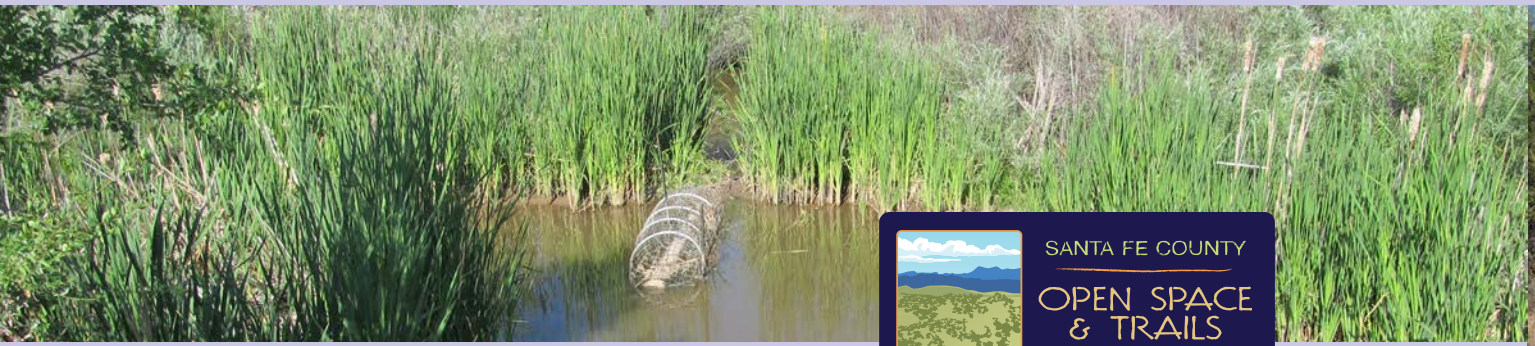
SANTA FE COUNTY OPEN SPACE AND TRAILS PROGRAM

LA CIENEGUILLA OPEN SPACE MANAGEMENT PLAN

FINAL DRAFT

SEPTEMBER 13, 2016



SANTA FE COUNTY
OPEN SPACE & TRAILS

Ecotone

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Furthermore, the planning team wishes to acknowledge the support and insights offered by the County Open Lands, Trails, and Parks Advisory Committee (COLTPAC).

The extensive knowledge, effort and guidance from the County Open Space and Trails (OS&T) planning, project development, and maintenance staff was invaluable in developing this plan.

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More than forty people participated in the stakeholder input process for the Plan. Stakeholder input was particularly important in the planning process to confirm the network of stakeholders, identify critical land conservation issues, understand complicated land and water management practices in the area, formulate a vision for the property, identify preferred land uses and management activities, verify Management Plan priorities, and obtain feedback on draft management plan language.

The planning team obtained stakeholder input in a variety of ways:

- Meetings, telephone interviews, e-mail communications, and field walks with approximately six key-informants in the community
- Three community meetings, two of which at the La Cienega Community Center and one at El Rancho de las Golondrinas Meeting Room; between 12 and 30 people participated in each of the meetings
- A public review and input process of the public review draft version of the Management Plan; comments were summarized in a table and responses were formulated behind each one of the comments; eight people submitted written comments on the Draft Management Plan.

The La Cieneguilla Open Space Management Plan was developed by a planning team led by Ecotone. The Ecotone planning team included:

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EXECUTIVE SUMMARY

La Cieneguilla Open Space (LCOS) is a 150 acre County Open Space property in the traditional community of La Cieneguilla. This property was the first Open Space purchased by the Open Space Program in 2000 as an undeveloped gateway buffer to La Cieneguilla. It provides conservation of wildlife habitat, recreational and educational opportunities, as well as a connection to cultural resources on public lands.

The acquisition of this property was strongly supported by the residents of La Cieneguilla and La Cienega for the preservation of its scenic beauty, rural landscape attributes, diverse natural resources, connection to public lands, and its potential for education and outdoor recreation.

The goal of the La Cieneguilla Open Space Management Plan is to provide practical and effective management steps to maintain and enhance the natural beauty and ecosystem function of La Cieneguilla. This plan was developed in collaboration with community members, adjacent property owners, and Santa Fe County staff. The plan has received strong support from residents of La Cieneguilla and La Cienega.

La Cieneguilla Open Space includes important wildlife habitat as well as a rich variety of flora and fauna. Challenges for managing this site include: holistic riparian system maintenance, environmental restoration, protection of dryland soils, wildlife habitat, appropriate access, and hazard mitigation. The property's ecological and cultural resources are impacted by natural processes and inconsistent maintenance. Current threats include flooding and erosion, potential for wildfire, proliferation of invasive plant species, and degradation of grassland. This management plan was developed to preserve, protect and restore the property's valued resources. The plan outlines the vision, regular and scheduled maintenance activities, land improvement priorities, and stakeholder involvement in land stewardship.

The LCOS Management Plan identifies short-term, mid-term, and long-term management priorities for the property. The short term phase focuses on ecological restoration and maintenance activities related to flood and erosion control, public safety, and site cleanup. In the mid- to long- term, Santa Fe County will work with community stakeholders to develop educational and recreation opportunities at LCOS in order to utilize the open space in a way that benefits the community while preserving and protecting the land.

The Management Plan for LCOS emphasizes the importance of collaboration regarding stewardship, conservation, and development of this property in the short- and mid- to long- term phases. The plan identifies several opportunities for active public participation in stewardship activities to enhance preservation and restoration of the property to reach the vision for La Cieneguilla Open Space.

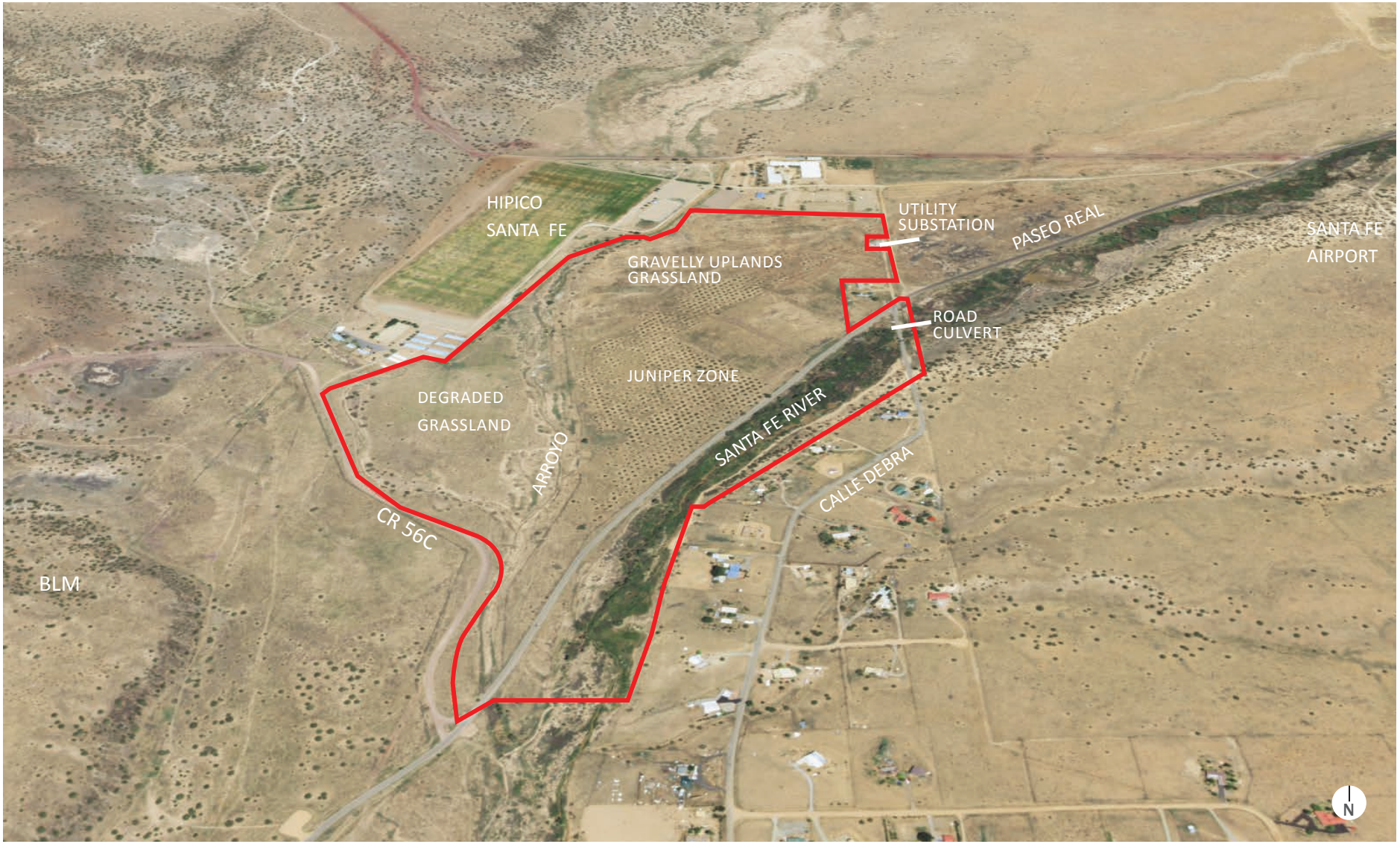


Figure 1. View of La Cieneguilla Open Space - from south looking to north Source: Google Earth

This Management Plan for the La Cieneguilla Open Space was developed with community members, neighbors, property owners and other stakeholders from La Cieneguilla and La Cienega valley area.

The planning team worked with participants to formulate a vision for the La Cieneguilla Open Space and to verify the final plan components and priorities.

1.1. Plan Purpose and Need

The La Cieneguilla Open Space (LCOS) Management Plan was developed between June 2015 and May 2016. Along with the Management Plan, a Field Characterization Report, a detailed Maintenance Plan, and a Planners' Guide for County staff accompany this plan**.** The Planners' Guide includes technical planning methods, approaches to County capacity building, best management practices (BMPs), and recommendations for plan implementation.

The LCOS Management Plan outlines a planning direction and specific action priorities for short-term, mid-term, and long-term phases. The Plan was written for Santa Fe County policy makers, staff, community stakeholders, and site stewards with the purpose to:

- Describe the vision, goals, and objectives for management of the property;
- Help staff and the public understand terrain conditions and suitability of the land for different uses of the property;
- Clarify priorities for site restoration and maintenance;
- Identify projects for future investment and financing mechanisms to fund them;
- Streamline management protocols within Santa Fe County.

The Plan was developed in response to a recommendation from the County Open Lands, Trails, and Parks Advisory Committee (COLTPAC) and with clear and strong support for enhanced management of open space properties from the Board of County Commissioners (BCC). The Plan arose from a growing need for:

- A strategic management plan that includes community outreach, a conceptual master plan, funding analysis, and maintenance plan to direct County staff in managing LCOS;
- A strong vision with clear objectives and strategies for resource conservation, agricultural preservation, passive recreation, and public access;
- An overview of existing conditions and a site-specific inventory report;
- A detailed maintenance plan with recommendations for labor and equipment needed;
- A concept plan that identifies, prioritizes and estimates timing and costs for key projects;
- An analysis of potential funding mechanisms to implement the plan.

LCOS Management Plan Need

The need to develop a Management Plan for LCOS has been a high priority because of a variety of ecological and functional site conditions that require systematic attention and consistent maintenance and resource management. Notably, local community members have raised management concerns about the Santa Fe River portion of the LCOS as well as about access limitations and the use of the grassland portion of the property. Maintenance needs have been accumulating and have led to the need for several ecological and infrastructure restoration projects.

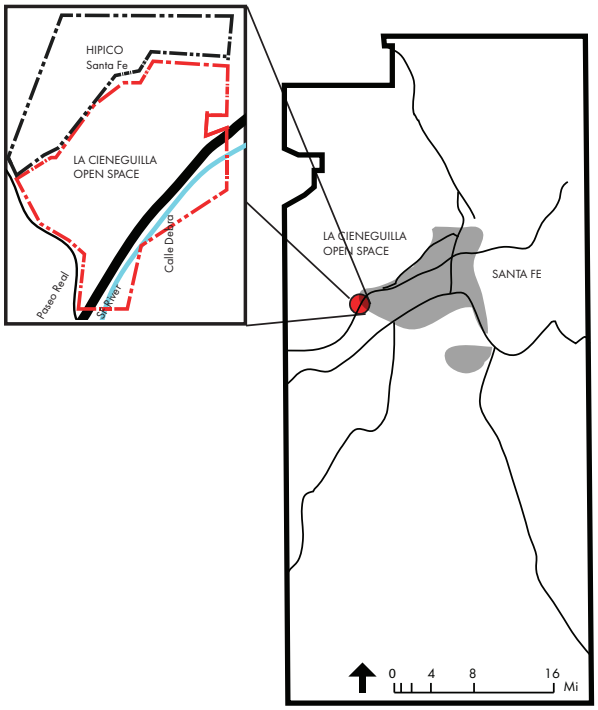


Figure 2. Location Map - La Cieneguilla Open Space

1.2. Property Description

La Cieneguilla Open Space (LCOS) is a 150-acre County Open Space property along the Santa Fe River in La Cieneguilla, just west of the City of Santa Fe (*Figure 2)*. Paseo Real (County Road 56) runs through LCOS from the north to the south following the banks of the Santa Fe River. The LCOS is bordered on the east side by the Santa Fe Airport and the Calle Debra subdivision. On the north and northwest side is HIPICO Santa Fe (previously the Santa Fe Horse Park). On the west and south sides is land managed by the Bureau of Land Management (BLM). Separating the site from the BLM property is County Road 56C.

Santa Fe County purchased the LCOS as one of its first Open Space properties from a corporate land development partnership of private landowners in 1999. The purchase did not include any water rights. Another portion of the land owned by the land development partnership located to the west of the LCOS was purchased by the BLM.

LCOS property includes natural resources associated with the Santa Fe River and with grasslands and former fields on old river terraces. The area includes a well-developed riparian ecosystem and valuable wildlife habitat and corridors. After the completion of a riparian restoration project in 2006, the riparian area has gained importance as a wildlife migration corridor and habitat for beaver. Anecdotal wildlife observations point at the presence of rodents, raptors, coyotes, and mule deer in the grassland and riparian area of the LCOS. It is likely that the area is also a pathway for bobcat, mountain lion, foxes, and bear, and that it is important habitat for bats, insects, and a variety of reptiles and amphibians. The riparian area is potential habitat of the Southwest willow flycatcher, a federally listed species, although no surveys have been conducted to confirm this. Ecologically the LCOS is an extension of the BLM's Area of Critical Ecological Concern (ACEC). Santa Fe County has developed ongoing communication with BLM regarding ecological management coordination. Additionally, Santa Fe County participates in the Santa Fe River Traditional Communities Collaborative regarding management of the Santa Fe River Corridor.

LCOS is near the center of what used to be the La Cieneguilla Land Grant. It is located north of the historic settlement of La Cieneguilla and close to many prehistoric cultural sites. However, no cultural resources are known to exist on the property. LCOS shares cultural resource management concerns with the BLM lands to the west. Those lands are managed under the BLM's West Santa Fe – Cieneguilla Special Recreation Management Area and include sites also under the Galisteo Basin Archaeological Sites Protection Act of 2004. The LCOS includes an alignment of the El Camino Real de Tierra Adentro National Historic Trail which has shared management responsibilities through the National Park Service and BLM.

LCOS is also a desired location for potential future recreational facilities for local residents as well as for ongoing education and research programs about the area's unique ecological and historical characteristics. The property's recreational potential is supported by its location in proximity to neighborhoods that are not served with any recreational facilities and by its ecological, historical and scenic qualities. The upland area offers 360-degree views of the Santa Fe County landscape and the rural setting of the former La Cieneguilla Land Grant. The LCOS includes only one publicly accessible trail that runs along the left bank of the Santa Fe River on the east side of the property. However, this trail dead ends on the southern end of the property. The larger western part of the property dominated by grasslands is not open to the public. The property is fenced with 4- and 5-strand barb-wire fencing, and includes some interior fencing as well. Except in a few locations where the fence is broken, fences are in moderate to good condition.

This Plan is informed by a landscape assessment which was completed in early 2016. The report documents the riparian and wetland conditions along the Santa Fe River at LCOS and conditions on the grasslands and the Arroyo de las Calabasas (*APPENDIX B*).

Current conditions constitute several needs for resource protection and restoration. Threats to the property's resources include:

- Flood risks in the Santa Fe River area of the property, including damage to infrastructure;
- Ongoing public safety hazards related to old construction debris and mixed waste dumps along the Arroyo de las Calabasas;
- Soil loss risks from water and wind erosion on grasslands and on river banks; the area colonized with juniper trees shows signs of soil erosion and poor plant diversity and cover;
- Slow proliferation of invasive exotic plants, such as Russian olive and Siberian elm, in the riparian area and widespread infestation of Kochia spp. on degraded grassland areas;
- Wildfire risk in the dense and dried out areas of the Santa Fe River area as well as on the grasslands.

Several of these management concerns were expressed by diverging stakeholder viewpoints about the desired future condition and associated management of the riparian area. While certain groups favor the conditions that have evolved after riparian restoration around 2006 and the subsequent beaver activity in the riparian area, other stakeholders are concerned that the current ecological conditions in the riparian area reduce the volume of water available for irrigation downstream. Additionally, current ecological conditions require maintenance and restoration to prevent damage from flooding, bank erosion and wildfire.

A management concern for the future development of the upland area of the LCOS is the potential public safety hazard and ecological degradation associated with the dump sites of construction debris and mixed waste along the Arroyo de los Calabasas. These management concerns are exacerbated by the rare chance of serious flooding in the arroyo along with pollution from horse bedding, manure, and solid waste dispersing from HIPICO Santa Fe into the arroyo and onto the already contaminated and degraded grasslands downstream.

While no dumping has been occurring the arroyo in recent years, the current waste piles include objects, holes and sharp protruding material that could injure open space users. It is unknown whether the waste includes any hazardous materials. The waste piles also cause gully and bank erosion along the arroyo. The piles are also likely habitat for rodents and snakes.

Photo 1. Views looking south from La Cieneguilla Open Space

Photo 2. Debris piles in large arroyo

Photo 3. Existing unpaved trail on east side of Santa Fe River

1.3. Management Plan Development Process

The planning process was informed by the initial goals for the acquisition of the property and a set of planning principles. The planning principles were formulated based on public input and management conditions within Santa Fe County.

INITIAL GOALS FOR ACQUISITION

- Buffer suburban expansion from the City of Santa Fe
- Offer access to BLM sites for interpretive education
- Conservation of water for acequias (downstream)
- Conservation of wildlife habitat
- Conservation of cultural resources
- Create recreational open space for adjacent subdivisions and regional residents coming from urban and rural areas

PLANNING PRINCIPLES

- Adhere to goals and purpose of Open Space program.
- Ensure public access and safety.
- Keep maintenance needs to a minimum (commensurate to County capacity and community-based stewardship support).
- Minimize needed investments related to master planning.
- Minimize the disturbance of cultural and ecological resources.
- Identify and enhance opportunities for agricultural use of Open Space properties.
- Involve youth and create educational opportunities.

The planning process included three phases:

Scoping and Reconnaissance Phase

- Interviews with key stakeholders, community members, and County staff to develop an initial understanding for engaging the community in the management plan process.
- Review of relevant Santa Fe County plans and policies.
- Site visits to identify specific research needed for this management plan.
- The first public input meeting to develop an initial community vision for the site.

Research Phase

- Follow-up interviews with key stakeholders and community members to refine the approach for the second public input meeting.
- Research on topics identified in the Scoping and Reconnaissance phase.
- Additional site visits to confirm terrain management units and collect data for a land suitability assessment and the development of management recommendations.
- Mapping of findings of the Scoping/Reconnaissance and Research phases.

Planning Phase

- The second public input meeting to present research and land suitability findings and formulate ideas for management of the property.
- Writing the first draft of the management plan.
- Interviews and reviews with County staff to confirm plan coordination and implementation opportunities.
- The third public meeting to confirm the draft vision statement and goals and review the major components of the draft management plan.
- Final draft management plan for review and the approval process.

Information Management

Santa Fe County will gradually streamline and enhance the procedures that help staff acquire, store, and share knowledge that is essential for effective resource management of LCOS. Recommendations about County capacity building, knowledge development, information management, plan updates and community involvement methods are described in the Planners' Guide.

Plan Updating

This plan is a living document which will be updated and amended when necessary. The scope of the plan is approximately 15-20 years. Plan information is specific for the short-term (years 1-5), descriptive for the mid-term (years 6-10), and preliminary for the long-term (year 11 and beyond).

Changing community needs, terrain conditions, and County management capacity will inevitably lead to the need for plan adjustments. Priorities and timelines may shift, and objectives for planned projects, maintenance activities, and community relations may change or expand. Following completion and assessment of actions beyond the mid-term span of this plan (10-15 years), this plan may need a thorough updating.

2.0 LA CIENEGUILLA OPEN SPACE MANAGEMENT PLAN

This section describes the La Cieneguilla Open Space vision, the management goal and specific site management objectives.

Included are recommendations for monitoring and information management, a conceptual master plan with key projects, community stewardship, terrain management, and funding options.

2.1. A Vision + Goals for La Cieneguilla Open Space

Vision Statement

The La Cieneguilla Open Space vision statement is based on responses from community meeting participants to questions that asked "What would "good" look like?", "What do you want for the future of this place?", "What might other people think would be good for this site, but you don't?", and "What would worry you if it happened on the site?" The draft vision statement was shared and verified with community members at the third community meeting.

La Cieneguilla Open Space Vision Statement

In 2025, the La Cieneguilla Open Space (LCOS) is a healthy ecosystem with native grasslands, a flowing river, clean water, irrigation water, and high-quality native wildlife habitats. Wildlife pathways connect to the larger landscape. The open space is managed holistically so that the land and water resources are protected, monitored, and maintained; the cultural resources are protected; and there are educational opportunities for the public to learn about the land, water, ecology, human history, and past and current uses of the place.

The LCOS may include one or more trails, including a trail to improve the safety of walkers and bikers. The area may include family-friendly, safe outdoor recreation opportunities for neighborhood residents and their children. It may also include agricultural activities that protect and regenerate the grasslands.

Local residents, especially youth, are actively involved in the maintenance and stewardship of LCOS.

La Cieneguilla Open Space Management Goal

Based on the vision statement, the central management goal for LCOS is:

Santa Fe County and the community of the Santa Fe River valley around La Cieneguilla collaboratively maintain and enhance the land and water resources of LCOS for wildlife, recreation, education, and other low-impact uses. LCOS is managed in such a way that opportunities are developed gradually for interpretive education, research and public education, and low-impact recreational uses by neighborhood families and the public, at a scale that requires little maintenance, encourages local community stewardship, and protects the land and water.

Photo 4. Pond leveler on section of Santa Fe River

Photo 5. Northern boundary with HIPICO Santa Fe

Photo 6. Waste accumulation from HIPICO Santa Fe on LCOS grassland

Management Goals + Objectives

La Cieneguilla Open Space Specific Management Objectives

Specific management objectives in support of the vision and the central goal are:

1. **Holistic & Neighborly.** Manage the property in a way that the different values and objectives are balanced holistically (and not one despite another), and that improvements and changes are introduced in a gradual way, and seek and maintain working relationships with neighbors and other local stakeholders
2. **Public Safety.** Enhance public safety for example, by cleaning up old waste dumps, maintaining appropriate fencing of flood zones and steep slopes, and developing a trail along Paseo Real.
3. **Access.** Control access by managing roads, trails, fences, gates, stiles, river crossings, and signage
4. **Natural Appearance.** Maintain the area's natural appearance, sweeping scenic views, and cultural-historical qualities, keep maintenance limited, and maintain a rural, natural visual quality by using natural design principles and natural materials, and by choosing deliberately when to let nature run its course
5. **Education**. Provide and maintain interpretive education, and explore and use educational and research opportunities
6. **Infrastructure.** Develop basic infrastructure such as community gathering areas and play areas that are as natural and low-maintenance as possible
7. **Ecological Health.** Maintain the ecological health, resilience, and productivity of the LCOS uplands and riparian area, and maintain wildlife habitat qualities and connectivity across the landscape
8. **Grazing.** Explore and use – when appropriate – managed, restorative grazing practices (and rest periods) as a way to improve grassland health and respond to the need to develop an agricultural use for County Open Space properties
9. **Grasslands**. Evaluate the removal of some junipers to improve the regeneration of the grasslands while maintaining visual benefits

Management Objective #1 is Holistic & Neighborly management. Management of the LCOS property will need to be done in coordination with activities and conditions on the adjacent properties.

Santa Fe County acquired the LCOS to preserve the character of this part of the Santa Fe River valley as well as to conserve wildlife habitat, water resources, and the cultural resource heritage of nearby prehistoric settlements and the historic La Cieneguilla Land Grant. Another original goal was to offer access to adjacent BLM lands to enhance interpretive education options about the area's cultural heritage. Santa Fe County, the BLM, and local stakeholders acknowledge that the LCOS is connected to the surrounding landscape.

Santa Fe County acknowledges the many connections that LCOS has with the surrounding properties, the Santa Fe River, and beyond. The long-term success of the Plan will require coordination and collaboration with adjacent property owners, community stakeholders, wildlife-river advocates and the BLM.

Photo 7. Woody debris in Santa Fe River

2.2. Monitoring, and Information Management

Monitoring

To ascertain that progress is made toward achieving management goals, County staff together with local community partners will periodically monitor certain indicators of progress (*Table 1*).

A basic set of monitoring activities for LCOS includes first tier of three measurements for which a base-line of data was established during the management planning process. These proposed first tier monitoring activities are numbered and their locations are indicated by number on a TMU map (*Figure 3*). A second tier consists of 7 additional monitoring activities that Santa Fe County staff may conduct in the future if staff time and budget allow. Locations for these second tier activities will need to be established later.

Photo 8. Interior view of juniper rows north of Paseo Real

Based on the monitoring overview described below, and as part of plan implementation, Santa Fe County staff will develop a detailed monitoring plan. A detailed monitoring plan enables staff and stakeholders to track progress made toward specific goals and objectives. Ideally, the monitoring plan will be updated annually with community members and stakeholders.

A detailed monitoring plan specifies how the indicators will be measured or documented, when and where this will be done, who will do, and what equipment or supplies are needed. Additionally, a detailed monitoring plan will establish or estimate numerical thresholds and conditions that serve to indicate whether corrective action will be needed.

Photo 9. Embankment and concrete piles in Arroyo de las Calabasas

Base-line methods and findings are described in "A Field Characterization for the La Cieneguilla Open Space Property Santa Fe County, New Mexico - An Existing Conditions and Inventory Report" (2016). Methods for additional monitoring activities are in a list of BMPs in the Planners' Guide.

MONITORING LOCATIONS MAP

Monitoring Example

To maintain or improve the ecological health, resilience, and productivity, and wildlife habitat and connectivity along the Santa Fe River, a simple monitoring could be done by setting baseline levels of (a) native vegetation cover, (b) presence of non-native plant species, (c) the amount of dead wood material, or (d) the diversity of animal species in the riparian unit, using data from a selected monitoring year. Corrective action would be taken if monitoring shows that conditions have declined in relation to the baseline conditions. Causes for the impairment would be researched and addressed. This might mean that non-native plant species or dead woody material need to be removed, or that access, forage, shelter, water, or predation conditions for wildlife need improvement.

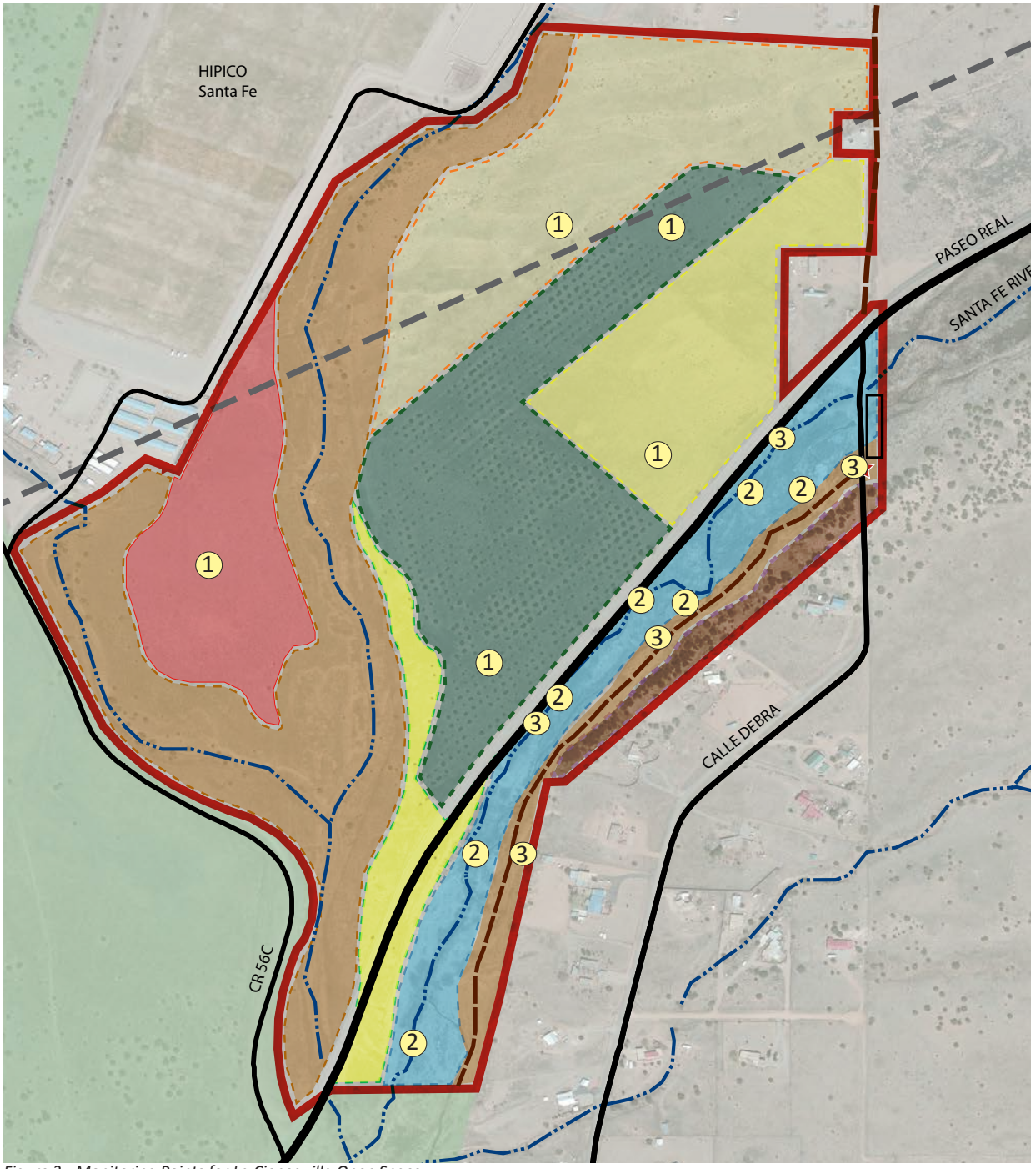


Figure 3. Monitoring Points for La Cieneguilla Open Space

No.	Conditions Monitored	Mgmt. Objectives	Indicators and Monitoring Method	Monitoring Frequency and Season
1	Grassland vegetation cover and richness, and potential forage quality of grasslands	Ecological Health / Grazing / Grasslands	Species richness and plant cover assessments in 10 sample plots along a transect; literature review of forage quality quantity of plants found in transects	Once in 2-3 years (in the fall)
2	Fuel load of riparian zone	Ecological Health	"Brown's Line" transects for fuel load estimates	Every 3 years in spring or fall
3	Erosion and drainage along trail on terrace on river left and along Paseo Real	Ecological Health	Visual observation during walk- through and photo point and GPS/Avenza PDF Map documentation of erosion and drainage problems	Bi-annually in spring and fall
4	Neighbor and stakeholder stewardship and relations	Holistic & Inclusive	Public participation and initiative; public feedback and expressions of support	Annually
5	Scenic quality	Holistic & Inclusive / Natural Appearance	Visual observation during walk- through and photo point and GPS/Avenza PDF Map documentation of scenic quality problems	Annually (spring or fall)
6	Public safety risks related to solid waste, water quality, erosion, and flooding	Holistic and Neighborly / Public Safety	Visual observation during walk- through and photo point and GPS/Avenza PDF Map documentation of public safety hazards	Quarterly (inspection of culverts, road sides, waste dumps, river)
7	Infrastructure conditions; fence effectiveness	Public Safety/ Access	Visual observation during walk- through and photo point and GPS/Avenza PDF Map documentation of fencing or infrastructure problems	(Bi-)Annually (spring and/ or fall)
8	Stream channel morphology, efficiency and stability	Ecological Health	Visual observation during walk- through and photo point and GPS/Avenza PDF Map documentation of stream channel problems	(Bi-)Annually (spring and/ or fall)
9	Vegetation health and botanical conditions	Ecological Health	Plant list comparison with knowledge of native plants; visual observation during walk-through and photo point documentation (identify noxious weeds)	Annually (spring or fall)
10	Pollution originating from HIPICO Santa Fe	Public Safety/ Ecological Health	Visual observation during walk- through and photo point and GPS/Avenza PDF Map documentation of any form of pollution on LCOS originating from HIPICO Santa Fe	Annually (spring or fall)

Note:

The table indicates the minimum suggested monitoring frequency. In some circumstances frequencies may need to be increased if/when staff time and funds allow, or if, monitoring activities can conducted by community volunteers.

Table 1. Monitoring Matrix

2.3. Conceptual Master Plan

The Conceptual Master Plan for La Cieneguilla Open Space (LCOS) describes proposed land improvement projects and associated investments to support the LCOS vision and management goals. The proposed projects result from stakeholder wishes and planning opportunities as limited by the suitability of the land. The Conceptual Master Plan describes alternative options for projects, the specific locations of projects, their purpose, priority, as well as a suggested timeline for implementation.

Land Use and Development Plan

The LCOS Conceptual Master Plan includes projects to preserve open land and natural resources, and in particular the property's scenic beauty and integrity and wildlife habitat. Furthermore, the Plan outlines ways to conserve water resources, maintain riparian habitat, and preserve the rural integrity of the traditional communities of La Cieneguilla and La Cienega. Future uses may include small-scale recreational uses, including natural surface trails and interpretive education signage, and certain agricultural uses that protect and regenerate the grasslands. Such uses are subordinate to the predominant conservation designation and will be in service to achieving the vision for the LCOS.

Natural resource conservation is already the de facto land use. This plan does not propose any changes to the current land use in the short term. Agricultural uses, such as managed grazing are possible in the context of grassland restoration. In the mid- to long-term, it is possible that agricultural uses are expanded toward dryland agriculture, and that local recreational uses are developed, such as trails, interpretive education signage, and other small-scale recreational facilities. The development of other uses in support of the vision will take place gradually after an initial maintenance and restoration phase.

Proposed projects are designed to improve ecological health of the different terrain types and vegetation across the property, improve the effectiveness of infrastructure, improve public safety on the property, and develop a local trail system and an interpretive education and research program. Projects will focus on:

- Placement of simple site signs and an information bulletin board
- Fence upgrades
- Drainage management along the trail on the terrace on river left and along Paseo Rael
- Erosion control and bank stabilization along the Santa Fe River
- Dumpsite cleanup and bank stabilization along the Arroyo de las Calabasas
- Grassland improvement and wind erosion control – possibly using managed, restorative grazing techniques.

Longer-term improvements will focus on reengineering of the Calle Debra crossing, trail development, and interpretive education signage (*APPENDIX A*).

Alternatives for proposed Conceptual Master Plan projects will be developed during the planning process of each individual projects. Alternatives vary between (1) No Action, (2) Preferred Solution, and (3) Alternative Solution(s).

Alternative O: No Action

Alternative O has been the default alternative from the time of purchase of the LCOS property. This alternative will likely be ended during the short-term phase of the Management Plan.

No Action will likely lead to increased threats of resource degradation and needs for more costly maintenance and restoration work. This alternative would preclude investments in desired ecological terrain improvements, safety measures, and signage.

Preferred and Alternative Solutions

During the Conceptual Master Plan process for LCOS no need arose to consider fundamentally different alternative solutions for the protection and improvement of conditions of LCOS. Instead, the proposed activities constitute a gradual organic development of activities spread over time.

However, at the level of specific projects (improvement), detailed technical alternatives may apply. These alternatives should be considered when these projects are being planned and designed. The advantages and disadvantages of each alternative and the determination of a preferred alternative is not timely in this Management Plan and is deferred to the full Master Plans for LCOS.

Planning and preparation is required for all Conceptual Master Plan improvements listed above. More work is needed to reach stakeholder consensus on the scope and scale of recreational facilities at the LCOS. In the mid-term, this may lead to a Detailed Master Plan for long-term recreational development, with options varying from expanded recreational trail facilities to a community park. During this community-based planning process, some low-impact recreational facilities, such as a natural surface trail loop and a few benches may be realized in the short- and mid-term. Implementation of improvements will need to follow basic short-term maintenance and repair activities needed to improve public safety and access, and prevent accelerating site degradation.

Exploring Alternatives

Alternatives for proposed LCOS projects will be developed during the plan process for individual projects.

An example of the range of alternatives that could be examined for grassland improvement are cursorily explored below.

Grassland Improvement

A No Action alternative is a "do nothing" strategy. A likely result is that in dry years, vegetative cover and plant species diversity will dwindle. There will most likely be an increase of non-palatable forbs, weedy plant species and an increase of bare soil. Wind erosion will likely increase, and associated dust storms and air pollution from the dust. The risk of wildfire will increase.

One alternative solution may be to do managed, restorative grazing with goats and/or cattle for a short duration --several weeks to a few months. Cattle grazing may be most effective on the better grassland parcels. Goat grazing may be more effective to remove forbs, weedy plants, and plant species that are generally unpalatable for cattle. Fencing and water will need to be brought in. Rest periods and monitoring would be part of the managed grazing regime.

A second alternative may include the removal of selected juniper trees that have caused the surrounding grassland to die off and become bare and be infested with invasive plants. Cut juniper material can be spread as mulch and juniper slash can be spread to stimulate grass regeneration, and supported by reseeding of native grass if necessary.

A third alternative may consist of the cultivation of a cover crop, in collaboration with eco-agricultural partner organizations and HIPICO Santa Fe. This alternative may be effective for the fine-sandy and loamy degraded grasslands between the two forks of Arroyo de las Calabasas. This alternative would require soil amendments such as compost or mulch and some form of irrigation.

The range and diversity of alternatives will take time to arrive at solutions for LCOS.

Key Planning, Research and Development Projects

Every proposed project requires planning, research and design development beforehand so that projects are well conceived, funded and implemented. Recommended planning, research and development work to achieve this plan are:

Short Term

1. Develop protocols for communication and verification about maintenance and land restoration work, mapping, monitoring, and team coordination
2. Develop a monitoring plan to identify base-line data for all scheduled activities and associated terrain conditions
3. Develop a basic signage plan with signs for boundary marking and/or acknowledgment of the LCOS, along with a bulletin board that will serve to post flyers and announcements;
4. Plan community stewardship activities for the Santa Fe River area
5. Plan drainage improvements and erosion control work along the trail on the terrace on river left and along Paseo Real
6. Research short-term fencing and priority cleanup and rehabilitation of the Arroyo de las Calabasas TMU
7. Develop a simple grassland and grazing management plan, including juniper management, revegetation strategies, weed management, and soil improvement
8. Develop a grazing lease program and a plan for managed, restorative grazing for years 4-5
9. Research mid-term and long-term trail and recreational development
10. Plan and coordinate the Calle Debra bridge reengineering project

Mid-Term and Long-Term

11. Develop a Recreation Master Plan for the LCOS
12. Coordinate Arroyo de las Calabasas cleanup and rehabilitation projects
13. Plan grassland improvement, managed grazing and juniper removal projects
14. Develop an interpretive education program
15. Research a possibly eco-agricultural program based on dryland (low external input) agriculture activities

Prioritization and phasing for the LCOS management plan is based on the terrain conditions of early 2016. The baseline site conditions include needed maintenance on the riparian area, the grasslands, fencing, and the Arroyo de las Calabasas. The proposed Conceptual Master Plan activities follow the prioritization criteria outlined in the Planners' Guide. General phasing is shown in *Figure 4*.

- ***Short-Term***
  - All activities focus on land restoration and maintenance, with an emphasis on fencing, drainage, erosion control, and riparian area management, to address the conditions caused by deferred maintenance
- ***Mid-Term***
  - Implementation of several larger restoration projects, such as cleanup of Arroyo de las Calabasas, the Calle Debra crossing, and grassland improvements
  - Development of a simple trail loop
- ***Long-Term:***
  - Master Plan components, such as further development and implementation of a recreational master plan and interpretive education program
  - Expanded trail and small-scale recreational facilities
  - Expansion of eco-agricultural projects.

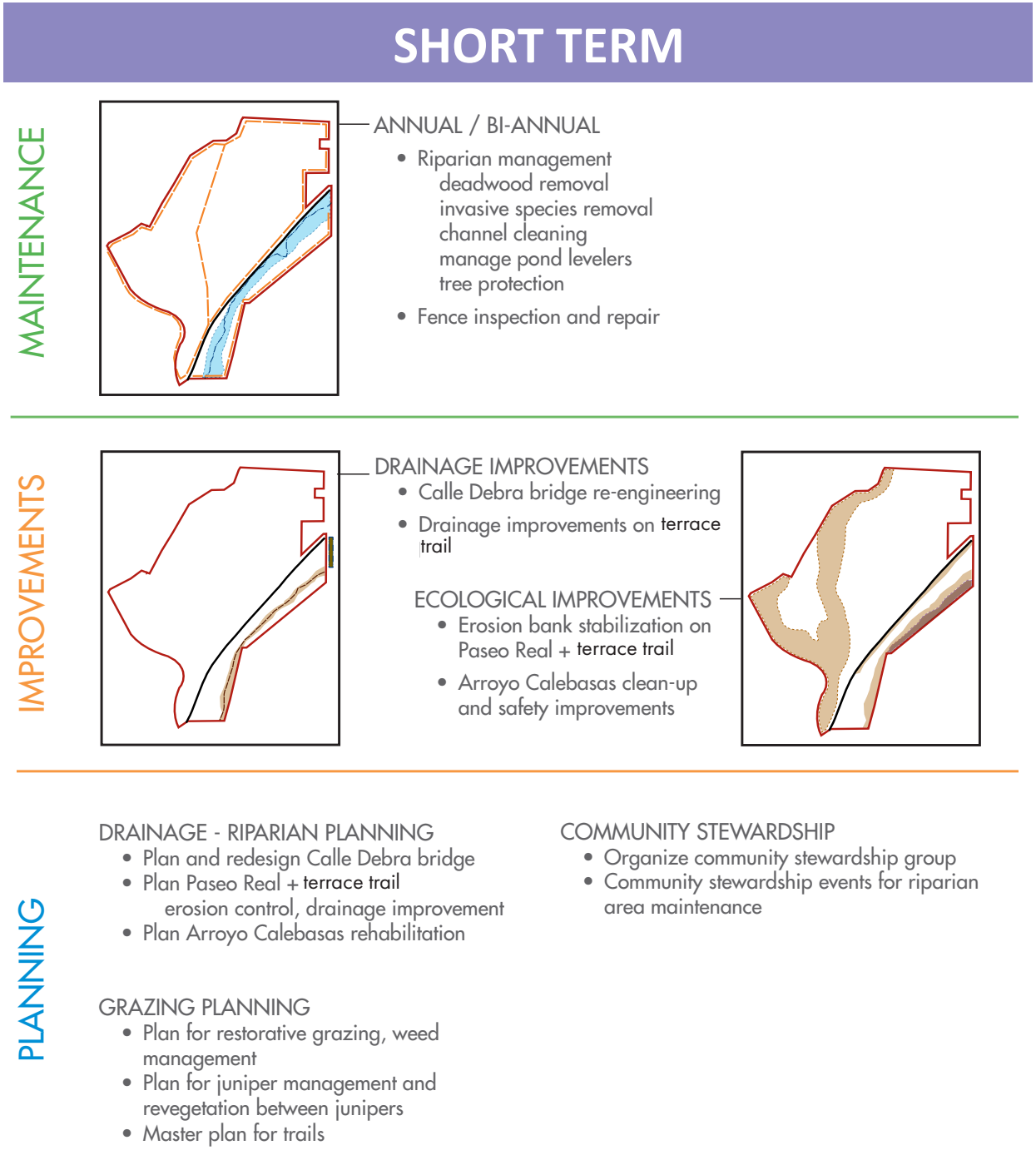
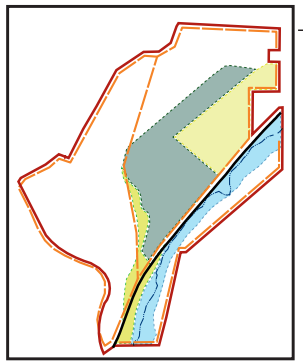


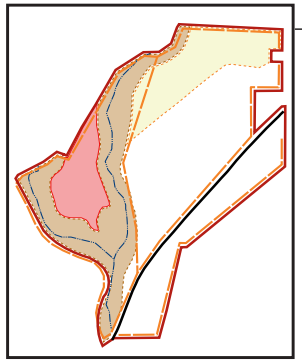
Figure 4. Maintenance/ Improvement/ Planning Diagram

MID TERM - LONG TERM



ANNUAL / BI-ANNUAL - CONTINUED

- Riparian management
  - deadwood removal
  - invasave species removal
  - channel cleaning
  - manage pond levelers
  - tree protection
- Fence inspection and repair
- Managed grazing for weed control
  grasslands (pasture unit, juniper unit, old field unit



CONTINUED IMPROVEMENT OPPORTUNITIES

- Boundary fence upgrade and gates
- Restorative grazing for weed management
  - grassland gravel unit
  - grassland dry unit
- Arroyo Calebasas continued clean-up, hazard removal, vegetation management
- Trail improvements
- Signage and interpretive education program

GRAZING PLANNING

- Grazing management plan
- Grazing lease or contract

AGRICULTURAL PLANNING

- Feasiblity study on gardens and agricultural opportunities

TRAIL + RECREATIONAL PLANNING

- Fund and implement inital trails for site
- Study expanded trails improvements and other possible recreational opportunities

COMMUNITY STEWARDSHIP

- Strenghten community stewardship group
- Continue community events
- Develop educational opportunities

Community involvement is essential for many of the proposed Detailed Master Plan projects. Public involvement may include feedback on proposed project details during future planning and design sessions, and active engagement during implementation of projects. Several maintenance activities will be suitable for community or volunteer participation, which will facilitate community stewardship for open space care and maintenance.

Significant stakeholder involvement will be necessary for the development of dryland agricultural uses. Dryland farming, managed grazing, public education regarding the local community's agricultural heritage, and the need for water will be addressed in a mid-term Detail Master Plan for the agricultural use of the property.

A comprehensive overview of planning activities along with maintenance activities, Conceptual Master Plan projects, and community stewardship activities is included in *APPENDIX A*. The activities are listed by functional group (planning, maintenance, community services, and projects/ improvements) relative to Santa Fe County's organization of departments.

Santa Fe County intends to include and involve a diverse group of community stakeholders in volunteer stewardship activities at the La Cieneguilla Open Space.

- Immediate neighbors in La Cieneguilla
- La Cienega Valley Association (LCVA)
- HIPICO Santa Fe
- Downstream residents, farmers, and ranchers
- The Santa Fe River Traditional Communities Collaborative
- Area schools and their students, such as the MASTERS Program (high school, Santa Fe Community College), Santa Fe Indian School, the Santa Fe Girls' School, Desert Academy, and nearby elementary schools
- Several regional conservation groups (such as Santa Fe Watershed Association), hiking and outdoor organizations, and other entities that could become interested in LCOS

2.4. Community Relations

Santa Fe County intends to develop and maintain productive, neighborly and collaborative relations with the communities of La Cieneguilla and La Cienega regarding the implementation of the LCOS Management Plan.

Information Exchange

Santa Fe County plans to expand and develop several methods for information exchange with community members and stakeholders.

Signage

Santa Fe County will install simple site signage to identify the Open Space property. Signage will also inform the public about safety, leave-no-trace principles, general care and stewardship behavior, and contact information for Santa Fe County. Boundary markers will be installed for maintenance and access control. Bulletin boards will be placed at the gate on Calle Debra, at the southern end of the property along Paseo Real and at the gate to the grassland area on the eastern end of the property to provide public information, such as specific events, meetings, and terrain management activities.

Website

Santa Fe County will maintain website pages dedicated to the County Open Space program. The website may be expanded with a specific webpage describing the LCOS landscape and history, management plan information and activities, and planned events at the LCOS.

Community Contact

Santa Fe County will work with the community to identify a communication structure with community members who are available to field comments and questions and contact County staff for follow-up actions. Communication may address signage, riparian area management (e.g., removal of wood and invasive plants and tree protection), work on gates and fences, and work along the trail on the terrace on river left, among other initiatives, especially in the initial phase of plan implementation.

Education, Coordination and Collaboration

Santa Fe County and community members understand that it is important to cultivate educational activities at LCOS to raise awareness about the area's unique history and ecology and to mobilize support for future stewardship. Santa Fe County and community members encourage more youth engagement, such as school groups, in educational activities and site maintenance.

A significant portion of community communication will revolve around maintenance of the open space property, both to announce maintenance work done by Santa Fe County and its contractors and to plan and coordinate maintenance work done in collaboration with community members. All maintenance and restoration activities will be discussed with affected neighbors and stakeholders prior to implementation, or presented and coordinated in community meetings. Maintenance activities suitable for volunteer steward groups include:

- Removal of dead wood and woody debris in the river channel (during low flows) and on the floodplain of the bosque (in the late winter and early spring) ,
- Removal of invasive plants (especially elm, Russian olive, and tamarisk in late fall and early spring)
- Protecting cottonwood trees with chicken-wire type baskets or fence material to prevent beaver damage to the trees.

Maintenance activities can provide benefits for the community. Such benefits may include the distribution of dead wood as firewood for community members, and sharing of information about natural resources or wildlife in the area.

Collaboration on maintenance activities will be effective if it starts with organizing community partners around specific, tangible projects to foster communication and trust, and generate additional objectives, priorities, and creative new ideas for problem solving. The following topics are of interest in the community and may serve as pilot projects.

- Management of the bosque, including wood removal, caging of trees, removal of invasive tree species, and tracking beaver activity and their impacts on trees and streambanks, and monitoring of the effectiveness of pond levelers
- Identification of the trail on the terrace along the river and additional trail building and stewardship in subsequent years
- Interpretive education programming
- Public and youth education

2.5. Terrain Management

For purposes of maintenance and land use suitability, the LCOS Management Plan identifies several Terrain Management Units (TMUs) (*Figure 5*). Each TMU encompasses an area with similar landscape features and maintenance requirements, and similar land suitability characteristics (i.e., a unique set of options for land use). The identification of TMUs organizes the spatial management aspects of this plan.

Terrain management activities are described in detail in a separate Maintenance Plan for LCOS. The following sections summarize terrain management in the context of the LCOS Management Plan. The proposed terrain management activities also reference specific Best Management Practices (BMPs), which are described in the Planners' Guide.

Maintenance and Restoration Plan Summary

Terrain management includes land restoration, maintenance, and community stewardship. Terrain management activities are specific for each Terrain Management Unit (TMU).

Each TMU requires a discrete set of management activities to maintain their ecological functions in support of the central management goal for the LCOS. An overview of terrain management activities is included in *Table 2*. A comprehensive Maintenance Plan for LCOS is included in *APPENDIX C*. Detailed lists of terrain management activities in Year-1 are included in *APPENDIX D*.

The County will face challenges to achieve all the maintenance needs at LCOS that will arise in the future. Strategies that can be useful to optimize maintenance efforts, include:

- Collaboration with adjacent properties, agencies and community stewards to leverage working together to address maintenance needs;
- Invest smaller and consistent amounts of time and labor on well-planned maintenance activities;
- Conduct maintenance activities at the optimum time based on monitoring information or a regular schedule.

TERRAIN MANAGEMENT UNITS

LEGEND

- LC-GRA-P GRASSLAND-PASTURE UNIT
  - relatively dry, high-quality pasture / valley bottomlands
- LC-GRA-F GRASSLAND-OLD FIELDS UNIT
  - low, seasonally wet grassland on former fields or pasture
- LC-GRA-G GRASSLAND-GRAVEL UNIT
  - higher, gravelly grassland with variegated topography
- LC-GRA-D GRASSLAND-DRY UNIT
  - dry grass, forb, and shrub valley bottomlands
- LC-GRA-J GRASSLAND-JUNIPER UNIT
  - grasslands with juniper vegetation
- LC- ARR ARROYOS UNIT
  - arroyo channels and arroyo banks
- LC-RIP RIPARIAN UNIT
  - Stream channels, banks, riparian vegetation strips
- LC-WOO WOODLAND UNIT
  - higher, rugged upland areas with piñon-juniper vegetation
- UTILITY EASEMENT
- FIRE ACCESS TRAIL
- PUBLIC PARKING
- GATE + STILE
- PROPERTY BOUNDARY
- FLOWLINES

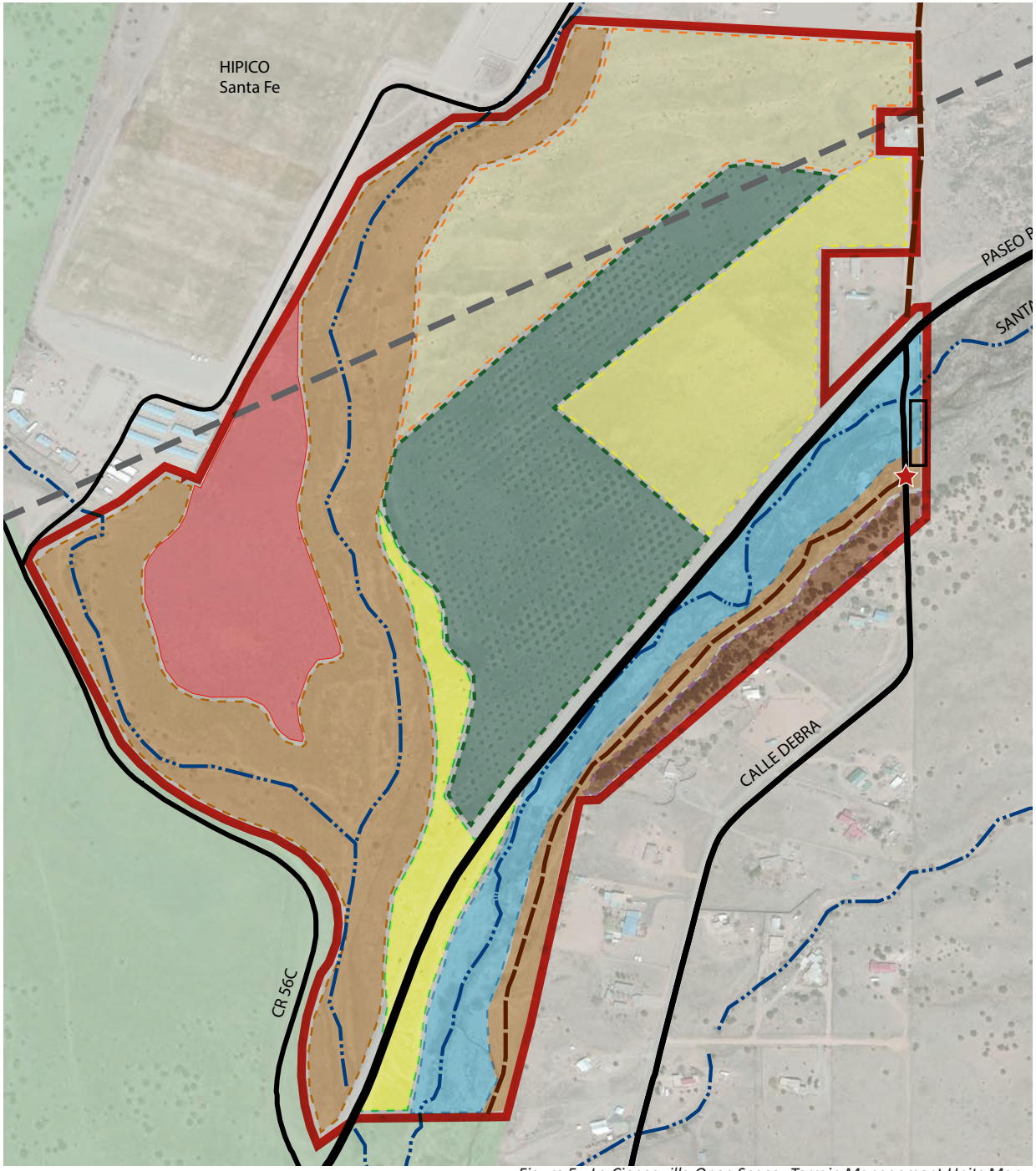


Figure 5. La Cieneguilla Open Space--Terrain Management Units Map

Where	What	Why	When
TMU	Anticipated Regular Maintenance Activities	Objective	Maintenance Frequency*
All TMUs	Communication and outreach with neighbors and stakeholders and integrate feedback in planning	Holistic & Inclusive	Annually
All TMUs	Inspect and repair of:	Public Safety / Access / Education / Infrastructure	a. Annually
	a. Fences, gates, and stiles		b. Monthly
	b. Culverts, stream crossing		c. Quarterly
	c. Roads, trails		d. Annually
	d. Signage		
LC-GRA-G	a. Invasive species inspection	Eco Health / Grazing	a. Annually
	b. Managed grazing		b. Annually after yr 3
LC-GRA-J	a. Invasive species inspection	Ecol Health / Grazing / Grasslands	a. Annually
	b. Managed grazing		b. Annually after yr 3
	c. Gradual reduction of junipers and reseeding with grasses		c. Periodically, after careful planning
LC-GRA-F	a. Invasive species inspection	Eco Health / Grazing	a. Annually
	b. Managed grazing		b. Annually after yr 3
LC-GRA-P	a. Invasive species inspection	Eco Health / Grazing	a. Annually
	b. Managed grazing		b. Annually after yr 3
LC-GRA-D	a. Invasive species inspection	Eco Health / Grazing	a. Annually
	b. Restorative and after that managed grazing and reseeding where necessary		b. Annually after yr 3
LC-ARR	a. Invasive species inspection	Public Safety	a. Annually
	b. Cleanup and grading		b. 1x / inspect annually
	c. Restorative and after that managed grazing and reseeding where necessary		c. Annually after yr 3
LC-RIP	a. Removal of dead wood	Eco Health	a. Annually for 2-3 years/as needed
	b. Removal of invasive plant species		b. Annually
	c. Channel cleaning; removal of debris		c. Twice annually
	d. Culvert cleaning		d. Twice annually
	e. Moving / maintenance of pond levelers		e. When needed
	f. Tree protection		f. Annually
	g. Fence repair and inspection		g. Annually
LC-WOO	a. Trail inspection and drainage maintenance	Ecological Health	a. Annually
	b. Thinning/pruning of junipers to reduce cover but maintain visual and wildlife habitat qualities		b. Once in 3-5 years
	c. Erosion control (e.g., using slash from thinned and pruned trees)		c. Once in 3-5 years

Table 2. Terrain Management Units- Maintenance Activities

2.6. Plan Implementation and Financing Mechanisms

Plan implementation will start by identifying priorities and timelines among staff for activities regarding maintenance, planning and project preparation, community outreach, and community stewardship involvement. Prioritization will be based on balancing the tasks at hand, and the staff and funds available to accomplish the tasks.

First Year Implementation

Implementation of this plan will start upon approval of the plan by the County.

Recommended Year-1 implementation activities include:

1. Periodic community meetings to explain the planned implementation activities with an emphasis on:
    a. Terrain inspections, baseline data collection, priority maintenance activities, and planning activities for key projects for repairs and improvements,
    b. Identifying community interest and capacity to assist with the planned activities,
    c. Developing outlines for collaborative projects between Santa Fe County and neighbors and other local stakeholders,
    d. Coordinating specific community involvement for the selected projects,
    e. Annual review of prior year activities and next year implementation planning.
2. Implementation of selected terrain inspection, base-line data collection (for future monitoring), and maintenance activities by County maintenance staff, assisted by neighbors and local volunteers; inspections, data gathering and priority maintenance will include:
    a. Interior and exterior fence conditions and repairs,
    b. Weed removal, especially invasive tree species in the bosque area,
    c. Removal of dead wood, fallen trees, and debris in the stream and floodplain,
    d. Protection of cottonwood trees with wire mesh caging.

3. Planning, collaboration, and community organizing to implement priority projects; possible projects may include:
    a. Development and placement of signs and a bulletin board,
    b. Drainage improvements and erosion control along the trail on the terrace on river left and along Paseo Real and identification the public access status of the trail,
    c. Fencing of the entire Arroyo de las Calabasas area,
    d. Identification, cleanup, or removal of the highest priority waste dumps,
    e. Removal of invasive tree species.
4. Research and planning for the preparation of larger initiatives to be implemented at a later date, including:
    a. Development of protocols for communication, staff development, and coordination,
    b. Development of a signage plan that includes site specific signs, public outreach and communication strategies,
    c. Grassland management planning and the development of a managed, restorative grazing program,
    d. Juniper removal plan,
    e. Plan for the improvement of the LC-GRA-D TMU,
    f. Trail planning,
    g. Evaluation of the Year-1 phase and adapt planning for subsequent years.

Financing Mechanisms, Funding Sources, and Partners

Santa Fe County owns and manages more than 6,600 acres of open space properties and parks, but it has insufficient funding and staff resources to meet the acquisition and management goals for the properties. Santa Fe County will be able to implement this plan if it successfully continues to develop new funding mechanisms, identify new funding sources, and cultivate collaborative relationships with neighbors, local stakeholders, and other interest groups.

To implement this plan, Santa Fe County will include neighbors, stakeholders and other partners to help with planning, maintaining, and data collecting for the purposes of monitoring, planning, and developing projects. This collaborative approach will help build neighborly relationships and increase buy-in from and stewardship by the people with the greatest interest in the property and it will reduce the need for outside funding for property management.

Santa Fe County will pursue funding sources and explore creative funding mechanisms to ensure the financial viability of managing the LCOS according to the recommendations of this management plan (*Table 3*).

POTENTIAL FUNDING SOURCES	PURPOSE	ACQUISITION TIME FRAME
General Fund (Santa Fe County)	Staff costs	Annual budgeting process
Grants	Staff and consultants for various tasks, such as:	Dependent on funding source timelines
	Fencing	
	Signs, bulletin board	
	Monitoring program	
	Santa Fe River riparian area management, incl. wildfire prevention and riparian area thinning	
	River bank stabilization and drainage of the terrace on river left	
	Arroyo de las Calabasas dump site cleanup	
	Grassland and juniper management	
	Managed grazing plan	
	Dryland agricultural program development	
	Interpretive education research and implementation	
	Trail and recreation master planning	
CIP funds	For the same as above	Annual budgeting process
FFS (Fee for Service)	Grazing contract	On a contract basis
POTENTIAL FUNDING MECHANISMS & COLLABORATIONS	**PURPOSE**	**DEVELOPMENT TIME FRAME**
Hiring a grant writer for OS funding	Pursue more grant funding	Short-term
Cultivating community stewards	Delegating word to local community stakeholders	Short-mid term
Organizing social/cultural (fund raising) events with non-profit partners	Generating discretionary income and public outreach	Mid-long term
Establishing a "Friends of LCOS" group	Generating discretionary income and public outreach	Mid-long term
Collaboration with non-profit entities for co-management activities	Sharing the burden with organized stakeholders	Mid-long term
Voter-approved Revenue Initiatives	Providing a dedicated annual revenue stream for OS, Parks and Trails	Long-term
Establishing an NGO for overarching support to OS property management	Sharing the burden with organized stakeholders	Long-term

Table 3. Potential Funding Sources and Mechanisms

LA CIENEGUILLA OPEN SPACE APPENDICES (separate document)

APPENDIX A: Overview of Management Activities Table for La Cieneguilla Open Space

APPENDIX B: A Field Characterization for the La Cieneguilla Open Space Property Santa Fe County, New Mexico - An Existing Conditions and Inventory Report

APPENDIX C: Maintenance Plan for La Cieneguilla Open Space

APPENDIX D: Maintenance, Stewardship, and Restoration Projects for Year-1