabilization crews may have contributed to the loss of resource integrity.

On occasion, inappropriate and insensitive development activities have intruded upon and destroyed a number of the original monument's cultural resources. While many of these projects were modest and did not impact a relatively large area of the monument, the cumulative effect of numerous projects over the years has eaten away significantly at some areas of the site.

Because little is known of subsurface resources in some parts of the original monument, inadvertent resource damage and mixing of intrusive materials with in situ resources may be occurring from the use of ad hoc roadways and from maintenance activities such as stockpiling of materials, drainage modifications, and dumping.

Portions of several subsurface features have been partially uncovered by past testing and excavation projects. Without corrective measures such as backfilling, these features and the artifacts contained within them will continue to deteriorate, losing structural and scientific integrity.

On the other hand, large areas of the original site remain unexcavated and untouched, preserving a virtually pristine resource base for exploration by future generations using advanced technologies. Renewed commitment to preservation and proper archeological documentation of these resources is crucial to the future integrity of scientific research and visitor appreciation of Aztec's resources.

Lands within the monument boundary established in 1988 contain large and extensive buried ruins, prehistoric landscape features such as roads and berms, and other important remains. Only recently has it become apparent that these sites are extremely significant. Current research indicates that these sites are directly related to the resources within the original Aztec Ruins National Monument boundary and are vital to its interpretive story. These sites and structures are threatened by continued urban development, mineral/oil/gas exploration, and farming and ranching activities. They are especially vulnerable to destruction caused by looting and vandalism.

Collections. Additional items are likely to be added to monument collections from stabilization and drainage projects. Currently, primary archival documents relating to Aztec are housed in various museum and university collections across the nation (i.e., Earl Morris's work on the Anasazi at Aztec at the University of Colorado, American Museum of Natural History, and other sources). Too often, scientific research and stabilization have proceeded without benefit of these data. Such information would help to provide better comprehension of stabilization needs, the resources base, and to enhance the interpretation program.

Excess Vegetation. Dense brush in the northeast corner of the original monument has been created by overflow from a pond north of the original monument. The brush is a fire hazard, attracts rodents, and hinders access to the Earl Morris ruin. The overflow problem has been solved, but the brush remains. The southeast corner of the original monument also has a dense growth of vegetation which is a fire hazard, attracts rodents, and hampers access to archeological resources.

There is an infestation of foxtail barley in the eastern/central edge of the original monument which continues to spread and could eventually invade the entire original monument and beyond. This would hamper resource preservation, crowd out native species, and hamper interpretation.

Research. The relationship of Aztec Ruins to other Anasazi sites in the Animas Valley and in the wider region is not fully understood. Because past work has focused on Chacoan influences at Aztec, relatively little is known about Anasazi people who occupied this site from the late 1100s to the end of the 13th century. Traditionally, interpretation of the different architectural styles and artifacts found at Aztec Ruins has been based on work done early in this century before modern dating techniques or establishment of regional chronologies. Also, early investigations did not view the area from a regional perspective. Additional research is needed to provide accurate, up-to-date interpretation and to provide comprehensive guidance for resource management.

Land Protection

Development. Development in the vicinity of the original monument has increased. In 1988, a 6-acre tract of land within the northeast corner of the monument boundary established in 1988 was acquired by a private owner who installed utilities and built a house that is visible from the West Ruin. A 3.96-acre tract immediately to the south of the original monument has been rezoned to allow for development of a recreational vehicle (RV) campground. Land to the west of the original monument is in agricultural use but is surrounded by subdivisions, which also occupy land to the south of the 1988 monument boundary. This type of development impairs the visual backdrop of the ruins, adds traffic and congestion to the heavily used Ruins Road, and eliminates options for solving the safety problems at the entrance to the monument's parking area. Potential development inside and adjacent to the monument boundary established in 1988 poses a severe threat to highly significant archeological sites that were once part of the prehistoric Aztec Ruins community.

Water Infiltration. The tract adjacent to the north boundary of the original monument is irrigated by an adjacent unlined ditch (Farmers Ditch). A stock pond is also on the property immediately adjacent to the original monument boundary. The ditch, the irrigation, and the pond all contribute to the water saturation problem throughout the original monument. While an effective drainage system has been constructed, potential overirrigation of lands north of the original boundary still poses a threat to monument resources.

Oil and Gas Drilling. Aztec Ruins is located in the huge San Juan gas field of northwestern New Mexico. Numerous gas wells dot the landscape around the ruins. Approximately 80 wells are within 1-1/2 miles of the monument, and four wells are inside the 1988 monument boundary. Drilling outside the monument is occurring and is likely to continue in the future. There is potential for additional drilling of private minerals inside the 1988 monument boundary. As such, managers at the monument will address oil and gas development inside and adjacent to the 1988 monument boundary.

Potential impacts on cultural and natural resources from drilling in and adjacent to the monument include land disturbance associated with building a new well pad, noise, and gas or fluid emissions. During the production phase of oil and gas development, treating gas and condensate presents a fire and explosion hazard.

Visitor Use and Development

Access. Ruins Road, the main access route to the monument from highway 550, is a two-lane road passing through residential areas and a school zone. Increased traffic on this road by local and visitor traffic to the monument adds noise and fumes to the environment and potentially increases the safety hazard to pedestrians. In addition to conflicts with residential traffic, there is no transition along the route from contemporary civilization to the environment of the ruins.

The city of Aztec has been studying the feasibility of extending NM 544 to the section of Ruins Road that runs along the original monument's east boundary. The NM 544 extension would provide better access to the monument and more direct access to areas north of the monument from historic Main Street. Although access to the monument would improve and many of the associated problems reduced, the monument's entrance would have to be redesigned. The housing and maintenance area is particularly important because it would be the first area visitors would see when arriving at the monument and would provide an awkward initial impression. The current alignment of the turning radius into the parking area would be inadequate for RVs and buses entering the monument. Close coordination and involvement with the city would be required to ensure that incompatible uses did not occur along the new access road. A bicycle/pedestrian path along the extension would be desirable for the visitors and the community if it provided safe and enjoyable access between the monument and historic Main Street.

Parking Area Entrance. The high stucco walls and pillars at the entrance to the parking area blocks the view between drivers and pedestrians leaving the monument parking area and drivers of westbound vehicles approaching the right-angle turn in Ruins Road near the original monument entrance. The oddly aligned three-way intersection could cause vehicular/pedestrian conflicts.

Visitor Center Parking Area. This lot cannot accommodate peak use, and conflicts exist between automobiles, RVs, and buses. Only 36 car spaces and four RV spaces are provided, and cars often park in the RV spaces, forcing RVs to park in inadequate spaces. Frequently vehicles will park in the private lots at the trading posts outside the original monument and occasionally along Ruins Road, which blocks traffic.

Visitor Center/Headquarters. Use of the visitor center and headquarters (a portion is the historic home/office of Earl Morris) causes conflicts between visitor and administrative use. It is currently used for staff offices, collections, a library, administrative storage, an information desk, cooperating association sales, museum exhibits, and interpretive programs. Space is limited and is not properly designed for all these functions.

Significant archeological research has been accomplished since the visitor center exhibits were designed, subsequently they are outdated and do not convey the most recent, accurate findings to the visitor.

Interpretation. In addition to updating exhibits and redesigning visitor flows and the audiovisual space in the visitor center, the self-guiding trail through the monument, directional signs, and the potential for other media should be assessed.

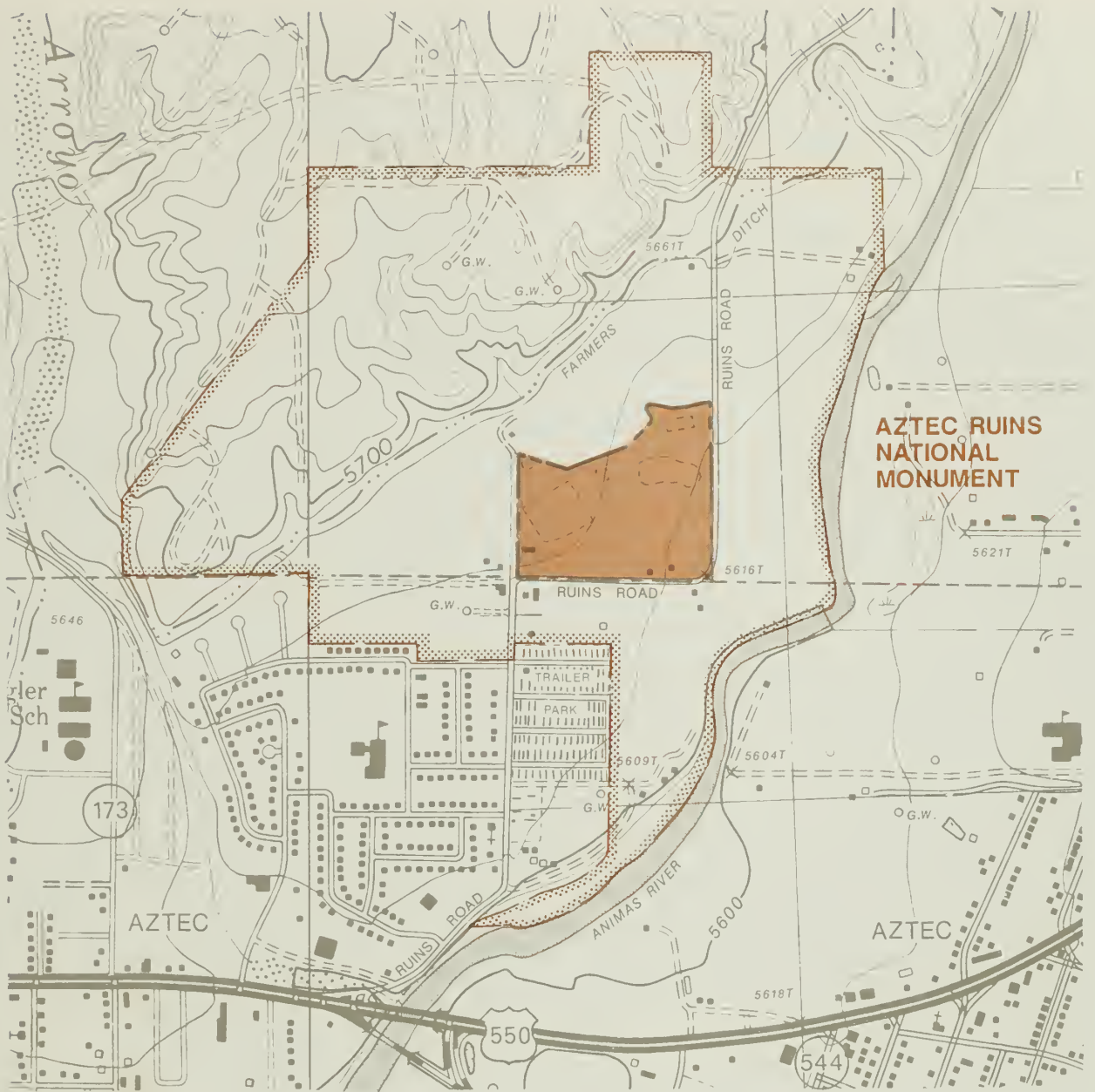
Accessible Programs and Facilities. The ruins trail, the visitor center, and the interpretive programs were not designed and built with handicapped accessibility in mind, and there are a number of programmatic and facility access problems for visitors and employees. These problems are compounded by the historic nature of the ruins and the visitor center.


Monument Management and Operations


Housing and Maintenance Area. This area is along Ruins Road and generally out of sight of visitors. From several points, however, visitors can see the area as a backdrop to the ruins. If the city of Aztec's proposed entrance road were constructed, this area would be the visitor's first view of the monument. Because this location contains such things as buildings, equipment, and materials, which would not visually enhance visitors' impression of an NPS cultural monument, it would be undesirable for approaching visitors to see it.

Monument Grounds. The remainder of the grounds is broken up by defacto maintenance roads and areas recently excavated for drainage structures. The ruins stabilization work area is located between the West and East ruins, creating a visual intrusion and impacting archeological resources.

A considerable amount of miscellaneous construction debris has been dumped in undeveloped areas of the monument. This debris is unsightly and negatively impacts the monument's cultural resources by mixing intrusive modern materials with in situ artifacts and features.



 ORIGINAL MONUMENT

 1988 BOUNDARY EXPANSION

319 20029A
DSC JULY 89



1000 0 1000
FEET

EXISTING CONDITIONS
(1988 MONUMENT BOUNDARY AND SURROUNDINGS)
AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



319 | 20030
DSC | JULY 89

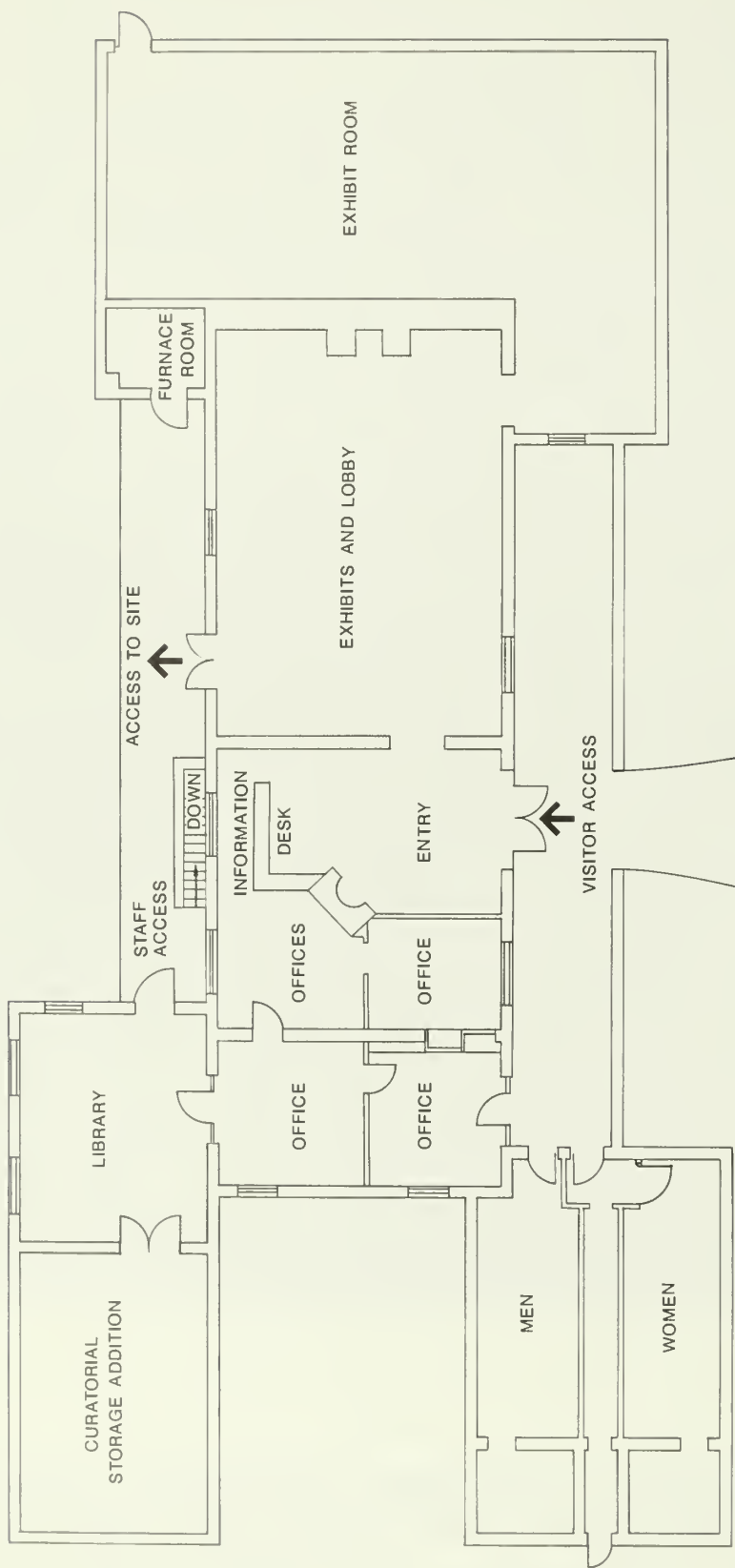


EXISTING CONDITIONS **ORIGINAL MONUMENT BOUNDARY**

AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



AERIAL PHOTOGRAPH OF ORIGINAL MONUMENT BOUNDARY
GENERAL MANAGEMENT PLAN/DEVELOPMENT CONCEPT PLAN
AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



EXISTING CONDITIONS VISITOR CENTER FLOOR PLAN

GENERAL MANAGEMENT PLAN DEVELOPMENT CONCEPT PLAN
AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

THE PLAN

This section describes the *General Management Plan/Development Concept Plan* (GMP/DCP) for Aztec Ruins. Two additional options are considered under the plan – option A and option B). These options are basically the same as the plan; however, there are a few distinct differences that involve development locations. GMP/DCP - option A and option B are proposed so new administration, housing, and maintenance facility sites can be provided if an agreement cannot be reached to relocate the nearby gas well pad's production tanks, separator, and dehydrator to a surface location at least 500 feet from all development areas. All options take into account the monument boundary established in 1988 that contains lands considered critical to protecting archeological resources, controlling incompatible uses, and enhancing the visitor experience. (These factors are discussed in detail in the following "Critical Areas of Concern" section.)

Archeological resources lying within the 1988 monument boundary directly relate to resources within the original monument. Research efforts will continue to focus on monitoring these resources and determining their relationship to the larger Anasazi community. The development of resource protection programs will be a high priority. Most new artifactual materials will be sent to centralized centers for proper storage. Groundwater levels affecting monument resources will continue to be monitored. Selected sites will be backfilled to arrest further deterioration and to discourage vandalism. The city of Aztec will continue in its efforts to construct a new access road from NM 544 (historic Main Street) to Ruins Road, the monument, and private property on the west side of the Animas River. The new access road is considered under each alternative. Access provisions provided for visitors and employees with disabilities are described under the "Visitor Use and Interpretation" section and implementation schedules/cost estimates are shown in the "Cost Estimates" section. A new interpretive prospectus and/or major exhibit rehabilitation proposal for the visitor center will be prepared once the final GMP/DCP has been approved. A historic structure report for the Earl Morris house/visitor center will be prepared before implementing the GMP/DCP.

The GMP/DCP for Aztec Ruins National Monument describes actions for management zoning, land protection, resources management, visitor use and interpretation, general development, and management and operations. The primary objectives of this plan are to provide maximum protection and preservation of cultural resources; expand visitor services and programs to reflect Aztec's role in a much larger cultural system as well as Earl Morris's contributions to Southwest archeology; improve visitor parking and circulation; enhance the visitor experience; provide for more efficient monument operations by expanding administrative office space, increasing staff, and consolidating administration, maintenance, and resource protection staff at one general location; and provide visitors and employees with disabilities the opportunity to participate in as many of the same activities as nondisabled persons do.

Based on the above objectives, specifically protection/preservation of cultural resources, enhanced visitor experience, and more efficient monument operations, the plan's concept proposes new buildings for administration, maintenance, and residential purposes at one general location west of the visitor center. (If feasible, the existing residential building may be relocated in-lieu-of constructing a new one.)

A consideration in developing the proposed plan was whether locating monument facilities near an existing gas well presented a significant health and safety issue to the staff and visitors. It was determined that the buildings can be located near the well, and that the health and safety concerns can be sufficiently mitigated by moving the treatment and

storage facilities associated with the well. This issue is discussed in detail in appendix G of this plan.

CRITICAL AREAS OF CONCERN

Based on the management objectives and issues identified earlier, several areas within the 1988 monument boundary are considered critical to the effective management and protection of resources, and for providing a high-quality experience to the visitor. Four factors were identified as critical in assessing resource values and determining appropriate land uses within the 1988 monument boundary. These factors, listed in priority order, are discussed below.

Archeological Resources

The primary purpose of the monument is to protect significant archeological resources. Recent research indicates that Aztec was the core of an extensive ceremonial center, with other major features directly related to the ruins within the 1988 monument boundary. Many of these resources are intact and currently preserved; however, development pressures, intensive pothunting, oil and gas drilling, and continued grazing could change this situation.

Irrigation Practices

Water infiltration into the ruins from earlier irrigation practices has been a chronic problem since the monument was established. This infiltration, primarily from Farmers Ditch and overirrigating the fields to the north of the original boundary, has caused deterioration of the ruins' walls and have contributed to continued degradation of buried artifacts.

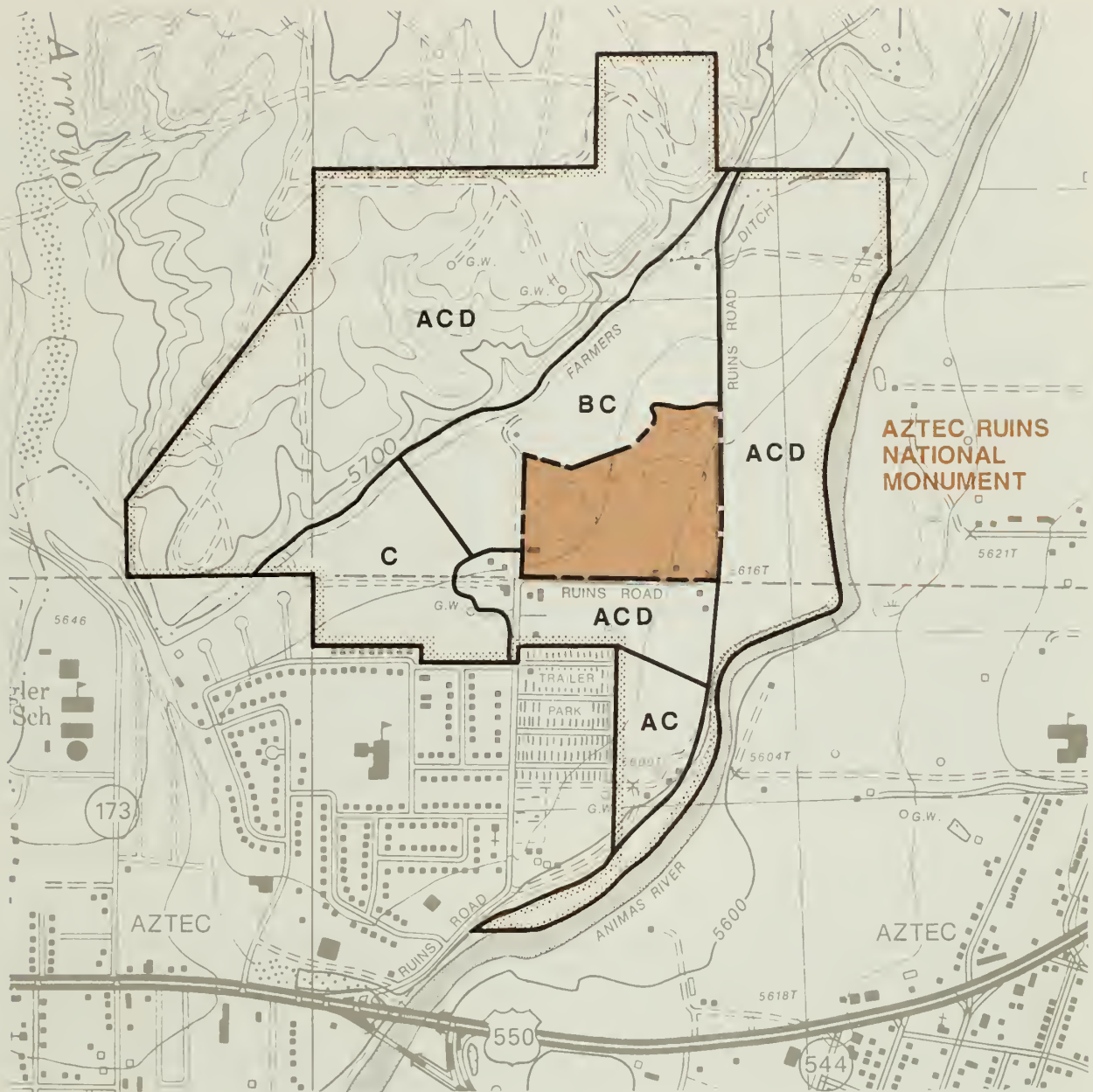
Viewshed

The monument currently has development adjacent to portions of its southern, western, and northern boundary. Modern-day development can be seen from some areas inside the monument. Although the existing scene is not pristine, the overall monument experience is positive. Additional development would diminish this experience.

Visitor Use

The monument's visitor use potential is critical because of the congressional mandate to provide public use and enjoyment of NPS units. Specifically, visitor parking is inadequate, access to the monument involves a potential safety hazard to local residents, monument employees, and visitors, and a transition is not provided from the urban scene to the monument environment for the visitor. The resources within the expanded 1988 boundary have high interpretive/recreational potential, such as the river and the bluffs.

The Critical Areas map delineates critical areas based on the values described above.



ORIGINAL MONUMENT

- A** ARCHEOLOGICAL RESOURCES
- B** GROUNDWATER / SURFACE RUNOFF
- C** VIEWSHED
- D** VISITOR USE

319 | 20014 A
DSC | JULY 89



1000 0 1000
FEET

CRITICAL AREAS

AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR | NATIONAL PARK SERVICE

MANAGEMENT ZONING

Management zones are established to define appropriate land uses within certain areas of the monument. These zones indicate where visitor uses, management functions and operations, and development should be located. The entire area within the monument boundary will be designated as a historic zone, in accordance with legislative mandates, management objectives, and the issues to be resolved. This classification emphasizes the preservation, protection, and interpretation of cultural resources and their setting. The seven subzones delineated to guide future management and use are as follows.

Preservation Subzone

The management strategy will be to identify, preserve, protect, and interpret cultural resources and their natural settings. Allowable uses will include interpretation and NPS activities needed to protect resources and to manage visitor use. Research activities that are well justified in terms of their potential to enhance knowledge of the resources and their significance should also be allowed in this subzone. Development in this subzone will be restricted to trails, signs, and approved structures necessary for protecting cultural features, including erosion control features and other structures necessary to preserve the ruins. Natural resources will also be protected as required by applicable law, regulation, or NPS policy. Brush and weed control programs will be instigated only as appropriate. Vegetation removal will be limited to carefully selected areas where the threat of erosion is minimal. This work will be done by hand to ensure that no cultural resources are damaged by vegetation removal or by possible subsequent erosion. Furthermore, grazing practices will be discontinued to prevent destruction of cultural resources. Management actions will be guided by the resource analysis (that is, the greatest levels of protection for the sections with the highest resource values).

Adaptive Use Subzone

This subzone includes the visitor center complex. The Earl Morris house/visitor center is potentially eligible for the National Register of Historic Places. Exterior building treatment is limited to preservation maintenance, as defined in the NPS "Cultural Resources Management Guidelines" (NPS-28). The interior of the building will provide for visitor use services (information, orientation, and interpretation) with minimal modifications. These modifications will be guided by the proposed historic structure report.

Park Development Subzone

The management direction in the park development subzone will be to provide the facilities and services necessary for visitor use and monument management. Allowable uses will include interpretation, picnicking, housing, operations, and maintenance. Development may include monument roads, parking areas, visitor center, restrooms, picnic tables, offices, staff housing, a maintenance area, ruins stabilization work area, curatorial storage, communications facilities, and a maintenance/stabilization materials storage area. Natural and cultural resources will be preserved and protected to the degree practicable, and a policy of avoiding important resources will take precedence when siting new facilities.

Landscape Management Subzone

Lands within this subzone will be preserved and maintained in their present condition. Most of these lands are currently irrigated. They are being used for crops or grazing and should remain in those uses. The remaining portions are along the Animas River and should remain in riparian habitat.

Landscape Modification Subzone

Lands within this area are predominately under irrigation or occupied by dwellings. The strategy in this subzone will be to reclaim this area to vegetation habitats that will blend with the surrounding environment. Final revegetation of the site will resemble a grass shrubland indicative of the Desert Southwest and evoke a sense of historic scene/landscape. Because the specific location and kind of crops grown by the Anasazi are unknown, re-creations of the exact historic scene would not be possible.

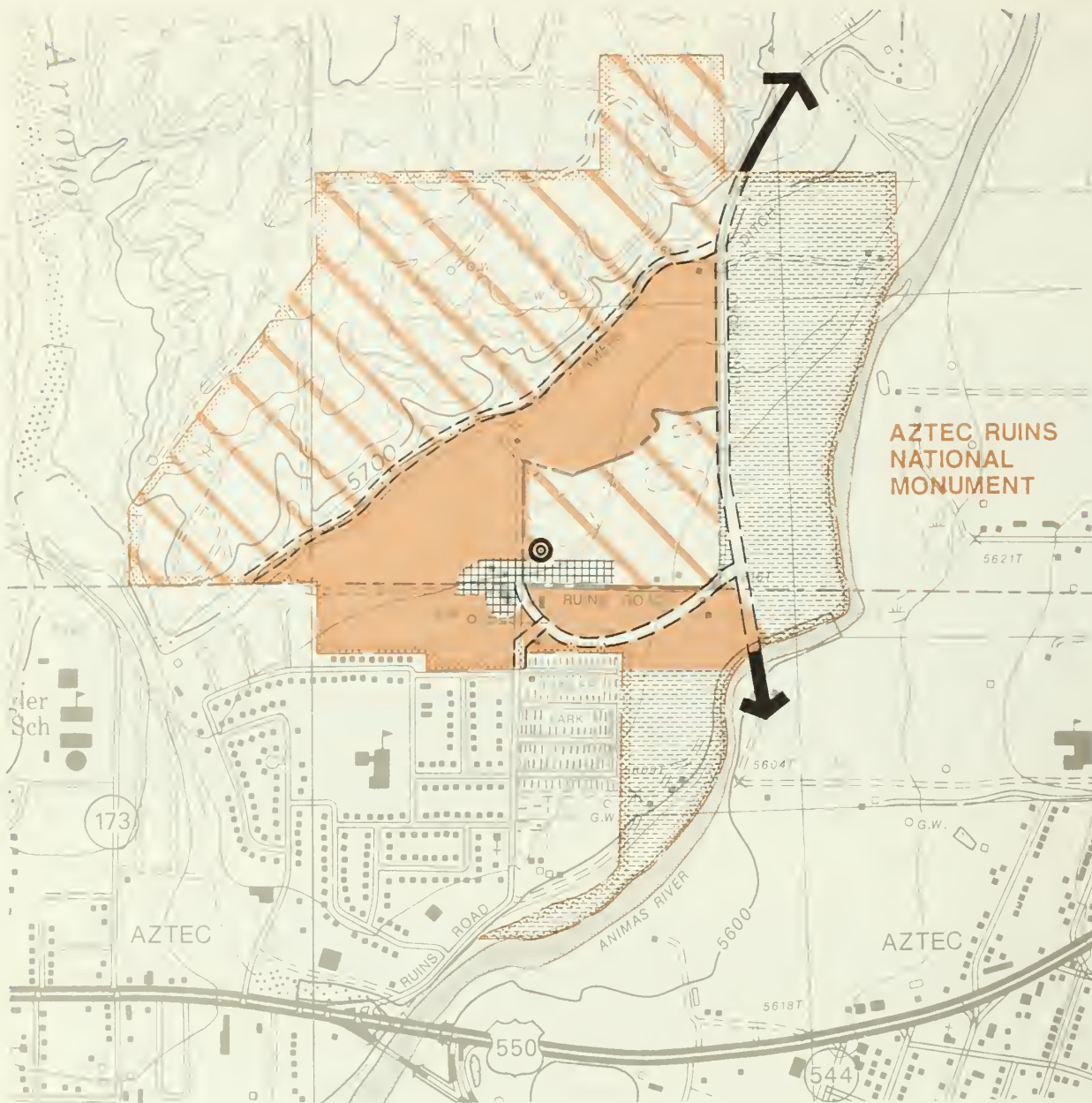
Special Use Transportation/Utilities Subzone

This subzone includes an existing portion of Ruins Road that runs north-south and the proposed relocation segment which runs primarily east-west. It also includes all utility corridors and the Farmers Ditch. This roadway, which provides access to the monument and to the city and county residents, will continue to be maintained by the city of Aztec and San Juan County. The Park Service will review any plans for reconstruction of the existing road and new road to ensure compatibility with monument purposes and will seek to eliminate, or place underground where possible, overhead electrical and telephone lines.

LAND PROTECTION

Legislation passed in 1988 established a new boundary, which expanded the area from 27.14 acres to nearly 320 acres; however, further congressional action will be required to appropriate funds for land acquisition and construction before most of the proposed development and resource management actions can be implemented. All critical areas identified earlier are included within the expanded boundary, and allowable uses within that boundary are identified under management zoning. This expansion will allow the National Park Service to fully protect and preserve the archeological resources directly related to the core area (original monument) of Aztec Ruins, particularly on the bluffs to the north and those near the Animas River. Groundwater and surface runoff from Farmers Ditch will be controlled, thereby protecting and preserving the core area of Aztec Ruins from further deterioration. As shown on the Management Zoning map, visual intrusions within the expanded boundary will be eliminated and some of the land revegetated to a natural condition. The existing viewshed will be significantly improved. The additional lands will also greatly enhance the visitor experience. A transition for the visitor from the urban environment through a natural/rural landscape to the monument environment will be provided by a new access road south of the existing Ruins Road. Additional interpretive/recreational opportunities to the bluffs and the river by way of hiking trails will be provided. Some lands (identified on the Management Zoning map) will continue to be used for agricultural and residential purposes in those areas where such use is compatible or desirable.

The network of public and private roads that links portions of the lands to be acquired will be evaluated. Those that do not serve a necessary purpose will be obliterated and the land



LEGEND

-  HISTORIC ZONE (ENTIRE MONUMENT)
-  PRESERVATION SUBZONE
-  ADAPTIVE USE SUBZONE
-  PARK DEVELOPMENT SUBZONE
-  LANDSCAPE MANAGEMENT SUBZONE
-  LANDSCAPE MODIFICATION SUBZONE
-  SPECIAL USE TRANSPORTATION / UTILITIES SUBZONE

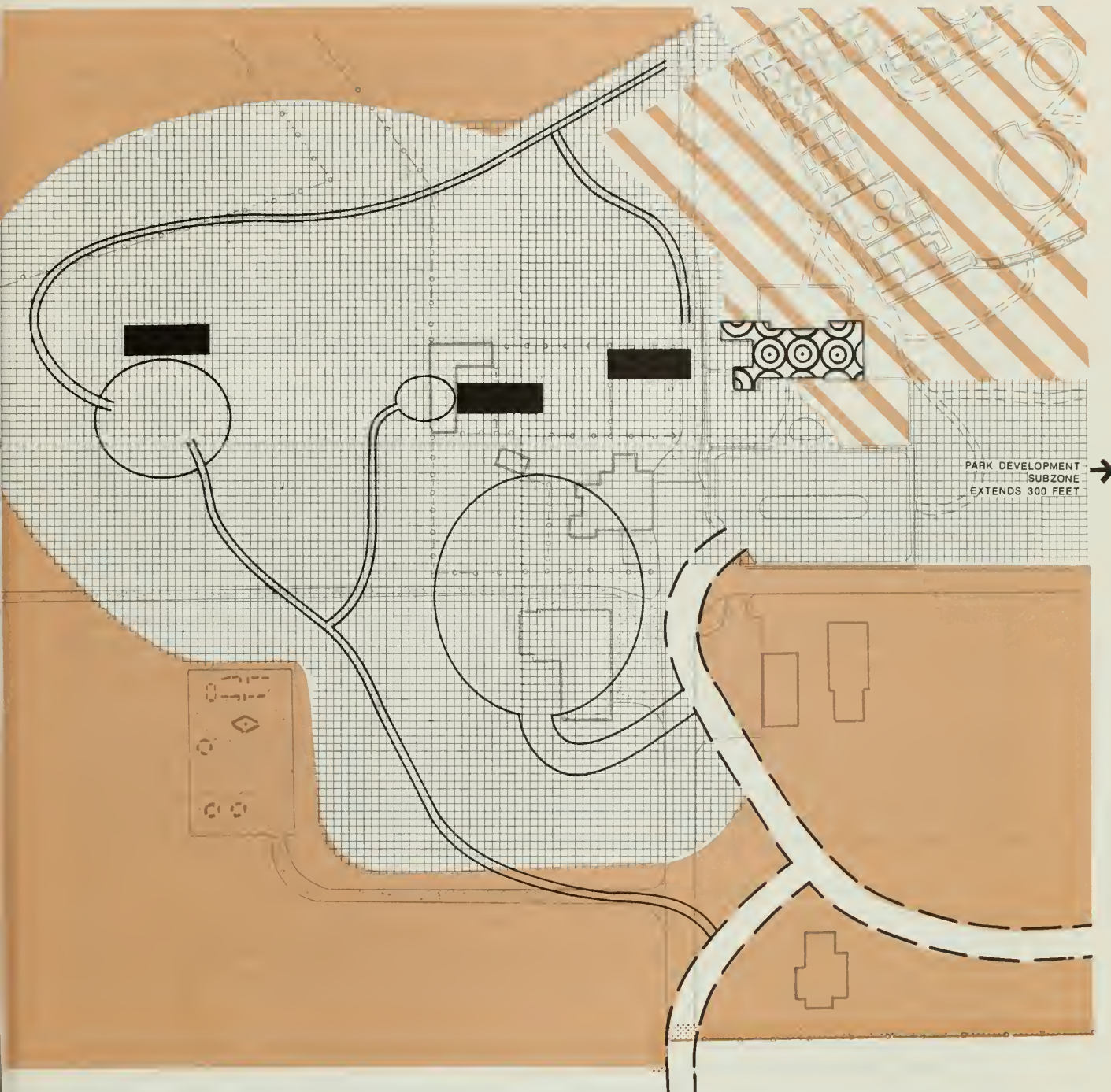
319 20013 A
DSC JULY 89




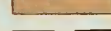
1000 0 1000
FEET

MANAGEMENT ZONING (1988 MONUMENT BOUNDARY AND SURROUNDINGS) AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR · NATIONAL PARK SERVICE



LEGEND

-  HISTORIC ZONE (ENTIRE MONUMENT)
-  PRESERVATION SUBZONE
-  ADAPTIVE USE SUBZONE
-  PARK DEVELOPMENT SUBZONE
-  LANDSCAPE MODIFICATION SUBZONE
-  SPECIAL USE TRANSPORTATION / UTILITIES SUBZONE

319 20,025
DSC JULY 89



100 50 0 100
FEET

MANAGEMENT ZONING DEVELOPED AREA ENLARGEMENT AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

revegetated. Agreements will be sought with adjacent property owners and utility owners to minimize use of necessary roads, and any random roads and trails will be discouraged.

The historic scene will not be restored because it would perpetuate the conditions of a particular time and limit spontaneous natural change; however, revegetation will be completed with native species, species that evoke a sense of the historic scene/landscape, or species that are compatible with monument resources.

When the monument was established, archeological practices and theories of the time dictated that resources within the boundary be the largest and most impressive structural remains. While the original Aztec Ruins National Monument included the core area of an extensive Anasazi ceremonial center/residential area, less obvious, but equally significant, related elements of the prehistoric community were not included.

During preparation of the legislative support data for expansion of the Aztec Ruins boundary, archeological investigations identified these important sites adjacent to the original Aztec Ruins boundary. During 1987-88 archeological surveys, these sites were evaluated for their integrity wherever possible. This exercise involved the evaluation of past disturbance at these sites and their potential to yield scientific data. The evaluation of site integrity and significance then formed part of the basis for acquisition priorities and boundary parameters. In addition, the degree to which these archeological resources could complement and enrich the Aztec interpretive story and scientific data base was weighed, as was the uniqueness of each site. Feasibility of acquisition and access to the area was also a consideration. This plan allows the National Park Service to adequately identify, manage, protect, preserve, interpret, and provide for visitor use to most of this prehistoric community.

Once the general management plan has been completed, a land protection plan (LPP) will be prepared. This plan will identify the lands or interests in lands that will need to be acquired to achieve monument purposes and will outline specific actions that will ensure resource protection and appropriate visitor use. Acquisition strategies will be closely aligned with management zoning defined in the GMP (see Management Zoning map).

The LPP will detail the methods by which the Park Service will acquire interests in land, management interests, and improvements within the expanded boundary. The 1988 legislation establishing the expanded boundary provides for such acquisitions by donation, exchange, or purchase with donated or appropriated funds. Generally, acquisition by fee simple will apply where:

- lands containing significant cultural resources are owned by other federal, state or local governments or by private interests

- lands are included within the following subzones (see Management Zoning map): preservation, park development, and landscape modification subzones

- cultural resources require protection that may not otherwise be assured

- lands are required for visitor use developments

- existing and potential land uses adversely intrude upon the historic scene

- fee simple acquisition is the only practical way to effectively manage resources and visitor use and interpretive programs

In some areas, easements for conservation, scenic protection, or access may be the most appropriate strategy. Easements may be applicable where:

lands are included within the landscape management subzone (see Management Zoning map)

minimum assurances of resource protection and visitor use are feasible

compatible private or public land uses exist and where permanent assurance of compatible use is necessary and feasible

Cooperative agreements will be sought where:

lands are not necessary for resource preservation or development

there will be an interim of years before funds become available to acquire lands

Minerals within the 1988 monument boundary will remain in private ownership, unless on a case-by-case basis, or as part of the LPP, acquisition is determined to be desirable. The three gas wells within the 1988 monument boundary which predate the 1988 monument will be permitted to continue operation until the reserves are depleted. Currently, these wells are regulated by state oil and gas regulations and two of the wells are subject to federal regulations in 43 CFR 3100. Any changes in the existing operations will be controlled by the state and federal regulations.

Any new development of private minerals within the 1988 monument boundary will be subject to the NPS regulations found in 36 CFR 9B. These regulations require that a plan of operations be submitted to and approved by the Park Service before any mineral drilling or development activity. These regulations will allow the monument to control mineral development, such as placement of the well and access roads, so that monument resources will be protected. Implementation of these regulations will ensure that impacts to monument resources are minimized, and that operations are permitted consistent with the management zoning of the national monument.

RESOURCES MANAGEMENT

The National Park Service will continue to preserve and protect the cultural and natural resources of the monument. Consistent with the reasons the monument was established, management of cultural resources will take precedence over management of natural resources, according to applicable law, regulation, and NPS policy. *A Natural and Cultural Resources Management Plan* was approved in January 1989 and will be revised to reflect updated priorities and concerns defined by this GMP/DCP.

The GMP/DCP's primary resource issues and proposed solutions are discussed in the following sections.

Cultural Resources Management

Cultural resources management at Aztec focuses on

- stabilization and maintenance of excavated structures and sites in the core area (original monument)

- care of artifacts and supporting scientific documentation (field notes, photographs, etc.)

- protection and preservation of unexcavated sites and features, both in the core area and within the 1988 boundary

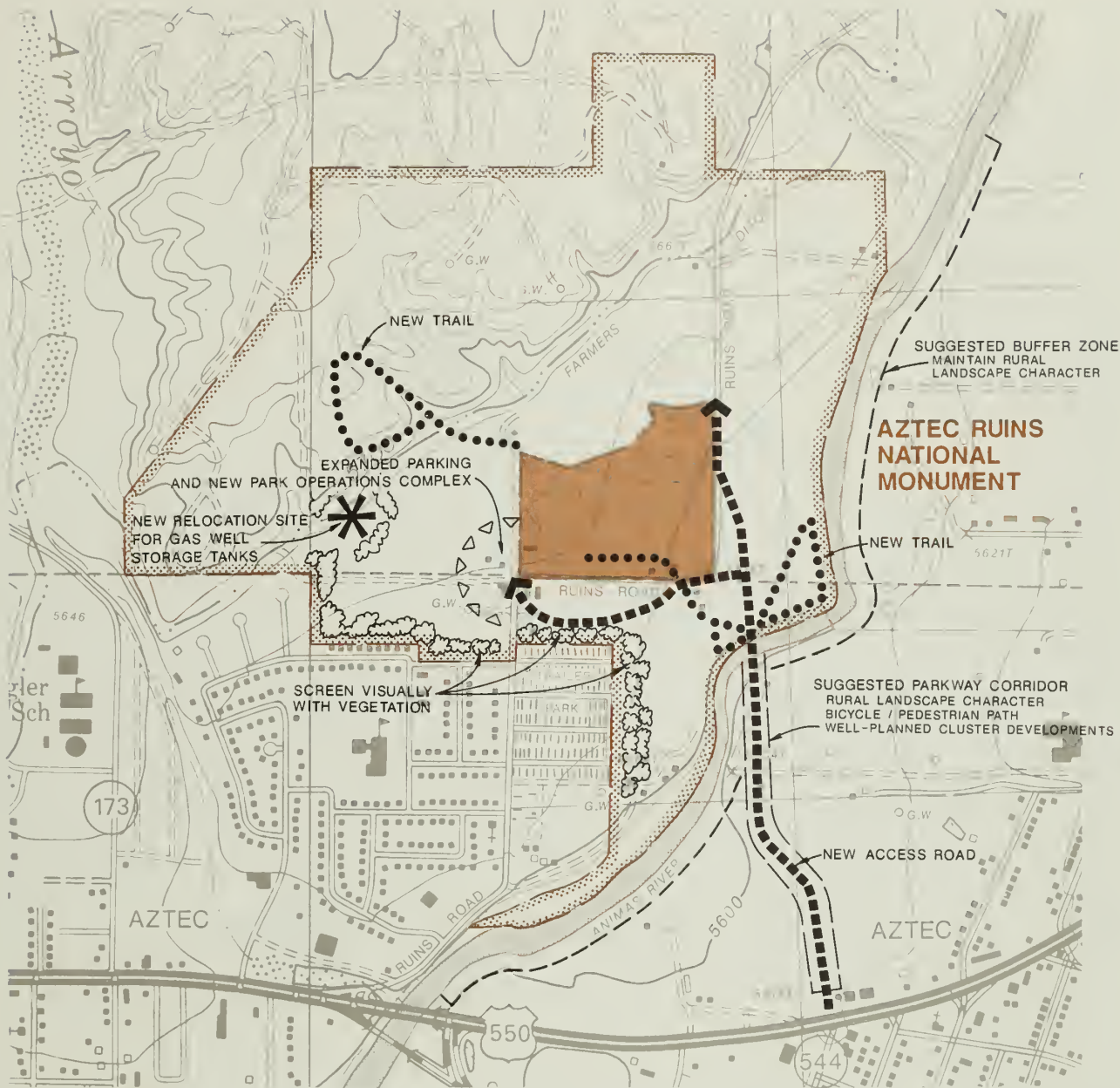
- improvement of the monument's data base and subsequent visitor appreciation/information


Initially, historic structure reports (HSRs) will be done for excavated portions of the ruins and the Great Kiva to collect, present, and evaluate data relevant to their condition/integrity and National Register significance. An HSR will also be completed for the Earl Morris house/visitor center to guide its rehabilitation; an evaluation of the building's National Register status will be included.


Following documentation, the excavated ruins will be brought up to a basic maintenance level, then previously stabilized exposed walls will be stabilized to NPS standards as defined in NPS-28. Thereafter, about 15 percent of the exposed fabric chosen for stabilization will receive stabilization maintenance annually to counteract normal deterioration. Since the ruins were excavated, much of the exposed masonry in the West Ruin has been fully stabilized in a manner that looks acceptable but may not be historically accurate. For this reason, future work on previously stabilized walls in the West Ruin will be more concerned with longevity, safety, exterior appearance, and stability than with archeological integrity. As part of the ongoing stabilization program, outdated/ineffective replacement mortars will be removed and more effective noncement mortars used. Strategies to improve drainage and to mitigate the effects of precipitation on the resources will also be included in the monument's revised resources management plan.

Decisions regarding stabilization of exposed masonry will first be based on consideration of site/structural integrity. If a site or structure is significant for its scientific values, site integrity rather than structural stabilization will be of primary concern, and archeological documentation, testing, and salvage will be considered before any stabilization work. The probability of resource damage through development projects or natural degradation, the value of the resource for public enjoyment and education, and the potential for future interpretation will be analyzed when choosing which structures to stabilize. Stabilization reports are housed at the Western Archeological and Conservation Center in Tucson, Arizona, and at the monument.

A full-time archeologist with expertise in ruins stabilization will be added to the staff to provide training, program direction and day-to-day guidance in stabilization techniques, materials, testing procedures, and associated archeological investigations. To improve the ruins stabilization program and to preserve added resources, a larger ruins stabilization staff will be required.



 ORIGINAL MONUMENT

 1988 BOUNDARY EXPANSION

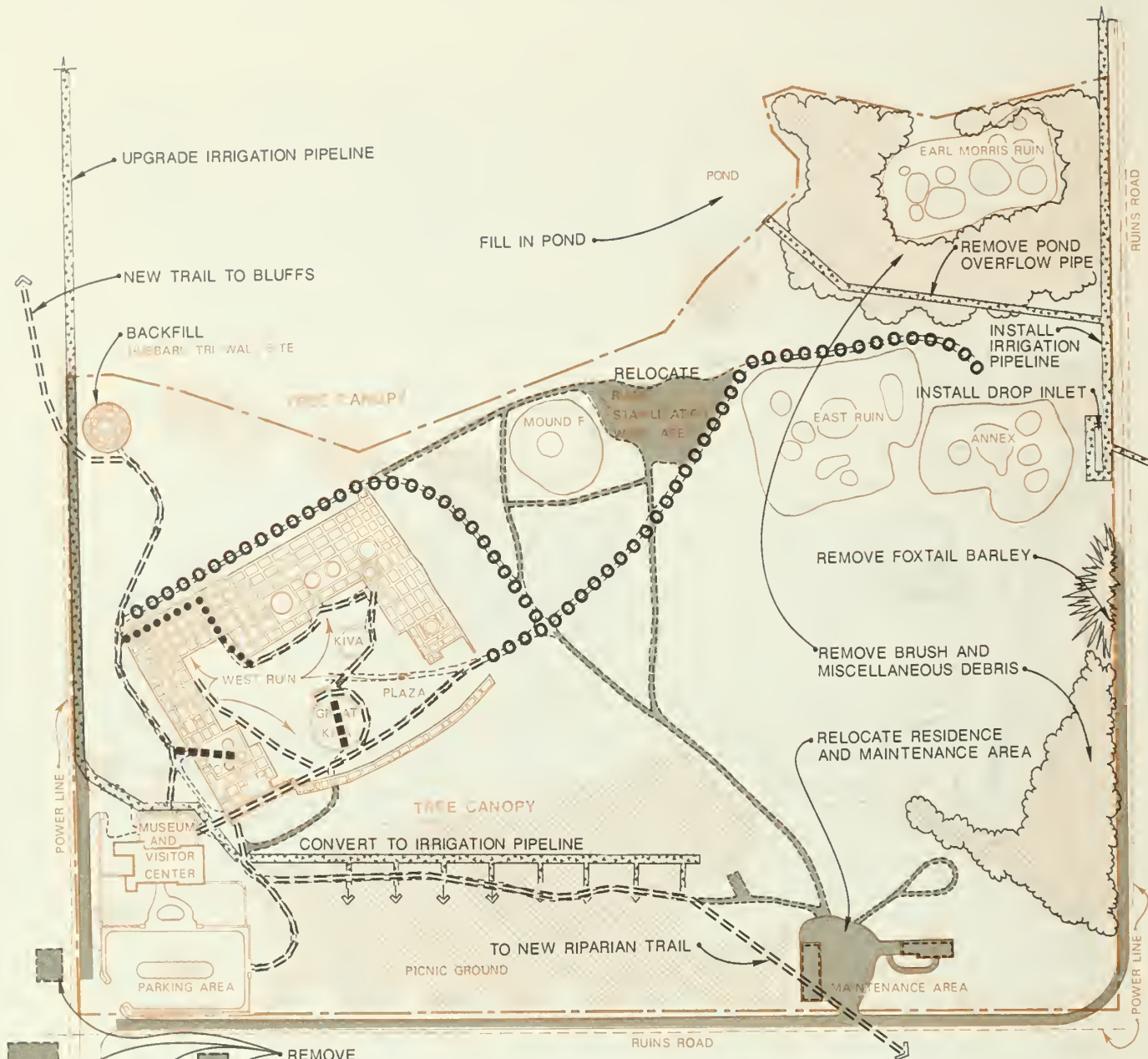
319 20007A
DSC JULY 89



1000 0 1000
FEET

GENERAL MANAGEMENT PLAN DEVELOPMENT CONCEPT PLAN (1988 MONUMENT BOUNDARY AND SURROUNDINGS) AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



Note: The development within this original monument boundary
will remain the same for Option A and Option B

- FOOT TRAIL (PAVED)
- FOOT TRAIL (UNPAVED)
- ==== ACCESSIBLE FOOT TRAIL (PAVED)
- oooooooo MAINTENANCE AND ACCESSIBLE TRAIL
- REVEGETATE AREA
- REMOVE STRUCTURE



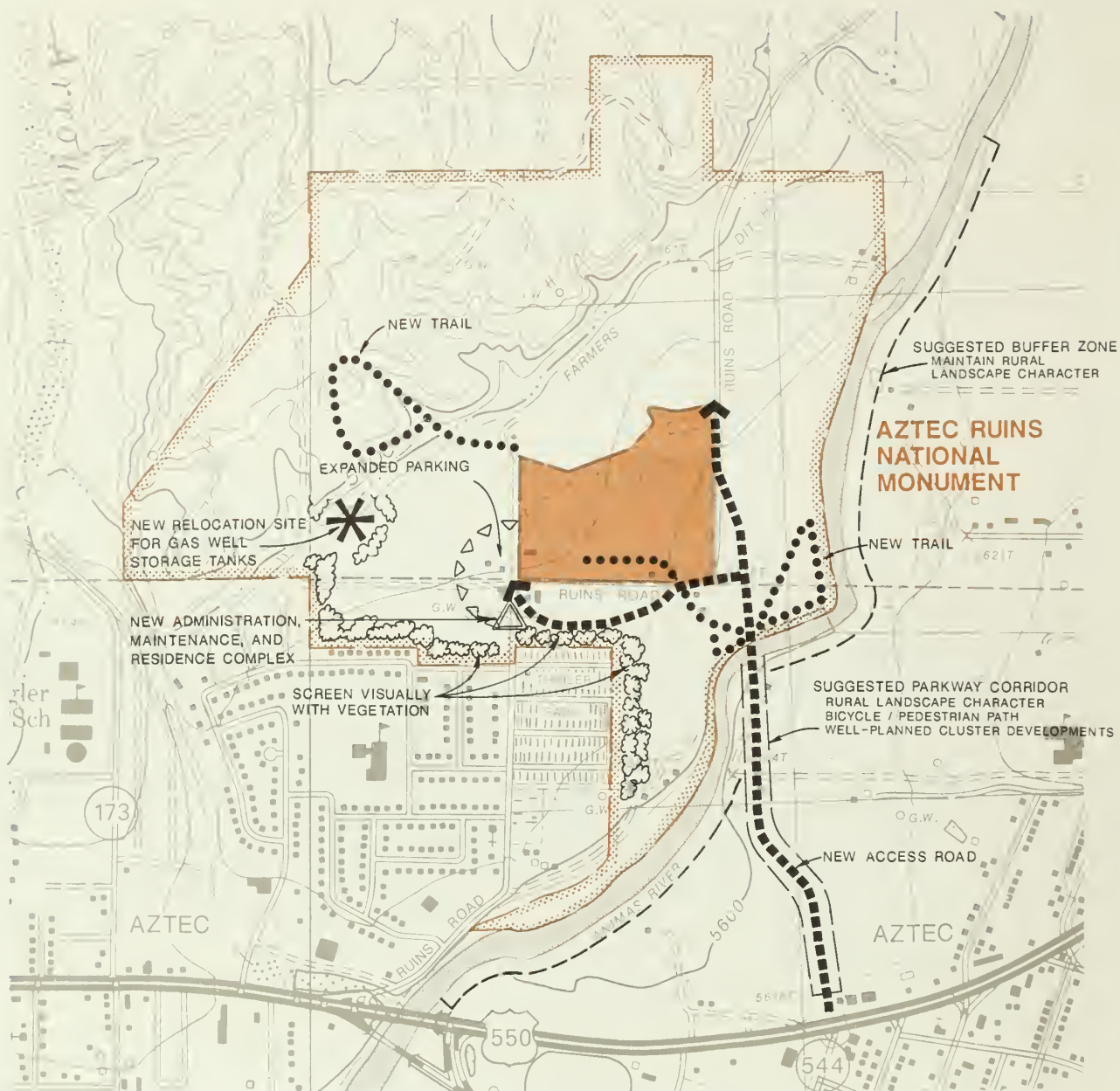
319 | 20012A
DSC | JULY 89



GENERAL MANAGEMENT PLAN DEVELOPMENT CONCEPT PLAN DETAIL OF ORIGINAL MONUMENT VICINITY AZTEC RUINS NATIONAL MONUMENT UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



**GENERAL MANAGEMENT PLAN
DEVELOPMENT CONCEPT PLAN**
DEVELOPED AREA ENLARGEMENT
AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE



ORIGINAL MONUMENT

1988 BOUNDARY EXPANSION

319 20018 A
DSC JULY 89

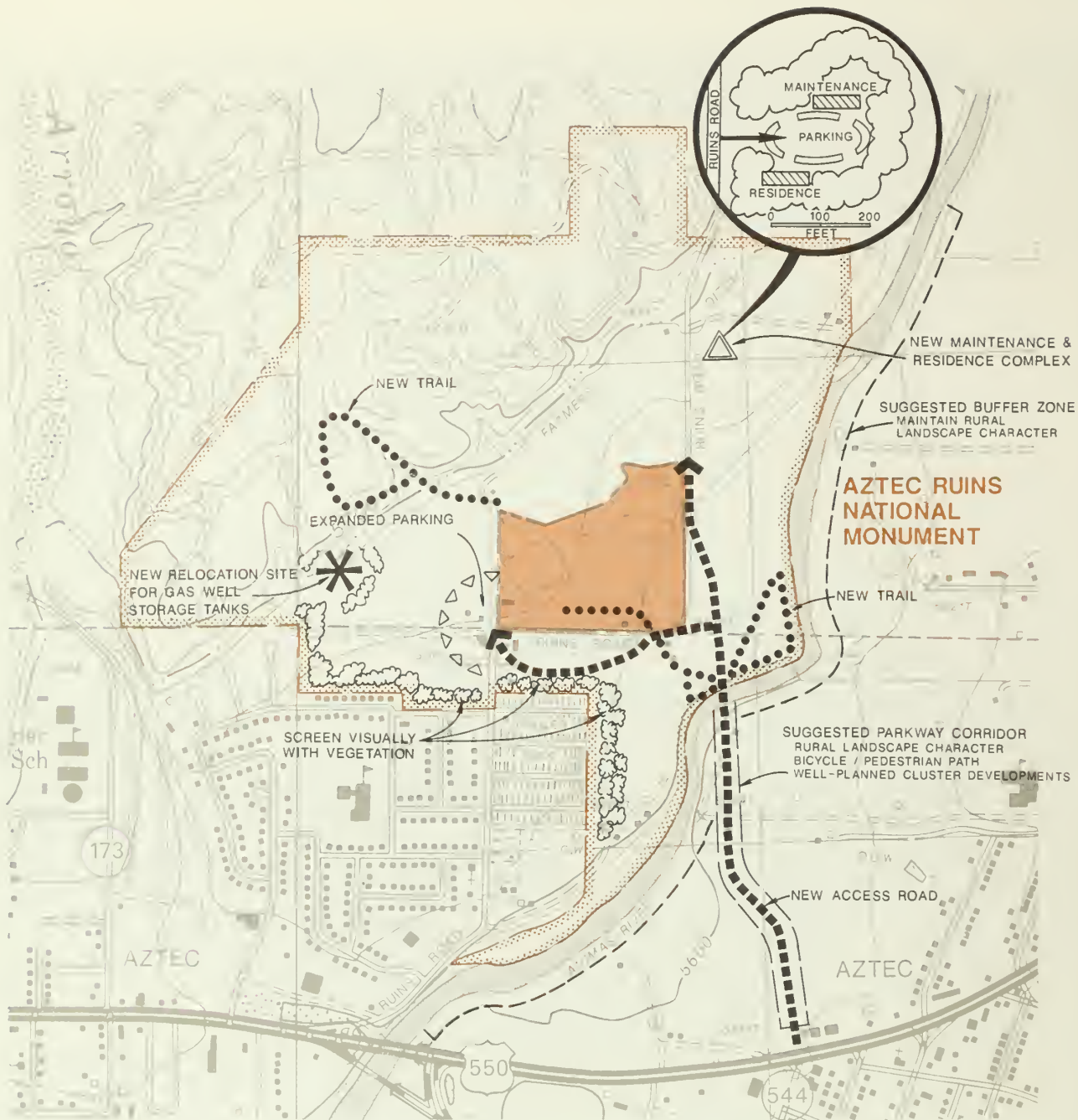


1000 0 1000
FEET

GENERAL MANAGEMENT PLAN DEVELOPMENT CONCEPT PLAN OPTION A

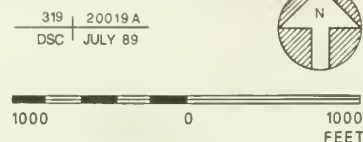
(1988 MONUMENT BOUNDARY AND SURROUNDINGS)
AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE



ORIGINAL MONUMENT

1988 BOUNDARY EXPANSION



GENERAL MANAGEMENT PLAN DEVELOPMENT CONCEPT PLAN OPTION B

(1988 MONUMENT BOUNDARY AND SURROUNDINGS)
AZTEC RUINS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE



 REMOVE OR OBLITERATE AND REVEGETATE

319 | 20,028
DSC | JULY 89



FEET
50 0 50 100 150

**GENERAL MANAGEMENT PLAN
DEVELOPMENT CONCEPT PLAN
OPTION B**
DEVELOPED AREA ENLARGEMENT
AZTEC RUINS NATIONAL MONUMENT
UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

Stabilization work will be directed by a historic preservation maintenance guide (HSPG), a document that provides information necessary for orderly, timely, and proper inspection and maintenance, and that establishes priorities for stabilization work. This document will also include provisions for ongoing monitoring of the major excavated ruins to determine the effects precipitation and drainage patterns have on these resources. Once factors contributing to the degradation of the ruins are identified, the HSPG can be revised to include strategies for mitigation of these effects, and ongoing stabilization can become part of the monument's maintenance management system. The HSPG will also include development of standardized forms to document routine maintenance activities and ruins stabilization.

A backfilling program will be instituted in portions of the major stabilized ruins, and where appropriate, in the eastern half of the original monument and in previously vandalized outlying sites. This program is designed to protect extant resources and to reduce the maintenance workload. Backfilling eliminates the need for periodic mortar repointing and veneer replacement and provides support for standing walls. Equalizing differential fill equalizes pressure on walls where unexcavated rooms adjoin excavated areas, and reduces drainage problems by eliminating water-holding capacities of the previously excavated rooms.

Backfilling will not occur in cases where it would create damaging pressure on adjoining excavated rooms left open. Rooms to be backfilled will be selected so as not to diminish NPS interpretive efforts, visitor experience, or archeological/scientific integrity. In some special cases, interpretive needs may take precedent, and sites will be stabilized rather than backfilled.

A scope of work and analysis of drainage patterns and problems of differential fill and leaching in the West Ruin was completed in 1984. Some of the specific suggestions in this report have been implemented. It can serve as a starting place for additional research and study, which are needed to support backfilling decisions. These will be presented in programmed historic structure reports. The monument archeologist and the staff of the Division of Anthropology, Southwest Regional Office, will determine the research necessary to implement this program.

Special sampling, including archeological investigations, collection of wood samples for dendrochronology, selected subfloor testing, and recordation of features will precede backfilling. These projects will include the design and installation of additional drainage and erosion control systems as appropriate, treatment of exposed structural members, and the use of culturally sterile fill that is compatible with site soils.

Appropriate historical and archeological investigations and documentation should be accomplished before clean-up of historic debris in the vicinity of the East Ruin.

Several farmsteads and other structural remains are within the 1988 monument boundary. Once these lands are acquired, these sites and structures will be inventoried and evaluated for their integrity and for their National Register significance. NPS-28 will provide guidance for development of future management options of these areas.

As a means to deter water infiltration into the ruins, the following actions will be taken when the appropriate lands have been acquired.

Irrigation on lands to the north and west of the original monument will be discontinued and the land will be allowed to dry. Once the land has dried, the area will be surveyed and evaluated through archeological investigation or through

nondestructive means such as remote sensing to identify subsurface cultural resources before revegetation is done with native species.

The pond will be allowed to dry and then filled with appropriate, culturally sterile materials. The surface pipe that drains the pond will be removed carefully because it is in a sensitive area.

The tailwater recovery ditch adjacent to the northern boundary of the original monument will no longer be necessary.

Groundwater levels will continue to be monitored on a long-term basis to ensure that these actions are effective in reducing groundwater levels and surface runoff.

Strategies to improve drainage and to mitigate the effects of precipitation on the resources will also be developed as part of the monument's revised resources management plan.

Only recently has the extent and significance of the major prehistoric site complex that is located inside the expanded 1988 monument boundary been recognized. Amendments to the Archeological Resources Protection Act in 1988 stipulate that the Park Service must increase the public's awareness of and appreciation for the significance of archeological resources. This amendment also provides for additional survey and documentation. To fulfill both visitor needs and legal mandates, acquisition of these outlying sites will be a high priority. Protection of the monument's cultural resources will focus on a broad program of acquisition, documentation, evaluation, monitoring, protection, and preservation. Specific projects and project priorities necessary to implement this program will be outlined in the resources management plan.

Protection and preservation of these sites must proceed in two stages. In the interim, before land acquisition, various measures for protecting and preserving these areas from looting, vandalism, and resource degradation will be developed as part of the monument's resources management plan. Such protective measures may include agreements with private landowners, enhanced public education programs, active solicitation of public support, neighborhood watch programs, volunteer involvement in archeological investigations, continued surveys of resources, backfilling of previously vandalized sites, and Archeological Resources Protection Act (ARPA) training for all employees.

Once these areas have been acquired, interim measures like those discussed above can provide the basis for development of a broader protection/preservation program. This monument-wide preservation plan should include such measures as signs, timely and effective law enforcement standards, ranger patrols, continued public education and involvement, and site monitoring.

The expanded boundary will be fenced to protect archeological resources from stock grazing and to control access, which will in turn, deter vandalism. The number of maintenance roads will be significantly reduced, and areas closed to the public will be clearly signed. Disturbed areas that have been potted in the recent past will be backfilled to lessen the attraction to vandals.

Collections. The "Scope of Collections" for Aztec guides the acquisition and preservation of museum objects and helps determine the type, size, and quality of collections necessary for research, reference, interpretation, and exhibits. Because of changed emphases and newly identified monument themes and historic contexts, this document needs to be updated.

Because the collection and documentary materials like field notes, correspondence, and photographs, are scattered among various institutions, it is difficult for researchers to access them or analyze the data in a scientific manner. The documentary materials associated with the collections from Aztec are scientific rather than archival and form an integral part of the collection. These materials are vital to research, interpretation, and stabilization activities and should all be copied, preferably on microfilm, for use at the monument.

Many of the older artifacts need to be reanalyzed because of recent discoveries and improved technologies; resulting data will be included in a new archeological collection study.

As interests in lands are acquired, additional research will make a larger curatorial storage/work space and upgraded equipment necessary. A current backlog of artifacts dates to excavations done during installation of drainage structures. When these items have been entered into the automated national catalog system, the artifacts and supporting data will be transferred to the Western Archeological and Conservation Center, which serves as the permanent repository for Aztec's archeological materials.

The "Collections Management Plan" for Aztec, which details specific collections management and maintenance requirements, is outdated and will be revised to reflect the need for additional exhibit security and updated curatorial care.

Recommended Studies. In addition to the archeological survey that has been partially completed for the area yet to be acquired, the following studies are recommended, in priority order, to support future planning and management decisions. (For detailed information on the studies, see appendix C.)

- Historic structure report (HSR) for the Earl Morris house/visitor center, including an evaluation of the building's National Register status

- Cultural resources surveys/evaluations that include documentation of newly acquired properties

- An historic resource study that defines the historic contexts or themes applicable to Aztec Ruins and includes National Register of Historic Places forms where appropriate

- Revisions to resources management plan

- Rewrite of archeological assessment/overview

- Historic structure reports for the East and West ruins, Hubbard Mound, and the Great Kiva

- Historic structures preservation guides and ruins monitoring program

- Updated scope of collections and collections management plan

- Comprehensive Preservation Plan that will determine which portions of the ruins will be stabilized for interpretation and which will be stabilized for preservation by backfilling or other suitable means

- Revision of List of Classified Structures (LCS)

An ongoing program of research directed at further defining and interpreting the monument's cultural resources

Other special studies that include preservation/maintenance treatments

Research. A research design will be developed to help express the rationale behind the proposed research, define the fields of study and the realistic expectations, and to serve as an effective compliance tool. Generally, archeological sites will be preserved undisturbed wherever feasible and practical because excavation permanently limits the resource according to the analytic technology of the time and produces data that must thereafter be conserved by different, more expensive means. In accordance with NPS policy, research that is nondestructive to artifacts or sites and provides for an enriched interpretive program will be encouraged within the monument. However, because much archeological research can be destructive, representing an irreversible and irretrievable commitment of nonrenewable resources, such research will have to be adequately justified and professionally conducted under the framework established by the research design.

Aztec Ruins is one of the Chacoan outliers recognized in the *Chaco Archeological Protection Site System Joint Management Plan*. As such, it provides an excellent sampling of the prehistoric Chacoan cultural system, including a number of large Chacoan structures distinguished by their special architectural attributes. Other major features of a Chacoan community at Aztec are kivas, special use sites, habitation sites, and prehistoric roads.

Because Aztec Ruins is one of the Chacoan outliers recognized in the *Joint Management Plan*, future research in the monument should be coordinated with and cognizant of work occurring at the other outliers and at Chaco Canyon. Suitable strategies for such timely coordination should be worked out in the monument's *Resources Management Plan* and in the proposed monument research design. The monument staff may want to involve themselves in the Chacoan Interagency Management Group as a way to keep abreast of new research developments across the Chacoan area. In addition, as research unfolds at Aztec, findings will contribute to an enriched understanding of the entire Chacoan system.

The *Joint Management Plan* calls for a unified approach to interpretation of the Chacoan system. Presentation of guided tours, exhibit information, and ruins should be coordinated with proposals outlined in the plan. The Chacoan Interagency Management Group can serve as a focal point for updated information related to interpretation of Chacoan sites.

Natural Resources Management

Preparation of a landscape management plan will be critical to preserving the scene, protecting archeological resources, and complementing the monument's cultural resources. The primary concern of the current *Resources Management Plan* was removal of noxious plants. All dead trees and brush will be removed from the northeast and southeast corners within the boundary. The only noxious plant to be removed will be the foxtail barley. As stated earlier, lands within the landscape management and landscape modification subzones will be managed accordingly. The National Park Service will also set up a program to monitor the effects of acid rain on the ruins. A detailed discussion of proposed revegetation practices for lands within the expanded boundary is outlined in appendix D.

VISITOR USE AND INTERPRETATION

The following actions have been designed to improve the quality of the visitor experience. In addition to these actions, the possibility of expanding the monument's hours of operation during the peak season and offering evening programs will be explored.

Access/Parking

Access to the monument will be provided by a new access road (NM 544) that will connect the city of Aztec's Historic District to residences, farms, and oil/gas development on the west side of the Animas River, and to the monument. Provisions for a bicycle/pedestrian path will be encouraged along the section of road from downtown to the national monument. In conjunction with the new road construction, the Park Service will plant trees and shrubs to screen residential development outside the monument from the new access road within the boundary. The new road will be built by the city, and the Park Service will work closely with the city to ensure that the road be built to standards appropriate for visitor enjoyment, particularly the section within the boundary.

Although the National Park Service will have no jurisdiction over development along the new access road outside the monument, the following type of parkway corridor and landscape character will be encouraged from U.S. highway 550 to the monument.

Ideally, the landscape adjacent to and within immediate sight of this road (approximately 250 feet to either side) should not be disturbed by commercial and residential development so the rural character of this land can be preserved and visitors can make a tranquil transition from downtown to the monument. Furthermore, maintaining a rural landscape character along the Animas River east bank, which would be visible from the 1988 monument boundary, would help evoke a sense of the historic scene that existed during Anasazi times and therefore enhance the visitor's experience. (For example, the east bank might be part of a potential recreation corridor over an area that is approximately 300 feet wide, extending northward from U.S. highway 550 to the northern boundary of the national monument.) By maintaining a rural landscape character from downtown to the monument, city and monument visitors should be favorably impressed, which would encourage a strengthened tourism industry.

If development along the new access road becomes inevitable, the Park Service will offer to assist the city in determining the appropriate configurations, volumes, design standards, and locations of potential development sites. For example, the city in consultation with the Park Service, might specify that developments be concentrated into small clusters that are spaced at appropriate intervals along the new access road. Moreover, the city might require the development clusters to be partially screened with vegetation and setback well away from the access road. Additionally, city design standards might be developed for unobtrusive colors, lights, and sizes of developed buildings and signs.

The new access road will improve access and circulation throughout the monument. It will provide the needed transition for the visitor from the urban scene to the monument environment. The entrance into the parking area will be designed to minimize traffic/pedestrian conflicts. New roadway signs will be placed at all major approaches to direct visitors to the visitor center, and the existing signs directing visitors to Ruins Road from highway 550 will be removed. Parking will be expanded to the west of the existing parking area and capacity increased from 36 auto and four RV/bus spaces to 67 auto (16 of these spaces will be for staff parking) and 16 RV/bus spaces to accommodate existing

and future use. Four parking spaces will be provided at the maintenance yard for official vehicles.

Information/Orientation

The visitor information area will be redesigned to more efficiently serve visitors and to accommodate additional exhibit space within the visitor center. A combination of personal contact with monument staff and new panel exhibits, maps, and photographs will be used to enhance orientation and information. A new interpretive prospectus or major exhibit rehabilitation proposal will be prepared to prescribe the key elements of interpretive media needed to tell visitors about the monument and its resources, to describe the monument's significance, and to encourage visitors to experience the different features of Aztec Ruins National Monument. As the next step, specific wayside exhibit, museum exhibit, and audiovisual production plans will be prepared to detail the media necessary to fulfill these objectives.

Interpretive programs will be planned to provide mobility-, visually-, hearing-, and learning-impaired visitors with access to the information and services provided to nondisabled visitors in a mainstreaming environment wherever possible.

Following orientation, visitors will be able to select resources and activities they wish to experience at Aztec Ruins and to take advantage of other interpretive services. Information about recreational and interpretive opportunities in the city of Aztec, the Animas River valley, and the Four Corners region will be offered. Masau Trail information will also be available for visitors. Legislation (PL 100-115, title II, December 31, 1987) designating the Masau Trail includes Aztec Ruins National Monument as one of the major stops on the trail. The Masau Trail is a vehicular tour route that uses existing public roads to link prehistoric and historic sites in New Mexico and eastern Arizona. It was designed to provide for the public appreciation, education, understanding, and enjoyment of these nationally significant cultural sites.

Interpretive Programs

According to the NPS publication, *History and Prehistory in the National Park System and the Natural Landmark Program*, Aztec Ruins reflects the theme, Cultural Developments: Indigenous American Populations and two subthemes – Post Archaic and Precontact Developments and Prehistoric Archeology. These subthemes also cover a number of facets. Interpretive programs will use the theme, subthemes, and facets to present the following interpretive themes to the visitor:

Native villages and communities in the southwestern United States: the lifestyle of the pueblo inhabitants, particularly the details of day-to-day living. Aztec Ruins is the only NPS unit with a reconstructed Great Kiva that provides a focal point for emphasizing the importance of religion in everyday Anasazi life.

Occupation by Chacoan and Mesa Verdean peoples: differences and similarities of these cultural entities during prehistoric occupation, stressing the continuity of basic Anasazi adaptations. Emerging research suggests that there might not have been two separate periods of occupation but rather a gradual evolution of Anasazi cultures – encouraging the visitor to ponder such a hypothesis is an important aspect of the interpretive program at Aztec Ruins.

The Chaco phenomenon: Aztec Ruins was part of a sophisticated, interconnected society centered at Chaco Canyon. Further research will be required before any of a number of hypotheses is judged most likely. Again encouraging visitors to ponder such hypotheses is a central objective for interpretation at Aztec Ruins.

The Earl Morris story: the pioneering work of archeologist Earl Morris at Aztec Ruins. While American archeology was still in its infancy, Morris's work contributed greatly to the profession. Through an examination of the life of Earl Morris, the history of Southwestern archeology can be told to the visitors. An exhibit and programs on Morris could add greatly to the interpretation of his life and work.

Historical overview: the dynamics of change in the region from the time of Athabascan migration into the area to the present. There are numerous resources like the city of Aztec's historic district and the Masau Trail that can be used to portray this interesting evolution of change to the visitor. The extension of NM 544 will provide a convenient link for visitors between the historic district and the monument.

Many of these themes, particularly the prehistoric Chacoan and Mesa Verdean peoples and the Chaco phenomenon, require significant explanation. The interpretive media and tour messages will need to be coordinated. Once research has expanded on the basic prehistoric themes discussed above, sites or structures within the monument that serve to illustrate the themes can be identified for incorporation into the interpretive program.

In addition to interpreting the five themes, Aztec's international significance will be presented to the public. Chaco culture sites, including Aztec Ruins National Monument, were designated world heritage sites. Sites on the World Heritage List are noted for their outstanding universal value to mankind; Aztec Ruins has been recognized as a unique and exceptional testament to now-vanished prehistoric peoples. This prestigious nomination provides a greater emphasis for interpreting the Chacoan story.

The primary monument experience will begin at the visitor center, where the five major themes will be presented. The interior of the visitor center will be modified to improve visitor flow, provide adequate space for exhibits, ensure exhibit security, provide a centralized information desk and a separate audiovisual room while not disturbing the historic fabric. The administrative functions will be relocated and the modern interior partition walls of the Earl Morris house removed. This area will then be devoted to the Earl Morris story, Southwest archeology, and possibly to an historic overview of the monument. The remainder of the visitor center will be devoted to the other major themes. In addition to exhibits, audiovisual programs will provide an overview of the monument and the Earl Morris story and Southwest archeology. The audiovisual program will also provide more information on specific topics to accommodate the specialized interests of groups and individuals.

Once the visitors are introduced to the monument's major themes, they can visit the excavated West Ruin or unexcavated East Ruin on self-guided interpretive trails. The trails will provide an opportunity to leisurely tour the ruins and to experience an excavated and unexcavated ruin.

Neither the ruins trail nor the visitor center was designed and built with handicapped access in mind, and there are a number of access problems. These problems are compounded by the historic nature of the ruins and the visitor center. In response to these obstacles, a "Self-Evaluation of Program and Facility Access and Handicapped Access Plan" was completed by the monument in 1988. This document reflects the primary recommendations

of the above-mentioned access plan. For a comprehensive handicapped access undertaking, the access plan should be consulted.

The monument's handicapped-accessibility plan has been designed to provide the highest feasible level of physical access for persons with disabilities consistent with the preservation of the property's significant historical attributes. If modifications would destroy the significance of the property, they would not be made. Planning and implementation of specific projects under the plan should involve experts in both accessibility and in historic preservation. Revisions should be made to the monument's resources management plan to reflect accessibility needs.

A major portion of the West Ruin trail will be handicapped accessible, including access to the Great Kiva anteroom. A new section of handicapped-accessible trail will be constructed along the western edge of the plaza. The grade is relatively gentle and allows a visual overview of the West Ruin and its relationship to the river and an exterior view of the ruin. Another new section of handicapped-accessible trail will be constructed around the exterior of the West Ruin. This trail will also serve for maintenance access, and therefore, will avoid the necessity of additional separate maintenance trails and roads. All handicapped-accessible portions of the trail will have a textured surface at each stop to cue the visually impaired visitors to accessible interpretive media that explains the stop.

Two other totally accessible self-guiding interpretive trails will be constructed, one to the bluffs north of the West Ruin, provided the terrain is not too steep, and the other to the river east of the visitor center. If a handicapped-accessible trail to the bluffs is not possible, then the bluff experience should be made available through a videotape of a typical tour. In any case, these trails will be designed for the visitor wanting a greater perspective than that provided at the West and East ruins. Handicapped-accessible trails should be 5 feet wide for the simultaneous passage of two wheelchairs. Surfaces for such trails vary according to levels of use and expense of construction. Well compacted, pea size gravel, wooden boardwalks, or sand-surfaced asphalt would be considerations for all of the monument's proposed trails (see appendix H for more trail surface information and a discussion of unwarranted trail access from Ruins Road).

Low, unobtrusive wayside exhibits will be placed at or near the terminus of these trails. To provide adequate orientation to all the trails, a wayside exhibit/trailhead will be constructed at the back patio of the visitor center. Several portable wayside exhibits will be used to interpret ongoing ruins stabilization/maintenance. These exhibits should be flexible enough to allow for changing interpretive messages easily. The suitability for a series of small wayside exhibits along these trails should be explored. Roving interpreters will be available at the West Ruin, and tour guides will escort groups to the East and West ruins, and to a lesser degree to the bluffs and the river during the peak season.

A new series of self-guiding publications (professionally written and illustrated) for the West and East ruins, Bluffs Trail, and River Trail is proposed. The publications will be designed to enhance on-site experiences. The most significant aspects of each primary ruin will be highlighted in relation to the overall story; however, there will be some overlap of themes at sites and in the types of media presentation. Interpretive programs and media will be designed to provide the fullest possible programmatic accessibility for visitors who may be mobility-, visually-, hearing-, or learning-impaired.

The tour guides and roving interpreters will assist visitors in developing their own theories and ideas about happenings at Aztec. An attempt to solve the Anasazi mystery through questions, answers, and hypothesis will ensure a more personalized experience and offer visitors a chance to become more involved. The interaction between visitors and interpreters

will provide subtle but important protection benefits. During nonpeak months, limited weekday and weekend guided tours will be scheduled to achieve the same interpretive objective. All seasonal interpreters will receive training from monument staff and the monument archeologist to ensure the most accurate presentation of facts.

Because the monument is often considered an integral part of this small community and an important tourist attraction, off-site interpretive programs are also a viable part of the overall Aztec story. Coordination of programs and exhibits with the local city museum, schools, and community groups/centers will be encouraged.

The existing picnic area will be upgraded to provide at least 10 tables interspersed among the cottonwood trees. A drinking fountain will be installed in the area. The trails from the visitor center and the parking lot to the picnic area will be designed for handicapped access. This location is shady and cool during the hot summer months and allows visitors an opportunity to relax and lunch either before or after touring the monument.

GENERAL DEVELOPMENT

The primary objective of development within the monument is to consolidate all visitor use, administrative, and maintenance functions to a concentrated area to minimize adverse impacts on the prehistoric site. In addition to facilitating management/operations of the monument, the visitor experience will be enhanced by eliminating intrusions scattered throughout the monument. All development will be sited to minimize visual impacts, particularly for arriving visitors and for those using the bluff trail. In addition, all development will take into consideration site suitability, climate, natural hazards, cultural resources, cost-benefit to monument management, and relevant energy conservation measures.

Because the Earl Morris house/visitor center and its surrounding built landscape are done in a Pueblo Revival style, it is crucial that new construction such as buildings and landscape features exhibit a sense of unity and sound functional relationships with these existing architectural elements. New structures will be compatible in form, style, color, material, texture, and scale to the visitor center. The designs should respect the original landform, avoiding excessive cut and fill as well as harsh angular lines and forms. Wherever feasible, large existing trees will be retained. Vegetation or landscape features will be used to screen unsightly manholes, piping, and drainage features that are located outside the excavated portions of the ruins, and where no subsurface remains will be disturbed.

As previously discussed, there is a gas well pad within 500 feet of the area in which new administration, maintenance, and visitor facilities will be developed. For this reason, the gas well storage tanks, separator, and dehydrators of this pad will be moved to another location that poses no hazard to NPS facilities or surrounding residential/commercial development. The gas well head will remain at its present location. Before any construction begins, which is associated with moving gas well pad equipment, connecting pipelines, or any proposed NPS facilities, archeological surveys must be conducted to identify cultural resources that may lie where proposed construction will occur. Furthermore, if a conflict results, appropriate mitigation measures will be necessary and/or proposed developments will be relocated to avoid cultural resource destruction. Appropriate mitigation measures will be developed in consultation with the New Mexico state historic preservation officer and the Advisory Council on Historic Preservation.

Visitor Center and Headquarters

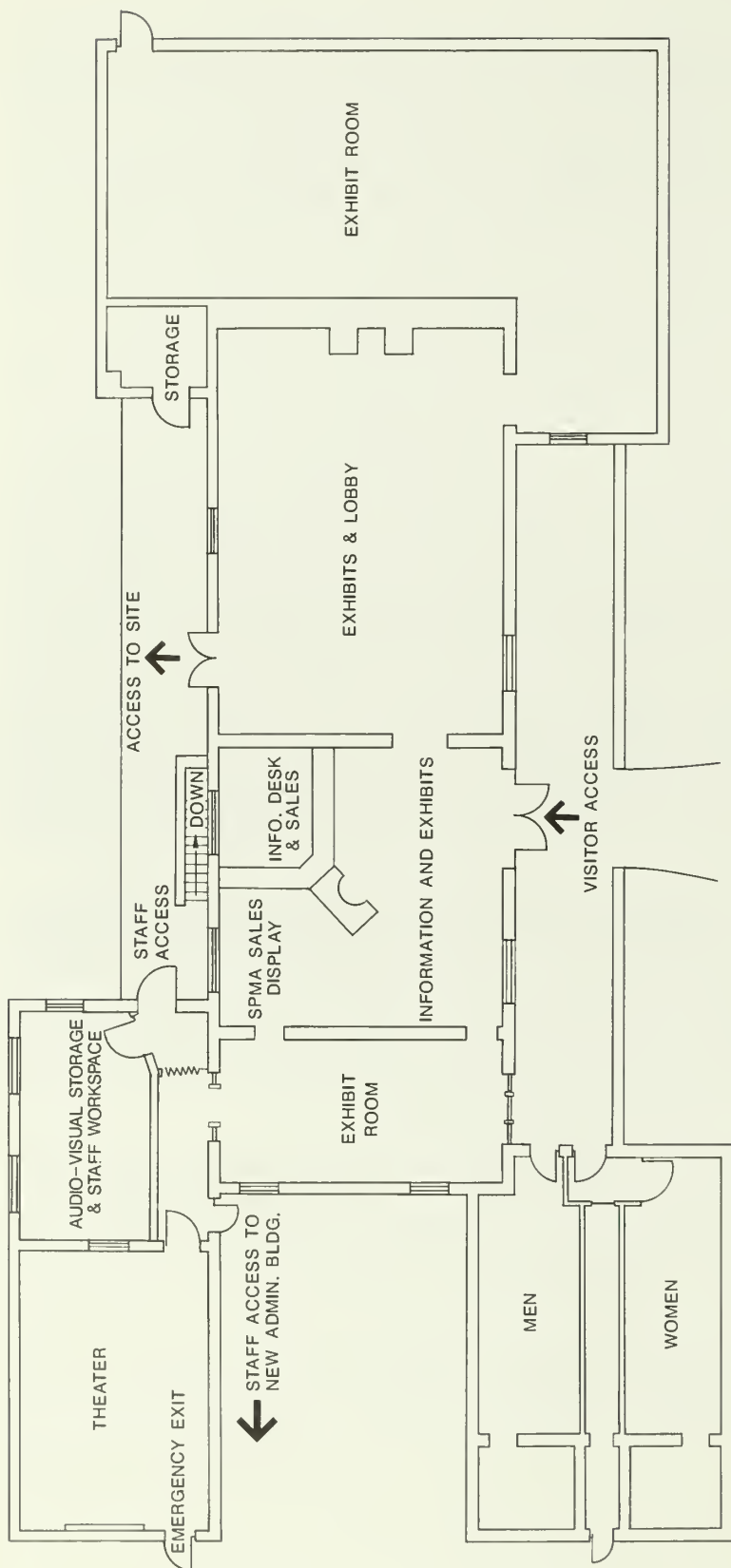
Administrative functions and curatorial storage will be removed from the existing building and housed in a new structure nearby to the west, which will allow more space for visitor use/interpretive purposes in the Earl Morris house. The exterior appearance of the existing building will remain the same, while the interior spaces will be modified to improve visitor flow, provide for adequate information/orientation and an audiovisual room, maximize utilization of space to present the major interpretive themes, and provide office and work space for interpretive staff. Over time, several interior divider walls have been added to the Earl Morris house portion of the building. They will be removed and this space will be used for telling the Earl Morris story, as well as for general information and sales purposes. An exhibit plan will be prepared to determine the specific uses for this space.

A new headquarters or administration building will be constructed near the visitor center, which will allow more space for visitor services in the existing building, and will provide adequate space for monument staff, curatorial storage/work space, and administrative functions. The new headquarters building will be partially screened from visitors and will be designed to complement the visitor center in such ways as scale, massing, form, color, and materials. Both buildings will be climate-controlled with up-to-date fire detection and suppression systems installed. The visitor center will be climate-controlled for the benefit of the public as well as for preservation of artifacts on display. Central heating, air conditioning, and ventilation will be installed in the visitor center and in the new headquarters building.

Under General Management Plan/Development Concept Plan – option A, the new administration or headquarters building would be constructed north of the trailer park which is about 400 feet south of the existing parking area. Under this option, the administration building would be partially screened from visitors and designed to complement the visitor center. The administration building would also include maintenance staff offices and facilities.

Under General Management Plan/Development Concept Plan – option B, the administrative functions would be located in downtown Aztec at a facility to be determined in the future.

General Management Plan/Development Concept Plan - options A and B are proposed so that a new administrative building site can be provided if an agreement cannot be reached to relocate the nearby gas well pad's production tanks, separator, and dehydrators, to a surface location at least 500 feet from all development areas.



NOTE: BASEMENT CONTAINS STORAGE, SPMA SALES STOCK, UTILITIES (HEATING & COOLING), AND INTERPRETIVE WORKROOM (OPTIONAL).
REFINISH BASEMENT WALLS TO PREVENT WATER SEEPAGE.

GENERAL MANAGEMENT PLAN **DEVELOPMENT CONCEPT PLAN** **VISITOR CENTER FLOOR PLAN**

AZTEC RUINS NATIONAL MONUMENT
 UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

Housing

One residence will continue to be on-site, primarily for protection purposes. Because of pothunting and vandalism of cultural resources in the region, 24-hour protection is critically needed to ensure protection of Aztec's valuable sites and features. The existing single-family dwelling will either be moved near the visitor center or removed, and a new dwelling will be constructed closer to the visitor center and headquarters complex. The relocation will provide for a greater degree of protection of artifacts and equipment in the visitor center, the headquarters, the maintenance complex, and the West Ruin. If the existing dwelling is moved, it will be partially but adequately screened from the visitor's view and the grounds landscaped to provide an aesthetically pleasing appearance. A new structure will be partially screened, and the exterior will be similar to the style of the visitor center and headquarters. The new housing site will allow for better security and availability of personnel.

Because the lift station north of the existing single family dwelling will no longer be needed, it will be removed.

The sewer line to the city system will be abandoned as will existing gas, water,, electrical, and telephone lines.

Under proposed plan – option A, a new residence would be constructed north of the trailer park about 400 feet south of the existing parking area. The residence would be partially screened from visitors, designed to complement the visitor center, and constructed near the proposed administration/maintenance building.

Under proposed plan – option B, a new residence would be constructed along the east side of Ruins Road, 700 feet north of the northeast corner of the original monument boundary.

General Management Plan/Development Concept Plan - options A and B are proposed so that a new residential building site can be provided if an agreement cannot be reached to relocate the nearby gas well pad's production tanks, separator, and dehydrators, to a surface location at least 500 feet from all development areas.

Maintenance Facilities

The maintenance building will be removed and a new structure built near the headquarters building, in an area that is visually and auditorially screened from the public. The stabilization work area will be relocated adjacent to the new maintenance building and maintenance yard. All maintenance activities in one location will centralize operations for the monument. The existing areas and their access roads will be scarified and revegetated following appropriate archeological evaluation.

Under proposed plan – option A, a new maintenance facility would be combined with administration offices into a new structure sited north of the trailer park which is 400 feet south of the existing parking area.

Under proposed plan – option B, a new maintenance facility would be constructed along the east side of Ruins Road, 700 feet north of the northeast corner of the original monument boundary.

General Management Plan/Development Concept Plan - options A and B, are proposed so that a new maintenance facility site can be provided if an agreement cannot be reached to relocate the nearby gas well pad's production tanks, separator, and dehydrators, to a surface location at least 500 feet from all development areas.

Maintenance Roads

The number of maintenance roads will be kept to a minimum, and unnecessary roads will be barricaded and allowed to revegetate naturally. Existing roads and trails will be used for maintenance access to the West Ruin. The use of low-impact, wide-tired vehicles will be explored for use in stabilization operations at the West Ruin.

Utilities

Additional water and sewer services will be provided by the city of Aztec. All overhead electrical and telephone lines will be removed if they are no longer necessary and/or placed underground if they are still needed. Because the land base will be expanded, a radio communications system will be installed.

STAFFING REQUIREMENTS

One of the most immediate concerns of the plan is to expand the staff to meet the monument's interpretive needs, stabilization needs, and to ensure adequate surveillance and protection of cultural resources. Under 1989 conditions, Aztec is understaffed to the point that visitors have insufficient opportunity to attend a guided tour or program. Guided tours are given only in the summer months, pending availability of funds, and on request, to organized groups when arrangements are made in advance. Heavy reliance on self-guiding publications and indoor exhibits limits visitor understanding and appreciation of many of the monument's themes.

A source of workload assistance could come from volunteers. The Volunteers in the Parks (VIP) program provides an opportunity for individuals to aid in some capacities; i.e., interpretation program assistants, office helpers, and archeology student interns. Although these volunteers are not permitted to work in all fields, such as law enforcement, they can perform duties that are helpful during times of staffing shortages.

COST ESTIMATES

The costs (1988 dollars) shown in table 2 cover the major actions discussed in the "General Development" section. However, until the recommended studies and research are completed, accurate cost estimates for ruins stabilization, recommended studies, and interpretive media (interior exhibits/displays, wayside exhibits, and publications) are not included.

PHASING

Phase 1 will involve those projects listed under the resources management portion of table 2. This work will allow for more intense preservation and stabilization of archeological resources.

Phase 2 will include those projects under the development (Phase 2) portion of table 2. Handicapped accessibility and parking expansion are the primary objectives of these measures.

Phase 3 will necessitate the implementation of work under the development (Phase 3) portion of table 2. In this phase, the visitor center will be altered, a new operations complex will be developed, miscellaneous site development will be undertaken, and a radio communication system will be installed.

Table 1: Staffing for Aztec Ruins National Monument

Current Staff	FTE	Annual Salary (1988 dollars)
Administration		
Superintendent (GS-11)	1.0	\$ 35,338
Administration Tech. (GS-6)	1.0	21,486
Interpretation/resources management		
Park ranger (GS-9)	1.0	29,208
Park ranger (GS-5)	1.0	19,276
Park ranger (GS-5)	1.0	19,276
Seasonal park ranger (GS-4)	0.6	8,675
Maintenance/stabilization		
Masonry worker foreman (WG-7)	1.0	31,660
Masonry worker (WG-8)	1.0	28,876
Subtotal	7.6	\$193,795
Additional Positions		
Administration		
Clerk typist (GS-3)	1.0	15,347
Interpretation/resources management		
Seasonal park ranger (GS-4)	1.5	21,688
Cultural resources management spec. (archeologist) (GS-9)	1.0	29,208
Maintenance/stabilization		
Seasonal laborer (WG-3)	1.0	18,962
PLFT masonry worker (WG-5)	2.5	56,862
Seasonal masonry worker (WG-5)	1.7	38,666
Subtotal	8.7	\$180,733
Total	16.3	\$374,528

Table 2: Cost Estimates (1988 Dollars)

	Gross Construction	Advance & Project Planning	Total Project
Resources Management (Phase 1)			
Arch. survey/mitig. for resources mgmt.*			
Backfill Hubbard site	\$ 8,000	\$ 1,500	\$ 9,500
Boundary fence (when new property is acquired)	96,000	18,000	114,000
Drainage project	156,000	58,000	214,000
Pipe			
Irrigation system			
Drop Inlet/collection system			
Fill in pond			
Restore/revegetate disturbed areas	53,000	10,000	63,000
Restore landscape modification subzone to dryland vegetation and remove orchard trees	220,000	42,000	262,000
Subtotal	\$ 533,000	\$129,500	\$ 662,500
Development (Phase 2)			
New access road and realignment of east-west portion of Ruins Road (constructed by the city of Aztec)			
Arch. survey/mitig. for development* (phase 2)			
Relocate gas well storage tanks with access road	82,000	85,000	167,000
Expanded parking area	\$ 236,000	\$ 92,000	\$ 328,000
Stucco wall around new parking area	87,000	17,000	104,000
Landscaping/screening new parking area	11,000	2,000	13,000
Trails			
Surfaced (paved)	52,000	10,000	62,000
Not paved hiking trails	18,000	3,000	21,000
Not paved handicapped accessible	65,000	10,000	75,000
Handicapped ramp	5,000	1,000	6,000
Obliterate/revegetate unnecessary trails	1,500	500	2,000
Picnic area			
Picnic tables	5,000	1,000	6,000
Handicapped accessible drinking fountain	1,500	500	2,000
Subtotal	\$ 564,000	\$222,000	\$ 786,000
Development (Phase 3)			
Visitor center			
Remodel/renovate interior	\$ 76,000	\$ 14,000	\$ 90,000
Audiovisual room addition (680 sq ft)	89,000	17,000	106,000
Central heating/ventilation/air conditioning	82,000	16,000	98,000
Fire detection/suppression system	39,000	8,000	47,000
Operations complex			
Arch. survey/mitig. for development		71,000	71,000
Paved access road to complex	66,000	13,000	79,000
New headquarters building (3,000 sq ft)	393,000	75,000	468,000
New park residence (1,300 sq ft)	131,000	25,000	156,000
New maintenance building (3,000 sq ft), including yard	436,000	83,000	519,000
Paved maintenance staff parking area (4 spaces)	7,000	5,000	12,000
New ruins stabilization work area	4,000	1,000	5,000
Utilities connections for new complex	26,000	5,000	31,000
Gravel maintenance road	12,000	2,500	14,500
Place all overhead utilities underground	152,000	29,000	181,000
Monument landscaping/screening (new access road, operations complex, adjacent development)	634,000	121,000	755,000
Stucco wall around monument residence	66,000	13,000	79,000
Remove resid. & maint. bldgs.(2) and restore site	34,000	5,000	39,000
Miscellaneous site development	283,000	54,000	337,000
Subtotal	\$2,530,000	\$557,500	\$3,087,500
Other			
New radio communication system	\$ 20,000	\$ 3,500	\$ 23,500
Total			\$4,559,500

*Costs included as applicable under advance and project planning column

APPENDIX A: LEGISLATION

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).

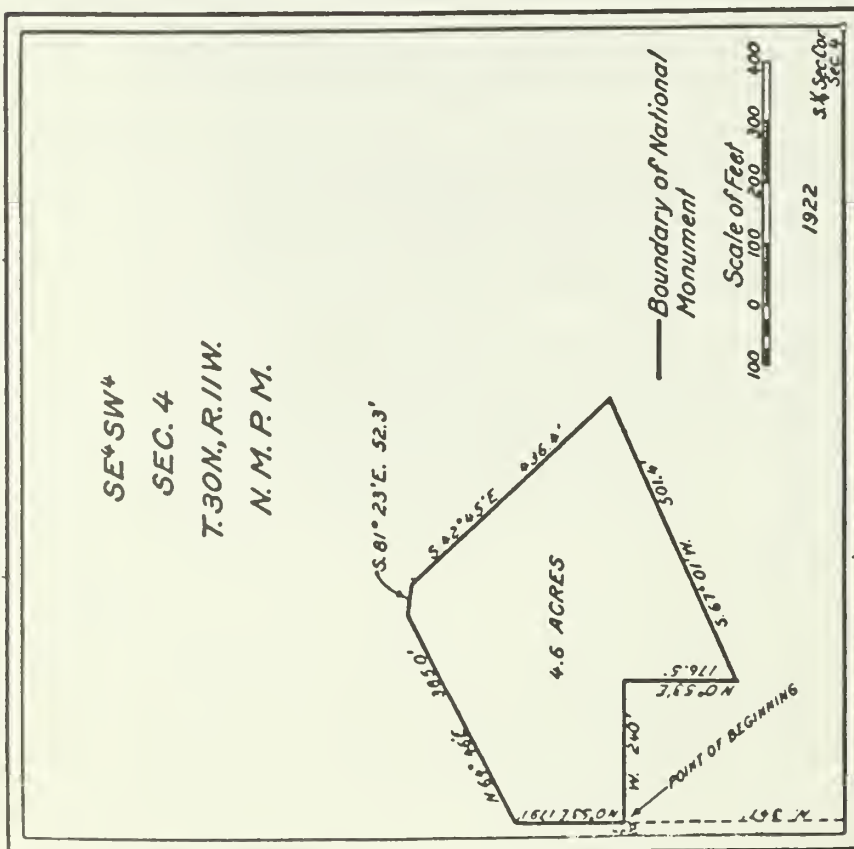
IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this twenty-fourth day of January, in the year of our Lord one thousand nine hundred and twenty-
[SEAL] 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.



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

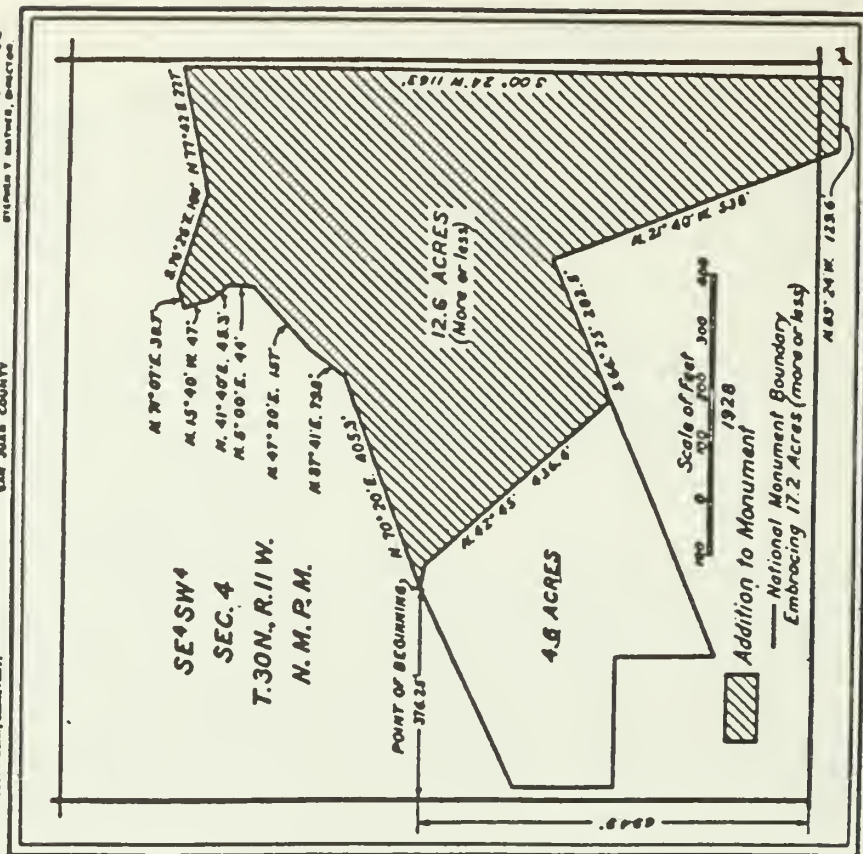
Meridian, and from said beginning point running, N. 70°20' E. 405.3 feet, thence N. 37°41' E. 79.8 feet, thence N. 47°20' E. 157 feet, thence N. 5°00' E. 44 feet, thence N. 41°40' W. 45.3 feet, thence N. 15°40' W. 47 feet, thence N. 71°07' E. 38.7 feet, then S. 76°26' E. 180 feet, then N. 77°42' E. 227 feet, thence S. 00°24' W. 1163 feet, thence N. 8°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

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NEW MEXICO
SAN JUAN COUNTY

NATIONAL PARK SERVICE
STENOGRAPHIC DIVISION



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.

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.

By the President:

W. R. CASTLE, JR.

Acting Secretary of State

CALVIN COOLIDGE.

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°53' E. 521.4 feet; thence N. 64°46' E. 22.1 feet to the northwest corner of the present Aztec Ruins National Monument; thence S. 0°53' W. 179.1 feet along the west line of said national monument; thence E. 240 feet along the south line of said

national monument; thence S. 0°53' W. 176.5 feet along the west line of said national monument; thence S. 67°01' W. 46 feet; thence S. 7°13' W. 158.4 feet; thence N. 88°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°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°13' E. 158.4 feet; thence N. 67°01' E. 547.4 feet; thence N. 66°25' E. 282.5 feet; thence S. 21°40' E. 538.0 feet; thence N. 89°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.

By the President:

HENRY L. STINSON,

Secretary of State.

HERBERT HOOVER.

PROCLAMATION 2787

ENLARGING THE AZTEC RUINS NATIONAL MONUMENT—New Mexico

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 ruins 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:

Beginning at a point N. 00°53' E., 821.4 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. 60°53' E., 278.2 feet, thence east 60.0 feet, thence S. 75°08' E., 83.13 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.

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.

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 27th day of May in the year of our Lord nineteen hundred and forty-eight, and of the 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.

TITLE VI—AZTEC RUINS NATIONAL MONUMENT

SEC. 601. REVISION OF BOUNDARY.

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.

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.

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: LEGAL COMPLIANCE

Basic guidance for management of the monument lies in its enabling legislation, included as appendix A, and from the general regulations which guide NPS operations and management contained in 36 *Code of Federal Regulations* (CFR).

Guidance for cultural resources management is provided by a whole hierarchy of laws, regulations, proclamations, orders, regulations, policies, standards, and guidelines. Relevant laws and regulations are itemized in NPS-28, *Cultural Resources Management Guidelines* (August 1985). NPS-28 draws upon and summarizes the various requirements to provide a servicewide guide for cultural resources management. The *NPS Management Policies* also provide a basic summary of cultural resources management mandates. For purposes of this GMP, the following items are deemed the most important.

The National Environmental Policy Act of 1969 (Public Law (PL) 91-190, 83 stat. 852; 42 USC 4321 et seq.) and its implementing regulations (40 CFR, parts 1500-1508) which directs the federal government to preserve important historic, cultural, and natural aspects of our national heritage.

The National Historic Preservation Act of 1966 as amended (PL 89-665; 80 stat. 915; 16 USC 470; amended by various public laws, including 96-515) declared a national policy of historic preservation. Among other provisos, section 106 of this act requires that the Advisory Council on Historic Preservation be afforded an opportunity to comment on any undertaking that affects properties listed on or eligible for the National Register of Historic Places. Section 110 of this act provides that "prior to acquiring, constructing, or leasing buildings for purposes of carrying out agency responsibilities, each Federal agency shall use to the maximum extent feasible, historic properties available to the agency." Other guidance is provided by 53 FR 4727-46, "Federal Agency Responsibilities under Section 110 of the National Historic Preservation Act." Amendments to this act in 1980 stressed the responsibility to preserve and conserve the intangible elements of our cultural heritage such as arts, skills, folklife, and folkways. Executive Order 11593, incorporated into NHPA by amendment, decrees that the federal government will provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the nation. It also mandates that agencies are to inventory cultural resources on lands under their control or affected by their programs, nominate eligible resources to the National Register, and exercise due caution with respect to cultural resources--giving them appropriate and adequate consideration during planning.

Protection of Historic and Cultural Properties (36 CFR 800) gives the step-by-step procedures to be followed by federal agencies to ensure that undertakings under their control are in compliance with the 1966 Historic Preservation Act and Executive Order 11593.

Management and protection of archeological resources are more specifically outlined in the following acts and directives:

The Antiquities Act of 1906 (PL 59-209, 34 stat. 225; 16 USC 431 et seq.)

The Archeological Resources Protection Act of 1979 (PL 96-95, 93 stat. 721, 16 USC 470 aa-ii) and the implementing regulations (43 CFR 7) provide for sanctions against persons convicted of removal, defacement, and/or sale of cultural resources from federal lands. Recently enacted revisions to this act (PL 100-555, 102 stat. 2778; and PL 100-588, 102 stat. 2983) require that federal land managers establish programs to increase public awareness of the significance of archeological resources located on public lands. These revisions also lower the threshold under which penalties may be assessed and require agencies to have a schedule and plan for survey of cultural resources.

Special Directive 87-3, Conservation of Archeological Resources deals with the basic dichotomy between the NPS mandate to preserve archeological sites unimpaired for future generations, and the necessity to excavate sites to acquire mission-oriented information or materials; i.e., those needed for scientific information, interpretation, or excavations that are done to rescue data that are threatened by visitor activities, natural causes, or development approved as part of the general

management planning process. This directive also stresses NPS responsibility for proper and timely curation, including provisions for adequate funding as part of projects.

The primary laws, rules, and regulations that deal with native American relationships are as follows:

The American Indian Religious Freedom Act, PL 95-341 (92 stat. 469, 16 USC 1996) which protects and preserves the right of American Indians to pursue traditional religious activities. As a corollary to this act, the Native American Relationships Management Policy (52 FR 35674) outlines procedures for dealing with a variety of Native American issues, and requires park managers to engage in the identification of and consultation with native American groups traditionally associated with park lands and other resources.

Special Directive 88-1 (October 13, 1988) *Public Access to NPS Cultural Resources Management Bibliography Reports and Confidentiality of Archeological and Ethnographic Resources Information* provides direction for review and certification of NPS bibliographic materials and outlines the provisions for protection of confidential cultural resources information, noting that federal land managers shall not make available to the public information concerning the characteristics and location of any archeological or ethnographical resources where the release of such information might risk harm to the resources or sites.

Other guidance is provided by

Special Directive 87-3, Conservation of Archeological Resources

Special Directive 85-4, Procedures for the Museum Collections Repository, Western Archeological and Conservation Center, Tucson

Special Directive 80-1, Guidance for Meeting NPS Presentation and Protection Standards for Museum Collection

Archeology and Historic Preservation: Secretary of Interior's Standards and Guidelines. 1983 (48 FR 44716)

Management of Museums Acts of 1955. (PL 84-127; 69 stat. 242; 16 USC 18f).

Under the terms of the programmatic memorandum of agreement between the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, the Advisory Council and the New Mexico state historic preservation officer were invited to participate in the planning process for Aztec Ruins. Both agencies had the opportunity to review and comment on the GMP. This participation satisfies the requirements of section 106 of the National Historic Preservation Act, as amended.

Under the regulations of the Advisory Council on Historic Preservation (36 CFR 800.1 (c)(2)(iii) and in conformance with the NPS "Native American Relationships Management Policy" (52 FR 35673), local native American groups were contacted as part of the public involvement process to determine the extent that actions proposed by the GMP will have an effect on resources in which they may be interested.

Architectural Barriers Act of 1968, PL 90-480 ensures that certain buildings financed with federal funds are so designed and constructed as to be accessible to the physically handicapped.

Rehabilitation Act of 1973, PL 93-112, which replaced the Vocational Rehabilitation Act, extends and revises the authorization of grants to states for vocational rehabilitation services, with special emphasis on services to those with the most severe handicaps and to expand special federal responsibilities and research and training programs with respect to handicapped individuals.

APPENDIX C: RECOMMENDED STUDIES AND RESEARCH

The following studies and research are proposed for future planning and management decisions.

Historic Structure Report (HSR) for the Earl Morris House/Visitor Center will analyze and document the original construction, dates and styles of all additions/renovations, probable room function(s), and a variety of other historic, architectural, anthropological, archeological, architectural, and engineering aspects of the structure and its setting as defined in NPS-28. The report will also include an evaluation of the National Register status of the building.

Historic Structures Reports (HSRs) for the East and West Ruins, Hubbard Mound, and the Great Kiva will be done under the guidelines established in NPS-28. Documentation will include those aspects discussed under the HSR for the visitor center as well as reporting on the construction styles and materials for the ruins as they were first photographed and stabilized by Morris. Determination of the order of construction/rehabilitation for the West Ruin will be part of this study. In-depth photographic/photogrammetric documentation and detailed large-scale topographic mapping to identify surface drainage patterns and possible subsurface features will be included in these studies. List of Classified Structures (LCS) forms will be updated.

These HSRs will analyze and record all periods of construction, noting subsequent modifications, materials, stylistic attributes, building techniques, evidence of use (prehistoric and historic), and setting.

Cultural Resources Evaluations of newly acquired properties will be completed following land acquisition, and findings will be incorporated into the monument's ongoing management, interpretive, and maintenance preservation programs. This documentation will also include revision of the existing archeological overview/assessment and the resources management plan to reflect new findings, identification of prehistoric/historic contexts, and completion of a comprehensive cultural resources base map to identify the location of the various prehistoric and historic sites and disturbed and excavated areas. Up-to-date overlays for this base map, showing all the water-control features and subsurface utility lines that crisscross the monument, will also be done to help avoid damage to significant resources during routine maintenance operations.

A *Historic Resource Study (HRS)* will be done in conjunction with the above surveys to document the historic events that helped shape the landscape, identifying historic sites, structures and objects associated with the past history of the area. It will also define the historic context(s) and National Register eligibility of monument sites/structures, especially those acquired under the 1988 boundary expansion; National Register forms will be produced as necessary. Appropriate treatments for these historic properties can then be developed. The cultural resources base map discussed above will include historic properties as well as archeological resources.

Historic Structures Preservation Guides (HSPGs) will be updated/developed to provide detailed day-to-day guidance and a standardized program for treatment of the monument's various structural remains. A long-term ruins monitoring program will be established in concert with the HSPGs to identify and track problem areas within the ruins.

Special Studies will provide comprehensive documentation and suggested preservation treatments. Of immediate concern is the condition of the plastered incised panel covering the north wall of room 117 in the West Ruin. Although some photographs have been made of the panel in 117, a special study should be programmed immediately to fully document this resource and to determine the best possible preservation/maintenance approach. The study will also include the plaster walls in room 156. The ruins should be mapped topographically before trail work. Other special studies should include: an oral history of the monument to complement the planned HRS and/or the Administrative History which is currently underway; special dendrochronological study, evaluation of ENMU 1974 imagery to identify prehistoric features; and acquisition of thermal and low sun imagery to evaluate low visibility archeological features; and documentation of surface drainage.

A *Scope of Collections* will provide guidance for the acquisition and preservation of the artifacts and the accompanying documentary materials. The document will outline the scope, types, range, variation, amount and quality of artifacts, documents, etc., necessary for NPS research, reference, interpretation, and exhibit needs. Aztec's *Scope of Collections*, last revised in 1985, will probably require updating because of changed emphasis and newly identified monument themes/historic contexts. Changes may mean reevaluation of the collection currently held at the monument and/or modifications in its content. Only donations of items with high interpretive potential and/or documentary materials that contribute to the scientific data base will be solicited.

Because the collection is scattered among different institutions, it is difficult for researchers to form a holistic and scholarly picture of the entire collection. Earl Morris felt that the best collections were sent to New York. Artifacts should be reanalyzed and the data incorporated into a new archeological collection study that would include photographic and textual artifact documentation. Reevaluation of these collections may also suggest the need for some sort of cooperative agreement regarding such possibilities as rotating exhibits and special loans.

The field and lab photographs, field notes, correspondence, etc., associated with the collections from Aztec are also housed in different institutions across the country. Because these materials form an integral part of the collection and are vital to research, interpretation, and stabilization activities, they should all be copied, the textual materials preferably on microfilm, and stored at the monument for the use by staff and visiting researchers.

The *Collections Management Plan* currently states that the collection excludes all original historic documents; however, documents associated with past archeological work are scientific documents should be procured and added to the collections. An archeologist will be hired on a term appointment to reanalyze Morris's artifacts, collate the supporting documentation, and complete a special documentary report on the types of techniques and materials used in past ruins stabilization.

An *Interpretive Prospectus* (IP) will need to be updated to reflect objectives in the plan.

A *Comprehensive Preservation Plan* will determine which portions of the ruins will be stabilized for interpretation and which will be stabilized for preservation by backfilling or other suitable means.

APPENDIX D: REVEGETATION TECHNIQUES

The following is a breakdown of the revegetation techniques that would be used under the GMP/DCP.

On irrigated and residential areas within the landscape management subzone all fences, corrals, and the orchard would be removed. Compacted areas would be ripped to a depth of 8 inches then floated to produce a firm seedbed. All irrigation would be stopped in the fall, then in the spring the pastures would be sprayed with Round Up (a contact herbicide) to reduce weed and pasture grass competition. Ten days after the application of the herbicide the area would be disked to a depth of 6 inches then floated with a cultipacker to prepare the seed bed. The area would then be seeded with a cover crop of sorghum to hold the highly erodible topsoil. Two applications of a preemergence herbicide would then be administered over the growing season to control weed growth. The following late June to early July, the entire area would be seeded with a mixture of indian ricegrass, galleta, alkali sacaton, fourwing saltbush, black greasewood, and winterfat.

Once the pond has dried up and before seeding commences, the area would require adequate fill to bring the pond up to the surrounding grade.

The above reclamation/revegetation activities, if properly sequenced, would result in minimal surface disturbance, control windblown erosion, and would accelerate the recovery of the area to a natural appearance.

APPENDIX E: CONSTRUCTION OF EARL MORRIS HOUSE

As originally constructed, Morris's house was a small, rectangular three-room structure of sandstone blocks set in even regular courses. Two bands of darker stone masonry, reminiscent of the pattern used prehistorically in some areas of the West Ruin, encircled the uppermost part of the building. Above this band, small vigas extended out from beneath a staggered arrangement of shaped stone blocks atop the walls. This stonework created a punctuated coping or parapet all around the flat roof and served to hide the flat roof from sight.

Large logs or vigas set into the end walls extended outward to dovetail with a long, notched log lintel that supported the roof of the deep south-facing porch. Four peeled wood posts were evenly spaced across the front of the structure to provide additional vertical support to the long lintel. Two sets of entry steps broke the long line of the low shaped-stone and mortar wall which extended around three sides of the raised porch. This wall was plastered on the front after 1933. Basement windows provided a modicum of light for the basement at the foundation line. Large casement windows with log headers and sills, each half window containing six panes, were set in the east and west side walls of the house, and flanked the two double-paned glass doors which were centered on the south side. A single double-paned glass paneled door opened out to the east, and another to the north. A cistern was placed immediately east of the house and is reached through the basement.

The interior walls were plastered with adobe mud and then whitewashed. Some of the materials used in construction of the house came from the ruin itself. Wood used in the beam-and-pole ceiling was scorched to give it a feeling of age; parallel poles were set into the upper portion of the deep window recess. A small corner fireplace in the living room provided heat to the structure. An excavated basement is beneath the house; exterior steps on the north side provide access. Morris used this small house as a residence and archeological lab.

A number of modifications were made to the house and the surrounding area in 1933-34. A small, stuccoed Indian-style building was constructed as a comfort station about 30 feet east of the house near a septic tank. A drinking fountain and weather station were in this vicinity, and in 1931 a well was drilled northwest of the house. A low, rounded plastered masonry wall enclosed and visually linked the house, the newly constructed oblong pool north of the house, the new parking lot, and the south and southwest boundaries of the monument. At one time, gold fish were to be stocked in the pool which had an oriental-style arched bridge across its center. (The pool was later removed in 1939.) Larger, rounded wall segments bearing the name of the monument delineated the southwest corner entrance, and a cattle guard between the two portals kept livestock from entering via the roadway. It is not clear exactly when the landscaped parking lot island was created. During the 1930s a cobblestone ditch paralleled the south fenceline.

In the mid 1930s, WPA workers remodeled and enlarged the Morris house. A doorway was cut through the east end wall and a large room added to the original structure to provide additional exhibit space. Shaped stone was used for the walls; ground stone metates were used on the deep window sills. The pole-and-beam ceilings were continued into the addition. During the remodeling the original porch was extended eastward, linking the new lobby to the original structure.

By 1940, restrooms and a storage room had been added across the east end of the new lobby to replace the old comfort station, and the exterior walls were stuccoed. Sometime during this period, a small pumphouse, pump, hydrant, and pressurized tank were built northwest of the house to supply it with water. When new septic tanks were built in a small arroyo northeast of the residential/maintenance complex, the old septic tank was filled in, and new lines run across it to the new tanks. Sometime during this period, modifications were also made to the north side of the visitor/museum complex. The pool was removed and landscaping added, and the north veranda and a small adjoining room were built.

By 1959, several more residential and maintenance structures were added to the southeast corner of the monument, and the visitor center was expanded some 3,000 square feet on the east end of the structure by the addition of exhibit areas and work rooms. The public restrooms were

relocated to an expanded section of the west end. Alterations were made to the entrance to the old lobby and the portals; an information counter and another window were installed. The wood and concrete floors of the visitor center were covered by wall-to-wall carpeting in 1969, and central gas heating was installed. A fire exit door was cut through a block wall in 1977, and the visitor center was reroofed. In 1979 work included plumbing and wiring for a basement darkroom and new storm windows and doors. Curatorial storage with a climate control system was added on the northwest corner of the building in 1984. In 1987-88 the restrooms and the south entrance to the visitor center were modified to provide improved handicapped access.

APPENDIX F: CONDITION OF CULTURAL RESOURCES

Aztec Ruins has undergone a number of changes since its discovery by Euroamericans. As early as 1919, the excavated masonry walls had begun to deteriorate. Although wind and water were responsible for much of the deterioration, human exploration, exploitation, stabilization, and development efforts have had the most impact on these resources. Early-day pothunters chopped through wood and earthen roofs and removed stone from walls to enter the room blocks. Large-scale excavation efforts by Earl Morris and other archeologists and interested laymen concentrated on finding and removing unique artifacts, and upon digging out and rebuilding the most spectacular of the structural remains. In the southeastern corner of the West Ruin, excavators looking for burials cut a 135-foot-long trench through a refuse mound and turned the ground over for about 100 feet to the south, revealing trash deposits up to 7-1/2 feet deep. Many of the ruins, such as repeated room blocks or cobblestone and adobe structures were of less interest to these early researchers, and thus a number of these structural remains and their associated artifacts were considered expendable. As a result, buried remains important to today's researchers were discarded. In many cases, excavators failed to record the conditions or artifacts found in excavated rooms.

For nearly 40 years the ruins had been a source of cut stone and timbers for local construction projects. Part of the West Ruin was excavated and scavenged for stone and beams to build Morris's house and to reconstruct the Great Kiva. Numerous sections of vigas were cut away for dendrochronological analysis, leaving the exact length and orientation of the original beams in question.

For many years, tourists walked across the tops of the fragile walls and roofs. Until the monument was fenced, sheep grazed on the ruin. Ad hoc trails and vehicle tracks ran through and over buried ruins. Because the area as we know it today was added in segments, portions of the ruin continued to be farmed until the 1930s, with cultivated fields and plots extending up to the walls of the ruins. Areas were leveled, and modern farm structures were built over subsurface remains.

Development efforts contributed a great deal to the deterioration of the ruins. Surface areas of the plaza and areas adjacent to the ruin were graded and compacted to provide dry footing for visitors during the rainy season. Asphalt paths were laid in and around the ruins, and ramps and footbridges were constructed. In 1921, a portion of the cobblestone annex west of the West Ruin was leveled to site the artifact storage building (the original expedition building) then situated in the plaza area. Seven rooms at the far northwest corner of the West Ruin were cleared out by the NPS custodian in 1927 and used as exhibit or museum rooms; other rooms in the southwest corner were renovated for maintenance and garage use. A service road connected the garage to the adjoining boundary road. In 1934 a concrete wall was constructed along the north side of the parking area, just south of a small section of a prehistoric "trash mound." This wall was built directly over the full length of a long, deep subsurface prehistoric wall that showed evidence of burning; soil, stone, and charcoal were removed from the vicinity of the long prehistoric wall. Two kivas were disturbed by construction of other parts of this same concrete wall along the east side of the Morris home patio. Work on the drains for Kiva A unearthed five skeletons in a trash mound southeast of the ruin; this mound has now been removed.

Efforts to clean up unsightly mounds and other surface features, some of which were no doubt prehistoric earthworks or adobe structural components, resulted in a great deal of change to the ground topography and loss of scientific information. In 1920 half a prehistoric refuse heap was hauled away to fill in around the headquarters building. Over 200 wagon loads of earth from the 1919 excavations were scraped from the plaza and added to the fill surrounding the new house and adjacent roadways, as well as being used to fill a great hole in the cultivated field just south of the West Ruin. Tons of fill from the ruins were used in area roads.

Attempts to stop the deterioration of the exposed stone and masonry walls led to the use of concrete flooring, wall caps, slabs, reinforcing, mortar, and roofing in various parts of the ruins during the 1920s and 1930s. Unfortunately, this solution proved to be both ill-advised and unsightly, and much of this early work has had to be removed. In the three quarters century since the ruins were

uncovered, various material types and techniques have been tried to stabilize the ruins; these varying stabilization efforts can often be dated from the type or color of mortar used.

Heavy irrigation of adjacent farm land to the north and west and excess tailwaters drained into a farm pond along the northeast boundary of the monument have caused a fluctuating water table that periodically seeps into the lower levels of the ruins and the adjacent visitor center. In addition, the county road along the east side of the property serves as a check dam, slowing the drainage of surface water to the river. Cracked wall caps and differential soil levels between room blocks allow moisture to wick or seep through the masonry walls, causing saturation and mineralization. To correct some of the problems caused by excess moisture, flood control dikes were built up, drain pipe was installed in the masonry or the room blocks, and drainage channels were dug in the floors. In 1944 a wide, deep trench was dug across the northern end of the monument, and hundreds of feet of subsurface drain pipe were laid to drain water away from the ruins. Obtrusive manholes or cleanouts were provided at intervals along the line. Later drain lines were laid closer to the surface.

In the past, many structures were rebuilt or heavily stabilized without precise knowledge of their original style or prehistoric construction techniques - Thus structural and archeological integrity has been lost through the haste to excavate, and because of inadequate knowledge, documentation, and training in ruins stabilization. More recently, nondestructive archeology and better techniques for stabilization have been used.

On the other hand, Aztec Ruins has some of the best preserved Chacoan structural remains found in the Southwest. Large portions of the East and Earl Morris ruins and the adjacent mounds as well as many sites within the 1988 boundary remain unexcavated, providing a broad data base upon which to base future research. Ruins stabilization reports housed at the Western Archeological and Conservation Center record much of the work done on the ruins between 1935-1975; other documentary materials are stored at the monument. Because the pueblos at Aztec were once buried under more than 500 years accumulation of soils and humus and because kivas were built below the ground surface, it is likely that a number of unexplored foundations and structures remain below the present plow/disturbance zone.

Most of Morris's extensive artifact collection from Aztec has been preserved. Because of his careful work, the artifact analysis and documentation of sources were extremely thorough for the times. The collection includes a wide range of artifact types and styles, ideal for giving the public a fascinating glimpse of past cultures, as well as providing an excellent data base for future scientific study.

Although NPS policy no longer condones wholesale reconstruction of prehistoric structures, the Great Kiva represents a nationwide trend in historic preservation during the 1930s. This impressive structure is also a valuable interpretive tool, allowing visitors to see and touch and experience the building's size and grandeur and allowing them to gain some understanding of the awe-inspiring religious ceremonies that must have been conducted here. The same could be said for the roofed structures throughout the ruin where visitors can crawl through the narrow doorways and experience for themselves what it was like to live in those dark, smokey stone-walled rooms.

APPENDIX G: NPS CONSIDERATIONS IN LOCATING FACILITIES NEAR EXISTING GAS WELL

During preparation of the General Management Plan (GMP), the National Park Service carefully analyzed whether it was prudent to locate NPS facilities near an existing gas well. Specifically, the GMP included a proposal which would construct park administrative offices, a maintenance building, an employee residence, and visitor parking areas approximately 200 feet from a natural gas production operation. The existing wells within the 1988 monument boundary can be located on several of the base maps in this document (see the Existing Conditions – 1988 Monument Boundary and Surroundings map; the letters G.W. on the maps denote a gas well).

Construction of facilities near an existing gas well and storage facility was of concern for two primary reasons: (1) potential health and safety of park staff and visitors; and (2) whether or not the Park Service was setting a precedent by locating its new buildings near an existing gas well when regulations at 36 CFR 9B would not allow a new oil and gas well to be located near existing NPS facilities.

HEALTH AND SAFETY CONCERNS

The National Park Service contacted the New Mexico Bureau of Land Management (BLM) in Farmington to assess the potential for a fire or explosion, the most common source of problems, and the type of damage caused. The Farmington office is responsible for approximately 12,000 active federal wells in the San Juan Basin. The BLM requires operators to file a report documenting spills or losses of oil and gas and to report the reasons. These reports cover losses due to such problems as fire, explosions, equipment failure, and theft. BLM gets two to three reports of fires every year, which is a .025 percent chance of a fire, or one in 4,000.

BLM feels the major causes of fire are accidents with production equipment, particularly heater treaters and dehydrators that use a flame to heat and separate oil, water, and gas. Secondary causes include lightning that strikes the tanks and malicious vandalism.

REGULATORY CONSIDERATIONS

It is important to preface this discussion with a disclaimer. Although the Park Service carefully analyzed the precedent-setting nature of locating its facilities near an existing gas well, it was not required to do so because the regulations at 36 CFR 9B do not apply to the Park Service but rather to oil and gas operators.

The specific regulation of concern is found at 36 CFR 9.41(a) This regulation requires that "surface operations shall at no time be conducted within 500 feet of ... any structure or facility (excluding roads) used for unit interpretation, public recreation, or for administration of the unit, unless specifically authorized by an approved plan of operations."

The regulatory language at 36 CFR 9.41(a) is based on regulations for oil and gas drilling operations in Santa Barbara, California. The purpose of these regulations is to minimize health and safety hazards to residential and commercial developments, and citizens. The Park Service requires a minimum distance of 500 feet between an oil and gas production operations and NPS administrative or visitor facilities since oil and gas production operations often include the use of potentially explosive equipment such as separators, heater treaters, and dehydrators.

The existing three wells would be allowed to continue production and would not be subject to NPS regulation unless they would have a change of ownership or a state or federal permit would expire. A fourth well within the expanded boundary has been plugged and abandoned. Development of additional nonfederal (private) minerals within the monument boundary would be controlled by the Park Service through regulations found in 36 CFR 9B. These regulations require NPS approval of a plan of operations before an operator can conduct oil and gas operations at any site where access

to the site is on, across, or over federal lands. Plans of operations would include provisions to reclaim the land once the mineral development phase is completed. The Park Service would require that bonds be submitted for each proposed development to ensure that adequate reclamation is conducted.

Once a plan of operations is submitted by an operator, the Park Service would prepare an environmental assessment that analyzed the potential impacts of the operation. Environmental consequences of each individual oil and gas operation are determined during the environmental assessment process. Steps would be taken to require mitigation of any potentially adverse impacts of proposed development, including rerouting of access roads and directional drilling.

As mentioned previously, it is likely that oil and gas development adjacent to the monument would continue. Although the Park Service has no regulatory authority over oil and gas development adjacent to the monument, park staff would monitor park resources to ensure that the development would not adversely affect park resources.

EXISTING SITUATION

Four wells have been drilled within the monument boundary, which produce both private and federal minerals. Three of these four wells are still producing gas and condensate; the fourth well has been plugged and abandoned. The following is a description of the wells and their associated facilities.

The Fee 9Y has a 1/4-acre production pad. There are two tanks for water and one tank for condensate on location. There are also two dehydrators and two meter houses because the well is a dual completion, that is two formations are open and produced separately within the same wellbore.

The Fee 4A has 1/2-acre production pad. There is one tank for water and one tank for condensate on location. There is one dehydrator and one meter house because this well only produces from one formation. The site has a fenced flare pit and condensate tank.

The Bobbie Herrera #1 has a 1/3-acre production pad. There are no tanks on this location because this well does not produce water or condensate. There are two meter houses because two formations are being produced. There is also a fenced flare pit.

The Hubbard-Moya #1 was plugged and abandoned in 1977. It is located next to the Hubbard homesite sheep pen. There is a 6-foot-tall 4" pipe cemented in the ground marking the old well location.

The average life of the wells is 25 to 30 years. The Bobbie Herrera #1 was drilled in 1979. The Fee 9Y was drilled in 1981, and the Fee 4A was drilled in 1983.

The wells are visited twice a week by "switchers" who change the gas measurement charts and check the equipment for problems. The condensate is hauled by truck approximately every two months and trucks empty the water tanks every month. Once a year, a small workover unit mounted on a dual-wheeled pickup truck is used to open up the wells to check the gas lift pistons. Also, the wells are pressure tested (excess gas produced during the tests is flared) once a year. The wells very rarely need a major workover, possibly once every 10 to 15 years. The gas is continuously transported by pipeline away from the wells.

The Fee 9Y well, which is within Aztec city limits and adjacent to park headquarters, is adequately fenced. The condensate tank and three sides of the production pad are bermed. The fourth side, around the gate, is not adequately bermed nor is the tank for salt water. Both the Fee 4A and the Bobbie Herrera #1 need to be fenced and bermed.

Although the sites seemed clean and well kept, further assessment of the natural resource impacts should be done. There was evidence of hydrocarbon stains in the flare pits but no standing oil or water. The condensate tanks were bermed. The Bobbie Herrera wellhead had a gas leak, but

because this well does not produce fluids there was no spill. The pipeline routes are identifiable on the aerial photographs indicating a vegetation change.

ANALYSIS OF ALTERNATIVES

The following questions were asked and analyzed during the process of determining whether the facilities could and should be built near the well.

1. What additional potential formations exist, e.g., is it likely that there will be future drilling?

Yes, there is the potential for future drilling. The Farmer Fruitland is not being drained in the spacing units around the monument. The Dakota is currently being drained by wells on a 320-acre pattern; an in-fill location, e.g., one on less than 320-spacing could be a target. There has been very little drilling deeper than the Dakota. To assess the impact of the GMP/DCP on future mineral development in and near Aztec Ruins, an analysis was made of the rate of well drilling. Drilling data was collected for the 9 square miles surrounding Aztec Ruins National Monument. There were 72 wells drilled between 1952 and May 1988 in this area; an average of approximately two wells per year. Most of the drilling occurred in three major initiatives. Twenty-two wells were drilled to the Pictured Cliff formation in the early 50s. Drilling was relatively stagnate for the next four years, until 12 wells were drilled to the Dakota formation in 1961 and 1962. Drilling again slowed for 15 years until the increasing oil and gas prices in the late 70s and early 80s enhanced the profitability of in-fill drilling, and 19 wells were drilled primarily to the Mesaverde formation. There has only been one well drilled near Aztec Ruins since 1983. As long as gas prices are stable, there will be a low level of drilling near Aztec Ruins. But if prices change, possibly due to the proposed deregulation of natural gas, more drilling may occur. Also, if new technology, such as the recovery of methane gas from coal becomes applicable near Aztec Ruins, there may be an increase in the number of wells.

Based on the overall average drilling pace, the existence of one open Dakota in-fill spacing unit, and the lack of drainage of the Farmers Fruitland formation, the NPS estimates there will be one well drilled in Aztec Ruins National Monument over the next 10 years.

2. What would it cost to buy the minerals and eliminate the well?

This question is technically more complex to answer. Preliminary research indicates that purchase of the mineral estate far exceeds the cost of moving the tanks (see #4 below).

3. Is it technically feasible to move the well? What would it cost?

Yes. The well in question, the Fee 9Y operated by Meridian Oil Co. is 4,794 feet deep and produces from two formations, the Blanco Mesaverde and the Aztec Pictured Cliffs. It would cost approximately \$450,000 to redrill the well at a new location and \$10,000 to plug the old well.

4. Is it possible to locate the NPS facilities near the well and mitigate the potential safety and health concerns?

Yes. In this scenario the wellhead would remain where it currently is, but the tanks and the dehydrators, which present a greater safety hazard, would be moved 500 feet from the buildings. Both BLM and the state well inspector said that, based on their experience, most fires were associated with equipment or tanks and not the wellhead, and most fires were contained to the production pad. Therefore, moving the tanks and dehydrators but leaving the wellhead should significantly reduce the probability of a fire or explosion near the park facilities.

The cost of moving the tanks and equipment depends on the distance of the move. One location at the base of the bluffs behind the monument would cost approximately \$37,000

for a 900-foot move. A second location evaluated is 2,400 feet away, on top of the bluffs near one of the existing wells. It would cost approximately \$56,000.

Though moving the equipment and tanks to the top of the bluffs may be an aesthetically pleasing alternative, there would be increased operational problems because the 140-foot elevation gain would cause transfer problems for the unseparated gas, water, and condensate. Currently, water is lifted out of the well by a plunger lift system. Once it is in the surface lines, the pressure of gas pushes it through the pipes and equipment until it is separated. Water in gas lines offers occasions for frozen lines and increased potential for line corrosion and leaks. Repairs of the transfer line may cause continuing surface disturbance.

RECOMMENDATIONS

As a result of the technical analysis regarding the proximity of NPS facilities to the existing gas well, three alternatives were recommended to NPS management:

1. Redesign the location of proposed structures and parking areas to provide a 500-foot safety zone around the existing gas well production site.
2. Construct the proposed structures and parking areas at the preferred location, and relocate the production tanks, separator, and dehydrators (which pose the greatest safety hazard) to a surface location at least 500 feet from all development areas. The gas well would remain at the current location. A buried pipeline would be required to link the gas well with the relocated production equipment.
3. Construct the proposed structures and parking areas at the preferred location, remove the production equipment (e.g., tanks, separator, and dehydrators) from the well site, and install a buried pipeline to link the well to the existing gas production sites located on top of the bluff.

DECISION

The regional director determined, for purposes of the draft GMP, to go forward with a proposed alternative that locates some of the NPS facilities within 500 feet of the existing gas well. He further decided to adopt recommendation #2 above, which will significantly mitigate the health and safety concerns associated with placement of the facilities. The criteria for the regional director's decision are outlined below:

1. The existing visitor center and parking area will provide the core around which other developments, necessary for the effective management of the monument, are situated. It is believed that moving the NPS facilities to various locations have operational or aesthetic limitations that will impair the National Park Service's ability to address the issues the GMP is supposed to resolve.
2. Most of the area where the new administration building, residence, and maintenance shop will be situated has been previously disturbed. Therefore, this location is anticipated to have the least effect on undiscovered cultural sites.
3. The potential safety hazards associated with a gas treating facility close to the NPS buildings were researched. Because there is a potential for fire or explosion (even though it is low), the proposed plan includes a proposal to move the gas dehydrators, separators, and condensate storage tanks 500 feet from the new NPS buildings. The Park Service believes that relocation of these facilities will adequately mitigate the safety and health concerns associated with possible fire or explosion near the treating facility.

APPENDIX H: TRAIL SURFACES/TRAIL ACCESS

Wooden plank boardwalks are frequently used in wet, boggy areas or to traverse ecologically sensitive or archeologically fragile sites (NPS, USDI 1988).

For maximum handicapped accessibility, trails and paths must be hard-surfaced. Asphalt is a primary trail surface substance used for such soil based paths and trails on a National Park System basis. Asphalt is durable, relatively inexpensive and maintenance free, and when properly applied, offers good accessibility for disabled visitors, especially for wheelchair-using persons. However, the black color of asphalt is a high profile, profoundly visible aesthetic impact to the resource, particularly in natural and historic environments.

There is an excellent method to prepare handicapped-accessible asphalt trails without causing the undue aesthetic impacts associated with such a trail snaking through a resource. Plasti-Pave Manufacturing Company, 3055 Alvarado Road, San Leandro, California 94577, (415) 352-0566, has available a sturdy and long-lived glue marketed under the name of Plasti-Pave Penetration Binder. This process or another which is comparable could be analyzed for consideration. The Plasti-Pave Penetration Binder is applied to an asphalt surface and then covered with 30-mesh washed sand. Excess sand is then brushed off the dried glue, which is transparent when set up. The drying process requires 1 to 2 hours, depending on weather conditions. The color of the sand should match the soil on which the trail is developed. If the color of the sand is correctly matched, the trail surface and surrounding soil will harmonize, resulting in a trail that demonstrates the accessibility and low maintenance of asphalt with none of the traditionally accepted aesthetic impacts associated with this substance. Several parks, especially in the Southern Arizona Group (SOAR), have asphalt trails coated with binder and sand which is homogeneously consistent with the color of the soil immediately adjacent to the trail. The results are aesthetically pleasing and economically beneficial. All asphalt trails, regardless of handicapped accessibility could be treated such.

The trail to the Animas River will cross Ruins Road south of the existing maintenance/residential area and will go underneath the proposed access road bridge (see General Management Plan/Development Concept Plan maps in "The Plan" section). Unwarranted trail access at the point the trail crosses the road will be discouraged with signs prohibiting parking. Periodic law enforcement surveillance at this area will be employed. Fencing will be erected along Ruins Road and the NM 544 extension as well as around the expanded monument border. Gates will be erected at the intersection of the road and trail so that trail users may cross the fence. Signs at these roadside gates and at the picnic ground trailhead will instruct potential trail users to pay the monument entry fee at the visitor center before proceeding along the trail.

APPENDIX I: FINDING OF NO SIGNIFICANT IMPACT

DRAFT General Management Plan/Development Concept Plan/Environmental Assessment

(GMP/DCP/EA)

Aztec Ruins National Monument

New Mexico

INTRODUCTION

The National Park Service (NPS) is in the process of issuing a new General Management Plan/Development Concept Plan (GMP/DCP) for Aztec Ruins National Monument. The plan will provide guidance for the preservation, use, development and management of the monument for the next ten to fifteen years.

In developing the plan for the monument, the views of federal, state, and local agencies; Indian tribes; private landowners; organizations; and individuals were sought. A public scoping meeting was held at Aztec in September 1987 as well as a separate meeting with surrounding landowners. Public meetings were held on May 4, 1989, the public review period on the draft GMP/DCP/EA extended from April 20 to May 22, 1989. A news release was distributed for publication locally and distribution of the draft plan was made to federal, state, and local government agencies, Indian tribes, and private organizations, landowners, and individuals.

The purpose of this document is to record the selection of plan proposals and a "finding of no significant impact" pursuant to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (43 CFR 1500). Following the issuance of this document a final GMP/DCP will be prepared and approved.

SUMMARY OF DRAFT PLAN PROPOSALS

The Draft GMP/DCP/EA described three alternative park schemes for management zoning, land protection, resources management, visitor use and interpretation, general development, and management and operations. These included a proposed plan, continuation of existing conditions ("no-action plan"), and minimum requirements alternative. Based on public review input, the proposed plan has been selected as the preferred action. The primary objectives of the selected plan are to provide maximum protection and preservation of cultural resources;

expand visitor services and programs to reflect Aztec Ruins' role in a much larger cultural system; improve visitor parking and circulation; enhance the quality of the visitor experience; provide for more efficient monument operations by expanding administrative office space, increasing staff, and consolidating administration, maintenance, and resource protection staff at one general location; and provide visitors and employees with disabilities the opportunity to participate in as many of the same programs and activities as nondisabled persons do.

Under the GMP/DCP, interests in lands will be acquired within the expanded boundary established in 1988, allowing the Park Service to enhance and protect the resources and to broaden interpretive programs for visitors.

A major ruins stabilization and backfilling program will be instituted and supervised by a full-time, on-site archeologist. Necessary studies and research related to the structures, treatment, and history of the monument are recommended. A boundary fence will be constructed to discourage vandalism/pothunting and stock grazing. Roads and developments as well as brush and foxtail barley will be removed from the eastern portion of the monument, and the grounds will be revegetated to evoke a sense of the historic scene/landscape.

A new access road (to be built by the city of Aztec) will provide improved access from New Mexico Highway 544 (NM 544) to the portion of Ruins Road that runs along the eastern boundary of the original national monument and to areas north of the monument. This road will also improve access and circulation and provide a transition from an urban environment through a natural/rural landscape to the monument environment. This new access road is consistent with the city's 1982 comprehensive plan. Parking will be increased from 36 auto and four RV/bus spaces to 67 auto (16 of these will be for staff parking) and 16 RV/bus spaces to accommodate existing and future use. The proposed expansion will take into consideration future enlargement of the parking lot, as necessary.

Information/orientation and interpretation will begin at the visitor center, and interpretive programs and media will be expanded. The interior of the visitor center will be redesigned to improve visitor flow, and to provide adequate space for new exhibits and a separate audiovisual room. Two new handicapped-accessible interpretive hiking trails will be constructed, and the existing trails will be rehabilitated. The picnic area will be expanded to at least 10 sites. A major improvement will be upgrading accessibility for disabled visitors or employees throughout the monument.

All administrative, visitor use, resources protection, and maintenance staff functions will be centralized to improve efficiency and to reduce impacts on

resources within the monument and surrounding grounds. A new administrative office, maintenance facility, and staff residence will be developed west of the visitor center.

A gas well pad is within 500 feet of the area in which new administration, maintenance, and visitor facilities will be developed. For this reason, the gas well storage tanks and the dehydrators of this pad will be moved to another location that poses no hazard to NPS facilities or surrounding residential/commercial development. The gas well head will remain in its present location.

The full-time equivalent (FTE) staff level will be increased from 7.6 to 16.3 work-years, an increase of 8.7. The increase will meet the staff needs of management and better serve visitors.

SUMMARY OF ENVIRONMENTAL IMPACTS OF THE PROPOSAL

Cultural Resources:

Implementation of the proposed plan would produce positive effects on cultural resources. Protection and preservation of cultural resources within the expanded boundary would be accompanied by a variety of means, including land acquisition, management zoning, stabilization and backfilling, and operational changes.

Natural Resources:

80 acres of farmland would have irrigation removed to control water infiltration into the monument. 2.3 acres of vegetation and soils within the expanded monument grounds would be removed as a result of the NM 544 extension. Temporary construction impacts to wildlife habitat are expected. The 193 acre addition to the monument will provide additional wildlife habitat. Rehabilitation of old roads will reduce erosion.

Visitor Experience:

Several measures would greatly enhance the visitor experience in such areas as interpretation, recreation, aesthetics, handicapped accessibility, and safety.

Socioeconomic Environment:

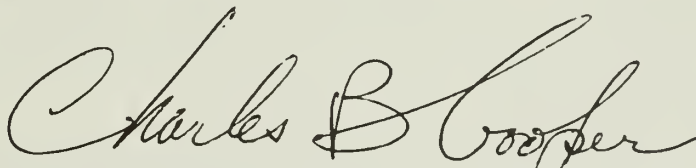
A land protection plan would be prepared for the area within the expanded boundary. It is likely that some property within the expanded boundary would be acquired on a fee or less than fee basis. Additional input to the local economy would result from an increase in tourism, monument employment, monument expenditures, and construction contracts. The new access road (NM 544) would reduce traffic through a residential area and school zone. Owners and operators of nonfederal minerals within the monument boundary would be required to submit a plan of operations if they chose to develop their minerals.

Based upon the public response to the GMP/DCP/EA, the environmental impacts of the proposal do not appear to be highly controversial.

CONCLUSION

After a review of the draft GMP/DCP/EA and public and agency response it has been determined that the implementation of the plan does not constitute a major federal action significantly affecting the human environment and that an environmental impact statement will not be prepared.


Recommended:


 Superintendent, Aztec Ruins National Monument

9/12/1989

Date

Approved:


 Regional Director, Southwest Region

9/12/89

Date

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

BIBLIOGRAPHY

- Brugge, Dave
1988 Personal communication re: ruins stabilization. Southwest Regional Office, Santa Fe, New Mexico.
- City of Aztec
1978 Zoning Map. Aztec, New Mexico.

1987 Museum. Historical data on Aztec Ruins.

1987 Chamber of Commerce. Data on area visitation.
- City of Farmington, Planning and Economic Department
1987 Population and Housing Data. Farmington, New Mexico.
- Collins, Susan M.
1987 "Prehistoric and Historic Cultural Resources of Mesa Verde National Park." Draft National Register of Historic Places documentation, submitted to Rocky Mountain Regional Office.

1988 Personal communication re: historic contexts. Mesa Verde National Park.
- Crosby, Tony
1987 Personal communication re: ruins stabilization. Southwest Regional Office. Santa Fe, New Mexico.
- Fiero, Kathy
1987 Telecon regarding ruins stabilization. Mesa Verde 1988 National Park. Cortez, Colorado.
- Four Corner's Tourism Council
1987 Four Corners, Map and Information Guide. Mancos, Colorado.
- Indian Country Tourism Council
1986 "Indian Country." Brochure. Gallup, New Mexico.
- Jones, Ann Trinkle, Archeologist, Western Archeological and Conservation Center (WACC)
1988 Personal communication re: ruins stabilization reports and artifact storage at WACC.
- Lange, Fred
1987 Personal communication and assistance with Earl Morris's correspondence files. University of Colorado Museum, Boulder, Colorado.
- Leonard, Diana
1987 Personal communication and assistance with Earl Morris correspondence files. University of Colorado Museum. Boulder, Colorado.
- Lister, Florence C. and Robert H. Lister
1968 *Earl Morris and Southwestern Archaeology*. The University of New Mexico Press: Albuquerque, New Mexico.
- Lister, Robert
1987 Telecon regarding historic structures at Aztec Ruins. Conducted on 12/1/87.
- Mesa Verde Press, Inc.
1987 *Four Corners Traveler Magazine*. Cortez, Colorado.

Metger, Todd, Nickens and Associates

1988 Personal communication re: new developments in Southwestern archeology.

Moore, Roger A.

1988 Personal communication re: new developments in Southwestern archeology.

Moore, Roger A. and Cindy J. Bunker

1987 *An Archaeological Inspection for New Mexico State Highway 544 Extension from U.S. Highway 550 to Aztec Ruins National Monument, San Juan County, New Mexico.* Conducted for the City of Aztec, New Mexico. Revised Addition. Report #87-SJCS-072. San Juan College Cultural Resources Management Program.

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

1956 *Master Plan, Aztec Ruins National Monument, New Mexico.*

1964 *Master Plan, Aztec Ruins National Monument, New Mexico.*

1976 *Assessment – General Management Plan, Mesa Verde National Park, Colorado.* Denver Service Center. Denver, Colorado.

1977 *Interpretive Prospectus, Aztec Ruins National Monument, New Mexico.*

1980 *Chaco Outliers: An Alternative Study, New Mexico.* Prepared by Southwest Regional Office. Santa Fe, New Mexico.

1981 *Resources Management Plan for Aztec Ruins National Monument, New Mexico.* Aztec Ruins National Monument staff.

1983 *Chaco Archeological Protection Site System Joint Management Plan, New Mexico/Arizona/Colorado.* Denver Service Center. Denver Colorado.

1984 *General Management Plan, Chaco Culture National Historical Park, New Mexico.* Denver Service Center. Denver, Colorado.

1985a *Statement for Management, Aztec Ruins National Monument, New Mexico.* Aztec Ruins National Monument Staff. Aztec, New Mexico.

1985b *Some Important Items to Consider for Handicap Access.* Prepared by Steve Stone. Denver Service Center. Denver, Colorado.

1987 *History and Prehistory in the National Park System and the National Landmarks Program.* History Division, National Park Service, Washington.

1988 "Self-Evaluation of Program and Facility Access and Handicapped Access Plan. Aztec Ruins National Monument.

New Mexico Economic Development and Tourism Department

1986 *Community Profile – Aztec, New Mexico.* Santa Fe, New Mexico

1987 *1988 New Mexico Vacation Guide.* Santa Fe, New Mexico.

New Mexico Game and Fish Department

1985 *Handbook of Species Endangered in New Mexico,* FISH/CY/CI/RO:1-2. Account by Kevin R. Bestgen, David L. Propst, and John P. Hubbard.

New Mexico Natural Resources Department

1987 *New Mexico State Parks.* Santa Fe, New Mexico.

New Mexico Progress

1987 *Economic Review of 1986.* Sunwest Financial Service, Inc. Albuquerque, New Mexico.

- New Mexico State Highway and Transportation Department.
1987 Traffic Flow Maps and Selected Average Annual Daily Traffic Volumes. Santa Fe, New Mexico.
- Northwest New Mexico Council of Governments
1987 "Planning and Development, District 1, Comprehensive Fact Book: McKinley, Cibola, and San Juan Counties." Gallup, New Mexico.
- Smith, Jack, Chief Archeologist, Mesa Verde National Park
1987 Personal communication re: Anasazi archeology.
- Soil Conservation Service, U.S. Department of Agriculture
1977 Soil Survey of San Juan County New Mexico.
- Stein, John R.
1987 "An Archeological Reconnaissance in the Vicinity of Aztec Ruins National Monument, New Mexico." Ms. on file, Division of Anthropology, Branch of Cultural Resources Management, Southwest Cultural Resources Center, National Park Service.
- Trott, Jim, Ruins Stabilization Archeologist, Southwest Regional Office
1987 Personal communication re: ruins stabilization.
- Vandegrift and Associates, Inc.
1982 *City of Aztec Comprehensive Plan*. Durango, Colorado.

PLANNING TEAM AND CONSULTANTS

PLANNING TEAM

Bruce McCraney, Team Captain, Landscape Architect, Denver Service Center
Charles B. Cooper, Superintendent, Aztec Ruins National Monument
David Gaines, Planning Coordinator/Landscape Architect, Southwest Region
Rocky Beavers, Environmental Specialist, Denver Service Center
Tom Bush, Historical Architect, Denver Service Center
Diane Rhodes, Archeologist, Denver Service Center
Michael Spratt, Former Team Captain, Outdoor Recreation Planner, Denver Service Center

CONSULTANTS

Denver Service Center

Ray Borrás, Estimator
Ronald W. Johnson, Section Chief, Branch of Planning, Central Team
Jim Pazalos, Handicapped Access Coordinator
Gayle Smith, Architect, Denver Service Center

Aztec Ruins National Monument

William L. Schart, Chief Ranger

Southwest Region

Tony Crosby, Historical Architect
Linda Dansby, Environmental Protection Assistant
Doug Faris, Chief of Planning and Design
Ron Ice, Regional Archeologist
Thomas Lubbert, Deputy Division Chief of Design and Planning Review Coordination
Peter McKenna, Archeologist
Ed Natay, Chief of Division of Native American Programs
Jan Schmitt, Environmental Specialist
Jim Trott, Ruins Stabilization Archeologist
Charles Voll, Chief of Environmental Coordination
Melody Webb, Regional Historian

WASO, Land Resources Division, Mining and Minerals Branch, Denver, CO

Mary Ann Grasser, Chief, Environmental Assessment Section
Leslie Vaculik, Petroleum Engineer

Harpers Ferry Center

Rich Helman, Wayside Exhibit Planner
Jim Mount, Museum Exhibits Planner
Tom White, Interpretive Planner

Agricultural Stabilization and Conservation Service

Ann Rhodes

Soil Conservation Service

Leon Martinez

San Juan County

Jim Blizzard, Planner

C.C. Cash, Former Director of Public Works

City of Aztec

T. Tweeti Blancett, former City Manager

Debbie Lee, Administrative Assistant

Ray Richardson, Mayor

Shirley Willis, City Manager

Scanlon and Associates

David Thomas, Vice President

Jack Verhines, President

San Juan College

Roger A. Moore, Archeologist



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

Publication services were provided by the graphics and editorial staffs of the Denver Service Center. NPS D-17A September 1989

