



Town Council

Study Session

March 15, 2023 05:00 PM

Oro Valley Council Chambers

> 11000 North La Canada Drive

Master Plan Goals

The goal of the master plan process is to create a working document that:

- Addresses the long-term protection of the site ecological and cultural resources.
- Provides educational opportunities for a wide-range of user groups that is inclusive of all ages and abilities.
- Creates site-sensitive passive recreational attributes that blend the built environment within the natural surroundings.
- Addresses fiscal responsibility.

Programming Suggestions Summary

Community Input Received to Date (Survey, Interviews, Workshops & Public Meetings) "KEEP IT SIMPLE & NATURAL"

- •Create a system of looped walking/biking trails
- Provide natural surface trails for walking
- •Create separate areas for wildlife viewing
- •Connect the Preserve trail system to the Town trail system
- Provide dispersed parking areas and directional signage
- •Repurpose the former pond for habitat, education and wildlife viewing
- Provide an area for family gatherings by the former pond area
- •Repurpose the former driving range area to include educational gardens
- Provide educational programming for habitat and dark sky viewing
- •Address wash area erosion and safe crossing concerns
- •Create natural structures and water features to support habitat
- •Re-establish native vegetation throughout the Preserve
- Provide shade and seating areas
- •Develop operations and management protocols







Educational Recommendations

Best Practices

Adopting and applying best practices will ensure that programs at Vistoso Trails Nature Preserve are relevant and authentic for each target audience, outcome-based, and reflective of Oro Valley Parks and Recreation Department's mission statement. We offer the following suggestions to help ensure that programs succeed in delivering place-based experiences and cultivating Preserve stewards among an enthusiastic and receptive student audience.

Test the Waters

Before an education program is developed, staff will need to more fully assess receptivity among the school audience and Town staff. Integration of recommendations in the Preserve's master plan, determining sources of funding for site improvements and teaching supplies, and assignment of Town and District staff to design and pilot-test the program(s) will be critical. Department staff should also assess capacity. Are there adequate numbers of staff and docents to do this work without straining the resources that support the Preserve? What role will Preserve Vistoso play in the recruitment, training, and management of docents? Will these programs complement, not duplicate, programs already taking place in nearby communities? Will these programs celebrate the uniqueness of Vistoso Trails Nature Preserve and help cultivate a sense of place?

Embrace Backward Design

We recommend using a program development practice championed by curriculum developers Grant Wiggins and Jay McTighe and business strategists, including Stephen Covey. Rather than begin with preferred topics and instructional activities, we suggest beginning with the end—the desired results—in sight. This backwards approach brings content standards, performance expectations, and goals and objectives to the forefront of curriculum planning.

Typically, backward design encompasses three stages of planning:

Phase One: identify desired results or curriculum expectations. Identify the big ideas (the "enduring understanding") as well as broad goals and specific, measurable objectives.

Phase Two: determine acceptable evidence and identify appropriate assessment tools.

Phase Three: plan the learning experiences and instruction. Determine what activities, materials, and resources are needed in order to achieve desired results.







<u>Mix It Up</u>

We recommend that the Preserve offer education programs that span grade-group levels, ages, content, time commitments, and experiences. At the same time, we encourage staff to start slowly by pilot-testing a program(s) and refining it (them) based on student/faculty feedback.

For formal programs, flexibility is key to accommodating varying needs of teachers which can be dictated by bus schedules. This could mean offering the field programs and field/classroom lab programs in blocks of 1 hour, 1.5 hours, and 2.5 - 3 hours. Regardless of time spent at the Preserve, the District requires that all students return to school by 1 p.m.

Programming Governance

State Governance, District Governance, Oro Valley Parks and Recreation and interviews with educators.

Proposed School Programs

The Acorn Group recommends that three on-site programs spanning K-6 are developed. Two focus on science; one focuses on history-social science. Each can be academically robust, providing structured opportunities that extend and build upon classroom learning. At the same time, each can be well poised to facilitate student understanding of a "sense of place." This is particularly possible if field trips to the Preserve are spiraled throughout the K-6 curriculum, taught either in traditional classrooms or in homeschools. By focusing on place-based instruction and celebrating the Preserve as a community-based asset, OVPR can promote excitement and appreciation for the Preserve, the broader region, and students' place within it.

Given the class schedules adopted by middle and high schools, field trips are not easily scheduled at these levels. Instead, the Preserve can be considered a site for community service projects taking place on weekdays after school and on weekends. Such work could include habitat care and restoration, as well as interpretation (e.g., leading weekend tours).

<u>Science</u>

Discovering the Desert, grades K-2 - We see a K-2 program, called Discovering the Desert, as a primary program dedicated to cultivating student's sense of place. It celebrates the essence of place and answers seemingly basic questions, such as Where am I and What is the nature of this place? As members of the community of Oro Valley, students take stock of the nearby desert, their neighbors (the resident and migratory species with whom they share the desert), and the uniqueness of the setting.

Such a program requires that students fine-tune their observation skills and sensory perception. They take part in a guided walk at the Preserve, learn to record observations in a nature journal, and hon the skills of a naturalist. Led by trained docents, they begin to expand their senses, interpret the language of birds, track wildlife, and negotiate a special "sit spot," likely near the pond, where they each sit quietly and take stock of the desert's activity. After a few minutes, they reconvene and share their experiences.



Discovering the Desert is student-focused. Trained docents serve as facilitators of experiences rather than dispensers of information. The program requires very little equipment—just nature journals and possibly student-grade binoculars and hand lenses. A small bird blind near the pond would expand bird-watching opportunities.

Exploring the Desert, grades 3-6 - This program builds upon the Discovering the Desert program and further reinforces the skill sets of a naturalist. It also introduces the role of technology in science. Students explore the Preserve where they use smartphones to access apps and record their observations. They assume the role of community scientists, taking photographs of the plants, animals, and phenomena they notice during their visit, and recording the time, location, and conditions. Possible apps include iNaturalist, Project Noah, Journey North, Nature's Notebook, Bumble Bee Watch, eBird, eButterfly, and SpiderSpotter.

Journey North, for example, tracks seasons and migrations of such animals as hummingbirds and orioles, both of which are present at the Preserve. Students can submit their observations and teachers can access numerous resources, including suggestions for activities that build vocabulary, enhance comprehension skills related to reading and map-making, strengthen inquiry skills, and explore environmental concepts.

This could be an exciting, authentic way to record observations; however, it comes with caveats. 1. Parents would need to be informed that their children are accessing science-based apps that do not collect or compromise personal information nor lead the user to any other sites. Their written permission would need to be secured for this activity. 2. To ensure equity and inclusion, the Preserve would need to have some spare smartphones available for use by students who do not have smartphones.

Caveats aside, this presents a remarkable opportunity for students to become researchers and contribute to a project that connects their class to a larger community. It also supports STEM and STEAM initiatives.

History and Social Science

Discovering the Past, grades 3-5 - The Preserve is home to a former Hohokan native village called Sleeping Snake. Covering nearly 100 acres, it consists of a ball court site that has yielded numerous artifacts that reveal information about community structure, social organization, and trade dating back to 950-1150 A.D. during its most intensive occupation.

While the village site is off limits, we recommend that OVPR consider developing a fabricated archaeological dig site elsewhere at the Preserve for use to teach history. The pit could contain concrete-cast artifact replicas that are secured at various depths. Students on a field trip would learn how to establish a grid, uncover the site, record the location of artifacts, learn about stratigraphy and cross-dating, and generate hypotheses about the artifacts. At the same time, they would also learn about the importance of not disturbing real sites and not removing artifacts when found in the field. We recommend that OVPR discuss the idea of a fabricated archaeological dig site with tribal representatives to ensure that concerns are addressed.



This station could take advantage of an existing sand trap site and therefore avoid disturbing habitat. A shade sail would offer protection from the Sun. Because the materials would be exterior-grade and anchored to the pit's floor and sides, they would hold up against the elements and not "walk away."

While one group would be at the pit, another group would be at the petroglyphs. While created by a modern-day artist, the petroglyphs nevertheless attempt to replicate art created thousands of years ago. Here, students would learn the difference between a petroglyph and a pictograph and the meaning of various symbols. The last activity at this station could be an art project—creating their own rock art on kraft paper using a bleach-dipped cotton swab.

Implications for the Master Plan

Both the interviews and the recommendations yield a few physical improvements to the site. These include a shaded, solar panel-powered outdoor classroom where students can gather upon arrival, eat lunch, and convene at a program's conclusion. A charging station would be helpful, given smartphones would be used during the Discovering the Desert program. Pullouts along the existing pathways would allow small groups of students, as well as general visitors, to step aside and pause as they view the scenery or wildlife known to frequent a particular location. Two additional elements include the shaded fabricated archaeo pit (in an existing sand trap) and the small bird blind at the pond.

Both the outdoor classroom and the archaeo pit should be located near Innovation Academy.



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Interpretive Summary

Best Practices in the Field

The following recommendations are considered "best practices" in the field of interpretation. Future development of the Preserve's interpretive media should reflect these qualities. Interpretive panels, other signage, interactives, digital media, and experiences at the Preserve have purpose. These elements support the Town of Oro Valley's mission statement, as well as the interpretive goals identified in this summary.

- Trailheads, interpretive media, experiences, staff, and volunteers create a welcoming environment where all visitors are valued and receive equal access to opportunities and services.
- The Preserve offers high recreational and educational value. Interpretive panels, other signage, interactives, digital media, and experiences are enjoyable and accessible. Visitors appreciate the experience and gain knowledge and inspiration in the process.
- The interpretive panels, other signage, interactives, digital media, and experiences are meaningful. Visitors will readily embrace them because they find them personally relevant.
- All of these elements are strategically organized: well-planned, well-designed, and guided by storylines that resonate with visitors. At the same time, their placement invites free choice. The audience can decide the sequence and time commitment for visiting each element.
- Last, these elements reflect an overarching theme that connects various facts and concepts together. The theme organizes all the content and makes it easier for the audience to grasp the message behind the subject matter. Understanding the "big ideas" behind the Preserve's natural and cultural resources and stories is an essential step in this work.

Without a thematic approach, people are less likely to find meaning that is relevant to them and easily organized within their own minds. Linking the Preserve's tangible elements—its landscapes, viewsheds, life forms, and artifacts—to intangible meanings is one way to achieve this. While important in their own right, these elements can also serve as portals to deeper meaning.

Our goal is to enhance the narrative so that visitors are inspired, open to understanding how the Preserve and larger Sonoran Desert matter to them, and willing to adjust behaviors that better reflect desert stewardship values.









Message Hierarchy

The message hierarchy presents information in a logical and relevant manner. It consists of an overarching theme, subthemes, and subtheme-specific key concepts. It should serve as an "advance organizer," giving visitors a sense of where the exhibit media are going and making it easier to connect their content to other information.

Theme

Once a golf course and now a Preserve, this site demonstrates nature's resiliency. Plants and wildlife of the Sonoran Desert continue to "take back" the land, increasing the richness of both the Preserve and the visitor's experience.

Subthemes

- Thanks to Preserve Vistoso, The Conservation Fund, and the Town of Oro Valley, the Vistoso Golf Course was purchased and repurposed as a nature preserve.
- Vistoso Trails Nature Preserve is a remarkable piece of the Sonoran Desert. Spanning over 200 acres, it is home to remarkable cacti, trees, shrubs, and wildflowers, as well as a dazzling array of wildlife.
- Nature is resilient, but still, it can benefit from human intervention. Removal of invasive weeds and revegetation with native desert plants are ongoing projects at the Preserve.
- The Hohokam and other Indigenous People have lived on this land for thousands of years. Resilient and resourceful, the Hohokam were sophisticated desert farmers.

Subthemes & Key Concepts

<u>Subtheme One</u> - Thanks to Preserve Vistoso, The Conservation Fund, and the Town of Oro Valley, the Vistoso Golf Course was purchased and repurposed as a nature preserve.

Key Concepts

- Key concept: The Preserve is situated on the former Vistoso Golf Course which was established in 1995-1996 and shuttered in 2018.
- Key concept: The Preserve lies adjacent to the Rancho Vistoso development within the Town of Oro Valley. The combined efforts of Preserve Vistoso, The Conservation Fund, and the Town of Oro Valley ensured that the Golf Course property was purchased as a nature preserve.
- Key concept: The Preserve is a significant asset to the Town of Oro Valley. Not only does it offer prominent recreational and educational value, but also ecological value.
- Key concept: The Preserve is framed by the Tortolita Mountains to the north and Coronado National Forest to the east. The Preserve's vistas are expansive; its landscape beckons both people and wildlife.



- Key concept: Dark skies are particularly noteworthy from the Preserve's high points.
- Key concept: The Preserve is part of the Sonoran Desert which contains globally remarkable biological diversity. Plant communities that are present on the Preserve are in the process of being restored.

<u>Subtheme Two</u> - Vistoso Trails Nature Preserve is a remarkable piece of the Sonoran Desert. Spanning over 200 acres, it is home to remarkable cacti, trees, shrubs, and wildflowers, as well as a dazzling array of wildlife.

Key Concepts

- Key concept: The Sonoran Desert covers 120,000 square miles across five states and two countries. On a global scale, both its pollinator diversity and reptile diversity are renowned. The Vistoso Trails Nature Preserve "returns" 200 acres to this remarkable desert.
- Key concept: A snapshot of the Sonoran Desert, the Preserve is home to numerous mammals, birds, reptiles, amphibians, and invertebrates, as well as plants. As sections of the Preserve become restored, more wildlife will likely be attracted to it.
- Key concept: The Preserve's wildlife is generally subdued and shy, with the exception of the javelinas, cottontails, and some of the birds. Calls and songs often announce the presence of birds before they are seen.
- Key concept: The Preserve features plants native to the desert scrub and mesquite bosque communities. Shrubs (jojoba, creosote, chuparosa, acacia), cacti, and succulents form medium-height clusters of scrub, while taller trees, including palo verde, mesquite, and ironwood form taller woodlands, or bosques, especially near intermittent streambeds.

<u>Subtheme Three</u> - Nature is resilient, but still, it can benefit from human intervention. Removal of invasive weeds and revegetation with native desert plants are ongoing projects at the Preserve.

Key Concepts

- Key concept: Plants that are native to this region are adapted to the desert's growing conditions. Native wildlife recognizes them as sources of food. Exotic species, such as the remnant Bermuda grass are not necessarily adapted to the desert's growing conditions or controlled by or recognized by native wildlife.
- Key concept: Volunteers and students engaged in service-learning and community service work, raise native plants in the Preserve's nursery, and weed and revegetate sections of the Preserve.
- Key concept: Nature is reclaiming the Preserve. Native desert plants continue to take hold and wildlife continues to frequent the Preserve as residents and as migratory species.





Key concepts

- Key concept: The Hohokam were present on this land and left clues of their presence. Both they and their ancestors are known for their sophisticated irrigation systems that watered crops, including maize (corn), beans, and squash.
- Key concept: The Hohokam native village of Sleeping Snake covers 99 acres within the Preserve boundaries. Archaeological evidence indicates that a ball court anchored the village, pit houses and terraced gardens surrounded it, and art was produced with imported pottery, obsidian, and shell. Intensive occupation of Sleeping Snake Village occurred between 950 and 1150 AD.
- Key concept: Artist-created petroglyphs are found at the Preserve. While not authentic, the petroglyphs nevertheless represent a replication of art created thousands of years ago.
- Key concept: A petroglyph is an image that is carved, incised, or scratched into stone. It differs from a pictograph that is painted on stone, using natural pigments.
- Key concept: Today, descendants of the Hohokam—citizens of the Tohono O'odham Nation—remain connected to the Sonoran Desert.



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Existing Conditions









VISTOSO TRAILS MASTER PLAN February 2023



Existing Conditions – ADA Assessment









Section: Existing Cart Path



Proposed Trail Plan Diagram-Option A

Existing Cart Path with Proposed Loops & ADA Trails



Section: Proposed Cart Path Loop Extension



Section: Proposed Cart Path Shoulder Improvements Option I



Section: Proposed Cart Path Shoulder Improvements Option II

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Existing & Proposed Trail Sections – Option A Existing Cart Path with Proposed Loops & ADA Trails



Section: Existing Cart Path



Proposed Trail Plan Diagram – Option B Existing Cart Path with Proposed Loops, Walking & ADA Trails



Section: Proposed Cart Path Loop Extension, Walking Trail & ADA Trails



Section: Proposed Cart Path Shoulder Improvements Option I



Section: Proposed Cart Path Shoulder Improvements Option II

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Existing & Proposed Trail Sections–Option B

Existing Cart Path with Proposed Loops, Walking & ADA Trails



Section: Existing Cart Path



Proposed Trail Plan Diagram – Option C Existing Cart Path with Proposed Loops, Nature & ADA Trails



Section: Proposed Cart Path Loop Extension & ADA Trails



Section: Proposed Nature Trail



Section: Proposed Cart Path Shoulder Improvements Option I



Section: Proposed Cart Path Shoulder Improvements Option II

DRAFT MASTER PLAN

Existing & Proposed Trail Sections – Option C

Existing Cart Path with Proposed Loops, Nature & ADA Trails

Driving Range Node



PERSPECTIVE: DARK SKY VIEWING PLATFORM



PERSPECTIVE: OUTDOOR CLASSROOM





February 2023



Pond Node – Option A



BIRD EYE VIEW: PROPOSED CONSTRUCTED WETLAND



SECTION: PROPOSED OPEN SPACE FIELD + CONSTRUCTED WETLAND





VISTOSO TRAILS MASTER PLAN - OPTION A February 2023



Pond Node – Option B





SECTION: PROPOSED OPEN SPACE FIELD + CONSTRUCTED WETLAND





VISTOSO TRAILS MASTER PLAN - OPTION B February 2023



Pond Node – Option C





SECTION: PROPOSED MODIFIED POND

Vistoso Trails Nature Preserve

Benefits Matrix of Vistoso Preserve Landscape Typologies

	Land Forming and Grading	Mobility & Access	Parking	Habitat Benefits	Habitat Detractions	Water Use	Human Benefits	Cost
Pond Option A	Grading would include removing pond bulkheads, partially filling former pond zone and sloughing the side slopes inward. Fine grading of the pond bottom to accept small wetlands, create water harvesting opportunities, and revegetation of the area.	Access excellent around the three bay constructed wetland.	New proposed parking locations would make access to pond easily accessible for all ages and abilities.	Very good benefits for a wider range of avian wildlife. Mammalian species would remain similar to old pond configuration.	None noted.	Least water use pind option.	Educational and interpretive value. Photo opportunities and aesthetic value.	TBD
Option B	Grading would include removing pond bulkheads, partially filling former pond zone and sloughing the side slopes inward. Fine grading of the pond bottom to accept small wetlands, create water harvesting opportunities, and revegetation of the area. Creating new bulkheads for the traditional roadside pond at a smaller scale. Fine grading of the pond bottom to accept the new pond, and revegetation of the area.	Access excellent around the two bay constructed wetland and pond.	New proposed parking locations would make access to pond easily accessible for all ages and abilities	Habitat benefits for new pond configuration similar to old pond configuration, albeit lesser due to pond size.	Less native avian species would be attracted to pond due to less diverse pond depth and conditions.	Greatest water use pond option.	Educational and interpretive value. Photo opportunities and aesthetic value.	TBD
Option C	Grading would include removing pond bulkheads and sloughing the side slopes inward. Creating new bulkheads for the smaller roadside pond. Fine grading of the pond bottom to accept wildlife drinkers and revegetation of the area.	Access excellent around and into the reconfigured former pond.	New proposed parking locations would make access to pond easily accessible for all ages and abilities	Habitat benefits for new pond configuration similar to old pond configuration. Maybe even lesser due to even smaller pond size.	Less native avian species would be attracted to pond due to less diverse pond depth and conditions.	Water use will be increased in the short term for the revegetation activities and will remain high for pond operations.	Educational and interpretive value. Photo opportunities and aesthetic value.	TBD
Driving Range and Vicinity	Little grading would be necessary as the low points atready exist. Some grading might be necessary around the old putting green near the existing restroom and concessions.	Access will be improved to multiple venues including star gazing, wildlife "walks", outdoor classrooms and exhibits.	New proposed parking locations would make access to pond easily accessible for all ages and abilities	Habitat benefits include three distinct ecotone exhibits, restoration activities, and Bermuda Grass removal.	None noted	Water use will be increased in the short term for the revegetation activities and level activities and level off to little in the future.	Educational and interpretive value. Photo opportunities and aesthetic value.	TBD

POND & DRIVING RANGE NODES BENEFITS MATRIX





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Revegetation/Land Management Process

- 1. Existing treatment plan for invasive plant material to continue thru 2024.
- 2. Determine reusability of former irrigation lines.
- 3. Develop phased revegetation plan based on former hole layout.
- 4. Remove Bermuda grass
 - Rip and contour furrow
 - Seed with native grass mix and straw
 - Compact area to cover native seed mix
 - Time planting around monsoon season cycles
 - Rip and contour furrow area
 - Seed with native grass mix and straw
 - Compact area to cover native seed mix
 - Time planting around monsoon season cycles
 - Spot treat invasive plants
 - Harvest native species seeds and place throughout native grass seeded zones
 - Accept rescued native plants and place throughout native grass seeded zones







Phase I – Safety, Access, Education, Revegetation

The phase will focus on the development and implementation of a main trailhead, address existing concrete path cracks and breaks, install informational, educational, and wayfinding signage, begin revegetation in three areas (north and south), and stabilize the existing pond.

Phase II - Accessibility and Revegetation

This phase will focus on the development and implementation of ADA trails, adding two small trailheads adjacent to the ADA trails and continued implementation of the revegetation plan.

Phase III – Driving Range Node

This phase will focus on the development and implementation of the education and program areas associated with the former driving range along with the continued implementation of the revegetation plan.

Phase IV - Pond

This phase will focus on the development and implementation of approved final concept of the former pond along with the continued implementation of the revegetation plan.

PHASING RECOMMENDATIONS

Next Steps

January–March 2023

First Master Plan Draft presented to community via Community Workshop and Stakeholder Meetings (January) - Completed
First Master Plan Draft presented to Parks and Recreation Advisory Board (February) - Completed
First Master Plan Draft presented to Town Council Study Session (March)

April—May 2023

Final Master Plan Draft presented to Parks and Recreation Advisory Board (April)
Final Master Plan Draft presented to Town Council (May)









Questions & Comments