

DRAFT

Mapping and Modeling: The Making of the Cultural and Historical Resources Element Report

Sonoran Desert Conservation Plan

August 2000

[illegible]

Pima County, Arizona
Board of Supervisors
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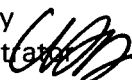
County Administrator
Chuck Huckelberry



MEMORANDUM

Date: August 3, 2000

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator 

Re: ***Mapping and Modeling Cultural and Historical Resources***

Background

During the last twelve months, members of the community who are knowledgeable about cultural and historic resources have combined their talents to ensure that the best information available is included in the *Preliminary Cultural and Historical Resources Element Report* for the Sonoran Desert Conservation Plan. The attached document describes how in a compressed time period, and with very little financial support, four methods were employed to gather, organize and analyze information that goes back as far as 12,000 B.C.: (1) the Arizona State Museum worked with Pima County to finish digitizing records; (2) a team of archaeologists and historians drafted a comprehensive, eight-part narrative of the known history and prehistory of Southern Arizona; (3) an expert's workshop attended by the leading scholars and practitioners in the field led to an improved set of resource maps; and (4) the Cultural Resources Technical Advisory Team met regularly over the course of the year to provide advice and oversight for the research effort. Each one of these initiatives represents a first of its kind. County staff recorded and synthesized the resulting data into a series of reports that were issued to the Board and presented to the Steering Committee for the Sonoran Desert Conservation Plan. This memorandum summarizes the four major information sets that form the basis of the *Preliminary Cultural and Historical Resources Element Report*, which will be completed in the next few weeks.

Improving the Database of Cultural Resources

Pages 2 through 6 of the attached report describe how the computerized record of cultural resources was improved as part of the Sonoran Desert Conservation Plan. A few highlights include:

- "The Arizona State Museum developed an electronic database for use as part of the Sonoran Desert Conservation Plan. ... The database ... provides information on: (1) the location and attributes of all recorded archaeological sites; and (2) the location and attributes of all recorded survey investigations." [p.2]
- "The following is a listing of archaeological concepts and criteria developed by the Arizona State Museum and used in preparing the cultural and historical resources element report." [pp. 3-4]

Organizing Data by Different Time Periods

MAJOR PERIODS	TIME RANGES
Paleoindian	12,000 B.C. - 8000 B.C.
Archaic	8000 B.C. - A.D. 200
Ceramic	A.D. 200 - A.D. 1500
Prehistoric/Historic	A.D. 1500 - A.D. 1700
Historic	A.D. 1700 - A.D. 1950

Organizing Data Within Time Periods

FUNCTIONAL PROPERTY TYPES	EXAMPLES
Habitation	Village, compound, trincheras, settlement
Agricultural	Field, canal, checkdam, rock pile, stock tank
Resource procurement	Mine, quarry, hunting blind, kill site, well
Resource processing	Mortar/metate, kiln, ore process, roasting pit
Transportation	Road, trail, railroad, stage, bridge
Storage	Pit, cist, cache, granary, reservoir, tank
Disposal	Dump, landfill, tailings, trash scatter
Communication	Cairn, phone, tower, monument
Commerce	Trading post, woodyard, gas station
Defense	Fortification, presidio, stockade, silo
Art	Petroglyph, pictograph, sculpture
Religion	Church, burial, ballcourt, shrine, sweat lodge
Government/community	Building, park, plaza, arena, mound
Other/unknown	Linear rock feature, scatter, wall

- "The Pima County portion of the database exclusive of the Tribal lands, contains records on 7643 sites and 2913 inventory surveys." [p. 4]

Summarizing the Prehistory and History of Southern Arizona

Pages 6 and 7 describe the work done by archaeologists and historians at Statistical Research Incorporated to summarize the story of the Southern Arizona's history and prehistory. Highlights include:

- "The lead researcher and Principle Investigator, was Dr. Stephanie Whittlesey, a Senior Staff Archaeologist at SRI Dr. Whittlesey prepared the history of previous research in Pima County, an introduction to the cultural landscapes concept, and all documents relating to the prehistoric period." [p.6]
- "Scott O'Mack, a specialist in historic archaeology, contributed to and oversaw the efforts of other SRI staff members in writing the historic-period portions of the research. O'Mack and his team examined historic maps of Pima County dating between 1863 and 1960 and tabulated data on every ranch, farm, mine, major road, and settlement depicted to provide a basic inventory of places that have the potential to be informative of the history and archaeology of Pima County from the late 19th century to the middle 20th century. Each of these was plotted on copies of USGS 7.5 minute series maps for future research. In addition, O'Mack plotted the location of ranches and mines on modern base maps of the county to assist in preparing the cultural resources element report." [pp.6-7]
- "Ms. Rebecca Toupal, an anthropology doctoral candidate at the University of Arizona prepared the overview of traditional cultural places with the assistance of Dr. Whittlesey. Ms. Toupal is currently working for the Tohono O'odham Nation and is experienced in working with cultural landscapes and traditional cultural places." [p. 7]
- "Dr. Teresita Majewski acted as the project manager and technical editor for all the research produced by the SRI team." [p. 7]
- "The work was conducted over a six month period from February through July." [p. 7]
- "The result of the efforts described is a series of documents that in total provides a comprehensive summary of all that is known about the history and prehistory of Pima County as viewed through archaeological sites, historical resources, and traditional cultural places." [p. 7]

- 1) *History of Archaeological, Historical, and Ethnographic Research*
- 2) *The People of Southern Arizona, Past and Present*
- 3) *Relationships Between Land and People*
- 4) *Cultural Resource Sites as Depicted on Early Maps in Pima County*
- 5) *Overview of Traditional Cultural Places in Pima County*
- 6) *Cultural Landscapes of History in Southern Arizona*
- 7) *Cultural Landscapes of Prehistory in Southern Arizona*
- 8) *Ancient Cultural Landscapes of Southern Arizona -- The Classic Period*

Expert's Workshop

Pages 7 through 10 describe the work done by the expert community to improve mapping of historic and cultural resources. Highlights include:

- "Archaeological sites are the most abundant class of cultural resources in Pima County. To date over 4000 sites have been recorded and yet only 12.1 percent of the county has ever been formally investigated. This means that the majority of the county is archaeologically unknown." [p. 7]
- "This limitation was overcome by assembling two teams of experts on the archaeology of Pima County ... in a workshop for the purpose of developing a set of maps depicting the expected location of archaeological sites." [p. 8]
- "These workshops brought current archaeological site and survey information together with the personal knowledge and expertise of archaeologists, all of whom have conducted field work and research in specific portions of Pima County." [p. 8]
- The results of these two workshops produced a map for each subarea showing sensitivity zones.
- "Once in the database, the sensitivity zones were available for analysis and could be quantified as to acreage and compared with other data." [p. 9]
- The eastern Pima County team included:
 - 1) Dr. Paul Fish, Curator of Archaeology and Director of the Archaeology Division, ASM
 - 2) Dr. William Doelle, President, Center for Desert Archaeology
 - 3) Mr. Alan Dart, President, Old Pueblo Archaeological Center
 - 4) Dr. Jeff Clark, Staff Archaeologist, Center for Desert Archaeology
 - 5) Mr. Henry Wallace, Staff Archaeologist, Center for Desert Archaeology
 - 6) Dr. Carla Van West, Staff Archaeologist, Statistical Research Incorporated
 - 7) Ms. Michelle Stevens, Ph.D. candidate, University of Arizona
 - 8) Mr. John Madsen, Curator, Arizona State Museum
 - 9) Dr. Beth Grindell, Senior Researcher, Arizona State Museum
- The western Pima County team included:
 - 10) Dr. Richard Alhstrom, private archaeological consultant
 - 11) Mr. Jerry Lyons, Staff Archaeologist, SWCA Environmental Consultants
 - 12) Mr. David Tucker, Staff Archaeologist, SWCA Environmental Consultants
 - 13) Ms. Mary Chenault Tuttle, Staff Archaeologist, SWCA Environmental Consultants

Cultural Resources Technical Advisory Team and County Staff

Pages 10 through 13 describe the work done by archaeologists and historians in the community and by county staff who worked since June of 1999 through the Cultural Resources Technical Advisory Team to identify data gaps, gather information, and synthesize all the sources of data into the Cultural Resources subarea reports and Preliminary Element. Highlights include:

- "A principle source of guidance and feedback in the process of compiling, analyzing, and reporting on cultural and historical resources has been the technical team." [p. 11]
- "Mission statement: To facilitate the preservation of Pima County's cultural and historical resources through the preparation of the Sonoran Desert Conservation Plan in order to protect their educational, scientific, recreational, aesthetic and spiritual values for the benefit of the citizens of Pima County." [p. 11]
- Objectives include:
 - 1) Assist in locating and identifying cultural and historical resources
 - 2) Assist in evaluating the significance of cultural and historical resources
 - 3) Assist in identifying areas containing resources under development pressures
 - 4) Assist in preparing long term management recommendations
 - 5) Review research products
 - 6) Serve as expert advisors
- The Cultural Resources Technical Advisory Team includes:
 - 1) Dr. Paul Fish, Curator of Archaeology and Director of the Archaeology Division, ASM
 - 2) Dr. Beth Grindell, Senior Researcher, Arizona State Museum
 - 3) Mr. Peter Steere, Cultural Resources Manager, Tohono O'odham Nation
 - 4) Mr. Joe Joaquin, Staff Cultural Resources Office, Tohono O'odham Nation
 - 5) Mr. Max Witkind, Archaeologist, Bureau of Land Management
 - 6) Ms. Mary Farrell, Forest Archaeologist, Coronado National Forest
 - 7) Ms. Sue Wells, Archaeologist, National Parks Service
 - 8) Dr. Jerry Kyle, Arizona Historical Society
 - 9) Ms. Marty McCune, City of Tucson

Conclusion

The high quality work and extraordinary cooperation of the expert community has allowed Pima County to review and synthesize a substantial body of information for the *Preliminary Cultural and Historical Resources Element* of the Sonoran Desert Conservation Plan. Mr. David Cushman and Ms. Linda Mayro from the County's Cultural Resources Office worked at every level of this effort to ensure its success. The attached *Mapping and Modeling* report reflects the technical achievement of the expert community and county staff, and it speaks volumes about their outstanding commitment to this important field.

Mapping and Modeling:
The Making of the Cultural and Historical Resources Element Report for
the Sonoran Desert Conservation Plan

Pima County Staff

July 28, 2000.

FINAL DRAFT

Introduction

The following report describes how information was collected for use in preparing the cultural and historical resources element for the Sonoran Desert Conservation Plan (SDCP). The SDCP is a regional planning effort that is designed to balance future growth in Pima County with environmental protection. Cultural and historical resources protection is one of six planning objectives under the Plan and to enable informed decision making, Pima County compiled and analyzed information on three basic resource types known to occur within the County's jurisdiction: archaeological sites, historical resources, and traditional cultural places as defined below.

Archaeological sites are any material remains of past human life or activities which are preserved in their original setting that are important to understanding prehistory or history. These sites or districts may include occupation sites, work areas, farming sites, burials and other funerary remains, artifacts, campsites, hearths, rock art, intaglios, trails, battle sites, religious or ceremonial sites, caves and rock shelters, the architectural or other remains of structures of all kinds, such as pit houses, pueblo rooms, adobe or rock foundations, and other domestic features, usually dating from prehistoric or aboriginal periods, or from historic periods at least 50 years old, for which only archaeological vestiges remain.

Historical resources are sites, districts, structures, objects, or other evidences of human activities that represent facets of the history of the nation, state, or locality. Also places where significant historical or unusual events occurred even though no evidence of the event remains, or places associated with persons significant in our history that have gained importance in the last 50 years.

A traditional cultural place is a historic site or district that is important because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The traditional cultural significance of an historic property is derived from the role the property plays in a community's historically rooted beliefs, customs, and practices.

There are four basic sources of information that were utilized in preparing the cultural and historic resources element: computerized data bases, both at the Arizona State Museum and Pima County Technical Services Division; research conducted by a private archaeological consulting firm; expert opinion provided by a team of archaeologist knowledgeable about Pima County; and, staff input, including assistance from the Cultural and Historical Resource Technical Advisory Team formed by Pima County to advise and assist the county in preparing the element. Information from these source was combined to produce a series of reports on topics relating to each of the resource types under investigation, as well as, a summary document for the County as a whole entitled, "Saving the Past for the Future: An Objective of the Sonoran Desert Conservation Plan."

I. AZSITE Contract

In June of 1999, Pima County entered into a contract with the Arizona State Museum to provide data

on all known archaeological sites and surveys within Pima County. Those data were drawn from AZSITE, a computerized inventory of archaeological data maintained at the Museum.

A. AZSITE

The Inventory is a consolidated informational network of recorded archaeological sites, historic properties, districts, and inventory surveys within the state of Arizona. It indexes the cultural resource files of two dozen state and federal agencies in Arizona in one centralized database. The Inventory does not replace the extensive holdings of any of the participating agencies, but serves as a first approach to the wealth of archaeological and historical resources of the state.

The AZSITE Cultural Resource Inventory is a project of the AZSITE Consortium, a partnership of 3 state agencies, the Arizona State Museum, the State Historic Preservation Office, Arizona State University, and one private agency, the Museum of Northern Arizona. The partners collaborate to manage, maintain, develop, and control access to the AZSITE Cultural Resource Inventory.

The AZSITE Cultural Resource Inventory was created to facilitate the integration and shared management of cultural resources information for the entire state. The two dozen state and federal agencies each hold files that contain, collectively, over 120,000 archaeological and historical site records, some computerized, most in paper format. These agencies are working collaboratively with AZSITE to add their records to the Cultural Resource Inventory. To date, 77,000 of these site records have been entered into the AZSITE Cultural Resource Inventory. The Inventory was developed to assist land managers, professional archaeologists, researchers in archaeology and history and students, and to improve accessibility to the information by making it available electronically via an internet connection to authorized users.

For a more technical description of the AZSITE Cultural Resources Inventory project, see Appendix A.

B. The Purpose of the AZSITE Contract

The Arizona State Museum (ASM) and Pima County entered into a contract under which the former would develop an electronic database for the latter to use as part of the Sonoran Desert Conservation Plan. The database consists of a comprehensive list of archaeological sites in eastern Pima County with additional, but incomplete data for western Pima County. The database is incorporated into and made a part of the AZSITE Cultural Resource Inventory, and provides information on: (1) the location and attributes of all recorded archaeological sites; and (2) the location and attributes of all recorded survey investigations. The electronic site and survey location information has been transferred to Pima County and loaded into the county's geographic information system (GIS) data base for use in preparing the Sonoran Desert Conservation Plan. The site location data are held in confidence by the Pima County GIS personnel, in collaboration with Pima County Cultural Resource personnel.

C. How the Database Was Developed

he database structure was developed by members of the AZSITE Consortium, in collaboration with members of Arizona's archaeological community. The database is stored in MS SQL Server, a relational database management system. The spatial data are stored in the same database using ESRI Spatial Database Engine, client-server system for GIS. The advantage of this design is that it supports large numbers of users over remote network connections. All communication with the database is based on standardized protocols such as SQL and ESRI's SDE programming interface. Data are entered into the AZSITE system through a free-standing entry application developed in MS ACCESS that produces a facsimile of the GIS and data table structure of AZSITE. The four consortium members are responsible for preparing datasets to submit to the master database. Sets of data pass through a review process and are ultimately submitted to AZSITE for entry into the master database. A final screen for integrity errors is performed and the data are loaded into AZSITE. At this point, the final AZSITE and AZPROJ numbers are assigned. A concordance is maintained with all previously assigned site numbers and a logfile is archived. Subsequent modifications are done via hand entry directly to relevant records. Access to the database is available to authorized users through a WWW application.

The following is a listing of archaeological concepts and criteria developed by the Arizona State Museum and used in preparing the cultural and historical resources element report.

Major Temporal Periods:

Time Range

- | | |
|------------------------|------------------------|
| • Paleoindian | 12,000B.C. - 8000 B.C. |
| • Archaic | 8000B.C. - A.D.200 |
| • Ceramic | A.D. 200- A.D. 1500 |
| • Prehistoric/Historic | A.D. 1500 - A.D. 1700 |
| • Historic | A.D. 1500 - A.D. 1950 |

Functional Property Types:

Example

- | | |
|---|--|
| • Habitation | Village, compound, trincheras, settlement, ranch, cabin, district. |
| • Agricultural | Field house, fields, canal, garden, checkdam, rock pile, orchard, barn, fence, windmill, stock tank. |
| • Resource Procurement | Mine, quarry, hunting blind, kill site, well. |
| • Resource Processing/
Manufacturing | Mortar/metate, kiln, ore process, roasting pit. |
| • Transportation | Road, trail, railroad line/station, stage line/station, bridge. |
| • Storage | Pit, cist, cache, granary, reservoir, tank, warehouse. |

- Disposal Dump, landfill, midden, ore tailings, outhouse, trash scatter.
- Communication Cairn, telephone/telegraph line, tower, monument.
- Commerce Inn, hotel, store, trading post, industrial facility, woodyard, gas station.
- Defense Fortification, presidio, fort, stockade, battle site, missile silo.
- Art Graffiti, petroglyph, pictograph, intaglio, sculpture.
- Religion/Ritual Church, burial, cemetery, kiva, ballcourt, shrine, sweat lodge, wine house, plaza.
- Government/Community Public building, park, plaza, sports arena, structural mound, big house.
- Other/Unknown Artifact scatter, lithic scatter, linear rock feature, rock ring, depression, wall, isolated finds, etc.

D. Results of the Project

The Pima County portion of the database, exclusive of Tribal lands, contains records on 7643 sites and 2913 inventory surveys. This includes 4600 sites, approximately 3000 historic buildings, and 99 surveys in the database as of June 1, 1999. Therefore, ASM has entered data on 3000 sites and 2800 surveys. The Museum originally estimated that information on 2450 sites and 1275 surveys would be entered as part of the AZSITE contract with Pima County. The gross under-estimation on the number of surveys reflects the difficulty in estimating numbers of surveys from the ASM base maps. The data entered to date represent virtually complete coverage for state trust lands, county and municipal lands and private lands. The only exception to this is land along the Middle San Pedro River where some site data is known to be missing and along the Cienega Creek. This latter data will be sought from Desert Archaeology, Inc.

Data from federal lands have not been completely entered for a variety of reasons and the following deals with the various land ownerships:

Bureau of Land Management (BLM): ASM and BLM personnel have systematically compared ASM and BLM maps and have determined that about 80 sites known to exist on BLM land were missing from ASM files. About half of this number has been reclaimed from old ASM databases. The remainder requires data be obtained from BLM Tucson personnel. Virtually no survey data from BLM lands are in the file and BLM personnel will need substantial time to pull together this information should they decide to incorporate it into the database.

National Park Service (NPS): NPS files for Saguaro National Park and Organ Pipe National Monument have not been systematically compared with ASM files to determine the extent of

coverage for these areas. ASM has contacted the Western Archeological Conservation Center to discuss a systematic comparison and to draw up plans for capturing these data. Depending on the quantity of data to be dealt with, cost and funding will be a factor in determining the speed with which the data may be added to AZSITE.

U.S. Forest Service, Coronado National Forest: Site location information for Coronado National Forest lands in Pima County have been entered into AZSITE. The attribute information has not been entered, as the electronic formats are incompatible. The problem, perhaps incompatibility between MS ACCESS 97 and MS ACCESS 2000, has been referred to the systems administrator for advice. There is no systematic survey data to be captured.

E. Problems and Recommendations

There were number of technical and procedural problems that were experienced in the course of building the county's data base using the data provide by the Arizona State Museum. First and foremost, AZSITE is still under construction and thus not all the data is accessible. The site attributes for instance were not available for mapping purposes, which would have enabled an analysis of temporal or functional settlement trends in historic and prehistoric times. These data are physically housed at Arizona State University, one of the AZISTE Consortium partners. While most of the site attribute data have now been transferred to ASM for inclusion in the master database, these data were not available at the time that Pima County was preparing its reports. Temporal and functional data, however, were available in summary form and analyzed in a series of tables for each subarea, as well as regionally. This limited the county's ability to provide more refined analysis of land use through time, which would assist in planning. Instead all sites from all time periods were mapped together to reveal broad patterns of land use.

Another problem relates to erroneous and missing site and survey data. Some data were missing and others needed corrections. Huge efforts were made by ASM to address these problems; however, the nature of computerized data bases is such that errors and missing information will persist requiring extensive efforts at quality control. Since AZSITE is not yet complete and since Pima County's use of the data base is the largest most comprehensive effort to date in applying these data to planning problems, much of the work that was done in building the county's database has helped ASM identify and correct problems as they developed.

Transmission and translation problems between the AZSITE database and Pima County's GIS database also presented challenges that had to be overcome in order to make the site and survey data usable, even though the operating platforms between the two systems are compatible (the Museum uses ArchView and Pima County used ArchInfo). For instance, defining surveyed space required rectifying different assumptions about the curvature of the earth so that the Museum's spatial reality matched that understood by Pima County's GIS software.

Lastly, there were problems that related to the timing of when information was made available and when it was used. Individual reports on each watershed subarea were produced using information transmitted to Pima County in the winter of 1999 and spring of 2000. By the time the reports were being prepared beginning in March 2000, updates, corrections and missing data were still being

entered into the system, meaning that some data were outdated almost as soon as they were reported. The regional analysis provided in the final element report reflects current data as of June 2000, but even these data have been modified since then.

In the future, it is recommended that further efforts be made to secure the site and survey attribute information needed for more refined analysis. Additional work is needed to correct and upgrade existing data in Pima County's GIS database. Lastly, direct access to the AZSITE database via a user account would allow Pima County to do the types of analysis and graphical displays that are necessary for the Sonoran Desert Conservation Plan. Negotiations have already begun to acquire a user account for direct access to the database for Pima County cultural resource personnel.

II. Statistical Research, Inc., Contract

Pima County also contracted with Statistical Research, Inc., to conduct research on the history and prehistory of Pima County on the regional level with an emphasis on the three resources types. This work was presented in a series of reports as listed below.

A. Purpose of contract with Statistical Research Inc.

Pima County hired SRI, a Tucson based firm with a long history of high quality archaeological research in Southern Arizona, to provide the public and county planners with detailed background information on the county's cultural resources assets. The firm did this by taking a regional approach to the subject matter, one that emphasizes the concept of cultural landscapes. Cultural landscapes is a theoretical view that recognizes interrelatedness of the natural and the cultural world through time and across space. This provides a big picture, contextual view of the past that examines how people perceive and use the land as an expression of cultural behavior. The landscape approach was used in preparing documents addressing topics in archaeology, ethnography and history.

B. Methods Used

The methods used to produce these documents consisted of solid research by a team of knowledgeable people who have already spent considerable time exploring the history, ethnography, and archaeology of Southern Arizona. The lead researcher and Principle Investigator, was Dr. Stephanie Whittlesey, a Senior Staff Archaeologists at SRI, who is an expert in prehistory ceramic technology but who has also written on a variety of archaeological topics in southwestern prehistory in Arizona, as well as in Pima County. Dr. Whittlesey prepared the history of previous research in Pima County, an introduction to the cultural landscapes concept, and all documents relating to the prehistoric period. She was assisted by Mr. Scott O'Mack, a specialist in historic archaeology, who contributed to and oversaw the efforts of other SRI staff members in writing the historic-period portions of the research. O'Mack and his team examined historic maps of Pima County dating between 1893 and 1960 and tabulated data on every ranch, farm, mine, major road, and settlement depicted to provide a basic inventory of places that have the potential to be informative of the history and archaeology of Pima County from the late 19th century to the middle 20th century. Each of these was plotted on copies of USGS 7.5 minute series maps for future research. In addition, Mr. O'Mack plotted the location of ranches and mines on modern base maps of the county to assist in preparing

the cultural and historical resources element report.

Ms. Rebecca Toupal, an anthropology doctoral candidate at the University of Arizona who is currently a Research Associate at the Bureau of Applied Research in Anthropology at the University, prepared the overview on traditional cultural places with the assistance of Dr. Whittlesey. Ms. Toupal is currently working for the Tohono O'odham and is experienced in working with cultural landscapes and traditional cultural places. The SRI overview is supplemented by research conducted by Mr. Jim McDonald, the former Forest Archaeologist for the Coronado National Forest, who provided an overview of Native American uses of the mountains in Pima County.

Dr. Teresita Majewski acted as the project manager and technical editor for all the research produced by the SRI team. The work was conducted over a six month period from February through July, 2000.

C. Results - List Products

The result of the efforts described above is a series of documents that in total provides a comprehensive summary of all that is known about the history and prehistory of Pima County as viewed through archaeological sites, historical resources, and traditional cultural places.

The documents are presented below by title. All are available for purchase from Pima County.

- History of Archaeological, Historical, and Ethnographic Research
- The People of Southern Arizona, Past and Present
- Cultural Resources as Depicted on Early Maps of Pima County
- Relationships Between Land and People: The Cultural Landscapes Approach in Archaeology and History
- Overview of Traditional Cultural Places
- Cultural Landscapes of History in Southern Arizona
- Cultural landscapes of Prehistory in Southern Arizona
- Ancient Cultural Landscapes of Southern Arizona: The Classic Period Landscape

III. Archaeological Expert Workshop

Archaeological sites are the most abundant class of cultural resources in Pima County. To date, over 4000 sites have been recorded and yet only 12.1 percent of the county has ever been formally investigated. This means that the majority of the county is archaeologically unknown. Since one of the six objective of the Sonoran Desert Conservation Plan is to protect cultural resources, including archaeological sites, the lack of information on the archaeology of most of Pima County severely limits planning capabilities.

A. Purpose of Workshop

This limitation was overcome by assembling two teams of experts on the archaeology of Pima County, one team for eastern Pima County and the second for western Pima County. The members of each team were each asked to participate in a one day workshop for the purpose of developing a set of maps depicting the expected location of archaeological sites. These workshops brought current archaeological site and survey information together with the personal knowledge and expertise of archaeologists, all of whom have conducted field work and research in specific portions of Pima County. This exercise was not intended to be objective or scientific but rather a subjective expression of current expert opinion on where the county could expect to find archaeological sites in the future. To gain the benefit of the best and most current thought on the subject, a single expert was assigned to each of the seven subareas in eastern Pima County. In light of its size and the limited nature of archaeological information in western Pima County, four experts were asked to participate in the modeling of this subarea. Presented below is a list of the team members who participated. A parentheses is added after each name to indicate the subarea they were responsible for.

B. Personnel and Qualifications

The team for eastern Pima County consisted of:

- Dr. Paul Fish, Curator of Archaeology and Director of the Archaeology Division, Arizona State Museum, University of Arizona. Chair of Cultural and Historical Resource Technical Advisory Team for the Sonoran Desert Conservation Plan (Tortolita Fan).
- Dr. William Doelle, President, Center for Desert Archaeology. Archaeological advisor for the City of Tucson (Middle Santa Cruz).
- Mr. Alan Dart, President, Old Pueblo Archaeological Center (Avra Valley).
- Dr. Jeff Clark, Staff Archaeological, Center for Desert Archaeology (San Pedro).
- Mr. Henry Wallace, Staff Archaeologist, Center for Desert Archaeology (Altar Valley).
- Dr. Carla Van West, Staff Archaeologist, Statistical Research, Inc.(Upper Santa Cruz)
- Ms. Michelle Stevens, Ph.D candidate in anthropology at the University of Arizona (Cienega-Rincon).

The eastern Pima County team was assisted by John Madsen, Curator at the Arizona State Museum and Dr. Beth Grindell, Senior Researcher also at the Museum.

For western Pima County, the team was made up of four individuals:

- Dr. Richard Alhstrom, a private archaeological consultant

- Mr. Jerry Lyons, Staff Archaeologist, SWCA, Inc. Environmental Consultants
- Mr. David Tucker, Staff Archaeologist, SWCA, Inc. Environmental Consultants
- Ms. Mary Chenault Tuttle, Staff Archaeologist, SWCA, Inc. Environmental Consultants

Each of these members have considerable experience on the ground and with the archaeological literature for the western Papagueria including western Pima County.

In all approximately 180 years of combined experience in the archaeology of Pima County was brought to bear in this exercise.

C. Methods

Each member of the eastern Pima County team and all four of the western Pima County team were given large scale laminated maps of their subareas showing current site and survey information along with contour lines, modern vegetation, drainages and springs, and modern roads. Using this information and their own knowledge and experience they were asked to stratify the subareas into three zones of relative site frequency: high, medium and low. This was done based on the assumption that some parts of the landscape have been used more intensively than others through time, that other areas were used less intensively, and that some areas were hardly used at all regardless of cultural, temporal, or functional variation in land use. Each team member drew out their zones using color coded markers over a period of several hours. After they finished, each team member presented their map to the others for review and comments. All the maps for eastern Pima County were created at the same time in the same room so that the team members had the benefit of group input at multiple points in the exercise. The map for Western Pima County was created following the same procedures described above.

At the end of each workshop the assumptions used in stratifying the subareas were discussed and recorded on the maps to clarify what decisions had been made and why. In every case, proximity to water, topography, and elevation were the main variables that were used. In some cases, the experts also used soil type and modern vegetation. The zones created, while depicting relative site frequency were interpreted in qualitative terms as site sensitivity zones.

D. Results

The results of these two workshops produced a map for each subarea showing the three sensitivity zones. The maps were then taken back to the county offices and a second map of each subarea was printed to the same exact scale showing the subarea boundaries and the registration tic marks needed to convert the zones into digitized polygons to be saved as a separate data layer in the county's GIS database. The sensitivity zones were then traced onto the registration map and digitized. Once in the data base, the sensitivity zones were available for analysis and could be quantified as to acreage and compared with other data. These maps, while based only opinion, will assist in preparing preliminary management recommendations about what parts of the landscape should be considered for conservation as part of the Sonoran Desert Conservation Plan.

IV. Staff Input

In June of 1999, Pima County staff began the process of identifying information needs and collecting data on cultural and historical resources for eventual use in preparing the Sonoran Desert Conservation Plan. That effort has culminated in the preparation of the cultural and historical resources element report noted above to be released in August of 2000.

A. Data collection

An earlier staff report entitled, "Preserving Cultural and Historical Resources" was produced in May 1999. This report described the state of knowledge about cultural and historical resources, and in doing so, highlighted areas needed for further research. Working with these recommendations, the staff identified archaeological sites, historical resources and traditional cultural places as the three principle types of resource that should be covered in the Conservation Plan. It was known that archaeological data were available through the AZSITE data base at the Arizona State Museum but that these data were incomplete. The staff was also aware that information on historic buildings, structures, engineering features and related constructed elements of the built environment was sparse, especially in the unincorporated portions of the county, and that what little was known was scattered among various repositories. The concept of rural historic landscapes is new in the field of historic preservation and staff decided to explore its utility for use in the Conservation Plan as well. Virtually no information existed on traditional cultural properties and so the objective was to learn about the few places that were known and to identify others that might have traditional cultural value.

Collecting information on each one of these resources required a different approach depending on the source of potential information and how it was going to be used in the report. For instance, archaeological data was known to exist in electronic form at the Arizona State Museum. So to access this in an updated form, Pima County entered into the AZSITE contract with the Museum as previously discussed. Additional background material was sought through technical reports and other publications on archaeological surveys and site excavations in Pima County and Southern Arizona. Historic resources as a category was divided into historic communities, ghost towns, historic trails, and properties and districts listed on the National Register of Historic Places. Each of these required going to different sources including Pima County's own collection of publications, the Tucson Public Library, and the Main library at the University of Arizona, but also the Arizona State Historic Preservation Office in Phoenix, and the City of Tucson Citizen and Neighborhood Services Office. Traditional cultural places required the same approach, basic research of existing publications, as well as, consultation with the Cultural Resources staff at the Tohono O'odham Nation, and working with the AZSITE archaeological data base.

B. Subarea Reports

All of the information used in the cultural and historical resources element report was first presented in a series of short reports on each watershed subarea in Pima County. These reports were prepared beginning in February, 2000 and presented to the Steering Committee for the SDCP between early March and late May, 2000. The results were also presented to the Committee in five public meetings

also held within the same time frame. The purpose of these subarea reports was to provide summary information on the nature and extent of known cultural and historical resources in each watershed unit so that the Steering Committee members and the public at large would acquire a basic knowledge of and familiarity with the subject.

Each subarea report described the physical boundaries of the unit, its landownership, and estimated population level for the year 2000. Then data on the three resources types were presented along with an analysis of resource loss and resource threat. Archaeological data were presented on the type and acreage of survey for each subarea and sites were counted by time period and functional type using criteria developed by the Arizona State Museum. Both sites and surveys were plotted on maps for illustration purposes. Historic resources were described as to type and date of use and their location were plotted. In some cases, places that have the potential to meet the definition of a rural historic landscapes were also discussed. Traditional cultural places were described but not plotted because of the sensitive nature of these resources. Finally, a simple model was presented that utilized proximity to water as a means of predicting the location of cultural resources, particularly archaeological sites, in areas that have yet to be investigated.

As the reports were being prepared and the results presented, new information was being collected and comments were received that required changes in content and format, so that the subarea reporting evolved over time. Each subarea report was accompanied by maps and illustrations and all were included as part of the final cultural and historical resources element report.

C. Technical Advisory Team

A principle source of guidance and feedback in the process of compiling, analyzing, and reporting on cultural and historical resources has been the technical team appointed by the Pima County Administrator. Called the Cultural and Historical Resource Technical Advisory Team (CHTAT), this team of experts in archaeology, history, and historic preservation was formed in June 1999 and has been actively involved in the reporting process.

1. Purpose

The team was formed for the purpose of assisting Pima County in guiding the county's conservation efforts with regard to the preservation and conservation of cultural and historical resources. The mission statement, adopted on August 30, 1999 is presented below.

Mission Statement:

To facilitate the preservation of Pima County's cultural and historical resources through the preparation of the Sonoran Desert Conservation Plan in order to protect their educational, scientific, recreational, aesthetic and spiritual values for the benefit of the citizens of Pima County.

Objectives:

1. Assist in locating and identifying cultural and historical resources within the SDCP area.

2. Assist in evaluating the significance of cultural and historical resources within the SDCP area.
3. Assist in identifying areas containing cultural and historical resources that are at risk from development pressures in the SDCP area.
4. Assist in preparing long term management recommendations for the preservation and conservation of cultural and historical resources in the SDCP area.
5. Review adequacy of research products developed by SDCP contractors, specifically their:
 - a. scope;
 - b. accuracy;
 - c. synthetic treatment of previous research;
 - d. comparative analysis;
 - e. management recommendations.
6. Serve as Pima County's experts on historic preservation for the SDCP and advise the Steering Committee and elected county officials on all matters related to the preservation and conservation of cultural and historical resources.

Activities:

1. Identify data sources that will meet these objectives.
2. Compile available information that will meet these objectives.
3. Define studies needed to achieve these objectives, prepare scopes of work, and advise consultants.
4. Review and comment on white papers prepared by county staff and reports prepared by consultants under contract to the county.
5. Draft position papers or statements representing the cultural and historic resources technical advisory team's consensus as determined through committee proceedings.
6. Advise the SDCP project management team, as requested, regarding historic preservation issues that arise from consultants or the public participation process.
7. Assist in the preparation of management recommendations for each subarea.

The team has met in regular session twelve times with one meeting of a specially formed subcommittee. All meetings have been posted and open to the public. Acting through these meetings, the team has functioned largely as a forum for discussion of ideas on what information to collect and how to present it. It has also played a critical role in establishing priorities and giving direction to the county. The individual team members have also acted as a source of information and advice, and in some cases, contributed directly to various reports. The support of the team and their input has greatly contributed to the preparation of the cultural and historical resources element of the Sonoran Desert Conservation Plan.

2. Team Members

The members of the Cultural and Historical Technical Advisory Team are listed below.

- Dr. Paul Fish (Chair), Curator of Archaeology, Director of the Archaeology Division, Arizona State Museum, University of Arizona.

- Dr. Beth Grindell, Senior Researcher, Manager of AZSITE, Arizona State Museum, University of Arizona.
- Mr. Peter Steere, Cultural Resources Manager, Tohono O'odham Nation
- Mr. Joe Joaquin, Staff, Cultural Resources Office, Tohono O'odham Nation (alternate to Mr. Steere).
- Mr. Max Witkind, Archaeologist, Tucson Area Office, Bureau of Land Management
- Ms. Mary Farrell, Forrest Archaeologist, Coronado National Forest, United State Forest Service.
- Ms. Sue Wells, Archaeologist, Western Archaeological and Conservation Center, National Parks Service.
- Dr. Jerry Kyle, Director, Southern Chapter of the Arizona Historical Society (also representing the Tucson Pima County Historical Commission)
- Ms. Marty McCune, Historic Program Coordinator, City of Tucson Citizen and Neighborhood Services.

The team was supported by: Mr. David Cushman, Program Coordinator, Pima County and Ms. Linda Mayro, Cultural Resources Manager, Pima County

V. Conclusion

This brief report has summarized the manner in which information was collected and presented in preparing the cultural and historical resources element of the Sonoran Desert Conservation Plan. The process described above has been on-going for over a year during which county staff has worked with the Technical Advisory Team, outside contractors, archaeological experts, and government agency employees from local, state, and federal offices. The result has been a comprehensive summary of current knowledge about archaeological sites, historical resources, and traditional cultural places in Pima County, Arizona.

There is more to do, however. The problems identified with the AZSITE data base need to be corrected, particularly the site attribute data, so that temporal and functional patterning in the archaeological record can be analyzed for planning purposes. In addition, there are serious gaps in survey coverage in certain places within the county that need to be filled through additional field work so that the data are representative of the true variability in past land use. Outside of the Tucson City limits, barely any systematic inventory has been done of historic buildings and structures; this lack of basic information undermines preservation planning for historic resources and much more work is needed to rectify the problem. The same is true for traditional cultural places, a category of resources that is virtually unknown in Pima County, not because these resources do not exist, but because no one has taken the necessary steps to contact the traditional communities that can locate and identify these places. In sum, as a result of the effort that Pima County has made to characterize

the nature and extent of its cultural resources assets, allot of information has been gained that has never been compiled before. In the process, however, this exercise has also revealed how little is known and how much more there is to know.

Appendix A. AZSITE Cultural Resources Inventory.

Excerpted from "Computerizing Arizona's Cultural Resources Files: Implementation Plan," by Beth Grindell and Rick Karl, Arizona State Museum, The University of Arizona, Tucson, Arizona, August 1997.

Computerizing Arizona's Cultural Resource Files
Implementation Plan

by
Beth Grindell and Rick Karl
Arizona State Museum
The University of Arizona
Tucson, Arizona

August 1997

AZSITE

A collaborative project of:
Archaeological Research Institute, Arizona State University
Arizona State Museum, The University of Arizona
Museum of Northern Arizona
State Historic Preservation Office

Summary

This report represents the "end of the beginning" of a multi-year project to computerize archaeological and historical site files for the state of Arizona. The AZSITE consortium, which has undertaken this project, was formed in 1995 by a memorandum of agreement signed by the Arizona State Museum, the Archaeological Research Institute at Arizona State University, the Museum of Northern Arizona, and the State Historic Preservation Office. The State Land Department and the Arizona State Office of the BLM have been active participants from the beginning.

In December, 1995, as its first interagency collaboration, the consortium applied to the National Center for Preservation Technology and Training for a planning grant. Under the terms of that grant, the consortium undertook three objectives: a needs assessment, a planning phase, and development of additional funding proposals. All three objectives were directed toward meeting the consortium's goals of establishing a computerized cultural resource database for the state and making it available electronically to authorized users. Using the NCPTT grant, the consortium has systematically planned and implemented a centralized archaeological site and survey database and systematically solicited advice and support from other concerned agencies in Arizona. It may be that, in terms of agencies and personnel involved, if not actual dollars spent, the AZSITE project is one of the largest collaborative cultural resource management projects yet undertaken in Arizona.

Through funding provided by NCPTT, the consortium has held a series of meetings involving members of the consortium as well as federal and state land managers, tribal representatives and private contract firms. As a result of these meetings, the database has been developed and modified and is currently in use at ASM and ASU. Over the course of the coming year, the remaining two consortium members, SHPO and MNA, will be networked to the system and all four consortium members will work to refine the process, incorporate each agency's back-log of non-computerized paper records into the system, and implement a plan to make the database available to authorized users over an internet server. Additionally, over the course of the next two years, the consortium plans to work with several federal and state agencies to

incorporate these agencies' records. As proposed in the NCPTT grant, the consortium has already prepared and submitted funding proposals to help us accomplish these goals.

It is clear from the needs assessment portion of the project that, with few exceptions, every site files repository has a mix of computerized and non-computerized records and that planning a computer system in the absence of a plan to computerize paper records is only half the project. Only one agency had survey data in digital form to be imported directly into AZSITE. It is also clear that there is a wide range of computer literacy present in Arizona's archaeological community. To make this project succeed the AZSITE consortium will need to concern itself with the actual desktop implementation of the database in the offices of the various federal, state and tribal agencies involved if these agencies are to gain the fullest benefit of this project.

Few, if any, other states have needed to solicit public support and participation as Arizona has and this process has introduced certain complications of its own. Public discussion of the content and uses of archaeological and historical site files has raised many questions concerning ownership of information and rights of access to that information that will take some time to resolve in a manner satisfactory to all participants. It is undoubtedly true, however, that given current funding options, the fact that this was done as a collaborative partnership among state, federal, tribal and private agencies has been a major factor in the consortium's ability to generate funding from state and federal agencies. The products of the NCPTT planning grant have already produced tangible results in the form of pilot project funding from the Arizona Heritage Funds, as well as a grant from the Federal Geographic Data Committee.

* * *

Participating staff from consortium agencies include:

Arizona State Museum: E. Charles Adams, Ph.D.; Beth Grindell; Rick Karl

Archaeological Research Institute (ASU): Peter McCartney; Michael Barton, Ph.D.

Museum of Northern Arizona: David A. Wilcox, Ph.D.

State Historic Preservation Office: James W. Garrison; Carol Griffith; Carol Heathington; Christy Garza

This report was developed under a grant from the National Park Service and the National Center for Preservation Technology and Training. Its contents are solely the responsibility of the authors and do not necessarily represent the official position or policies of the National Park Service or the National Center for Preservation Technology and Training.

Introduction

The State of Arizona is rich in prehistoric and historic resources of importance to many modern populations within the state. Over the course of the past century, these cultural resources have suffered from the intentional destruction for profit by looters and vandals and from the unintentional destruction for profit by urban developers. In response to the loss of history resulting from this destruction, both federal and state laws mandate protection and management of prehistoric and historic resources.

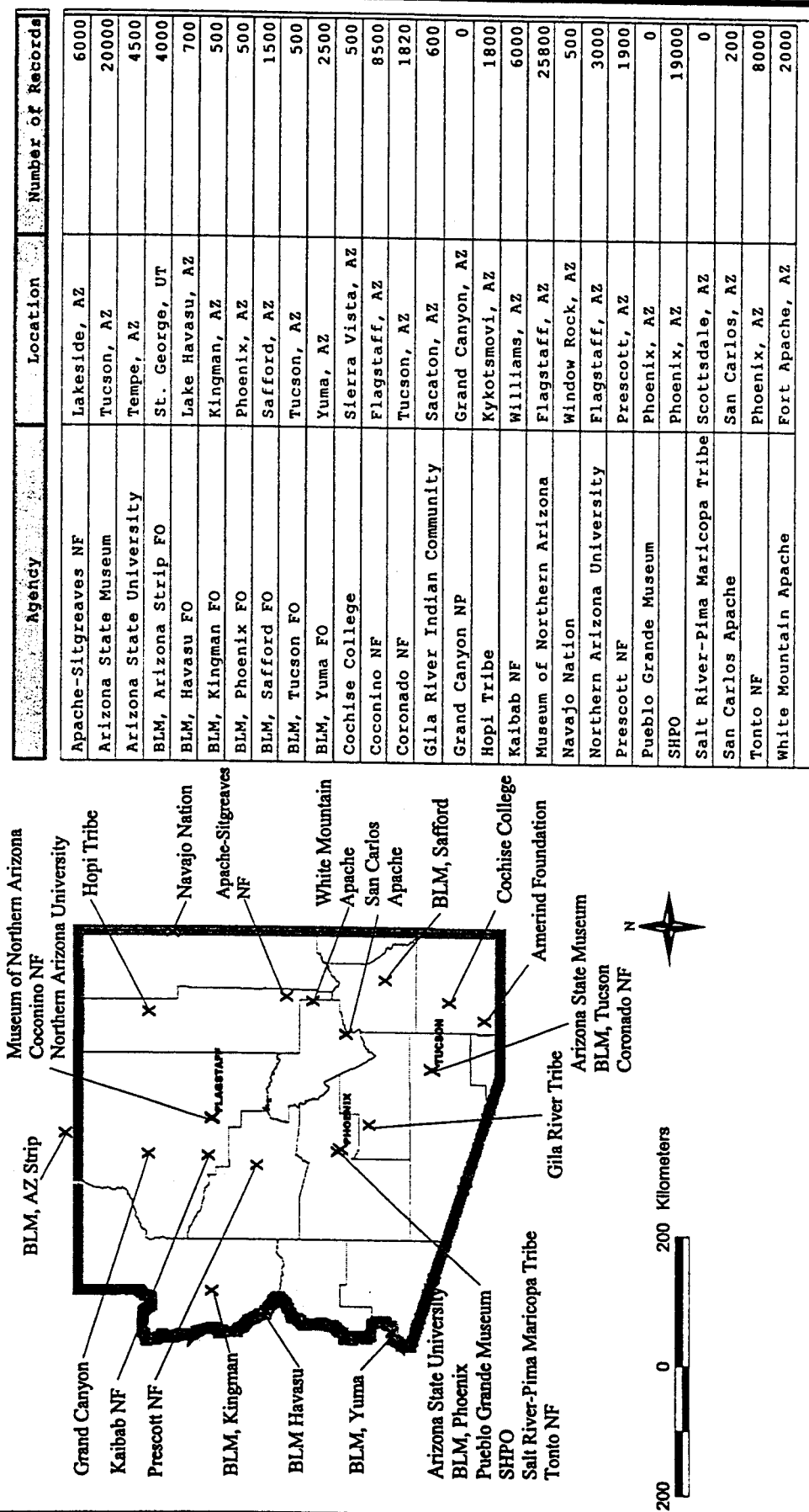
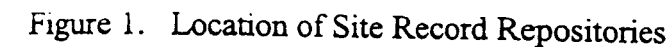
Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on prehistoric and historic archaeological properties. Section 110 of the NHPA requires that heritage management planning be an integral part of land use planning. The State Historic Preservation Act (SHPA) and the Arizona Antiquities Act (AAA) serve similar roles to protect the interests of state prehistoric and historic resources. Through a process of consultation with the State Historic Preservation Office (SHPO), attempts must be made to avoid or to effectively mitigate the adverse affects of development on prehistoric and historic properties. Normally, the first step in this process is a review of records to determine what reconnaissance has been done and whether sites are known to exist in the area.

Definition of the Problem

The practical implications of cultural preservation legislation required the development of a site inventory. However, in Arizona, there is no single centralized database containing the location and cultural information of previously identified sites. Nor is there currently any standardized statewide method of recording newly discovered sites. There are at least twenty-eight record holding agencies (see figure 1). Each of these agencies has a database containing archaeological records, sometimes regional, sometimes statewide, organized in an agency specific method.. While these numerous efforts are the direct result of the historical and legislative efforts designed to inventory, preserve and protect prehistoric and historic sites, the lack of a centralized database and uniform recording procedures complicates attempts at effective site preservation and management.

Archaeological Site Record

Repositories in Arizona



The decentralized manner which these records are currently maintained requires extensive, time consuming and expensive research at multiple repositories. A survey conducted by the consortium indicated most records searches required visiting on average 3-4 repositories. The geographical location of these repositories requires traveling to various cities and spending, in many instances, several days researching paper files and cross referencing them with files from other repositories. As a consequence, and despite the best efforts of researchers, prehistoric and historic sites may be overlooked, contributing to the inadvertent destruction of culturally significant areas. Additionally, the rapid pace of land development in Arizona and the consequent growth of the cultural resource management industry fueled increasing dissatisfaction on the part of government agencies and private industry with the state of site files.

In 1995, four institutions began discussions on possible remedies to this situation. The four agencies are the Arizona State Museum, the State Historic Preservation Office, the Museum of Northern Arizona and the Archaeological Research Institute at ASU. Each agency has its own mandate to keep records, but the product of this project will benefit all of them. Originally established as the Territorial Museum in 1893, the Arizona State Museum (ASM) was assigned the task of overseeing the archaeological resources of the Territory and subsequently the State. The 1960 AAA assigned protection and preservation responsibilities for state land archaeological sites to ASM. The 1966 NHPA and the 1982 SHPA directed the SHPO to maintain records of all state and federal properties eligible for inclusion in the National Register of Historic Places within the state. Both ASM and SHPO have databases containing thousands of prehistoric and historic sites. The Museum of Northern Arizona (MNA) was established in 1928 by Harold S. Colton. A private institution, its goal was to maintain and preserve the archaeological collections from northern Arizona. Arizona State University's (ASU) database was implemented in the 1960's and contains records for the central part of the state. Northern Arizona University's (NAU) records have grown through years of research under the auspices of their anthropology laboratory. Federal land managing agencies such as the National Park Service (NPS), the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) have created and maintained their own records management systems. Tribal cultural preservation offices maintain records on sites within their reservation boundaries and other areas outside these boundaries considered by the tribe to be of cultural significance. BLM, Apache-Sitgreaves National Forest (A-SNF),

Coronado National Forest (CorNF) and several tribes have been regular contributors to both the ASM and SHPO databases. Coconino National Forest (CocNF) and several tribes have contributed to the MNA database. ASU currently receives records from Tonto National Forest (TNF), other federal lands, private and tribal lands. NAU maintains records on state, private, tribal and forest service lands as required during the course of research. None of these institutions' databases is comprehensive, nor are they mutually exclusive.

Development and Goals of the AZSITE Consortium

The nature of the problem provided two clear goals for the AZSITE consortium, as outlined in a joint memorandum of agreement signed June, 1995:

- 1) Establish and maintain a computerized cultural resource database, termed AZSITE, for the State of Arizona.
- 2) Make AZSITE available electronically to all federal, tribal, state, local and private agencies concerned with cultural resource management in Arizona.

With funding provided by the NCPTT, the AZSITE consortium has undertaken a series of objectives to reach these goals:

Objective 1: Needs assessment

- 1) Define the user community and invite participation.
- 2) Through survey and workshops, delineate the scope of site file holdings in Arizona.
- 3) Establish criteria for a consolidated file.
- 4) Determine the special concerns of Native American communities with respect to archaeological records.

Objective 2: Review of available options

- 1) Review other state's experience that may serve as models for Arizona.
- 2) Determine hardware and software options.

Objective 3: Prepare plan of action

Objective 4: Prepare grant proposals for selected funding agencies

The consortium first outlined the requirements of a centralized database designed to meet the ever-increasing needs of a multi-agency use system. With the diversity of state and federal mandates, the first undertaking in meeting this initial goal was to define the data fields required

to fulfill these mandates. Through the cooperative efforts of the consortium members, recording agencies, tribal representatives and private contractors, 60 general data fields and several agency specific subfields were outlined to meet the needs of a class 1 archaeological survey. Figure 2 provides a schematic of the database content.

The second task was to develop a geographical information system (GIS) to handle spatial data in ArcView software. Spatial data are critical to the success of this undertaking for two reasons. First, most queries of the file involve a request for known sites and surveys within a particular geographic area, usually a specified section of land or an area within certain distances of some known feature like a highway. Electronically available spatial data will allow users to define their search area from their desktops and obtain the information over a modem or internet connection. Secondly, because many of the existing repositories in Arizona have overlapping jurisdictions, sites may be recorded in several databases under several different unique keys called site numbers. Spatial layers in a GIS format will allow users to realize instantly which sites are the same, despite differing site numbers. The database will return, in tabular format, all the recorded sites and surveys within the specified area.

The third task was to make the database available electronically, via internet or modem, to all qualified users. To meet this goal, a client server operating system, Microsoft Windows NT was selected; the database will be maintained in Microsoft SQL Server with a Microsoft Access front-end. A world-wide web browser will make the database available across platforms to MAC, Windows and Unix users. The client server architecture will offer optimum data security in a network environment. To make the spatial data available in a similar client server environment it will be necessary to adopt ESRI's Spatial Database Engine. We are exploring options on this now, as it is expensive software. Figure 3 provides a diagram of system design.

The funding received from the National Center for Preservation, Technology and Training (NCPTT) was channeled toward planning for and initial implementation of a centralized, statewide prehistoric and historic database. The result of the work by the consortium was the AZSITE pilot project. The pilot project database currently contains 27,000 site and 3000 survey attribute records and accompanying spatial data. The number of records in the database will double by the end of 1997 as the databases from other land managing agencies are converted and integrated into the AZSITE database

Schematic of the Database

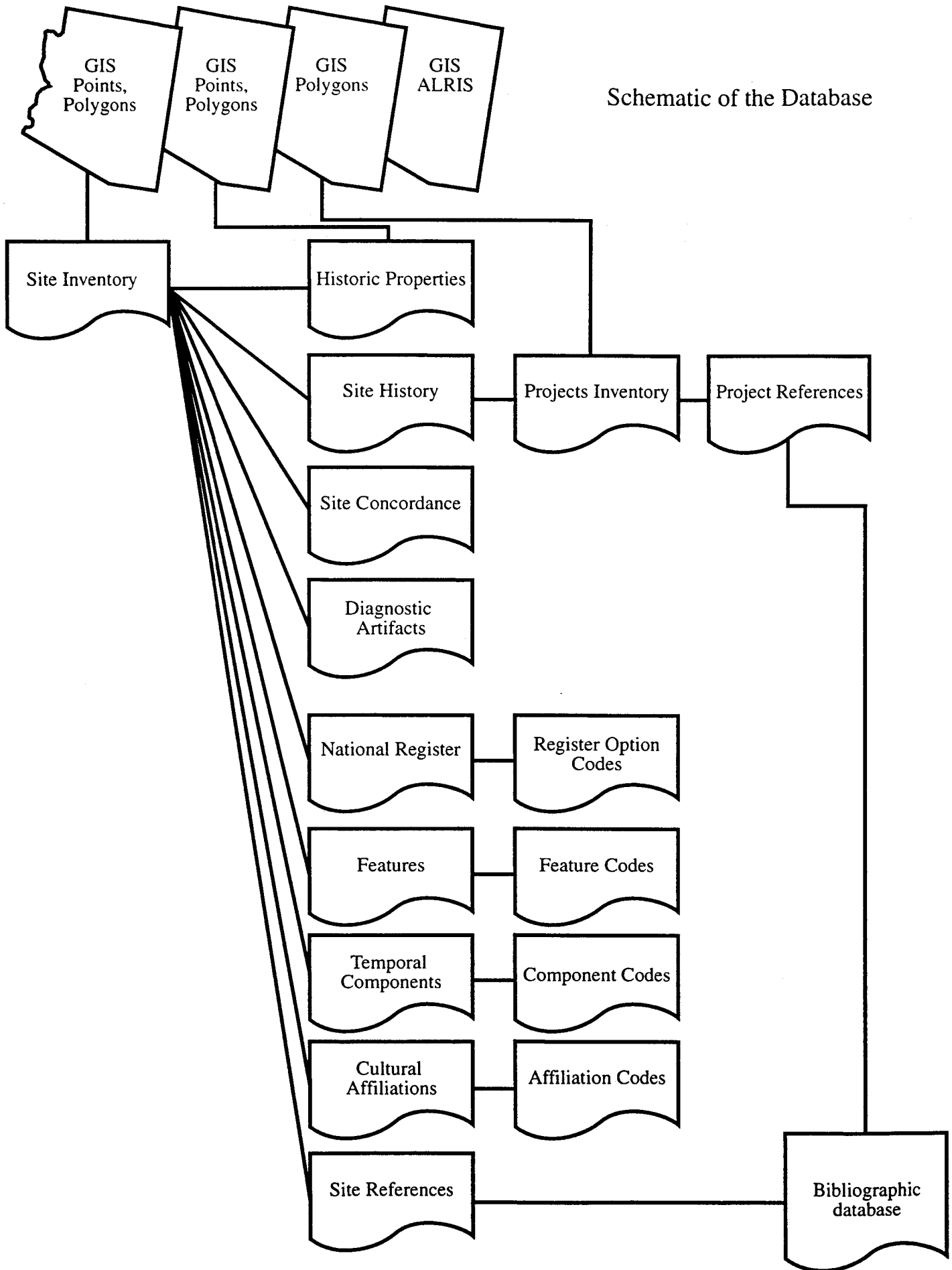
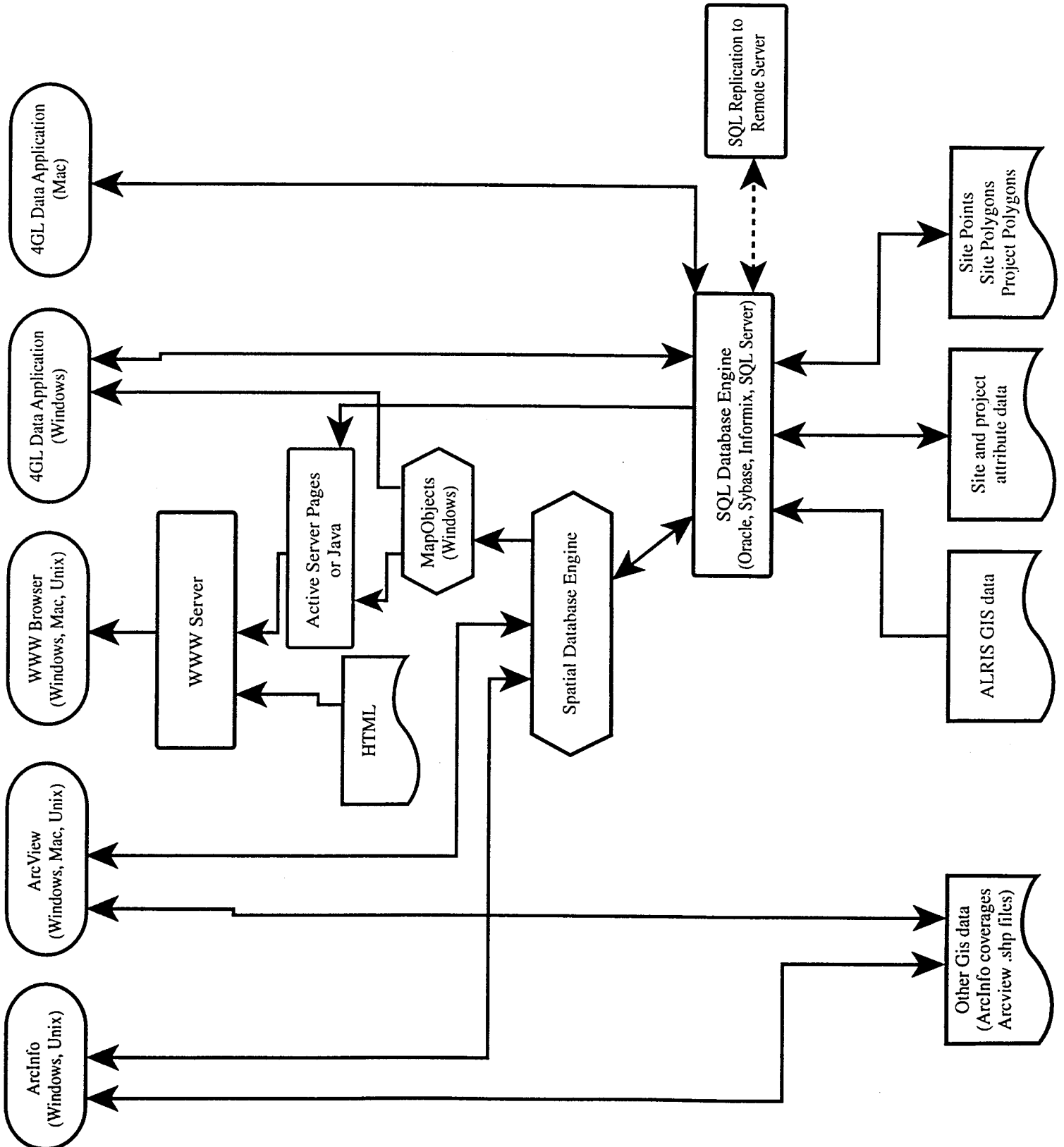
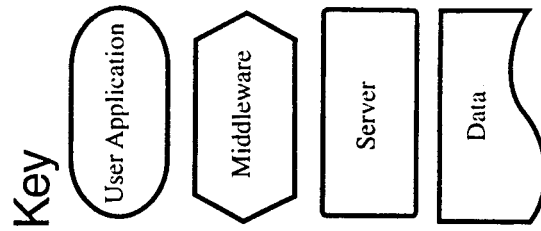


Diagram of System Design



AZSITE Needs Assessment and Outreach

A survey of the records holdings of land managers and site file repositories in Arizona netted solid information on the nature of site file organization in the state. As the survey (Appendix A) indicates, each agency has its own method of organizing data using numerous agency specific numbering and files management systems and computerized databases. Many of these agencies' databases overlap, creating a redundancy of records which is difficult to efficiently detect. The differing media in which the records are archived further complicates statewide research and management of records. Several agencies have paper records using various forms of documentation and/or incomplete electronic databases. For example, one agency has an "indeterminate" number of records. Some have been computerized, but many are in paper format and reside in boxes stacked in a closet. Another land managing agency holds several thousand records maintained in two different paper record forms. Nearly half of these records have been computerized but research capabilities are limited and time consuming due to out-dated hardware.

In summary, the survey revealed there were approximately 120,000 site records maintained at twenty-eight different repositories. As many as 40% of these records may be redundant. Approximately 65% of the agencies have records in both electronic and paper. The availability of these records ranges from inaccessible to readily available with proper permission.

The consortium recognized early by that the establishment and maintenance of a centralized database would require the cooperation and participation of all site record repositories, land managing agencies and contract archaeology firms. Toward this goal, representatives from these agencies have been encouraged to attend and participate in the regularly held AZSITE consortium meetings. An AZSITE Newsletter, (see Appendix B) updating the progress of the consortium and briefly outlining the previous meeting's minutes, is mailed to nearly 200 concerned parties. The AZSITE web page (located at URL <http://archaeology.la.asu.edu/azsite>) provides AZSITE updates and will be used in the future to allow remote access to the database by authorized users. To keep interested parties informed and to solicit comments and suggestions for the project, the consortium has conducted several meetings, presentations and workshops.

On February 20 and 21, 1997, the AZSITE consortium conducted an information dissemination and collection workshop at the BLM National Training Center in Phoenix, Arizona. The purpose of this workshop was two fold. First, it presented a preliminary proposal for a centralized, comprehensive prehistoric and historical site database. This was accomplished through the presentation and demonstration of the AZSITE pilot project. Secondly, the workshop served to gather feedback from the participants and potential users.

Over 100 concerned professionals attended the workshop, including contract and research archaeologists, federal and state land managers, state and tribal historic preservation officers, tribal cultural resource managers and concerned tribal members (see Appendix C for list of participants).

The topics of the two-day workshop consisted of presentations illustrating the proposed database content and the method of data entry and querying through the internet, security provisions for the database, and a discussion of funding and long-term management of the system (see Appendix D for expanded agenda).

Following each segment of the workshop, participants joined small groups based on similar data needs and concerns to discuss and pose questions concerning the information previously presented to them. There were five such groups:

- ♦ Group 1: Tribal members
- ♦ Group 2: Private contractors
- ♦ Group 3: Forest Service and Department of Defense
- ♦ Group 4: State and municipal government
- ♦ Group 5: BLM and the National Park Service

Within each discussion group, a facilitator led the discussion and a recorder made notes of each group's concerns, comments and questions. Prior to its return to the main group, each small group selected a spokes-person to present the main topics of their discussion. For a summary of the discussion topics and individual group responses see Appendix E.

Since its inaugural presentation at the February workshop, the AZSITE pilot database has been demonstrated on several occasions. The goals of these subsequent presentations were to solicit support for the database, to gather problem solving information from GIS users, and to

view established databases in other states in the hopes of avoiding previous encountered problems.

- ◆ On October 1, 1996, Beth Grindell of ASM and Peter McCartney of ASU attended a meeting at ESRI's Boulder Colorado offices with representatives of site file curators from New Mexico, Colorado and Nevada, to consult with ERIS staff on geographical databases.
- ◆ On March 6, 1997, Grindell spoke with the Inter-Tribal Counsel of Arizona at the San Xavier District offices in Tucson, Arizona. There she described the AZSITE project and discussed issues of database security with tribal representatives.
- ◆ On March 24 Grindell attended a meeting at the National Park Service, Washington DC, regarding the need for computerization of SHPO inventory records.
- ◆ At the April 25 and 26 meeting of the Arizona Archaeological Council, in Tucson, McCartney presented the method AZSITE was currently pursuing regarding the recording of linear sites and solicited questions on ways to make this method more efficient.
- ◆ On May 9, Rick Karl of ASM presented AZSITE at a meeting of the Southern Arizona Geographical Information System users in Tucson.
- ◆ On May 19, Karl demonstrated to members of the Consortium of Arizona Museum Archives and Libraries how the AZSITE database could be linked to the library system and researchers could retrieve related bibliographical information.
- ◆ On June 13, McCartney attended a meeting in Las Vegas, Nevada, sponsored by the Department of Defense, to discuss the need for interstate database compatibility.
- ◆ At the August 12 Arizona Geographical Information Council conference in Tempe, McCartney presented the AZSITE pilot project and demonstrated how a spatial database could be used to protect and preserve culturally significant areas.

The consortium held meetings on June 18 and 19, 1997, at MNA in Flagstaff, to present the current status of the AZSITE database and to discuss regional and agency specific concerns with the database. June 18 was devoted to federal lands managed by the forest service and the BLM and how their current databases could best be incorporated into AZSITE. There was a general discussion on the site numbering system and a review of the general data fields. This

meeting resulted in minor adjustments to the data fields and several agency representatives agreed to collaborate in the conversion of their data and preparing it for entry into AZSITE.

June 19 focused on tribal concerns, most notably the control of information recovered from sites on tribal lands. The AZSITE consortium understood concerns tribes have about including culturally sensitive information in the database. Early in the AZSITE planning stages, efforts were made by the consortium to include tribal representatives in planning of the proposed database. This collaboration with tribal representatives has continued since the presentation of the pilot project in February. During the June meeting, the consortium reached tentative verbal agreements with several tribes to include reservation sites in AZSITE, provided proper security and access restrictions are incorporated. For a summary of the June meeting see Appendix F.

Implementation

With the research and planning stages of AZSITE nearing completion, the task of implementing the system becomes the primary issue. To meet the challenge of implementing the system, the consortium has established a work plan, which is divided into six specific work tasks. These six areas are not mutually exclusive and may be conducted simultaneously.

Task 1 is the preparation of the site GIS themes for all participating contributors. McCartney and Karl will work with agency staff to acquire GIS data files and if necessary convert the data to the ArcView shape file format used by AZSITE. At the end of this task, site locations from all agencies will be submitted to the AZSITE team for entry into the central system.

Task 2 will be the preparation of the survey GIS themes of the participating contributors. Survey boundaries have been previously digitized for some areas and these files will be converted to ArcView format and imported to the AZSITE server. UA, ASU and MNA staff will digitize the remaining survey boundaries. McCartney and Karl will coordinate the digitizing efforts; staff from the respective agencies will be responsible for the selection and preparation of materials to be digitized.

Task 3 requires the preparation of the associated attribute databases for the site and survey GIS themes. McCartney and the ASU staff will work with data administrators from the

participating agencies to arrive at solutions for making local attribute databases complete and compatible with the AZSITE system.

Task 4 will be the concordance of these site and survey GIS themes and corresponding attribute databases to remove redundant records. Once the GIS themes and attribute data files have been imported to the AZSITE server, the spatial locations and attribute descriptions will be compared to sort out the overlap between the various data sources. Karl will be responsible for this task which will terminate with the insertion of the contributed records into the central database.

Task 5 will establish client connectivity with the central AZSITE server. Connectivity with the AZSITE server at ASU will be established for each participating agency and a user database will be created to control security. McCartney will act as system administrator and will consult with each agency to develop solutions for updating the AZSITE system with new and corrected records from the separate database systems.

Task 6 calls for the development and distribution of client software. Integrated client software enabling access to GIS and attribute data stored on the central sever will be developed and made available to all participating agencies with appropriate connectivity. McCartney and the ASU staff will be responsible for this part of the project.

Incorporation of Federal Lands Data

Currently the data held at federal agencies are in various states of conversion and compatibility with AZSITE. As a consequence of these varying stages, data are being handled on an agency by agency basis. Land managers are working in conjunction with AZSITE personnel to establish a protocol for data entry.

The in-house databases held by the Forest Service have either been or are in the process of being converted to an AZSITE compatible format. KNF data (approximately 5000 sites) have already been converted and incorporated into AZSITE. The software used to convert KNF's CRAIS (a USFS proprietary database management system) database to AZSITE will be used for PNF, CocNF and CorNF as well. Much of CocNF's site data are already incorporated into MNA files. A-SNF uses a UNIX platform and new conversion software will be developed to incorporate their data. TNF has no electronic database and all records will be entered by hand directly into the AZSITE system. Over one thousand sites from TNF are already included in AZSITE.

The BLM has been a regular contributor to the ASM database since 1985. As such, their attribute data records have already been converted and included in the AZSITE system. Surveys for the Phoenix district office have been digitized and forthcoming funding from Federal Geographic Data Committee will be used to digitize other districts' survey records. The Department of Defense has also been a regular contributor to the ASM database. Currently, only Luke Air Force Base maintains its own separate records. The inclusion of these records will be negotiated in the months ahead. The attribute database for state trust lands held at ASM has been converted and included in AZSITE. The digitizing of site and survey information held at ASM into the GIS database is underway.

The Western Archeological and Conservation Center and the Grand Canyon National Park retain site records for the NPS land holdings within the state. Many of these records have been digitized and some have been recorded at ASM. Those records digitized will be incorporated into AZSITE. MNA's database is in the process of being converted and incorporated into AZSITE. MNA staff will digitize surveys by hand. Table 1, below, summarizes the general status of each agency's data conversion.

Table 1. Status of Agency Data Conversion

Record Status Agency	Already Submits Data to ASM	Site Data in Paper Form. Must be Computerized into AZSITE	Site Data in Electronic Form. Conversion Protocols are Being/Have Been Written	Survey Data in Paper Form. Must Be Digitized and Computerized	Survey Data in Electronic Form That Can Be Translated Directly in AZSITE
A-SNF	X		X	X	
CocNF		X	X	X	
CorNF	X		X	X	
KNF			X	X	
PNF		X	X	X	
TNF		X		X	
ASU			X	X	
ASM	X	X	X	X	
BLM	X		X	X	
NAU					
MNA			X	X	
NPS-WACC			X		X
SHPO			X	X	
DOD	X		X	X	
Ak Chin		X			
Hopi	X		X	X	
Navajo		X		X	
Hualapai		X		X	
GRIC	X		X	X	
SRPMIC					
WM Apache		X	X	X	
SC Apache		X			
TON	X				

Tribal Participation

Because of its history of dispersed databases, Arizona has had to solicit participation through a consensus building process that has not been necessary in states with centralized site files. The AZSITE consortium has had to actively seek cooperation from both federal and tribal land managing authorities. In the case of tribal land managing agencies a lack of awareness of the nature and content of site files and growing concerns about tribal sovereignty combined to raise serious concerns about tribal willingness to participate (see Appendix H). Nine of Arizona's 20 tribes have actively participated in meetings on site files development. These nine tribes control 97% of all tribal lands in Arizona. Based on several meetings with different tribes, it is possible to summarize tribal concerns as follows:

- ◆ Archaeological site information is confidential; the mere fact that such information is available in databases may make sites more vulnerable to destruction through looting.
- ◆ There is not any difference, for some tribes, between sites and traditional cultural properties even though, under law, not all sites are eligible to be TCP's as defined under the National Historic Preservation Act and National Register Bulletin 38.
- ◆ Tribal sovereignty requires some form of tribal control over access to archaeological records:
 - ◆ Some tribes have requested that no one see information on lands under their control without their prior permission.
 - ◆ Some tribes are establishing systems through which records will be available only at the tribal office; they are entering into discussions with agencies that hold records on their lands over issues of access control.
 - ◆ Some tribes will permit records to be retained in a centralized file but only certain information will be available without direct tribal permission. This includes generalized location and site description information.

The above concerns notwithstanding, the nine tribes with whom the AZSITE consortium has consulted are interested in some form of participation because there are certain advantages:

- ◆ Participating in AZSITE can relieve tribes of the need to develop their own databases and thereby devote more time to managing the information instead of the computer.
- ◆ AZSITE offers greater data security at two levels. First, all data from the state will be centralized in one location, and a participating tribe will be able to locate records of sites on its lands, even if the sites were recorded with different agencies around the state. Second, the AZSITE server will be backed up on a regular basis to prevent data loss.
- ◆ The ability to monitor database usage will allow a tribe to see who is making requests for information on sites under its control.
- ◆ Use of AZSITE can relieve a repository of some of the flow of traffic through its office as many types of data searches can be done remotely.
- ◆ Determination of data content and quality control will remain with the tribe; the system does not override any tribe's proprietary interest in its own information.
- ◆ An AZSITE connection will provide access to ALRIS (AZ. Land Resource Information System) data from the State Land Department that is not easily accessible in other ways.

- ◆ “Sensitivity maps” may eventually be prepared from AZSITE data that do not themselves reveal the underlying data but indicate what areas are of concern with respect to cultural resource management.
- ◆ Access to the database will allow tribes to monitor sites and survey activities in lands adjacent to tribal lands.

Table 2 details the current level of participation of tribes with whom the consortium has consulted. It is apparent that there will need to be ongoing consultation with tribal archaeologists and land managers concerning the AZSITE database. Two tribes have asked ASM to assist in negotiating a memorandum of agreement between the tribe and ASM as a method of detailing the ground rules for AZSITE participation. Any agreement that ASM (or any other consortium member) enters into concerning records in AZSITE will be reviewed by and agreed upon by other members of the consortium. Such an agreement would not be binding on each institution's paper records, only such records as it submits electronically to the AZSITE database.

Because each tribe has different computer and record management capabilities, it will be necessary for the consortium to work with each individually to determine its level of interest and ability to participate in AZSITE. A major concern for virtually all the tribes is the lack of in-house hardware, software or computer expertise. For such tribes, successful participation in AZSITE will require a great deal of training. All are interested in some sort of “turn-key” system, which they can then adapt for themselves. It will be necessary to seek separate funding to develop an implementation plan for each tribe that chooses to participate and then assist the tribe in installing and implementing the system.

Table 2. Summary of tribal participation in AZSITE planning process:

Tribe	Current status
Ak Chin Indian Community	Is interested in further discussions on AZSITE, sees the value but not yet ready to commit to participation.
Gila River Indian Community	Is establishing its own electronic database; is interested in database compatibility with AZSITE but has not yet addressed the issue of full participation.
Hopi Tribe	Maintains its own electronic database and submits data to ASM, wants to make certain non-sensitive data available to researchers in the AZSITE database. The tribe has asked to develop a memorandum of agreement concerning tribal participation in AZSITE.
Hualapai Tribe	Has established a Tribal Historic Preservation Office. Sees AZSITE as a useful tool for getting its own site files established. The tribe does not yet know what data it will make available to the database.
Navajo Nation	Has established a Tribal Historic Preservation Office and has a large paper file of sites covering 3 states. Is interested in AZSITE as a database program it can adopt to computerize its records. Currently allows its NM data to be entered into the NM Cultural Resource Information System.
Salt River Pima Maricopa Indian Community	Is interested in further discussions on AZSITE, sees the value but not yet ready to commit to participation.
San Carlos Apache Tribe	The tribe does not want information disseminated to anyone without tribal permission; much of the information collected about tribal lands is in the hands of agencies not under tribal jurisdiction and therefore the information is not under their control. The tribe would like to see some assurance that participation will increase their control over their own information.
Tohono O'odham Nation	Does not have a site file and since all records are on file at ASM are interested in participating in some way still to be defined. Are very concerned about issues of security.
White Mountain Apache Tribe	Has established a Tribal Historic Preservation Office and has approximately half its records in electronic format. Is interested in adopting the AZSITE database but records will not be available except through personal visits to the THPO on the reservation. Is interested in maintaining compatibility with AZSITE and plans to use AZSITE to monitor sites off reservation lands in which it is interested. The tribe has asked to develop a memorandum of agreement concerning tribal participation in AZSITE.

Funding Initiatives

Funding for this project has come from several sources:

1) The National Center for Preservation Technology and Training (NCPTT) planning grant funded many consortium meetings around the state, including the 2-day February, 1997, workshop in Phoenix and the 2-day June, 1997, meeting in Flagstaff. NCPTT funding especially facilitated tribal participation in these meetings. NCPTT funding also provided computer consulting for ASM.

2) Arizona Heritage Funds (AHF) administered by Arizona State Parks funded the pilot project undertaken by ASU to develop and test the AZSITE database and explore software options. AHF funds have also provided funds for digitizing survey records at ASM and MNA. AHF funds provided computer equipment to MNA and internet connectivity to ASM.

3) The Office of the Vice President for Research, University of Arizona, provided ASM with a server and the Director, ASM, provided training funds. Data entry computers for ASM have been provided through Site Files and Records Management user fees at ASM.

The information on site records repositories in Arizona has been gathered as part of the planning grant funded by NCPTT. This has already provided sufficient information to submit proposals to other possible funding sources:

1) In May, 1997, the AZSITE consortium submitted a proposal to the Federal Geographic Data Committee, part of the National Spatial Data Infrastructure. The proposal has been accepted for funding and BLM's Arizona State Office will serve as lead agency. The project will provide funds to assist 6 national forests and 7 BLM field offices in incorporating their data into AZSITE, according to the implementation plan, above.

2) In August, 1997, the consortium submitted a proposal to the Arizona Department of Transportation for Intermodal Surface Transportation Enhancement Act (ISTEA) funds. If funded, this project will concentrate on building archaeological spatial and attribute databases for Arizona's state and federal highway corridors.

The AZSITE consortium will assume responsibility for long term management and maintenance of the AZSITE database. Software upgrades and the installation of new hardware will require a systems manager. The constant flow of data will require a data entry manager and data entry personnel to insure the database is updated in a timely and efficient manner. The

personnel and needed software and hardware will be funded in part through a schedule of user fees, as yet to be determined. The consortium will continue to seek outside funding for the management and preservation of cultural resources to supplement the fee program.

Conclusion

Since the formation of the AZSITE consortium in 1995, the foundation for a statewide centralized prehistoric and historic database has been firmly laid. Records are being converted into a standardized electronic form and will soon be incorporated into a centralized database. In the coming months, the database will be implemented to expedite site and survey searches. Continued progress will eventually make the database available via remote access terminals.

It is through not just the efforts of the consortium, but the cooperation of all concerned agencies that the database has made remarkable strides toward reality. None of these steps forward could have been taken without the funding provided by NCPTT and the consortium thanks the center. Further inter-agency cooperation and outside funding will allow the database to function and serve as a tool for the protection and preservation of the cultural heritage of the State of Arizona.

Field No: _____ Recorders: _____ / _____

Recording Organization: _____ Natl Reg Opinion: _____
 Date Recorded: ____/____/____

Proj. Name: _____

Site Name: _____

Land status (check one): PVT__ CTY__ CO__ ST__ TRIB__ USFS__ USFW__
 NPS__ BLM__ DOD__ ACE__ BOR__ RTC__

Owner/Agency name: _____

Survey Colls: Y__ N__ Repository Inst: _____

Report Ref: _____

Mapname USGS: _____ Series: _____ State: _____ County: _____ El: _____ ft

Site size: (in Ft__ or M__) Length _____ Width _____ How measured: EST__ PACE__ MAP__ TAPE__

cntr UTM: Z__ E__ N__	BL	TWN	RNG	SC	SUBDIVISION
peri UTM Z__ E__ N__	_____	_____	_____	_____	_____
peri UTM Z__ E__ N__	_____	_____	_____	_____	_____
peri UTM Z__ E__ N__	_____	_____	_____	_____	_____
peri UTM Z__ E__ N__	_____	_____	_____	_____	_____

How were UTM's derived: USGS Map _____ GPS _____

Site Description/Remarks:

	Additional Documentation type	document location
Agency Site No: _____	_____	in _____
Agency Proj. No: _____	_____	in _____
Natl Reg Rec: _____	_____	in _____

ASM Site No: AZ ____:____:____ (ASM) ASM Proj No.: ____ - ____ ASM Permit No: ____ - ____

ASM USE ONLY Class: ____ Within AZ ____:____:____ (ASM)

QP ____:____:____ Contains AZ ____:____:____ (ASM)

QP ____:____:____ Biblio Ref. _____ Plotted ____/____/____ by ____

QP ____:____:____ Acc.No ____ - ____ AZSITE DE ____/____/____ by ____

Corrections:

Feature Names Keyword List

Use, Culture, & Age Keyword Lists

1	Ash Stain	58	Log Cabin
2	Artifact Scatter	59	Masonry Structure
3	Atalaya	60	Midden
4	Ball Court	61	Milled Lumber Structure
5	Barn	62	Mine
6	Battle Site	63	Mine Waste
7	Bedrock Grinding Stone	64	Monument
8	Bedrock Steps	65	Mound, Structural
9	Bin/Cist	66	Mound, Trash
10	Brick Kiln	67	One Room Structure
11	Bridge	68	Orchard
12	Burial/Grave	69	Ore Processing Facility
13	Burned Rock Midden	70	Ore Transport Feature
14	Cache	71	Outbuilding
15	Cairn	72	Outhouse
16	Canal	73	Oven
17	Car Body	74	Painted Petroglyph
18	Cavate Room	75	Pecked Bedrock Depression
19	Cemetery	76	Petroglyph
20	Charcoal Stain	77	Pictograph
21	Church/Religious Structure	78	Pithouse
22	Clearing in Desert Pavement	79	Plaza
23	Clay Quarry	80	Posthole
24	Coke Oven	81	Pottery Kiln
25	Compound Walls	82	Public Building
26	Communication System, Linear	83	Quarry
27	Constructed Linear Feature, Undefined	84	Railroad Track/Bed
28	Corral	85	Ramada/Shelter
29	Cremation	86	Reservoir
30	Depression, Undefined	87	Resource Procurement Area
31	District	88	Road/Trail
32	Dugout	89	Roasting Pit
33	Dump	90	Rock Alignment, Undefined
34	Excavated Linear Feature, Undefined	91	Rock Feature, Undefined
35	Fence	92	Rock Pile
36	Field	93	Rock Ring
37	Field House	94	Roomblock
38	Fired Brick Structure	95	Sawmill
39	Garden	96	Scatter, Sherd
40	Graffiti	97	Scatter, Trash
41	Grain Mill	98	Shed
42	Great Kiva	99	Shrine
43	Hearth	100	Soil Control Structure
44	Historic Settlement	101	Spring Control Device
45	Hogan	102	Stage Stop
46	House Extant	103	Stockade
47	House Foundation	104	Sweat Lodge
48	Human Remains	105	Tank
49	Hunting Feature	106	Tent Base
50	Intaglio	107	Tower
51	Kiln	108	Trading Post/Mercantile
52	Kiva	109	Trailer
53	Lime Kiln	110	Trincheras
54	Linear Border	111	Wall
55	Lithic Quarry	112	Water Control Device
56	Lithic Scatter	113	Well
57	Livestock Enclosure	114	Wickiup
		115	Windmill
		116	Other (note in Feature Remarks)

Use	
1	Unknown Use
2	Accidental Loss
3	Passive Accumulation
4	Observation
5	Resource Procurement
6	Agricultural
7	Manufacturing/Production
8	Conveyance/Transportation
9	Storage
10	Disposal
11	Communication
12	Monument
13	Art
14	Recreation
15	Commerce
16	Defense
17	Religious/Ceremonial
18	Government/Public Bldg.
19	Habitation
20	Subsistence/Food Prod.
21	Other (note in Feature remarks)

Cultural Affiliation*	
1	<u>Unknown</u>
2	<u>Native Culture</u>
3	<u>Native Archaeological Cult.</u>
4	Paleoindian
5	Archaic
6	Anasazi
7	Cohonina
8	Hakataya
9	Hohokam
10	Mogollon
11	Patayan
12	Prescott
13	Sinagua
14	Casas Grandes
15	Salado
16	Trincheras
17	<u>Extant Native Culture</u>
18	<u>Apache</u>
19	San Carlos Apache
20	Tonto Apache
21	White Mtn. Apache
22	Hopi
23	Navajo
24	<u>O'odham</u>
25	Hia Ced O'odham
26	Tohono O'odham
27	Akimel O'odham
28	<u>Pai</u>
29	Havasupai
30	Hualapai
31	Yavapai
32	Seri
33	Southern Paiute
34	Tarahumara
35	Yaqui
36	Yuman
37	Chemehuevi
38	Cocopah
39	Halichidhoma
40	Halyikwamai
41	Kahwan
42	Kavelchadom
43	Maricopa
44	Mohave
45	Quechan
46	Zuni
47	<u>Nonnative Culture</u>
48	African-American
49	Asian-American
50	<u>Euro-American</u>
51	Mexican-American
52	Spanish
53	<u>Other</u> (please specify in Feature Remarks)

Age*	
1	<u>Unknown</u>
2	<u>Post-contact</u>
3	<u>Recent</u>
4	<u>Historic</u>
5	Post AD1700 Historic
6	Late Historic
7	Middle Historic
8	Early Historic
9	Prehistoric/Historic Transition
10	<u>Prehistoric</u>
11	<u>Ceramic</u>
12	Late Ceramic
13	Middle Ceramic
14	Early Ceramic
15	<u>Pre-ceramic</u>
16	Pre-ceramic/Ceramic Transition
17	Pre-500 BC Pre-ceramic
18	<u>Archaic</u>
19	Late Archaic
20	Middle Archaic
21	Early Archaic
22	Paleoindian
	AD1500-Present
	AD1950-Present
	AD1500-1950
	AD1700-1950
	AD1900-1950
	AD1800-1900
	AD1700-1800
	AD1500-1700
	12000BC-AD1500
	AD200-1500
	AD1300-1500
	AD1000-1300
	AD200-1000
	12000BC-AD500
	500BC-AD500
	12000BC-500BC
	8000BC-AD200
	1500BC-AD200
	4800BC-1500BC
	8000BC-4800BC
	12000BC-8000BC

* Underlined terms are more general versions of the specific terms that follow.

ASM Site Card Rev. 12/3/93

Depositional Context: (choose as many as apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> (1) Open, no depth | <input type="checkbox"/> (5) Rockshelter, no depth | <input type="checkbox"/> (8) Cave, no depth |
| <input type="checkbox"/> (2) Open, depth | <input type="checkbox"/> (6) Rockshelter, depth | <input type="checkbox"/> (9) Cave, depth |
| <input type="checkbox"/> (3) Open, depth unknown | <input type="checkbox"/> (7) Rockshelter, depth unknown | <input type="checkbox"/> (10) Cave, depth unk. |
| <input type="checkbox"/> (4) Open, exposed only in profile | | |

Topo. setting:

Vegetation:

Geology/soils:

Site Condition:

Site Type (choose one): ☐ (a) Artifact Scatter (No other features visible on the surface)
☐ (b) Features with associated artifacts ☐ (c) Features with NO associated artifacts

Assemblage Composition (indicate quantities as counts, estimated ranges, "P" for types known only to be present, "0" for types not seen at the site.)

<input type="checkbox"/> prehis ceramic	<input type="checkbox"/> FCR	<input type="checkbox"/> glass	<input type="checkbox"/> animal remains/artifacts
<input type="checkbox"/> chipped stone	<input type="checkbox"/> shell	<input type="checkbox"/> metal	<input type="checkbox"/> plant remains/artifacts
<input type="checkbox"/> grnd stone	<input type="checkbox"/> hist ceramic	<input type="checkbox"/> hist wood	<input type="checkbox"/> human remains

Diagnostics (indicate quantity of cultural/temporal/functional types as counts, estimates, or "P")

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Assemblage Remarks:

Feature Data: (Complete one feature record for each type of feature recorded for this site.)

Feature No. 1 Name ¹	Count	Use ²	Culture	Age ²	Period/Phase ³
Feature Remarks:					

Feature No. 2 Name ¹	Count	Use ²	Culture	Age ²	Period/Phase ³
Feature Remarks:					

Side D

AZ _____:_____(ASM)

ARIZONA STATE MUSEUM ARCHAEOLOGICAL SITE CARD

Feature No. _____ Name ¹	Count	Use ²	Culture	Age ²	Period/Phase ³
Feature Remarks:					

Feature No.____ Name ¹	Count	Use ²	Culture	Age ²	Period/Phase ³
Feature Remarks:					

Feature No.____ Name¹	Count	Use²	Culture	Age²	Period/Phase³
Feature Remarks:					

Feature No.____ Name ¹	Count	Use ²	Culture	Age ²	Period/Phase ³
Feature Remarks:					

Feature No.____ ⁴ Name ¹	Count	Use ²	Culture	Age ²	Period/Phase ³
Feature Remarks:					

1. See Feature Names Keyword List.
2. See Use, Culture, & Age Keyword List for choices for these fields.
3. Open field, enter any appropriate Period/Phase name.
4. Attach sheets as necessary for additional features.

