

# Honey Bee Village Archaeological Preserve



## IMPLEMENTATION PLAN



February 21, 2007



# ACKNOWLEDGEMENTS

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Bayer Vella, AICP, Principal Planner, Planning and Zoning Division  
Dee Widero, Senior Zoning Inspector, Planning and Zoning Division  
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## KEY PLANNING GROUP

Sarah More, Town of Oro Valley  
Brent Sinclair, Town of Oro Valley  
Ainsley Reeder, Town of Oro Valley  
Scott Nelson, Town of Oro Valley  
Pamela Pelletier, Town of Oro Valley  
Robert Baughman, Oro Valley Historic Preservation Commission  
Roger Anyon, Pima County  
Linda Mayro, Pima County  
Loy C. Neff, Pima County  
Tony Burrell, Tohono O'odham Nation  
Frances Conde, Tohono O'odham Nation  
Austin Nunez, Tohono O'odham Nation  
Peter Steere, Tohono O'odham Nation  
Su Benaron, Arizona State Museum  
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Special thanks go to Steve Solomon, Managing Partner of Cañada Vistas Homes, for his generous donation of the thirteen acres in the heart of the Hohokam Honey Bee Village, so that this archaeological preserve could be established in perpetuity for the benefit of our community.

This project would not be possible without the Taxpayers of Pima County who generously approved the bond money for the Preserve.

Prepared by:



Community  
ByDesign

240 N. Court Ave.  
Tucson, AZ 85701  
520-882-8177

In association with:

**DESERT ARCHAEOLOGY, INC.**

Tucson, Arizona

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**Honey Bee Village Archaeological Preserve**



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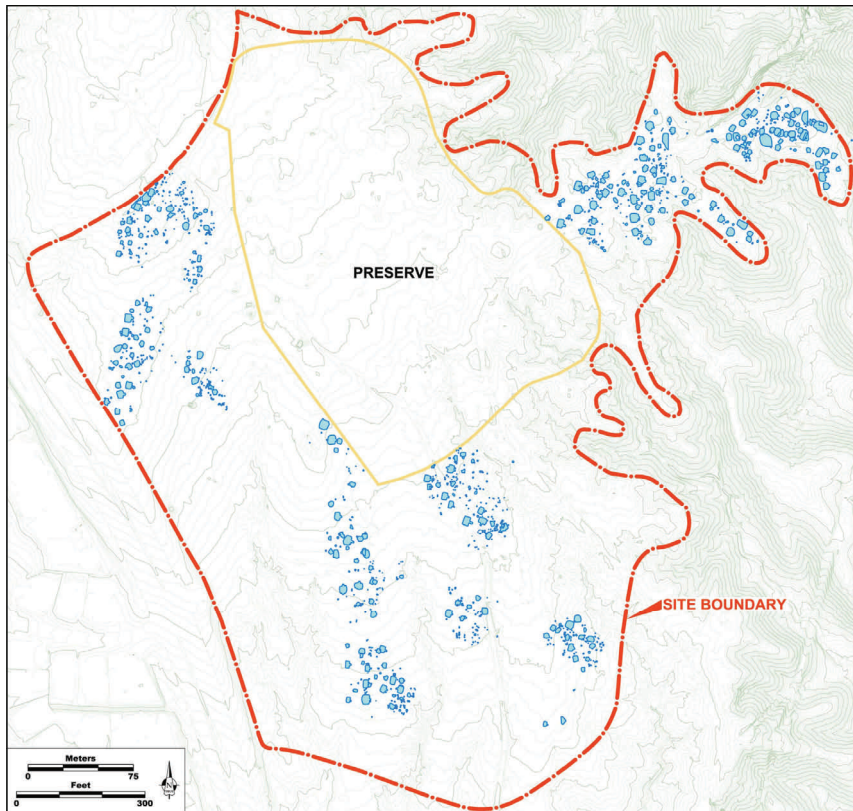
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# IMPLEMENTATION PLAN

## INTRODUCTION

The Honey Bee Village Archaeological Preserve Implementation Plan identifies implementation strategies that serve to protect and interpret the 13-acre core of Honeybee Village for the preservation of the vital cultural and scientific information within the village site.



*The distribution of prehistoric pithouses and other features that were discovered during seven months of excavation by Desert Archaeology, Inc. in the 31 acres surrounding the Honey Bee Archaeological Preserve.*

The site of Honey Bee Village is a Hohokam ballcourt village located in Oro Valley, Arizona. It was initially recorded by archaeologists from Pima Community College in 1978 and was assigned Arizona State Museum site number AZ BB:9:88 (ASM). Honey Bee Village was first settled near the start of the Hohokam cultural sequence, around A.D. 450, and was continuously occupied up to about A.D. 1250. The village includes a cluster of 19 large mounds surrounding a plaza, a ballcourt, and a special-use walled enclosure. As many as 500 to 800 domestic houses are present at the site along with many other cultural features. Desert Archaeology, Inc. indicates that the site has been determined to meet eligibility criteria for listing in the National Register of Historic Places. It was originally mapped as covering nearly 80 acres, but a portion of the site was destroyed through earlier road and residential construction. The site area now measures 50 acres.

Located along Honey Bee Wash east of North Rancho Vistoso Blvd and south of the Moore Road alignment, Honey Bee Village is the only remaining intact large Hohokam village site in Oro Valley. This large prehistoric village in the Cañada del Oro Valley and is a strong linkage to Oro Valley's past. This Implementation Plan was initiated due to the interest that the Town, Pima County, the Tohono O'odham Nation, and the Arizona State Museum have in preserving the Village intact.



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Honey Bee Village is a very important cultural resource whose undisturbed, buried remains contain an important reservoir of information about the prehistory of the northwest Tucson Basin. Equally important, the Tohono O'odham Nation considers Honey Bee Village an ancestral site. The remarkable status of Honey Bee Village as the only large intact Hohokam village remaining in Oro Valley area makes it one of the most significant cultural resources in Pima County.

The 13-acre core of Honey Bee Village is being preserved in situ for future generations. The core contains most of the large mounds, the ballcourt, the large plaza, and the rock-walled enclosure. Under an agreement with Pima County, Cañada Vistas Homes will convey the 13-acre core to Pima County.

A separate agreement will convey the 13-acre core to the Town of Oro Valley in the future. The core will become an Archaeological Preserve, which will be protected in perpetuity from development.

The Preserve will have visual access along Moore Road, with pedestrian access along a public easement through a commercial development to the south and a trail access from Honey Bee Wash to the north. The northern and eastern boundaries will adjoin residential development. The Preserve will be managed by the Town of Oro Valley.

## THE PROCESS

A multi-jurisdictional and multi-disciplinary key planning group of stakeholders was assembled to formulate the Honey Bee Village Archaeological Preserve Implementation Plan and Schematic Plan. Pima County, the Town of Oro Valley, Cañada Vistas Homes, and the Tohono O'odham Nation, with consultant assistance from CommunityByDesign, and Desert Archaeology, Inc., collaborated on this project. The group used the *Honey Bee Village Archaeological Preserve Conceptual Plan* of May, 2005 as a foundation for their consideration of the Preserve and the creation of the Schematic Plan.

The goal of the Key Planning Group's undertaking involves the protection, preservation, and interpretation of the 13-acre core of Honey Bee Village. Over the course of the ten months of meetings, the group examined the opportunities and constraints of the Preserve to guide the schematic plan. The group took into account local conditions and current archaeological data. Cañada Vistas Homes worked with the Key Planning Group to coordinate its adjoining community plan to integrate the interpretive opportunities in the Development Area with the Preserve layout. Specific materials, character and techniques for implementation were examined to address the recommendations of the Conceptual Plan. The group determined appropriate materials and character for trails, signage, seating, walls and interpretive opportunities.

This Implementation Plan creates a set of design standards that will unify and protect the Preserve and establish a consistent methodology for implementation.

## EXISTING STUDIES AND PLANS

The value of the area's Hohokam heritage has been noted in recent documents, including the *Honey Bee Canyon Management Plan* (1994), which recommends the creation of a management plan to protect Honey Bee Village from modern development impacts. The plan suggests keeping the core intact and visible from the surrounding community to avoid vandalism.





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Policy 10 of the *Town of Oro Valley General Plan Update*, ratified by voters on November 8, 2005, includes two key issues; *Archaeological Resource Preservation* and *Interpretive Elements*. It specifically addresses Honey Bee Village as a significant resource and notes “Avoidance of significant sites is preferred over data recovery and documentation.”

In May, 2004 Pima County voters approved a bond issue providing \$1 million for the “...purchase of sufficient acreage to protect the critical areas of the Honey Bee Village site that are threatened by planned residential development.” The bond directed the Town of Oro Valley to negotiate with the property owner to acquire the property with County bond funds, pursuant to an intergovernmental agreement between Pima County and the Town of Oro Valley.

The *Honey Bee Village Archaeological Preserve Conceptual Plan* was prepared for the Honey Bee Village archaeological site in May, 2005. This study examines the Preserve’s past, its existing conditions and reviews existing plans and studies. The *Conceptual Plan* delineates the suggested Preserve area and provides recommendations for the management of the prehistoric site. Those recommendations are included in this document’s appendix for reference.

The *Honey Bee Village Archaeological Preserve Conceptual Plan* vision statement is as follows:

*Honey Bee Village Preserve is an interpretive site retained in its natural state that embodies the conservation ethic of the Town of Oro Valley. The Preserve is a "SharedPlace" for people to reflect on cultural values with a careful integration of managed public access and activities that are compatible with its conservation goals. Interpretive displays will tell its story, and provide a sense of place for this home that was inhabited by the ancestors of the Sonoran Desert's indigenous peoples. Discrete use of trails, signage, benches and ramadas will minimize disturbance and maximize interpretation. The Preserve will be seamlessly integrated with its surrounding development, and connected to the Town's adjoining open space areas through trails and pathways, that will serve to retain its unique natural and cultural values.*

In February 2006, Cañada Vistas Homes entered into an agreement with Pima County and the Town of Oro Valley to donate the 13 acre village core to the County for the Archaeological Preserve. The agreement specifies that County bond funds will be used to conduct the required archaeological data recovery in the Development Area, to preserve artifacts and information from that portion of the archaeological site. The 13-acre Preserve will be conveyed to the Town of Oro Valley in the future.

In September, 2006, Desert Archaeology, Inc. completed the archaeological data recovery fieldwork on portions of Honey Bee Village outside of the Preserve that are detailed in a treatment plan (Wallace and others 2006, Wallace 2006) approved by Pima County and the Arizona State Historic Preservation Office. The evaluation of the recovered data will provide new information on these early residents and improve the interpretive program within the Preserve.



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## OPPORTUNITIES AND CONSTRAINTS

The following *Opportunities and Constraints Map* (page 6) was prepared as a site assessment tool in developing the Preserve's *Schematic Plan* (page 7). It shows specific archaeological features and interpretive opportunities within Honey Bee Village Archaeological Preserve. Previous disturbance, such as erosion and push piles of debris and holes from tree removal, which influence the design and may require remediation, are also depicted. Additionally, there are elements that the planning group identified as fundamental to the interpretation of the Preserve, for instance points of access and viewing opportunities.

Two major features identified within the Preserve are the ballcourt and the rock-walled enclosure. Interpretive opportunities identified on the map include mounds, a house foundation, a trash concentration, a pit oven, and the location of a copper bell.

## SCHEMATIC PLAN

The *Schematic Plan* of Honey Bee Village Archaeology Preserve (page 7) depicts the location of pathways, interpretive opportunities, seating, and walls in response to the *Opportunities and Constraints Map*. A one-third mile pedestrian path loops through the Preserve connecting the Preserve features. Branches off of the pathway lead to the Archaeological Park and to the Honey Bee Wash connection. Maintenance access is off of Moore Road. Circulation is placed over existing disturbance as much as possible.

The 13-acre Preserve is surrounded by a wall to clearly define the boundary and limit access when the Preserve is closed. The wall is located in an easement in the Development Area outside of the Preserve to avoid any site disturbance. See *Preserve Boundary Walls, Fencing & Gates* section of this document for more specific wall information. Four points of access are included, with the main one occurring on the south side of the Preserve. Three seating opportunities offering views of the Preserve, the valley, and the surrounding mountains are incorporated in the design. These are situated near existing shade trees.

Multiple interpretive opportunities are identified on the Preserve's Schematic Plan. These features are all accessible from the pedestrian pathways. The interpretive content will be developed in a future phase with assistance from archaeological experts.

This document details strategies for the implementation of preservation and interpretation in the 13-acre Archaeological Preserve. Independent of this project are an .25-acre Archaeological Display Area, an .5-acre Archaeological Park, and a 20' wide public access easement. These three features, without the restrictions of the Preserve, provide opportunity for interpretive displays and educational activities to enhance the experience of the Preserve. The Archaeological Display Area and the public access easement, within the adjoining privately-owned commercial development, provide the main entry to the Preserve. The Archaeological Park will be accessible from within the Preserve. The Archaeological Park and the Archaeological Display area were excavated and mitigated in 2006.





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## EXISTING CONDITIONS

The conditions that must be considered during planning, design, and implementation include:

### Surface Disturbance and Compaction

The site has suffered disturbance over the years from ranching and wildcat roads, plant salvage, grading, and previous archaeological investigations. Creation of the Preserve must be accomplished in a manner that minimizes additional damage to intact archaeological deposits and preserves them in place. This Implementation Plan considers methods to remediate past damage and limit further damage to the Preserve. Establishment of a restoration plan to address all disturbance and erosion is recommended.

### Erosion

Erosion is evident throughout the Preserve and is due to disturbance factors including roads, bulldozer push piles of vegetation from previous clearing activity, tree holes and wear due to the action of wind and water. Erosion control efforts implemented in consultation with archaeological experts will preclude further erosion in the Preserve.

### Access

Access to the Preserve will be controlled for preservation and management purposes. A permanent “fence” and/or “wall” is being placed on an easement on the adjoining property to avoid disturbance to the Preserve. Public access to Honey Bee Village Archaeological Preserve is along a public easement through the commercial development from Moore Road to the boundary wall gate within the Archaeological Display Area. Limited access to the Preserve by the neighboring residents is through the Archaeological Park, accessible from the Preserve. A public access easement through the residential development allows trail users to access the Preserve through a gate on the northern boundary of the Preserve.

People and animals have the potential to degrade the Preserve in many ways. To minimize any degradation of the Preserve, it is accessible exclusively for pedestrian use. No wheeled conveyances, except for maintenance activities, will be allowed in the Preserve. Equestrian use is not permitted and pets are prohibited within the Preserve. Americans With Disabilities Act requirements will be met, thus service animals, wheelchairs and walkers as defined by the American with Disabilities Act may be used by persons with disabilities.

The height and character of the wall varies depending upon the adjoining land use. Where a solid wall is used, it is made of an appropriate natural material consistent with the historical nature of the Preserve. In most places, taller fencing is visually open, such as wrought iron or ornamental steel. These walls allow the surrounding property owners to keep their “eyes on the Preserve.” The open walls also maintain the visual connection to the mountain and valley vistas for Preserve visitors. Walls adjoining single family residences meet Oro Valley pool fencing codes. Access directly from individual yards to the Preserve is not permitted. Instead, limited controlled access to the Preserve from the residential community is appropriate.

Revised O & C Map  
11 x 17

Revised schematic plan  
11 x 17



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## IMPLEMENTATION REQUIREMENTS

Because the Honey Bee Village Preserve is an archaeological site that is eligible to the National Register of Historic Places, any implementation activities within the Preserve will require prior consultation with and concurrence from the Arizona State Historic Preservation Office. Ongoing implementation activities, such as routine maintenance, may be governed by an agreement with the Arizona State Historic Preservation Office.

## PRIMARY UNIFYING ELEMENTS

### SIGNAGE

This Implementation Plan presents implementation strategies for the standards, design treatments, and amenities to unify the Preserve. The primary unifying feature is the signage. Continuity in theme for Honey Bee Village Archaeological Preserve is maintained through the repeated use of the Preserve logo or elements of it on directional signage, wall signage, regulatory signage, interpretive signage and pathway markers.

The style of signage and the use of the logo will vary depending upon the function and location of the signs, both inside and outside of the limits of the Preserve.

### PATHWAYS

These pathway standards have been developed specifically for Honey Bee Archaeological Preserve; they are based on the current state of the practice in accommodating pedestrians. Where Federal and State funding is provided, certain standards may be required. Guidance on pathway construction within the Preserve may come from the State Historic Preservation Office (SHPO) requirements to protect the archaeological resources and from the Americans With Disabilities Act (ADA) Accessibility Guidelines.

When the pathways are in design, the municipal engineer or consulting engineer will have to assist and make recommendations regarding the need to adhere to ADA requirements.

Types of Pathways: Three types of pathways are proposed for creation within the Preserve. They are located in previously disturbed areas where possible in order to minimize further impacts to intact archaeological deposits. Two are for pedestrians and one is designated for maintenance only.

The **Main Pathway** begins at the main entry on the south side of the Preserve continuing north past the ball court and other interpretive opportunities and terminating at the center of the rock-walled enclosure within the plaza.

The **Secondary Pathway** continues from the plaza looping west and south back to the main pathway. A branch of this pathway connects to the planned private archaeological park outside of the Preserve. Another branch extends north to connect to a designated hiking trail at the edge of the Preserve. This trail will extend north to the Power Line Trail and Honey Bee Wash Trail, connecting to Honey Bee Canyon resources.



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Access to the **Maintenance Path** is from Moore Road through a 12' decorative iron gate. The path extends east and south, intersecting with the Secondary Pathway. It will not be accessible to pedestrians.

A pedestrian pathway from Moore Road leading to the main entrance will be constructed by others independent of this project within a dedicated 20' public access easement adjoining the southern boundary of the Preserve. This path will provide opportunity for interpretive displays and views into the Preserve through "windows" or openings in the perimeter wall.



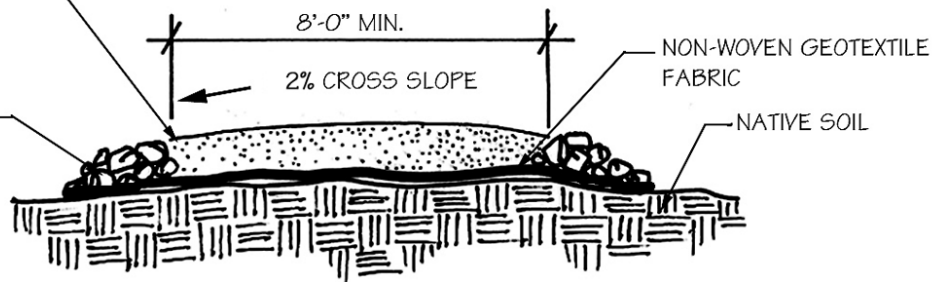
# IMPLEMENTATION PLAN

## Main Pathway

<i>feature</i>	<i>standard</i>	<i>comments</i>
Pathway Width	8'-0" minimum width	<ul style="list-style-type: none"> <li>This pedestrian pathway is in areas where high traffic is expected, and will be ADA accessible.</li> </ul>
Width Clearance	Min. 2'- 0" from outside edge of pathway to any object	<ul style="list-style-type: none"> <li>Clearance to all fixed objects, such as fences, signs, benches &amp; cacti.</li> </ul>
Height Clearance	7'-0" Ht. clearance from finished grade	<ul style="list-style-type: none"> <li>Clearance to all overhead elements such as tree limbs, entryways.</li> </ul>
Cross-slope Pitch	2% Min. & Max. Cross-pitch slope	<ul style="list-style-type: none"> <li>Where pathway is to be crowned for grading and drainage purposes, the max. &amp; min. slope shall be 2% from centerline of pathway.</li> </ul>
Longitudinal Slope	5% Maximum	
Surface Material	Soil solidifying emulsion	<ul style="list-style-type: none"> <li>See Amenities Section</li> </ul>
Subsurface Material	Non-woven Geotechnical Fabric	<ul style="list-style-type: none"> <li>See Amenities Section</li> </ul>
Pathway Border or Edge	Border or edging shall be provided. No curbing along edge of pathway.	<ul style="list-style-type: none"> <li>The pathway is to be built up upon existing grade and edges feathered to the adjacent land. Edging material will be natural local stone 4" to 6" in diameter, e.g., Coronado brown color rip-rap of sufficient quantity to clearly delineate the pathway edge. See Amenities Section.</li> </ul>

MIN. 4" LAYER OF 1/4" MINUS DECOMPOSED GRANITE COMPACTED TO 90% STABILIZED WITH SOIL SOLIDIFYING EMULSION

4"-6" NATURAL STONES @ EDGE OF PATH



TYPICAL MAIN PATHWAY





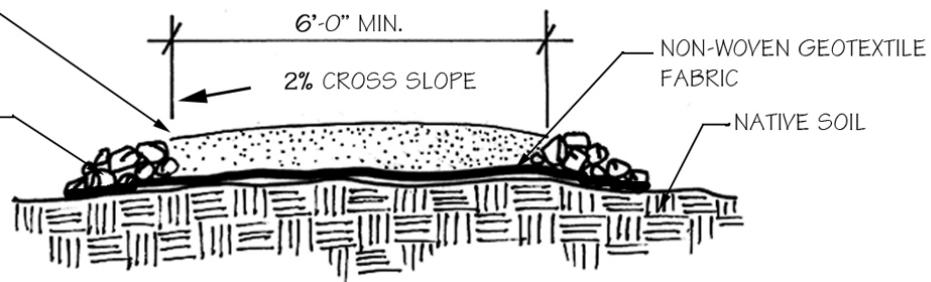
# IMPLEMENTATION PLAN

## Secondary Pathway

<i>feature</i>	<i>standard</i>	<i>comments</i>
Pathway Width	6'-0" minimum width	<ul style="list-style-type: none"> <li>This pedestrian pathway is in areas where lower traffic is expected.</li> </ul>
Width Clearance	Min. 2'- 0" from outside edge of pathway to any object	<ul style="list-style-type: none"> <li>Clearance to all fixed objects, such as fences, signs, benches &amp; cacti.</li> </ul>
Height Clearance	7'-0" Ht. clearance from finished grade	<ul style="list-style-type: none"> <li>Clearance to all overhead elements such as tree limbs, entryways.</li> </ul>
Cross-slope Pitch	2% Min. & Max. Cross-pitch slope	<ul style="list-style-type: none"> <li>Where pathway is to be crowned for grading and drainage purposes, the max. &amp; min. slope shall be 2% from centerline of pathway.</li> </ul>
Longitudinal Slope	5% Maximum	
Surface Material	Compacted Decomposed Granite	<ul style="list-style-type: none"> <li>See Amenities Section</li> </ul>
Subsurface Material	Non-woven Geotechnical Fabric	<ul style="list-style-type: none"> <li>See Amenities Section</li> </ul>
Pathway Border or Edge	Border or edging shall be provided. No curbing along edge of pathway.	<ul style="list-style-type: none"> <li>The pathway is to be built up upon existing grade and edges feathered to the adjacent land. Edging material will be natural local stone 4" to 6" in diameter, e.g., Coronado brown color rip-rap of sufficient quantity to clearly delineate the pathway edge. See Amenities Section.</li> </ul>

MIN. 4" LAYER OF  
1/4" MINUS DECOMPOSED  
GRANITE COMPACTED  
TO 90%

4"-6" NATURAL  
STONES @  
EDGE OF PATH



TYPICAL SECONDARY PATHWAY



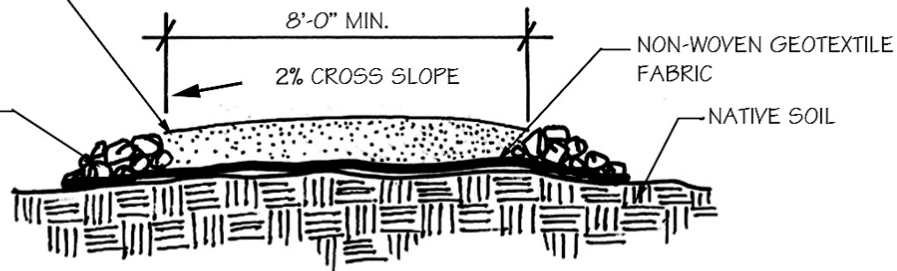
# IMPLEMENTATION PLAN

## Maintenance Pathway

<i>feature</i>	<i>standard</i>	<i>comments</i>
Pathway Width	8'-0" minimum width	<ul style="list-style-type: none"> <li>This pathway is not accessible to the public and is gated at the intersection with the secondary pathway by a removable barrier.</li> </ul>
Width Clearance	Min. 2'- 0" from outside edge of pathway to any object	<ul style="list-style-type: none"> <li>Clearance to all fixed objects, such as fences, signs, benches &amp; cacti.</li> </ul>
Height Clearance	7'-0" Ht. clearance from finished grade	<ul style="list-style-type: none"> <li>Clearance to all overhead elements such as tree limbs, entryways.</li> </ul>
Cross-slope Pitch	2% Min. & Max. Cross-pitch slope	<ul style="list-style-type: none"> <li>Where pathway is to be crowned for grading and drainage purposes, the max. &amp; min. slope shall be 2% from centerline of pathway.</li> </ul>
Longitudinal Slope	5% Maximum	
Surface Material	Compacted Decomposed Granite	<ul style="list-style-type: none"> <li>See Amenities Section</li> </ul>
Subsurface Material	Non-woven Geotechnical Fabric	<ul style="list-style-type: none"> <li>See Amenities Section</li> </ul>
Pathway Border or Edge	Border or edging shall be provided. No curbing along edge of pathway.	<ul style="list-style-type: none"> <li>The pathway is to be built up upon existing grade and edges feathered to the adjacent land. Edging material will be natural local stone 4" to 6" in diameter, e.g., Coronado brown color rip-rap of sufficient quantity to clearly delineate the pathway edge. See Amenities Section.</li> </ul>

MIN. 4" LAYER OF 1/2" MINUS DECOMPOSED GRANITE COMPACTED TO 90% STABILIZED WITH SOIL SOLIDIFYING EMULSION

4"6" NATURAL STONES @ EDGE OF PATH



## TYPICAL MAINTENANCE PATHWAY



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## AMENITIES

### SIGNAGE

Honey Bee Village Archaeological Preserve's identity and sign system creates a strong identity for the Preserve in the context of the immediate Rancho Vistoso development, adjacent recreational areas, and the Town of Oro Valley. Its purpose is to offer a highly recognizable and friendly voice to visitors as they explore the area.

Signs identify and label facilities and orient visitors. They warn of danger, educate users in the proper use of the pathways and promote the protection of the Preserve's resources. They also list regulations and guidelines and serve to control unwanted or illegal activities. Perhaps most importantly, signs explain and interpret cultural features and management activities along the paths. The signs inform visitors about the prehistoric Hohokam culture of southern Arizona and how archaeologists interpret fragmentary remains from the past and translate them into meaningful concepts.

Signs are a quick and easy way to leave the Preserve visitor with a positive impression. Consistent signage of high quality which is well maintained and properly located increases the Preserve's identity and the public's support for the Preserve. An aesthetic balance is necessary to avoid creating clutter and confusion through the overuse of signs. Exceptions to the sign code will be coordinated with the Town of Oro Valley to assure a quality signage program inside and outside of the Preserve.

#### Logo

The logo for the Preserve, or elements from it, will be used on most signs and will serve as the primary identification for the pathways. Three logo suggestions are included here. Each is based on a carved shell pendant discovered during the current archaeological excavation and mitigation occurring outside of the Preserve. This coyote is one of many unique artifacts linking modern Oro Valley with its past.



*This shell pendant which was found within Honey Bee Village inspired the logo concepts, thus linking the modern Preserve to its ancient residents.*



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The logo may be integrated into promotional literature, signage, and interpretive elements. Placement of the logo on pathway blazers along the pathway guides the user through the interpretive experience. Incorporation of the logo in the design of the wall and gates enclosing the Preserve as well as seating is recommended to provide a consistent aesthetic.

Selection of appropriate locations for signs is based on various factors:

- Keep Preserve resources unobstructed
- Minimal adverse impact to cultural resources
- Place signs where they are readily visible
- Avoid conflicts with physical objects (i.e. trees and shrubs)
- Avoid sign congestion

## Types of Signs

The following types of signs are discussed in this section:

**Location/Entry Signs** direct visitors to the Preserve parking and main entrance from Rancho Vistoso Boulevard and Moore Road. These signs are preferably located just off the right-of-way perpendicular to the roadway to be easily seen. Approval from the appropriate Town agencies is necessary for placement within the public right-of-way.

**Informational/Orientation Signs** provide contextual information on the Preserve and direct visitors to the main entry and to amenities such as restrooms, phones, and water located within the commercial area. A map of the Preserve and surrounding area may be appropriate on these signs. These signs are located along the public access easement at the Archaeological Display Area within the Development Area and at the Archaeological Park. These signs are also located outside of the Preserve Boundary at the two additional pedestrian access points.

**Regulatory/Advisory Signs** promote safe Preserve use alerting visitors to prohibited activities, physical conditions, natural hazards, and hours of operation. Amenities, or lack of them, available within the Preserve are included on advisory signs. Note that information provided on advisory signs should also be provided in promotional material. Regulatory/advisory signs are located outside of the Preserve Boundary, at the three pedestrian entrances.

**Educational/Interpretive Signs** convey educational material about the cultural heritage of Honey Bee Village. The style, content and placement of interpretive signage will generally be determined by the issues associated with the specific feature being interpreted. Interpretive signs are a major investment of time and money. Their content and installation involves the formation of an interpretive planning team. Exercise caution to avoid over interpretation. Programs and



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tours led by volunteer docents will complement the signs and brochures, bringing a greater understanding of the Hohokam Village experience to visitors.

Interpretive information is primarily located along the entry path from Moore Road, at the Preserve entrance, and in interpretive brochures. Only two interpretive signs are within the Preserve. These are located at the ballcourt and at the rock-walled enclosure in the plaza, two major features of Honey Bee Village.

**Pathway Markers** along the pathway guide the user through the interpretive experience and are keyed to brochures available at the Preserve entries. These markers are located at the interpretive opportunities identified on the *Schematic Plan*. Placement of the logo or elements of it on the markers lends unity to the Preserve experience. Cost and maintenance savings occur with this understated signage. The opportunity for exploration and discovery of the subtle signs of earlier inhabitants is maintained without the visual clutter of frequent signage.

## Signage Location

Signage located both inside and outside of the Honey Bee Village Preserve boundary is addressed in this document to assure continuity to the Preserve experience. This consistency in high quality signage increases the Preserve's identity and the public's support for the Preserve. Signage and other elements located in areas outside of the Preserve itself will be constructed by others independent of this project.

Within the Preserve walls, the only signage allowed are multiple pathway markers keyed to an interpretive brochure and two interpretive signs. These two signs are located at the major features: the ballcourt and the rock-walled enclosure within the plaza. Using pathway markers placed on the surface minimizes the intrusion into the visitor experience and limits impact to subsurface resources.

All other Preserve signage is located outside of the perimeter and will be created and installed independent of this project. Location and entry signs to guide users from the adjoining roadways feature the logo, promoting the Preserve to all passersby. Information and orientation signs are placed at the Moore Road public easement connection, the parking area within the commercial center, and at all public entry gates. Regulatory and Advisory Signs are at all entries, mounted on the wall or on free-standing signs.

Interpretive signs and educational opportunities are arranged the length of the 20' wide public access easement from Moore Road and at the Archaeological Display Area and Visitor Center at the Preserve entrance. These signs immerse the visitor in the 800 years of village occupation and the modern history of the site. Sign placement may be on the wall or on freestanding signs or kiosks.

## Signage Materials

Durable materials such as steel, aluminum, fiberglass or composite are appropriate materials for Honey Bee Village Archaeological Preserve signage. They offer longevity, durability, and vandal resistance. Etched or painted granite or small signpost markers are appropriate for the pathway markers. Examples of possible signage types are illustrated below.



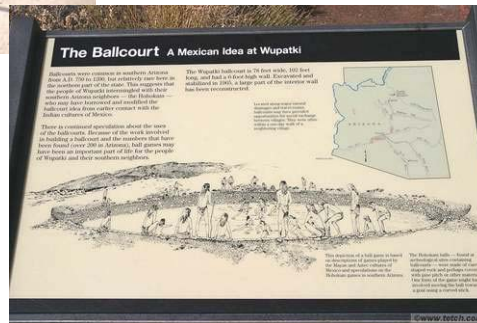


# IMPLEMENTATION PLAN

Interpretive signage will combine text with maps and illustrations to convey the early life in Honey Bee Village.



Steel, aluminum, fiberglass or composite are appropriate materials for Honey Bee Village Archaeological Preserve signage.



Interpretive signs will be located outside of the Preserve with two exceptions.



Quiet pathway markers with logo and key on granite or small signposts mark interpretive features within the Preserve. They are keyed to an interpretive brochure.





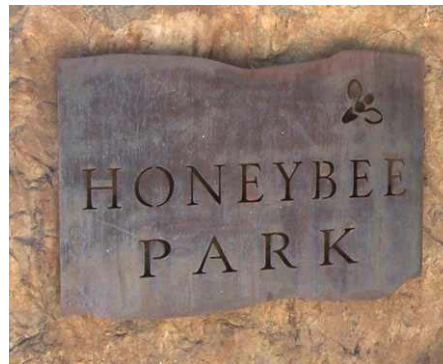


# IMPLEMENTATION PLAN



*Location/Entry signs direct visitors to the Preserve parking and entry.*

*Signage may be freestanding or mounted on walls.*



*Regulatory/Advisory signs alert Preserve visitors to restriction and resources.*



# IMPLEMENTATION PLAN

## PRESERVE BOUNDARY WALL, FENCING, AND GATES

The character of the wall is that of adobe, but with the low maintenance features provided by concrete slump block. Extensive use of ornamental ironwork provides a visual invitation into the Preserve and to allow the surrounding neighborhood residents to keep watch over the land and its resources as "eyes on the Preserve".

There are five main wall types described in the plan. These include:

- 48"-66" block wall along the detached single family residential lots
- 36"-48" decorative iron and block wall along the condominiums
- 42" decorative iron and block wall along the commercial area
- 60" decorative iron fence along Moore Road
- 24" block seat wall at the Archaeological Park



*Decorative metal fences, solid block walls, or a combination of the two define the perimeter of the Preserve.*







# IMPLEMENTATION PLAN



*The custom metal work allows incorporation of distinctive elements or patterns such as the logo or ornament inspired by area artifacts.*







# IMPLEMENTATION PLAN

All block walls are mortar washed slump block, to lend an earthy, adobe-like appearance to the wall. The integration of decorative iron work will vary depending on the situation. A solid wall along the detached residential lots provides privacy for the residents and meets the pool fencing code for the Town of Oro Valley. The condominium wall is mostly ironwork, providing an extended view of the Santa Catalinas from the Preserve and easy monitoring of the Preserve by the condominium residents. The fence along Moore Road protects the resources while incorporating a welcoming visual window on the Preserve from the street.



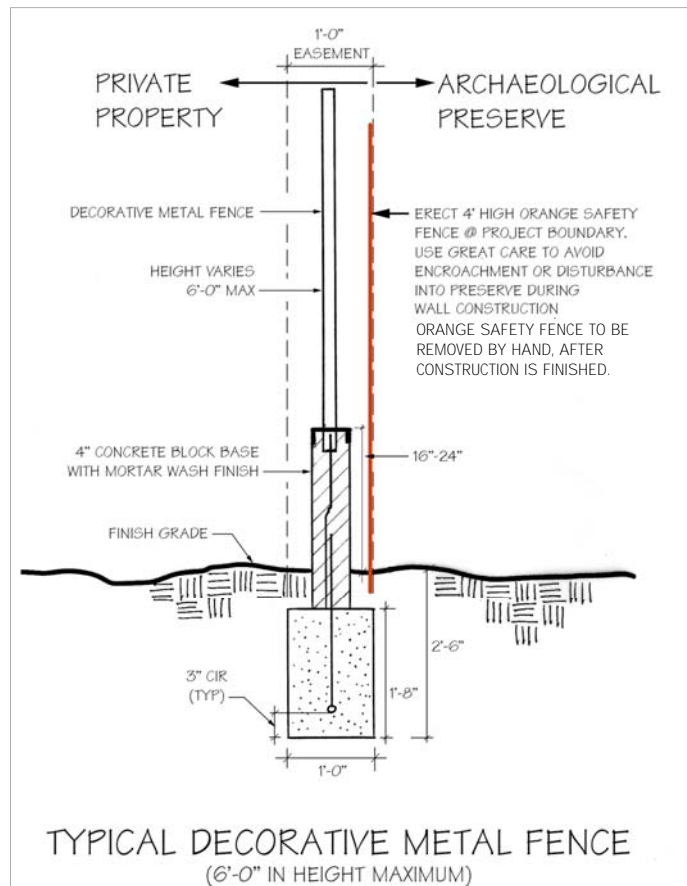
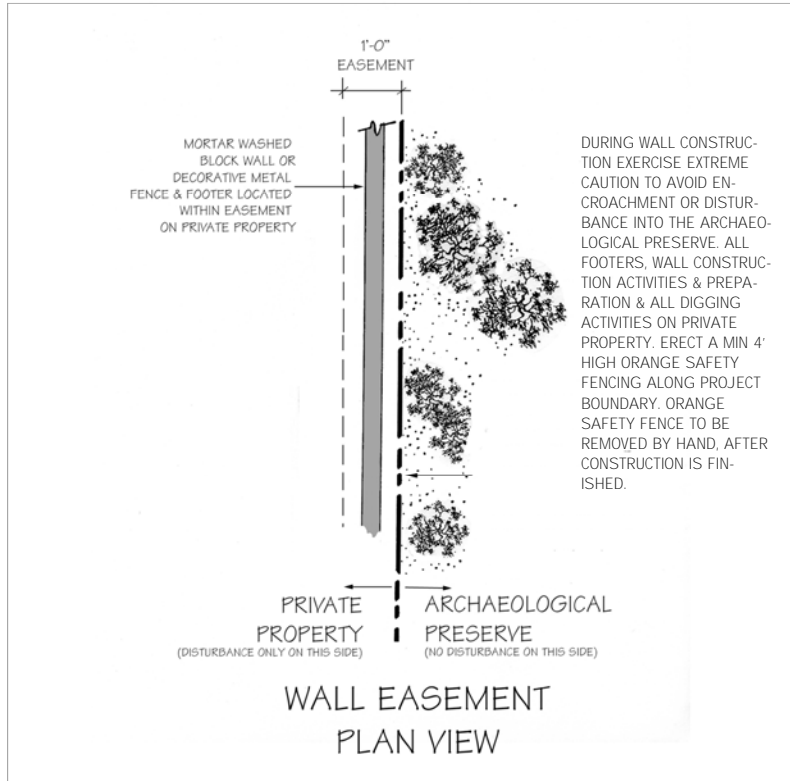
*The mortar washed slump block walls give the appearance of adobe without the expense.*

The height of the wall along the commercial area on the south side allows an unobstructed view of the Preserve. Interspersed along this mortar-washed slump block wall are “windows” allowing children a peek into the Preserve as they navigate the pedestrian access trail within the commercial area. A 24” seat wall defines the boundary between the Archaeological Park within the private residential development and Honey Bee Village Archaeological Preserve.

An easement on the adjoining private property allows the wall construction to avoid disturbing the Preserve. Footers for all walls are located off of the Preserve property. Implementation and maintenance of the wall is the responsibility of the Town of Oro Valley.



# IMPLEMENTATION PLAN



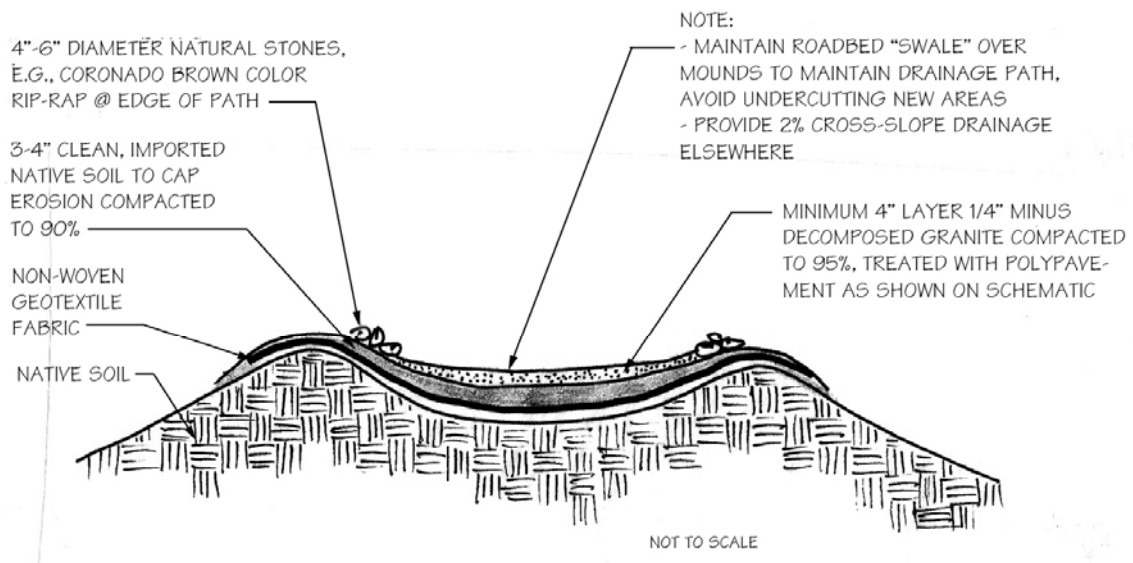


# IMPLEMENTATION PLAN

## EROSION CONTROL

Disturbance of the soil surface is minimized in order to reduce erosion, associated maintenance problems, and, most importantly, minimize degradation of the subsurface archaeological resources. Proper drainage of surface water is the most important factor in design, creation, and maintenance of the pathways. Grade slopes are held to a minimum. Surface erosion resulting from improper drainage negatively impacts the pathway surface, causing damage to the natural environment, increasing maintenance requirements, and threatening archaeological artifacts.

Reseeding of native perennials and grasses in disturbed areas prevents further erosion. On areas that have experienced cutting, rolled silt socks may slow the runoff. Small rock check dams placed in the channels reduce further erosion and cutting. These erosion control methods will be field-located by the landscape contractor and archaeologist.



TYPICAL PATHWAY OVER EROSION AREA





# IMPLEMENTATION PLAN

## SURFACE MATERIALS

The three types of pathways located within the Preserve share common implementation features designed to protect the site's valuable resources from damage. These pathways follow existing tracks wherever possible, utilizing surface compaction from past vehicular traffic for the pathway foundation. Cutting of the surface material may damage resources below grade and is prohibited.

Clean, imported native soil atop the existing grade addresses surface irregularities, erosion, and drainage issues. A mid-weight non-woven geotextile fabric installed over the native soil and pinned in place separates the resources in situ from imported materials.



### Main Pathway

1/4" Minus Gradation Decomposed Granite (D.G.) in Desert Gold or similar color is minimum 4" depth and compacted to 90% relative compaction. The Main Pathway is a minimum 8' wide with a longitudinal gradient to comply with ADA standards. This pathway is built up above existing grade. Feather edge of these

pathways to grade and line both sides with small natural stones to define edge. Application of a water-based polymer soil solidifying emulsion specifically manufactured to harden decomposed granite makes the Main Pathway ADA accessible. The solidifying emulsion shall not alter the gravel color. The emulsion, PolyPavement or a similar product, is applied according to manufacturer's recommendation.

### Secondary Pathway

1/4" Minus Gradation Decomposed Granite (D.G.), Desert Gold or similar color, is 4" or greater depth compacted to 90% relative compaction for minimum. The Secondary Pathway is a minimum 6' wide with longitudinal gradient to comply with ADA standards where feasible. Pathway is built up above existing grade. The edge of the pathway material is feathered to grade and both sides are lined with small natural stones.

### Maintenance Path

The maintenance path layers 1/2" Minus Gradation Decomposed Granite (D.G.) in Desert Gold or similar color to a depth of 3-4", compacted to 90% relative compaction. The maintenance pathway is a minimum 8' wide. This access is used by heavier vehicles during the initial Preserve creation, but will be limited to small, light "golf cart" size vehicles for future maintenance.

A maintenance staging area, located near the Moore Road gate, provides a location for the unloading of fill and decomposed granite. These materials are then installed as specified in the Preserve during initial implementation and future maintenance activities. The staging area will not be used for long-term material or equipment storage.



# IMPLEMENTATION PLAN

## SEATING

Consideration has been given to allowing rest areas for the elderly, disabled, children, and others who need or wish to stop. Three seating locations are identified within the Preserve. These areas allow views of site features and distant vistas. Locating the seating under shade trees is preferred.



Precast concrete benches, such as those offered by Outdoor Creations, Inc., Wausau Tile, and Doty & Sons Concrete Products, Inc. include a back rest and optional logo/monument plaque insertion. The concrete is integrally colored with a light tan or sand color.

The heavy weight of the concrete benches reduces the chance of damage or vandalism. Precast concrete pads rather than poured in place foundations supports the legs, preventing bench subsidence and surface disturbance. The surrounding grade is leveled with clean compacted fill and then topped with a minimum 3" layer of decomposed granite. The DG is level with or higher than the top of the concrete foundation pads, avoiding a trip hazard. A mid-weight non-woven geotextile fabric installed over the native soil and pinned in place separates the resources in situ from imported materials used to level the seating areas.



## VEGETATION



Limited reseeding and revegetation is proposed to address past surface disturbance and associated erosion problems. Planting is determined on a case by case basis in response to the overall layout and environmental conditions. The plants listed are native to the area and suited to open exposed areas with difficult growing conditions. To protect the subsurface features, no supplemental irrigation will be within the Preserve.



Cholla and prickly pear, native to the area, are suited to revegetate heavily disturbed areas; particularly those compacted by heavy vehicular traffic. Cacti are especially effective at encouraging visitors to stay on the established pathways. Selective cacti planting combined with hydroseeding and the discontinuance of surface disturbance helps the Preserve landscape to recover its natural character.

In a few instances, selective vegetation thinning or removal is appropriate in areas identified during site recognizance. Width and height clearance is maintained on pathways for safety. Additionally, some features designated for interpretation such as the Ballcourt, are hidden under dense patches of shrubs and cactus. All vegetation removal operations are coordinated to prevent feature disturbance. No digging is allowed as part of the vegetation management activities without clearance from consulting archaeologists and the State Historic Preservation Office.



# IMPLEMENTATION PLAN

## HYDROSEEDING

The hydroseeding mixture includes seed from Town of Oro Valley Approved Revegetation Seed Mix List. Amendments used in the hydroseed slurry help hold down the soil while plants become established, holding seed in place and protecting them from wind, rodents and birds. These amendments include fertilizers, wood-fiber mulch, organic soil amendments, and tackifiers. Mulch holds critical moisture for seed establishment.

Areas to be hydroseeded are selected on a case by case basis. The area is lightly scarified by a rake in highly compacted or crusted soil conditions to ensure maximum impregnation and plant coverage. Seed is applied to prepared areas between October 1 and the end of January using the best known application methods for the region. A uniform visible coat is applied to all disturbed areas. Any ground disturbing activity associated with hydroseeding will have prior consultation with and concurrence from archaeologists and the SHPO.

<b>Planting</b>			
<i>feature</i>	<i>standard</i>		<i>comments</i>
Hydroseeding	Hydroseed using a selection of native seeds from table	•	Use mulch and tackifier.
Planting of cacti	Minimal size holes to be dug for cholla and prickly pear	•	Consult with Archaeologists and SHPO prior to any subsurface disturbance.
Plant sizes - prickly pear cacti	Prickly Pear is a minimum three pads or 5 gallon	•	Prickly Pear may be harvested on-site during selective clearing or brought from a nearby locality.
Plant sizes - cholla cacti	Cholla is a minimum two feet high or 5 gallon	•	Cholla may be harvested on-site during selective clearing or brought from a nearby locality.
<b>Plant List</b>			
<i>botanical name</i>	<i>common name</i>		<i>comments</i>
Opuntia species	Cholla	•	Selectively plant to revegetate heavily trafficked areas, discourage foot traffic off of the pathways & to reduce erosion.
Opuntia species	Prickly-Pear	•	Selectively plant to revegetate heavily trafficked areas, discourage foot traffic off of the pathways & to reduce erosion.

## NATIVE SEEDS

The Native Seed List was derived from the Town of Oro Valley Approved Revegetation Seed Mix List. The list is not inclusive of all native vegetation. When possible, the seed should be collected from within 30 miles of the Preserve. Seed shall be of commercial quality and of the best standard of purity available and shall be free of noxious weeds.



# IMPLEMENTATION PLAN

## ORO VALLEY APPROVED REVEGETATION SEED MIX LIST

<b>BASE SEED MIX</b>		
<i>Use the following seeds</i>		
<i>botanical name</i>	<i>common name</i>	<i>PLS* Rate lbs/acre</i>
Aristida purpurea (P,W)	Purple Three-Awn	2.0
Sporobolus cryptandrus (P, W)	Sand Dropseed	1.0
Plantago insularis (A, C)	Indian Wheat	3.0
Sphaeralcea ambigua (P, C/W)	Desert Globe-Mallow	1.0
Senna covesii (P, W)	Desert Senna	2.0
Encelia farinosa (P, C/W)	Brittlebush	1.5
Ambrosia deltoidea (P, C)	Triangle-Leaf Bursage	4.0
Haplopappus (Ericameria) laricifolius (P, C/W)	Turpentine Bush	1.0
Baileya multiradiata (P, C/W)	Desert Marigold	1.0-2.0
Penstemon sp. (P, A, C/W)	Penstemons	1.0-2.0
Atriplex canescens (P, C)	Four-Wing Saltbush	3.0
<i>Grass Species</i>		
Plus choose a minimum of two (2) grasses and two (2) non-grass species from the following, utilizing those species appropriate to the season during which they are planted.		
Setaria macrostachya (P, W)	Plains Bristle Grass	2.0
Bouteloua curtipendula (P, W)	Sideoats Grama	2.0
Eragrostis intermedia (P, W)	Plains Lovegrass	1.0
Leptochloa dubia (P, W)	Green Sprangle-Top	1.0
<i>Non-grass Species</i>		
Larrea divaricata (P, W)	Creosote	6.0
Atriplex canaescens (P,C)	Four Wing Salt Bush	3.0
Psilostrophe cooperi (P, C/W)	Paper Flower	1.0-2.0
Atriplex polycarpa	Desert Saltbush	1.0-3.0
Atriplex lentiformis (P, C)	Quail Bush	1.0-2.0
Escholtzia mexicana (A,C)	Mexican Poppy	1.0-3.0
Phacelia campanulavia (A,C)	Desert Bluebells	1.0-3.0
Verbena sp. (P, C/W)	Sand Verbena	1.0-2.0
Lupinus sp. (A, W)	Lupine	1.0-3.0

\*PLS = Pure Live Seed

KEY: A = Annual; P = Perennial; C = Germinates and thrives in the cool season;  
W = Germinates and thrives in the warm season; C/W = Germinates and thrives in cool/warm seasons.

NOTE: The cool season in Oro Valley runs September through March, and the warm season is from March through October, with an overlap of seasons.



# IMPLEMENTATION PLAN

## FUTURE NEEDS

The future needs for the establishment and management of Honey Bee Village are listed below. Many of these needs were identified in the Honey Bee Village Archaeological Preserve Conceptual Plan of May, 2005.

### RESTORATION PLAN

Develop a restoration plan to backfill or otherwise stabilize mapped previous disturbances and erosion. Implement this restoration plan in a manner that minimizes additional damage to intact archaeological deposits. This plan will be reviewed and approved by Pima County, Oro Valley, and the Arizona State Historic Preservation Office. Archaeological monitoring should occur during implementation of the approved plan.

### ARCHAEOLOGICAL MANAGEMENT PLAN

Establish a regular program of inspection of the preserve by Arizona Site Stewards (at least monthly). In addition, there will be at least one annual inspection by a professional archaeologist. During operations there will be occasional issues such as when erosion or small animal excavations serve to expose something sensitive such as human remains. A professional archaeologist should also be available on an on-call basis to respond to any problems identified by Site Stewards. The plan will include consultation requirements with the Arizona SHPO, an agreement with SHPO regarding ongoing activities and maintenance consultation, and an Arizona State Museum Burial Agreement regarding the potential discovery of human remains within the Preserve.

### SIGNAGE PROGRAM

Create a signage program for all Honey Bee Village signs both within and outside of the Preserve. Coordinate the locations, styles, and content to lend unity and professionalism to the Preserve experience and improves community support. Exceptions to the Town of Oro Valley sign code are necessary to allow flexibility and creativity in Preserve signage.

### INTERPRETIVE PROGRAM

Develop an interpretive program coordinated with the nearby interpretive elements to convey the areas rich past. Coordinate interpretation within the Preserve with interpretive program outside of the Preserve that displays artifacts, offers interpretive visualizations, places the site in context, and conveys a preservation ethic. Use state-of-the-art techniques. Include a program of docent-led tours to enhance the Preserve experience. A plan that identifies interpretive themes and presents guidelines for a long-term interpretation program will be the final product of this endeavor. This interpretive program could build upon the interpretive plan for Honey Bee Village developed by the Center for Desert Archaeology, in partnership with the Oro Valley Historical Society, from a grant awarded by the Arizona Humanities Council.





# IMPLEMENTATION PLAN

## SCHEDULE AND BUDGET

Plan, design, and construct the Preserve facilities including perimeter walls, fencing, gates, seating, and signage based on the recommendations found in this plan. Create a schedule of construction phasing, with erection of the perimeter wall a priority. Clearance for all design and construction must be granted by the consulting archaeologists and the State Historic Preservation Office and the Town of Oro Valley. Develop a budget for the Preserve restoration, design, construction, and management based on plans and programs as they are defined. Identify sources of funding to implement these items. Funding for the construction of the perimeter wall has been granted by the Tohono O'odham Nation.

## OPERATIONS AND MANAGEMENT PLAN

Develop an operations and maintenance program that addresses Preserve assets: including vegetation, pathways, walls, gates, and seating. This program includes educating all paid personnel and volunteers. Educate these individuals on the regular inspection and reporting on the condition of Preserve assets. Authorization for volunteers or employees to go off the prepared trails shall be contingent on having received the appropriate training regarding the preservation practices of this Preserve. Establish protocols for responding to problems as they are identified. A provision for a budget to address periodic maintenance and upkeep is necessary.



# IMPLEMENTATION PLAN

## APPENDIX

The following Management Recommendations were included in the Town of Oro Valley's *Honey Bee Village Archaeological Preserve Concept Plan* by CommunityByDesign and Desert Archaeology, May 31, 2005. Several of these recommendations have been implemented through this document or through the on-site archaeological work being conducted on the surrounding private lands by Desert Archaeology. Much of this work remains to be done.

- *Create an interpretive brochure to begin communicating the general plan for the Honey Bee Village Preserve. There should be community awareness of the process from the outset.*
- *Prepare a detailed archaeological map of the surface within the core area in order to document all previous disturbance factors (roads, bulldozer pushes of vegetation, tree holes, erosion areas, etc.) that should be addressed during preserve planning.*
- *Archaeological information derived from the site outside the core shall be used to refine planning for the core preserve. This information may also facilitate identification of additional areas outside the core that can be preserved. Such additional preservation areas should be protected by covenants that are recorded with the property deeds. Close communication between the archaeologists, Native Americans, Oro Valley, Pima County, and the developer should continue throughout this process.*
- *Integrate archaeologists, Tohono O'odham representatives, the Oro Valley Historic Preservation Commission, Pima County, and the interested public in preserve planning.*
- *Trails within the preserve should make use of previously disturbed areas where possible in order to minimize impacts to intact archaeological deposits.*
- *Develop a restoration plan to backfill or otherwise stabilize mapped previous disturbances. Implement this restoration plan in a manner that minimizes additional damage to intact archaeological deposits. This plan shall be reviewed by Pima County, Oro Valley, and the Arizona State Historic Preservation Office. Archaeological monitoring should occur during implementation of the approved plan.*
- *Signs used at the entrance to and within the preserve should address broad issues. They could provide maps, for example, that would indicate where neighbors would have lived at different times in the past. They should be used to set the stage for a quiet and introspective journey through the natural and cultural space preserved here.*
- *Develop a nearby, but off-site, interpretive program that displays artifacts, offers interpretive visualizations, places the site in context, and conveys a preservation ethic. Use state-of-the-art techniques.*
- *Develop an operations and maintenance program that includes education of all paid personnel and volunteers. Authorization for volunteers or employees to go off the prepared trails shall be contingent on having received the appropriate training regarding the preservation practices of this preserve.*
- *Establish a regular program of inspection of the preserve by Arizona Site Stewards (at least monthly). In addition, there shall be at least one annual inspection by a professional archaeologist. A professional archaeologist should also be available on an on-call basis to respond to any problems identified by Site Stewards.*
- *During operations there will be occasional issues such as when erosion or small animal excavations serve to expose something sensitive such as human remains.*



# IMPLEMENTATION PLAN

- *There may need to be small excavations that focus on the very limited areas of planned disturbances associated with implementing the preserve. For example, signs, benches, or ramadas could all involve limited subsurface disturbances that might require excavations of comparable scale.*

*The goal of the Archaeological Preserve is the in situ preservation of the archaeological features, deposits, and artifacts. There may be an interest in future archaeological research that may include archaeological collections or excavations. Any archaeological investigations purely for research purposes that require excavations or collections are not encouraged but may be allowed under exceptional circumstances as future conditions dictate. Any future archaeological research at the Preserve that requires collections or excavations must be agreed to by all stakeholders, be to the highest prevailing ethical and scientific standards, and be fully permitted and approved by the appropriate agencies.*