



SANTA FE COUNTY OPEN SPACE AND TRAILS PROGRAM

MADRID OPEN SPACE MANAGEMENT PLAN

FINAL DRAFT
FEBRUARY 2017



surroundings

ACKNOWLEDGEMENTS

The plan was made possible through the support of the Santa Fe County Board of County Commissioners.

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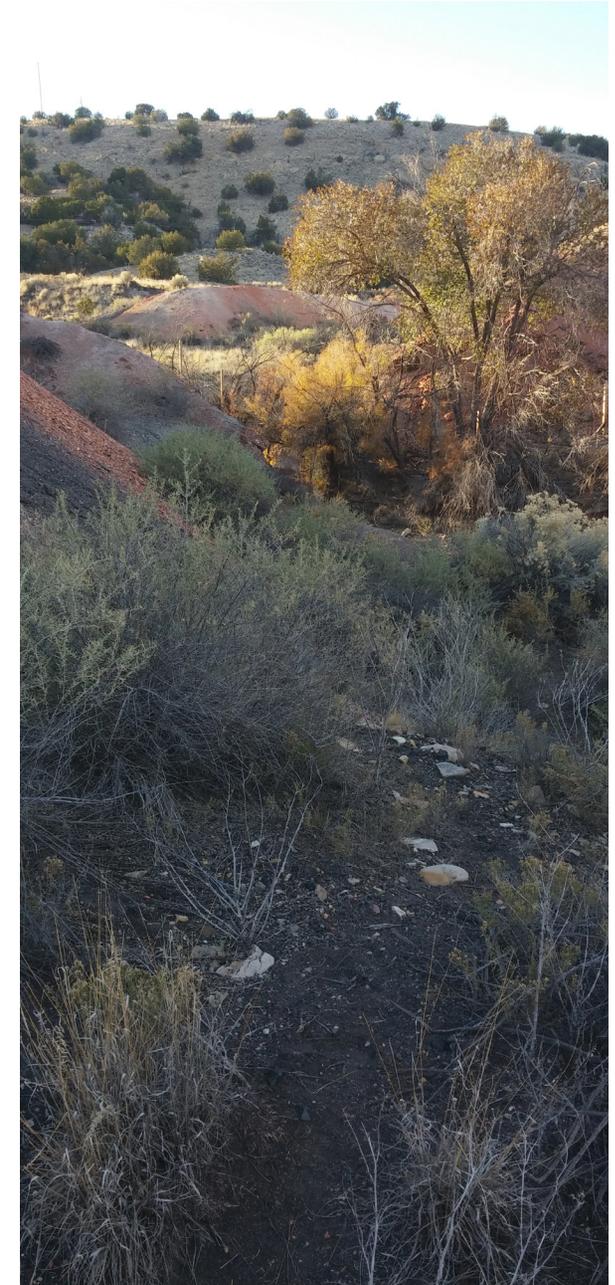
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The Madrid Open Space (*Madrid OS*) consists of fifty-seven acres of open land on three contiguous properties that run through the center of Madrid, NM. The goal of this plan is to create a practical and effective management plan to maintain the environmental function, cultural resources, and recreation opportunities of the Madrid OS. This plan was developed based on input gathered in three community meetings, interviews with key stakeholders, site analysis, and research. Community participants are very supportive of collaboration with the County to address floodplain management, general site maintenance, preservation of cultural resources, and minor habitat and trail improvements.

The ecological function of the Madrid Open Space is that it is the active floodplain of the Madrid Gulch. Potential flooding risks to the Greenbelt area of the Madrid Open Space are substantial and will always be on-going. Reducing risks related to future storm related erosion in the open space is important.

Management goals include collaborative management with the Madrid community to address floodplain issues, protection of existing cultural resources, small-scale enhancement of the site habitat, improving site signage, boundary markings and clarifying access issues. The plan outlines a vision, maintenance goals, projects and improvement priorities, and involvement in stewardship of the Madrid OS.

The Madrid OS Management Plan identifies short-term, mid-term, and long-term management priorities for the property. In the short-term Santa Fe County will work with the community on floodplain maintenance activities, small-scale habitat enhancements, and to find ways to celebrate the unique history, geology and ecology of the open space with the Madrid community.

An important project is to develop a comprehensive floodplain management plan with the Madrid community and other partner agencies or groups. This activity will begin initial planning in the short-term phase and will likely continue into the mid-to-long-term phases of this Plan, as some of the follow-on actions may require several years to accomplish.

The Management Plan emphasizes collaboration with existing Madrid community organizations for floodplain management and land stewardship. Due to the complexity and interlocked nature of the Madrid OS parcels and adjacent community-owned properties, collaboration with the community is essential to achieve appropriate and practical management of the Madrid OS.





*Madrid Open Space
aerial looking from
south to north.*

This Management Plan for the Madrid Open Space provides the long-term vision and goals for how to manage this remarkable site and its valuable open space and cultural resources. The Plan's vision and goals reflect the desires of the community and the County to create an exceptional Santa Fe County Open Space and Trails system.

1.1. Plan Purpose and Need

The purpose of the Madrid Open Space (*Madrid OS*) Management Plan is to:

- describe a vision, goals, and objectives for management of the Madrid OS,
- help understand existing environmental conditions of the Madrid OS,
- clarify priorities for the maintenance and protection of the Madrid OS,
- identify projects for future investments at the Madrid OS,
- describe a coordinated management approach to planning, implementation and maintenance activities, and,
- identify community stewardship and educational opportunities for the Madrid OS.

This Plan was developed in response to clear and strong support for enhanced management planning for open space properties from the County Open Lands, Trails, and Parks Advisory Committee (*COLTPAC*) and from the Board of County Commissioners (*BCC*).

The Plan arose from a growing need for:

- strategic management plans that include meaningful input from the community,
- a strong vision with clear objectives and strategies for resource conservation, preservation, passive recreation, and public access,
- an overview of existing conditions and site-specific inventories,
- maintenance plans with best management practices,
- identifying priorities and actions for developing key projects,
- identification of potential funding sources to implement the plan.

Management Plan Need

From 2009 to 2012, the New Mexico Abandoned Mine Land Program (*AML*) worked with the Madrid community to develop plans and preliminary designs to mitigate historic mining effects on the community. During that process, Santa Fe County staff worked with AML to identify opportunities for County cooperation related to that plan. The Board of County Commissioners unanimously passed Resolution 2011-81 in support of the AML Program's Madrid Mining Landscape (*MML*) Plan and directed staff to implement MML Plan projects that further County goals and objectives. This Plan is needed to define County management goals and objectives for the Madrid Open Space and identify investments and actions that support the Madrid OS and relevant MML projects.

1.2. PROPERTY DESCRIPTION + EXISTING CONDITIONS ASSESSMENT

The Madrid Open Space consists of fifty-seven acres on three contiguous properties, a) the Madrid Wilderness is a forty-five acre parcel at the northern end of Madrid, purchased in 2000; b) the Madrid Church Lot is a one-acre parcel in front of the historic church, purchased in 2001; and c) the Madrid Greenbelt is an eleven acre parcel that runs through the center of Madrid which was purchased in 2005.

The Community

In 1896, the Colorado Fuel and Iron Company gained control of the Madrid mines area, and built most of the historic buildings and structures seen today. After a brief period of mining growth, Madrid slowly declined through the 20th century. In the 1950's the whole town was put up for sale as a single unit, but this strategy was not successful. Instead in 1975, the buildings and land were offered piecemeal to any interested resident or buyer. There are local stories of buying a home and site for as little as a ten dollar down payment.

This land ownership expansion created a rather unique civic relationship between the individual property owners and the land within Madrid. Most of the roads and infrastructure of the community is owned and operated by Madrid landowner entities. There are five active civic entities that are involved in various ways. They are the Madrid Landowners Association, Madrid Cultural Projects, Madrid Volunteer Fire Fighters, Madrid Village Water Cooperative, and the Madrid Merchants Association. Most hold meetings on a monthly schedule.

The Madrid Landowners Association (*MLA*) was the original holder of the open space tracts after the purchase from the Albuquerque Coal & Mine. In the early 2000's a lack of funds to pay a loan led the MLA and the community to recommend purchase of the three open space parcels by Santa Fe County for the open space program. The goal was to retain the properties as community open space and to protect the environmental and cultural assets within them.

The original ownership by the MLA means there is a very personal relationship between the Madrid community and the Open Space that continues to the present-day. The Greenbelt section has immediate proximity to many homes. The Greenbelt is the community's "backyard". This heightens community sensitivity to who and how the Greenbelt area is used. The community enjoys the quiet solitude of the Greenbelt, and many residents use it for daily walks. The community has a strong preference for little or no improvements throughout the Greenbelt. Prior to County ownership, the community held community events on the site. Some, such as an Easter Egg Hunt, are still held there today.

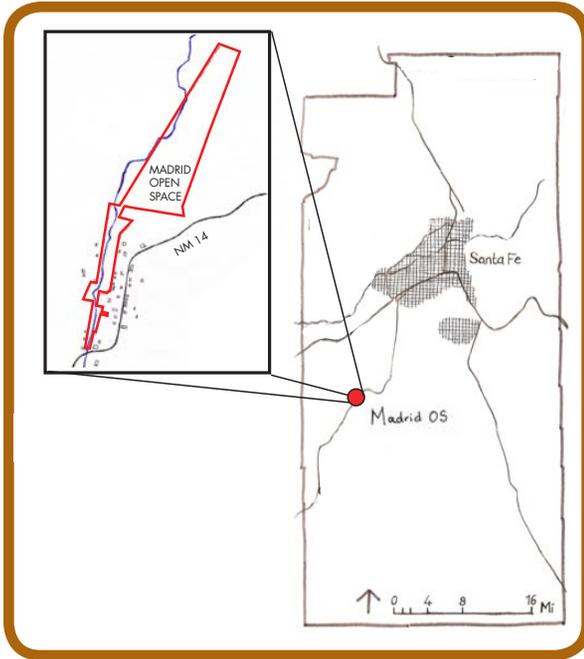


Figure 1. Location Map - Madrid Open Space

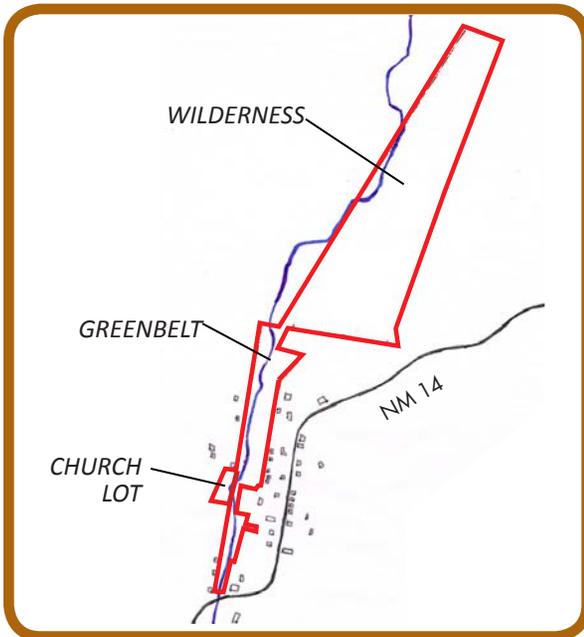
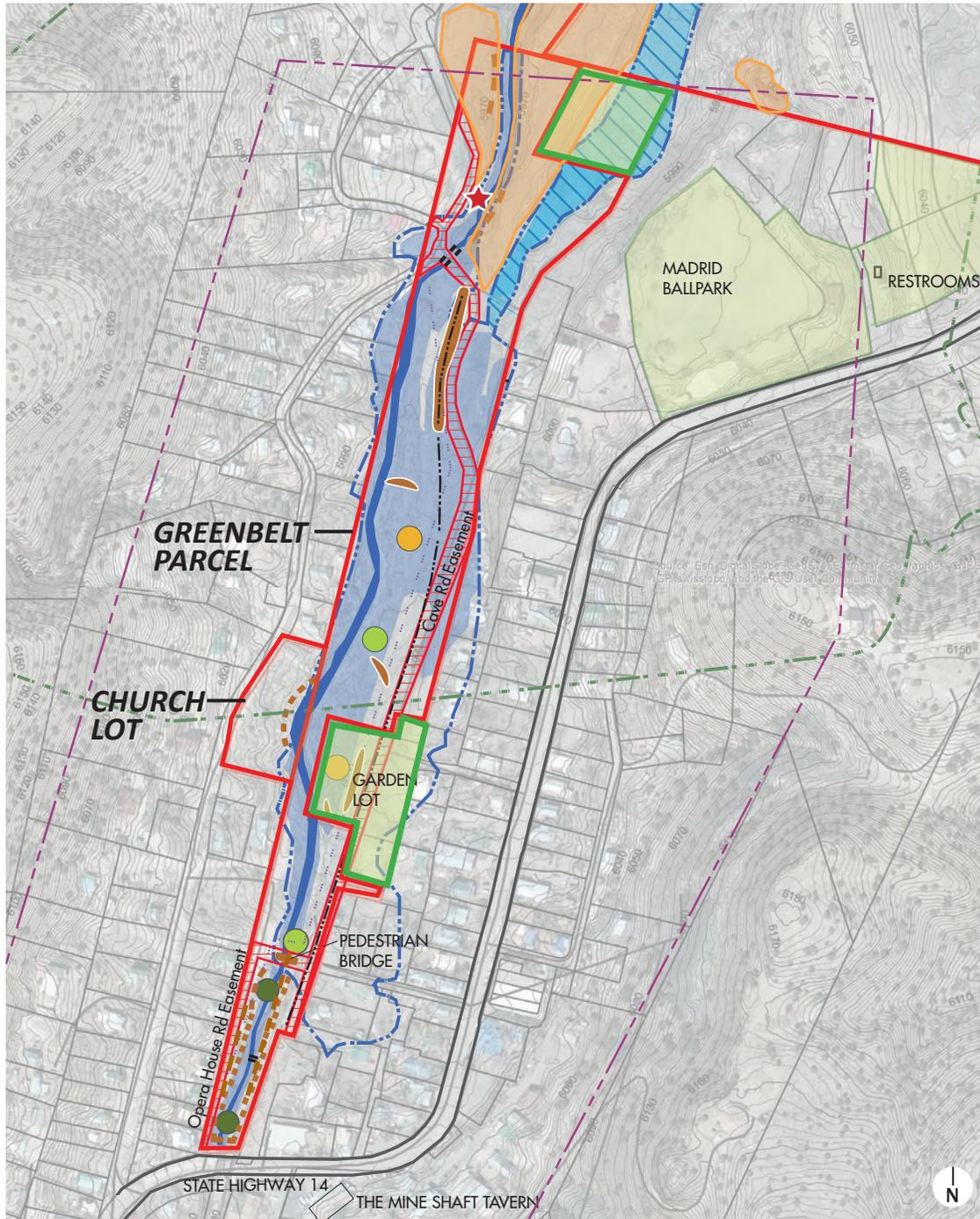


Figure 2. Madrid Open Space Parcels Map



LEGEND: Existing Features

- Open Space Boundary
- Access-Utility Easement
- Road Culverts
- Existing Fire Water Line
- Historic - Gob Piles
- Historic District Boundary
- Buffer Zone/Historic Gob Piles
- Historic Rail Alignment
- Madrid Community Controlled Property
- 50-year Floodzone (2%)
- Boundary 100-year Flood Zone (1%)
- Floodplain - Abandoned

DRAINAGE + EROSION MANAGEMENT ISSUES

FLOW IMPEDIMENTS

- Scrub stands
- Seedling tree stands
- Berms - unengineered
- Large non-native trees

EROSION ISSUES

- Headcut
- Bank Erosion

Map 1. Madrid Open Space - Greenbelt Area



Residences overlooking erosion at south end of Greenbelt.



Trees growing in active channel impede flood flows.



Channel modifications on community Garden Plot after 2013 floods.

Collaborative opportunities with community support include: a) small-scale water harvesting improvements for habitat in the open space; b) inclusion of the Garden Lot in comprehensive flood management planning and as a possible location for composting of woody debris; and c) coordination with Santa Fe County regarding future development of the one-acre community controlled lot at the north end of the Greenbelt.

The Greenbelt

The Madrid Greenbelt runs through the center of Madrid and is within the National Registered Historic Madrid District. The Greenbelt parcel is a long narrow north-south oriented site. The property boundary is complex and interlocked with properties controlled by various Madrid community entities (*see Map 1*). Several major community access and utility easements also run through the Greenbelt. This complex physical relationship means that activities on the Greenbelt directly affect adjacent community controlled properties; and conversely, activities on community-controlled properties affect the open space.

The Greenbelt section of the Madrid Open Space is the active floodplain of the Madrid Gulch. Flood events periodically affect the floodplain. As recently as 2012 and 2013, major flood events substantially altered the landscape of the Greenbelt portion of the Madrid OS. As the bottom of the local watershed, the Greenbelt will always experience high-volume storm events. The Madrid Gulch flows from the south to the north.

Addressing flood concerns in the Greenbelt is a community priority. The community engaged in an extensive process with the NM Abandoned Mine Lands Program (AML) during 2009-2012 to develop plans for the Madrid area to mitigate hazards related to the past mining activities and drainage improvements that related to those plans. Some of that plan was implemented by AML, but not in the Greenbelt. There is a strong community desire to see drainage management implemented for the Greenbelt now that the Madrid OS Management Plan is being developed. Although the AML Program is not currently planning further improvements in the Madrid area, they remain open to discussions about opportunities to assist on projects that further the AML plan and the Madrid OS plan.

Major management issues for the Greenbelt fall into three main categories.

A. Debris and Vegetation. In the past, residents disposed of brush and other woody materials in the active arroyo channel and along its banks. The debris likely exacerbated channel

damage during recent flooding by clogging culverts and constricting flows. The dumping appears to have mostly discontinued, but remnant wood and debris piles still exist. In addition, there are brush stands and seedling trees that have sprouted and are growing in the active arroyo channel. Brush, trees and debris in the active channel reduces channel capacity and contributes to bank stress and erosion. Best management practice is to remove loose debris, brush stands and trees within the active flow channel.

B. Erosion in the active channel and its stream banks. There are three areas in the Greenbelt where bank and channel erosion concerns are highlighted. The Greenbelt’s erosion issues are substantive and require comprehensive planning and management to achieve a sound solution. Planning of this scale requires a sustained investment of time and funds to accomplish and may be an opportunity to coordinate with other entities including AML.

- South End of the Greenbelt is a deep narrow earthen channel. The channel is approximately 15 feet deep with almost vertical dirt banks on both sides. Homes, businesses and utility lines sit above the banks on both sides of the channel. Evidence of past erosion is very visible in this section. The potential for future erosion in this section is “high/extreme” based on the bank heights, bank angle, root density, soil stratification and particle size. Future erosion of this channelized section could impact the adjacent roads and properties. This narrow channel section runs from the State Route 14 crossing to a pedestrian bridge several hundred feet to the north.
- East Side of the Church Lot has an eroding bank adjacent to the active arroyo channel. The bank ranges from 3 to 7 feet high. Further erosion of this bank into the Church Lot could risk historic artifacts in the area above the bank. A greater concern is that the migration of the flood plain into the Church Lot could affect the course of the floodplain as it travels north. Several residential properties immediately north of the Church Lot experienced flood effects from the 2012 and 2013 storm events. There is concern that erosion of the Church Lot cut bank could cause the active flow channel to more directly impact those lots.
- North End and Cave Road Crossing. The Cave Road Easement crosses the active arroyo channel near the north end of the Greenbelt. A double-culvert privately owned by the Cave Road Easement holders constricts flows at this point. This constriction blocks and concentrates flood flows which tends to increase erosion damage during large storms. The downstream apron of this culvert was heavily damaged in the 2012 and 2013



Large bank undercut south of pedestrian bridge.



Examples of debris build up from floods



Culverts at Cave Rd. crossing, right-hand culvert clogged.

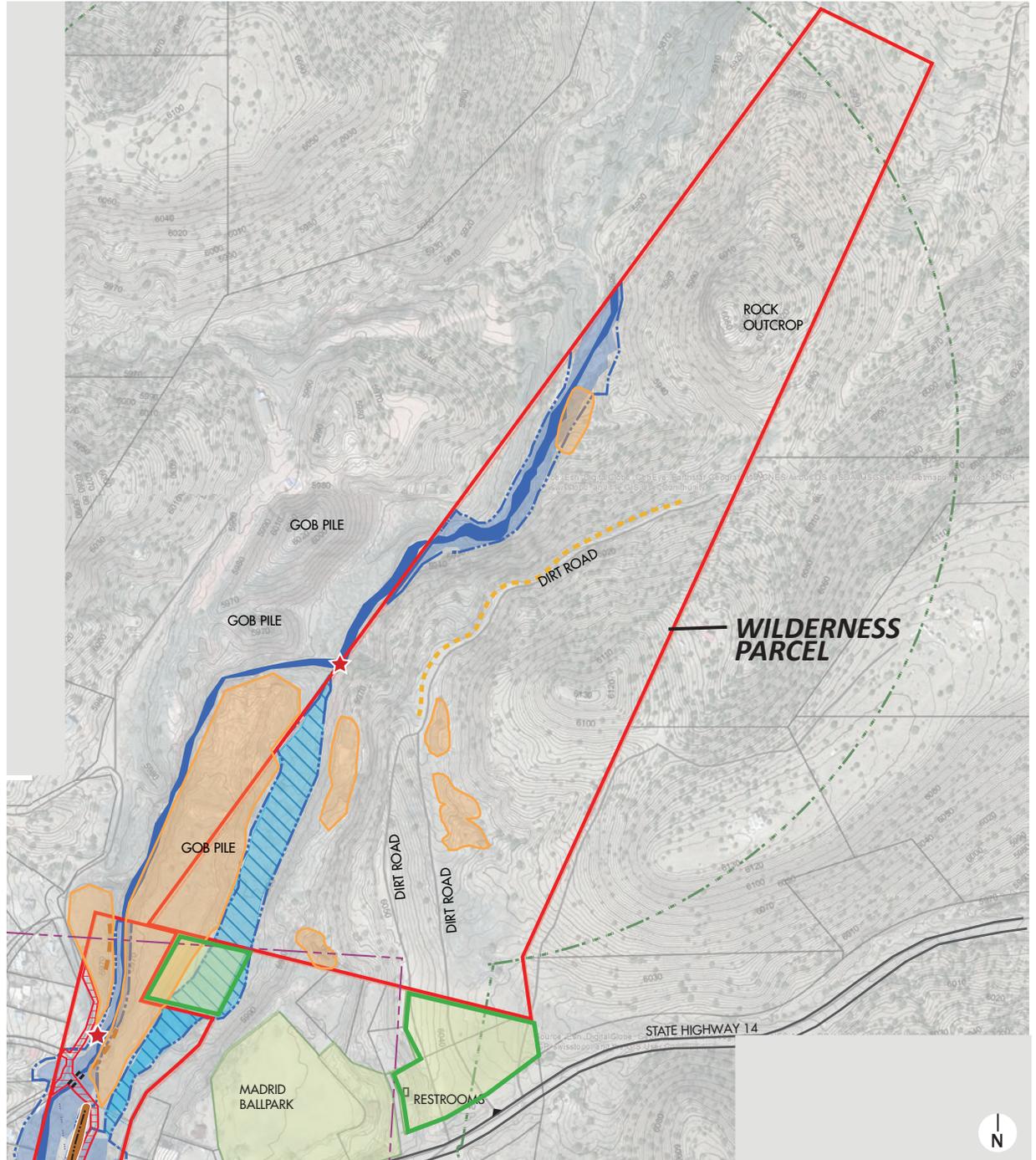
LEGEND: Existing Features

-  Open Space Boundary
-  Access-Utility Easement
-  Road Culverts
-  Existing Fire Water Line
-  Historic - Gob Piles
-  Historic District Boundary
-  Buffer Zone/Historic Gob Piles
-  Historic Rail Alignment
-  Madrid Community Controlled Property
-  50-year Floodzone (2%)
-  Boundary 100-year Flood Zone (1%)
-  Floodplain - Abandoned

DRAINAGE + EROSION MANAGEMENT ISSUES

EROSION ISSUES

-  Headcut
-  Bank Erosion
-  Wilderness Trail Erosion



Map 2. Madrid Open Space - Wilderness Area

floods. Downstream of the culvert, the active arroyo channel experienced dramatic downcutting of between 5 and 7 vertical feet from the 2012 and 2013 storm events. If future flooding further compromises the culvert and leads to structure failure, it will cause substantial disruption to the day-to-day life of Madrid. Migration of the deep erosion cut southward into the Greenbelt would threaten the open space itself and have significant detrimental impacts on its ecological and hydrologic functions.

- C. Complex Land Ownership and Use.** The management of the Greenbelt as noted before is complicated in that community-owned properties control portions of the active arroyo channel and directly affect flows in the Greenbelt. There are earthen berms that were built on community-owned sections of the active arroyo channel after the recent 2012 and 2013 flooding. These berms may not have been engineered and need to be reevaluated to see if they will function properly during future floods. In some places, debris from previous floods has been piled up in the floodplain. Coordination with the Madrid community is needed to evaluate and adjust the berms, debris piles and other items if needed.

In the middle section of the Greenbelt, the channel widens and becomes a rocky, braided flood plain. To the east side lies the historic stagecoach and coal train route. The old stagecoach-rail alignment is part of the Cave Road easement and is an important north-south auto and pedestrian connection for the community. Several dirt alleyways on the east connect to the Cave Road easement. The easement also contains the main fire line that serves the community. The historic railroad bed is used daily by residents for walking and recreation. Smaller informal dirt paths also crisscross the site and link residences west of the Open Space to the commercial area and homes on the east.

The whole of the Greenbelt was originally utilized for mining operations. Historic remnants from building foundations to small pieces of historic mining material are heavily scattered throughout the Greenbelt. Those historic elements as well as the Madrid OS being located in the heart of the National Registered Historic Madrid District means that coordination with the NM State Historic Preservation Office will be needed to implement improvements in the Greenbelt.

The Wilderness

The Wilderness area is a triangular shaped parcel running in a north-south direction (see Map 2). It has a very small shared boundary with the Greenbelt. A lack of boundary markers in this area causes trail users by mistake to wander onto adjacent private properties. A one-acre lot next to this narrow connection point is controlled by Madrid civic entities. There are community desires to develop the acre site for community infrastructure. Coordination should



Largest of historic mining gob piles as seen from Wilderness area.



Limestone hillside which is east side of the Wilderness parcel.



Looking from Wilderness area toward Cerrillos Hills.

occur between the County and the Madrid community if any future development of the site is proposed.

The Wilderness parcel does not have formal access to any public road or easement. County maintenance access to the Wilderness is currently through two parcels that are the overflow parking areas for the Madrid Ballpark. The two parcels are controlled by two different Madrid civic entities. Actions to formalize this access point to the Wilderness should be addressed.

In the southwest area of the Wilderness is a large gob pile. Gob piles are mounds of overburden or other waste soils removed during coal and ore mining operations. They are often distinct because of the black coal dust on their surfaces. The gob piles are historic landscape features and have a defined buffer zone to limit development in the zone, to protect the integrity of the gob piles and the views to them.

Along the east side of the large gob pile is an abandoned portion of the original Madrid Gulch floodplain. At the north end of the abandoned floodplain is a headcut that is moving into the abandoned floodplain. Migration of the headcut would damage the open space and contribute to large movements of erosion materials onto downstream properties. Controlling this headcut is important to protecting the abandoned floodplain. The abandoned floodplain contains many scattered historic structure and mining artifacts such as footings, metal shards, and cables.

The east and north areas of the Wilderness are an exposed limestone hillside. Two dirt roads cut into the hillside and run from the south to north. The higher elevation road is used by the County for site maintenance. There are small erosion points along the edges of the road. Currently, maintenance of the erosion points is controlling damage from surface runoff. The dirt road at its northern tip ends at a blocked off gate that leads to private property beyond. The community feels undesirable ATV and off-road vehicle use in the Wilderness area is related to this gate. This gate is not a platted access and could be considered for closure.

The dirt roads are also used by locals for walking and biking in the Wilderness. The roads offers expansive views up and down Madrid Gulch. Any new trail development in the Wilderness should be limited and use the two existing road alignments to avoid increasing erosion on the steep hillside. A notable feature at the north end of the Wilderness is a prominent limestone rock outcrop. The rock outcrop provides remarkable views northward to the Cerrillos Hills and the west end of the Galisteo Basin. During the planning process, the Wilderness area was noted by the community as a good location for locals and visitors to walk and enjoy the views.

EXISTING CONDITIONS NEEDS ASSESSMENT

Condition

- Erosion and Drainage

Needs Assessment

- Need to remove scrub, trees and excess debris in the active arroyo channel.
- Need management of large scale head cuts, down cutting and bank erosion in the active arroyo channel.
- Need a comprehensive approach to floodplain management in the Greenbelt. A limiting factor is that the site is the bottom of the watershed and does not control properties upland or upstream.
- Need to identify and engage other agencies and partners to help fund planning and improvements as scope and scale are likely to be beyond the capacity of the Santa Fe County Open Space Program.

-
- Archeological Resources

- Need plan to monitor cultural resources to protect against loss due to scavenging and migration caused by floods.
- Long-term need for educational-interpretive plan.
- Need clarification of process with NM State Historic Preservation Office for review of future plans.

-
- Plant-Wildlife Habitat

- No active management for wildlife habitat needed. But community desires exploration of water harvesting opportunities in the open space.

-
- Infrastructure

- Need open space management signage and information board.
- Need access agreement for the Wilderness parcel with Madrid entities.
- Need access control gate to reduce off-road and ATV use in the Wilderness.

-
- Community

- Need to establish a collaborative process with Madrid civic entities to manage the Madrid Gulch floodplain and maintain the open space.



1.3 Management Plan Process

The Madrid Open Space Management Plan was informed by the County's initial goals for acquisition of the Madrid Open Space and a set of planning principles. The planning principles were formulated based on goals for the Santa Fe County Open Space and Trails Program.

INITIAL GOALS FOR ACQUISITION OF MADRID OPEN SPACE

- Assist the community to keep the area as a public open space for hiking and wilderness uses.
- Protect the cultural and historic resources.
- Maintain the environmental and aesthetic qualities of the site.

PLANNING PRINCIPLES

- Adhere to the goals and purpose of the Open Space program.
- Ensure public safety and access based on the reasons for acquiring the property.
- Keep maintenance needs to a minimum (commensurate with County capacity and community-based stewardship capacity).
- Invest in strategic, cost effective, long-term improvements.
- Minimize the disturbance of cultural and ecological resources.
- Involve youth and create educational opportunities.

PLANNING PROCESS

The plan process included three phases:

Scoping and Reconnaissance Phase

- Interviews with key stakeholders, community members, and County staff regarding current community interest in the site and how to engage the community in the management plan process.
- Review of relevant Santa Fe County plans and policies.
- Review of relevant plans and documents from other agencies.
- 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 the development of management recommendations.
- Mapping of findings of the Scoping/Reconnaissance and Research phases.
- Conduct second public input meeting to present first draft of vision statement, management goals, research findings, and to generate management ideas.

Planning Phase

- Develop initial management plan recommendations for Madrid OS planning, implementation, and maintenance.
- Conduct third public meeting to confirm the vision statement and management goals, review the components of the management plan, and identify stewardship opportunities.
- Write the first draft of the management plan.
- Review with County staff to confirm plan implementation and funding opportunities.
- Submit the draft management plan for public review and comment.
- Revise plan draft based on public comments and submit final draft plan for official approval.

PLAN UPDATING

The time scope of this Management Plan is approximately 15-20 years. Plan information is more specific for the short-term (*years 1-5*), descriptive for the mid-term (*years 6-10*), and preliminary for the long-term (*beyond 10 years*).

Changing community needs, environmental conditions, and County management capacity will lead to the need for adjustments to the plan. After the mid-term span of 10 years, this plan will need updating.





2. MADRID OPEN SPACE MANAGEMENT PLAN



2.1. Vision + Goals for Madrid Open Space Management Plan

Vision Statement

The Madrid Open Space (Madrid OS) vision statement is based on responses from community participants to these questions, such as “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 second and third community meetings.

Madrid Open Space Vision Statement

In 2025, the Madrid Open Space is a treasured part of the everyday life of the community. The Greenbelt is a place where community members walk on natural paths and connect with neighbors. Ongoing attention is paid to the way water moves through the arroyo to support native vegetation and decrease flooding and erosion. The rough and tumble remnants of the community’s mining history are carefully retained in place with a few signs to tell stories about the open space history and its environment. The wilderness area is a quiet place for community members and visitors to walk and enjoy the exceptional vistas and natural landscape. Archaeological assets are protected.

The area is carefully maintained, and the community and County are engaged together in maintenance and stewardship of the land. Local materials and skills are utilized to care for the land and sustain the arroyo.

Madrid Open Space Management Goal

The Madrid Open Space Management Goal is that Santa Fe County and the Madrid community will collaboratively work to monitor, enhance, and maintain the safe functioning of the Madrid Gulch. The management goal is to be sustainable, encourage community stewardship, involve citizens in monitoring and maintenance, and protect the cultural, habitat and recreation resources of the site.



Madrid Open Space Specific Management Goals

Specific management goals in support of the Madrid Open Space Vision are:

- A. **Holistic & Inclusive.** The Madrid OS is managed in an inclusive and collaborative manner through on-going consistent discussion with the community, agencies and partners about planning, implementation and maintenance activities for the site.
- B. **Ecological Health.** The ecological health and resilience of the Madrid OS is maintained through reducing risks from flood events, minimizing new impacts, and careful enhancement of the habitat.
- C. **Natural Appearance.** The Madrid OS appearance and mining history are complimented by using natural design principles and materials that reflect the history and environment of the site.
- D. **Cultural Resources.** The cultural resources on the Madrid OS are protected and preserved through appropriate boundary improvements, regular monitoring of the resources, and review with the State Historic Preservation Office.
- E. **Education.** The Madrid OS will encourage education and research about the site's role related to the local watershed, the historic resource of the site, and its environment.
- F. **Access.** . The Madrid OS will manage access to balance community safety and desires for local resident uses in the Greenbelt area and County public ownership of the open space.
- G. **Site Improvements.** Site improvements such as signage, boundary markers, fencing and gates on the Madrid OS will be limited, be built of materials that fit the context of the community, and minimize impacts from the design, installation or maintenance of the improvements.

Monitoring Objective

The monitoring objective for the Madrid Open Space is to use floodplain and habitat monitoring to track the status of the floodplain and to indicate when management is needed to address changes as they arise. The monitoring data is regularly reviewed by the County to identify priority management activities and coordinate management activities with the Madrid community.

A specific floodplain monitoring plan will establish what will be measured or documented, when and where this will be done, who will do the monitoring, and what equipment or supplies are needed. The specific monitoring plan will describe the thresholds conditions that will serve to indicate whether and where the floodplain or habitat requires management actions.





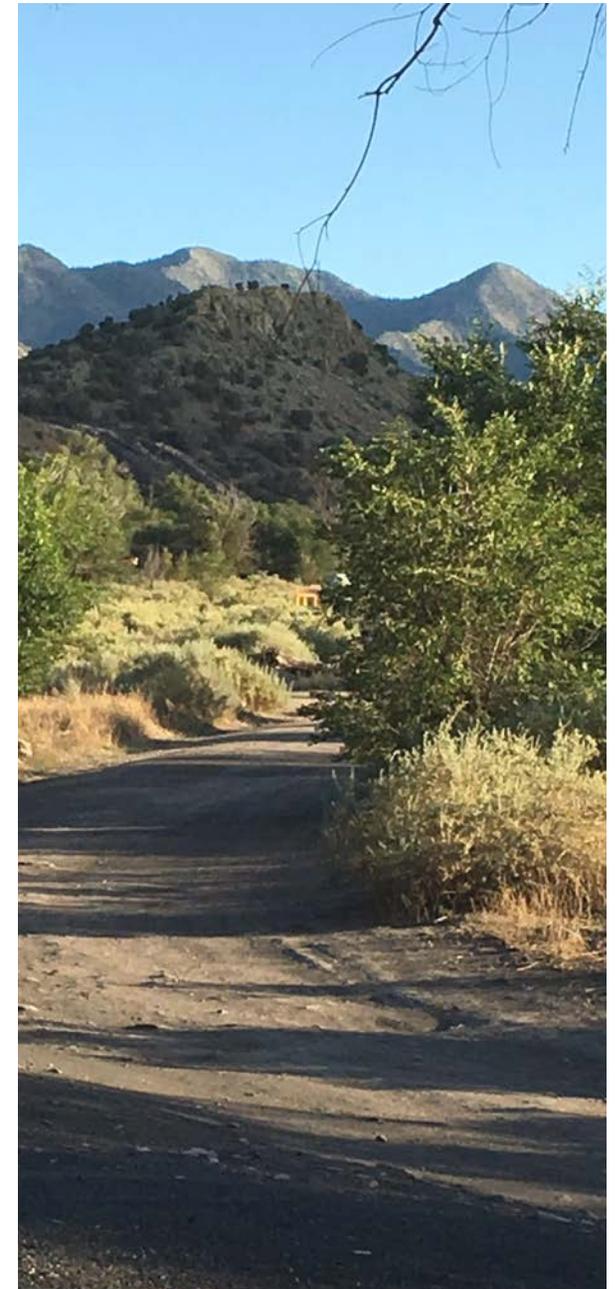
2.2 Conceptual Plan

The Conceptual Plan for the Madrid Open Space (*Madrid OS*) proposes management strategies, projects and associated investments to support the Madrid OS vision. The Conceptual Plan recommends planning, implementation, and maintenance activities; and specific projects, their purposes, priorities; and a possible sequence for implementation.

The focus of the Conceptual Plan is to manage and maintain the efficient hydrologic function of the Madrid Gulch as it flows through the Madrid OS. The first action is to begin maintenance of the active arroyo flow channel in the Greenbelt section of the Open Space. The work will be a joint-effort between Santa Fe County and the Madrid community to conduct annual scheduled maintenance to remove debris, scrub patches and seedling trees in the active arroyo channel. The County with the Madrid civic entities will establish an agreed upon process to organize and implement the arroyo channel maintenance activities. This collaborative approach was identified by the Madrid community as the most effective and practical way to handle needed arroyo channel maintenance. As the relationship matures, maintenance activities could expand to include other maintenance needs within the floodplain that both parties identify as needed.

A second important project is development of a comprehensive plan for floodplain management of the Madrid Gulch as it traverses the Greenbelt and the Wilderness parcels. Because the scope and scale of this project is beyond the capabilities of the Santa Fe County Open Space program to conduct alone, identifying partner departments, agencies and groups to assist or take on parts of the project process will be necessary. In the short-term, the project activities will be to contact stakeholders; organize discussions to define the project scope and process; and identify and secure funding for the initial planning activities for the comprehensive plan. The Madrid community and other affected groups or agencies such as the Abandoned Mine Lands Program will be engaged for this project. Once a viable project process is identified, detailed follow-up actions will be determined and acted upon.

Site management activities beyond the floodplain will be modest. The Plan is to maintain existing improvements and trails; design and install a small number of site and educational signs; develop a monitoring plan for historic cultural resources with community partners; engage consultants to assist the community in planning and executing small habitat improvements; and formalize an access agreement to the Wilderness and install an access control gate there.





Development / Projects + Programs

The Conceptual Plan includes drainage, site infrastructure, and interpretive education projects identified during the planning process with the community. These projects will need further planning and review to establish their feasibility. Within the context of this Plan, “project” means programs and built projects.

Planning and preparation is required for all projects and programs proposed. Coordination with the State Historic Preservation Office may also be necessary for some projects. Implementation will need to be balanced with funding, staff availability and project schedules.

Community involvement is essential for the planning, implementation and maintenance of future Madrid OS projects. Public involvement may include review and input during the project design, participation in the implementation of projects, and engagement in on-going maintenance of the site.

The following are projects prioritized by the level of effort to achieve them, the effective period to accomplish them, and their importance to the Madrid OS Vision.

Short-Term

1. **Maintenance Activities Plan.** Develop a collaborative plan with the Madrid civic entities for the on-going maintenance of the active arroyo channel and other maintenance activities for the Madrid Open Space. Establish protocols for communications, agreements, coordination of annual maintenance activities and schedules.
2. **Comprehensive Drainage Plan + Improvements (Short-Mid-Long Term)**
Develop a comprehensive floodplain management plan for the Madrid Gulch as it flows through the Madrid OS and adjacent Madrid community controlled properties.

Engineering Analysis + Preliminary Plan. Update engineering and hydrologic information to reflect current conditions and propose an integrated plan for County and Madrid community properties. A detailed recommendation for the engineering analysis scope is provided in *Appendix D - Recommendation Drainage Assessment and Preliminary Plan for Madrid Open Space*.

Design + Construction. Fund, design and construct plan improvements. The County will determine with its partners and Madrid civic entities which implementation projects can be done jointly and which can be done by a specific agency, entity or group.

3. Wilderness Access and Control

Formalize access and control vehicle access to the Wilderness parcel. The project should:

- establish a formal access agreement for the Wilderness maintenance road with the Madrid entities that control the parcels between State Highway 14 and the Wilderness.
- install gate to control vehicle access on the dirt maintenance road.

4. Site Signage

Upgrade site signage to:

- install County Open Space standard signage with open space use regulations and operations information and a bulletin board,
- design and install site identification signage,
- add small signs and boundary markers to clearly indicate open space boundaries with community owned properties and other private lands.

5. Environmental - Habitat

Develop small improvements that enhance and support the existing habitat. The project would include:

- opportunities to utilize low-flow arroyo water for habitat support or vegetation enhancement.
- opportunities for small-scale water harvesting and small-scale surface erosion repair.

6. Trails Stabilization

Repair small-scale erosion and use issues on dirt paths and trails in the Open Space. The project would include:

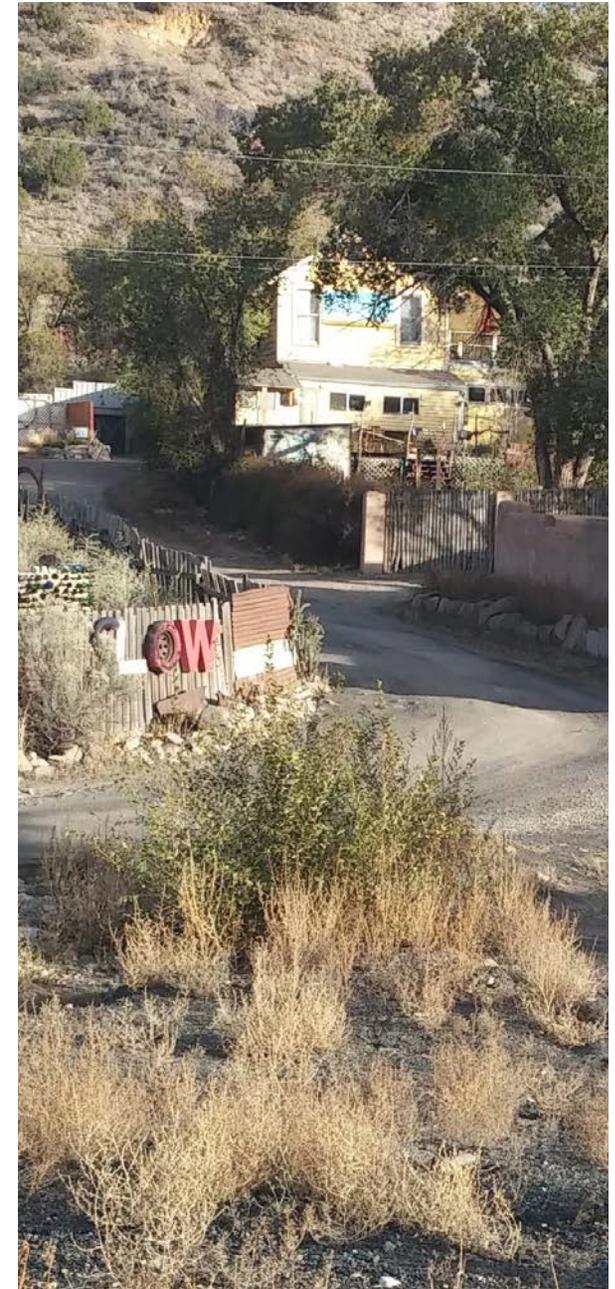
- developing a plan with the community on environmentally-sensitive, low-impact, accessible trail and path design and how to maintain the trails,
- implementation of open space trail repairs and stabilization with the community.

Mid - Long Term

7. Cultural Resource Interpretation

Develop a cultural resources interpretive plan. The project should include:

- policy recommendations on protection of scattered historic debris at Madrid OS.
- develop, design and implement a small educational interpretive signage plan for the Madrid OS.



Development - Projects Sequence

Every proposed project requires planning, research, and concept development to be well conceived, funded and implemented. The *Possible Projects Sequence* indicates a possible sequence for the Madrid OS projects identified in this Plan and the general process that each project will go through. (See the graph next page.)

The Possible Projects Sequence

The Possible Projects Sequence indicates a general estimate about the relative timing and complexity of proposed projects. The sequence also conveys the likely overall scale of effort needed to accomplish the proposed project.

The simpler and smaller the project, the shorter the likely time to fund and implement will be. The more complex and costly the project, the longer the budgeting and implementation time takes. Some projects such as major drainage improvements may require several years to secure funding. Community advocacy and support can affect project timing and implementation.

The actual project sequence and timing will vary from what is diagrammed on the chart. Projects may start earlier or later than estimated. The sequence indicates the relative time and effort it may take to prepare a project, plan and design it.

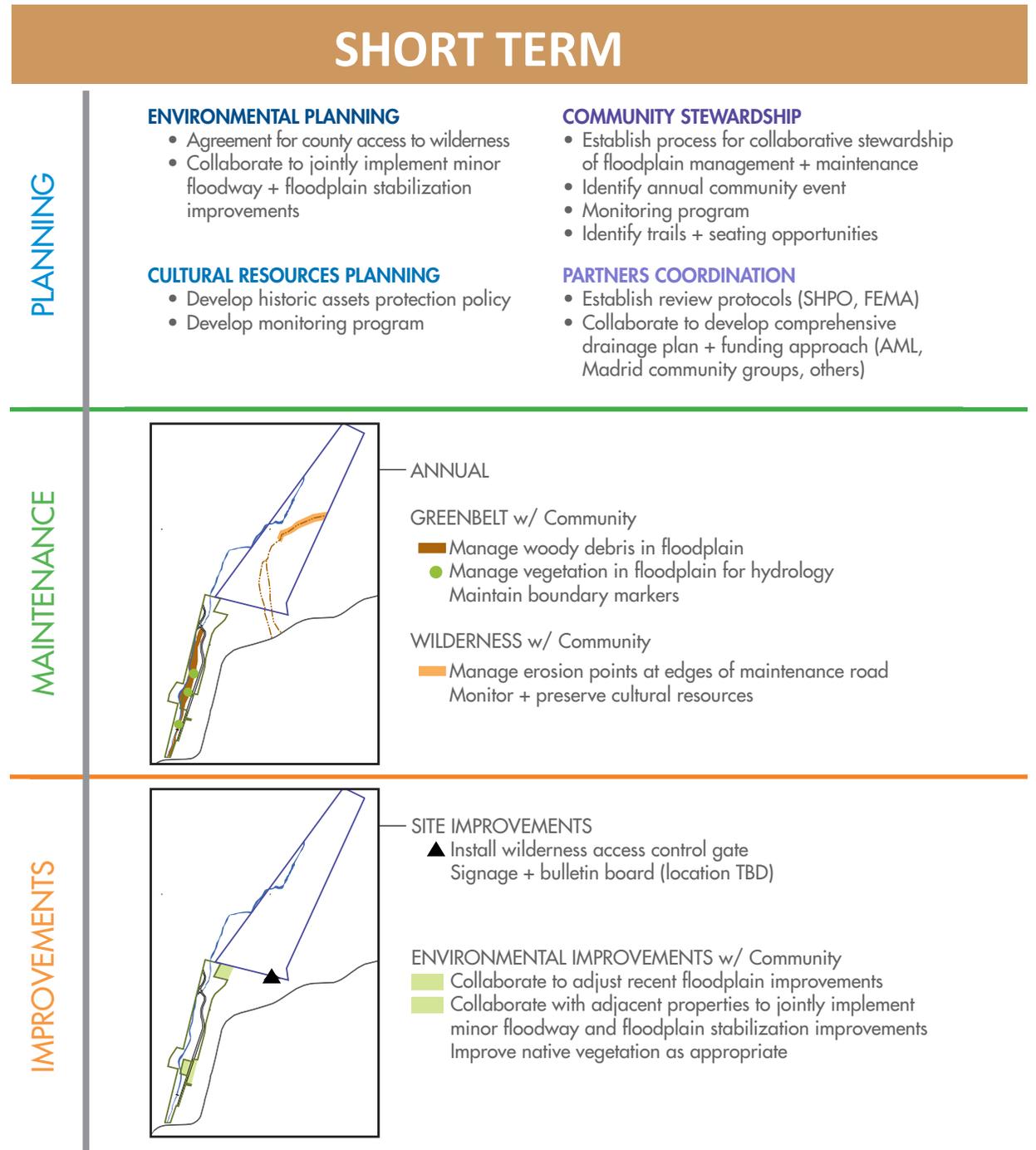
The *Planning/Maintenance/Improvements* chart on this page and the next, shows the transition of planning, maintenance, and improvements activities over the short term (1 to 5 years) and mid-to-long term (6 to 10 years) (*long-term beyond 10 years*).

Refinements to the projects and management activities will be made as necessary to achieve the intended Vision and Management Goal for the Madrid OS. Factors that may influence activities and timing are: staff availability, funding availability, management priorities, and operational or policy changes.

Short-Term

- Establish the process and protocols for County and Madrid community collaboration on arroyo channel maintenance activities.
- Begin discussions and planning with the community and potential partner agencies to fund and develop a comprehensive floodplain management and projects plan.
- Formalize an access agreement to the Wilderness and install control gates.
- Design and installation of entry sign, site signage and bulletin board.
- Maintenance of existing site improvements, including pedestrian bridge, boundary markers.

Figure 3-A. Planning/Maintenance/Improvements Diagram



MID TERM - LONG TERM

PLANNING

ENVIRONMENTAL PLANNING

- Fund County portion of drainage plan including improvements for headcuts A + B

COMMUNITY STEWARDSHIP

- Continue to strengthen community collaboration
- Continue to develop community monitoring + database

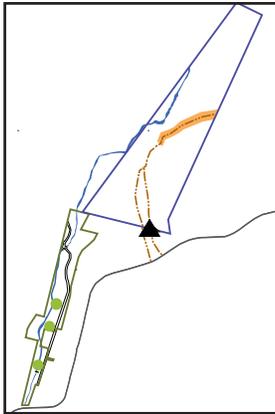
CULTURAL RESOURCES PLANNING

- Interpretive educational signage or materials
- Monitoring program for cultural resources

PARTNERS COORDINATION

- Collaborate to fund comprehensive drainage plan (AML, others)

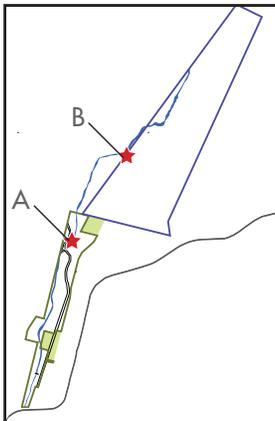
MAINTENANCE



ANNUAL / BI-ANNUAL - CONTINUE

- Remove woody debris in flood plain
- Maintain wilderness access road edge
- Maintain boundary markers
- ▲ Maintain wilderness gate and signage
- ▲ Monitor + preserve cultural resources

IMPROVEMENTS



CONTINUE IMPROVEMENT OPPORTUNITIES

- ★ Implement plans for headcuts A, B and other floodplain improvements
- ★ Install Interpretive educational signage (locations TBD)

Mid-Term

- Implement comprehensive floodplain management plan with a priority for erosion control improvement to address the major headcut north of Cave Road and the headcut at the north end of the abandoned floodplain on the Wilderness parcel.
- Continue County and Madrid community collaboration on maintenance and management activities.
- Continue maintenance of site improvements.

Long-Term

- Continue implementing comprehensive floodplain management plan prioritizing erosion control improvements.
- Continue County and Madrid community collaboration on maintenance and management activities.
- Continue maintenance of site improvements.
- Plan and Implement an educational interpretive signage plan for the Madrid OS.

Changing community needs, environmental 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. After 10 years, this plan will need updating.

Figure 3-B. Planning/Maintenance/Improvements Diagram

2.3 Monitoring + Information Management

Monitoring

Monitoring will play an important role in the management of the Madrid Open Space (*Madrid OS*). There are three types of monitoring that will be done at Madrid OS.

Because of the inter-related nature of the County open space with adjacent properties, monitoring needs to be done jointly by Santa Fe County and Madrid community entities. A collaborative approach will create a more coordinated response to changing circumstances as they arise.

A. Environmental Monitoring

Environmental monitoring will be a specific monitoring program for erosion risks in the Greenbelt and the abandoned floodplain in the Wilderness and will be developed as part of the comprehensive floodplain management plan.

B. Cultural Resource Monitoring

Mapping of current observable features and a general characterization of scattered artifacts will be developed. Given limited County resources, this activity will be done by fostering local community stewardship of this activity. The County will find an appropriate community partner such as Madrid Cultural Projects or NM SiteWatch to help develop a cultural resources monitoring plan and conduct monitoring activities with community members.

C. Maintenance Monitoring

Maintenance monitoring is focused on repair and management of site improvements not related to the flood plain improvements. Included in this category are boundary markers, access control gates, signage and the Wilderness maintenance road. County staff will lead in this monitoring with assistance from local community civic groups.

Information Management

Santa Fe County will gradually streamline and enhance procedures that help staff and community participants to acquire, store, and share knowledge that is essential for effective management of the Madrid OS.

Maintenance Approach

The County may face challenges to meet all the maintenance needs that may arise in the future. Strategies to optimize maintenance effort include:

- collaboration with Madrid civic organizations, other agencies and community stewards to leverage the efficiency of working together;
- invest in smaller, consistent well-planned maintenance activities;
- conduct maintenance activities at the optimum time based on monitoring data or a regular schedule.

Where	What	Why	When
Location	Monitoring Activity	Goal Relationship	Recommended Frequency
Active Arroyo Channel / 50 Yr Flood Plain	<ul style="list-style-type: none"> a. Head cuts b. Culvert w/ private owners c. Erosion cut banks d. Trees in active channel e. General woody debris build-up 	Ecological Health	<ul style="list-style-type: none"> a. Twice year (Sp-Fa) + after major storms b. Twice year (Sp-Fa) + after major storms c. Twice year (Sp-Fa) + after major storms d. Twice year (Sp-Fa)+ after major storms e. Twice year (Sp-Fa) + after major storms
All Site	Monitor cultural resources	Cultural Resources	a. Annually
All Site	Inspect and repair: <ul style="list-style-type: none"> a. Wilderness road, control gate b. Signage, bulletin board c. Boundary markers 	Infrastructure / Access	<ul style="list-style-type: none"> a. Annually c. Annually d. Annually

Table 1. Monitoring Matrix

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 maintenance activities can be conducted by community volunteers.

2.4. Community Relations

Santa Fe County intends to develop and maintain a productive and collaborative relationship with the Madrid community and other stakeholders as a critical activity in the implementation of the Madrid Open Space (*Madrid OS*) Management Plan.

Information Exchange

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

Signage

Santa Fe County will work with the community to place appropriate signage to identify the Madrid OS property.

Website

Santa Fe County will maintain the website pages dedicated to the County Open Space & Trails program. The website may be expanded with a specific web page describing the Madrid OS landscape, history, and management plan information.

Community Contact

Santa Fe County will work with the community to identify a communication structure and methodology with community members or groups to be available to field comments and questions about the open space and to contact County staff for follow-up actions. Communication may address site maintenance, site protection, public safety measures, and in particular, collaborative Greenbelt management activities.

Madrid Community Role

Madrid is notable for the activity of its community based entities that manage the historic town's community properties, infrastructure and events. Regularly scheduled monthly meetings for each of the five most active community groups attest to the commitment to help plan, organize and energize this small community.

During the Management Plan process, the community strongly expressed that it see itself as an active partner in the maintenances of the Madrid Open Space. They want the County to coordinate with the community. Community coordination through existing civic organizations was identified as most effective.



Education and Collaboration

Santa Fe County and community members understand that it is important to cultivate community management and maintenance activities, and interpretive education for the Madrid OS. Raising awareness mobilizes support for future stewardship of the Madrid Open Space. Santa Fe County and community members want to encourage youth engagement and to include school groups in educational and maintenance activities, and site monitoring.

An education tool that the plan's community participants felt would be valuable is a information pack about the management of the Madrid Open Space. The County may engage a consultant, work with a local environmental non-profit, or include it into the scope of the comprehensive floodplain management plan to develop that information guide.

Maintenance and Land Stewardship

A significant portion of the community relations will revolve around maintenance and stewardship of Madrid OS. There are currently five active civic organizations in Madrid. Each of these organizations control property adjacent to the Madrid OS or conduct events or activities that use or help maintain the Madrid OS. Santa Fe County will collaborate and coordinate with the Madrid civic entities to jointly accomplish annual or semi-annual maintenance or project activities for the Madrid OS. This collaborative approach is fundamental and indispensable to the long-term management of the open space.

Central to this approach is a clear defined process on how the County will coordinate with the community. A structure that was discussed by the community during the planning process was for the County to meet with the existing Madrid civic organizations to define the process. The Madrid Landowners Association was identified as a practical liaison group to help organize that initial discussion.

Santa Fe County intends to engage a diverse group of community stakeholders in maintenance and stewardship activities at the Madrid Open Space.

- Immediate neighbors and adjacent Madrid area neighborhoods
- Madrid Landowners Association
- Madrid Volunteer Fire Department
- Madrid Cultural Projects, (a 501-3c)
- Madrid Water Cooperative
- Madrid Merchants Association
- New Mexico Abandoned Mine Lands Program
- Local youth and students (e.g., Turquoise Trails Elementary School, Capitol High School)
- Local sustainability groups, such as Ampersand Sustainable Learning Center
- Mining history interest groups
- Regional conservation, hiking and outdoor organizations interested in the Madrid OS.

LEGEND: Terrain Units

- Piñon-Juniper Savanna
- Heavily Impacted Areas - Sparse Vegetation
- Active Arroyo Channel
- 50-year Floodzone (2%)
- Boundary 100-year Flood Zone (1%)
- Floodplain - Abandoned
- Concentration of Cultural Resources/Gob Piles
- Rock Outcrop
- Historic Rail Embankment

LEGEND: Existing Features

- Madrid Land Owners Assoc.
Madrid Water Cooperative
Madrid Volunteer Fire Dept.
- Existing Dirt Trails
- Existing Fire Water Line
- Existing Access Road
- Private Access Easement
- Property Boundary
- Road Culverts
- Headcut

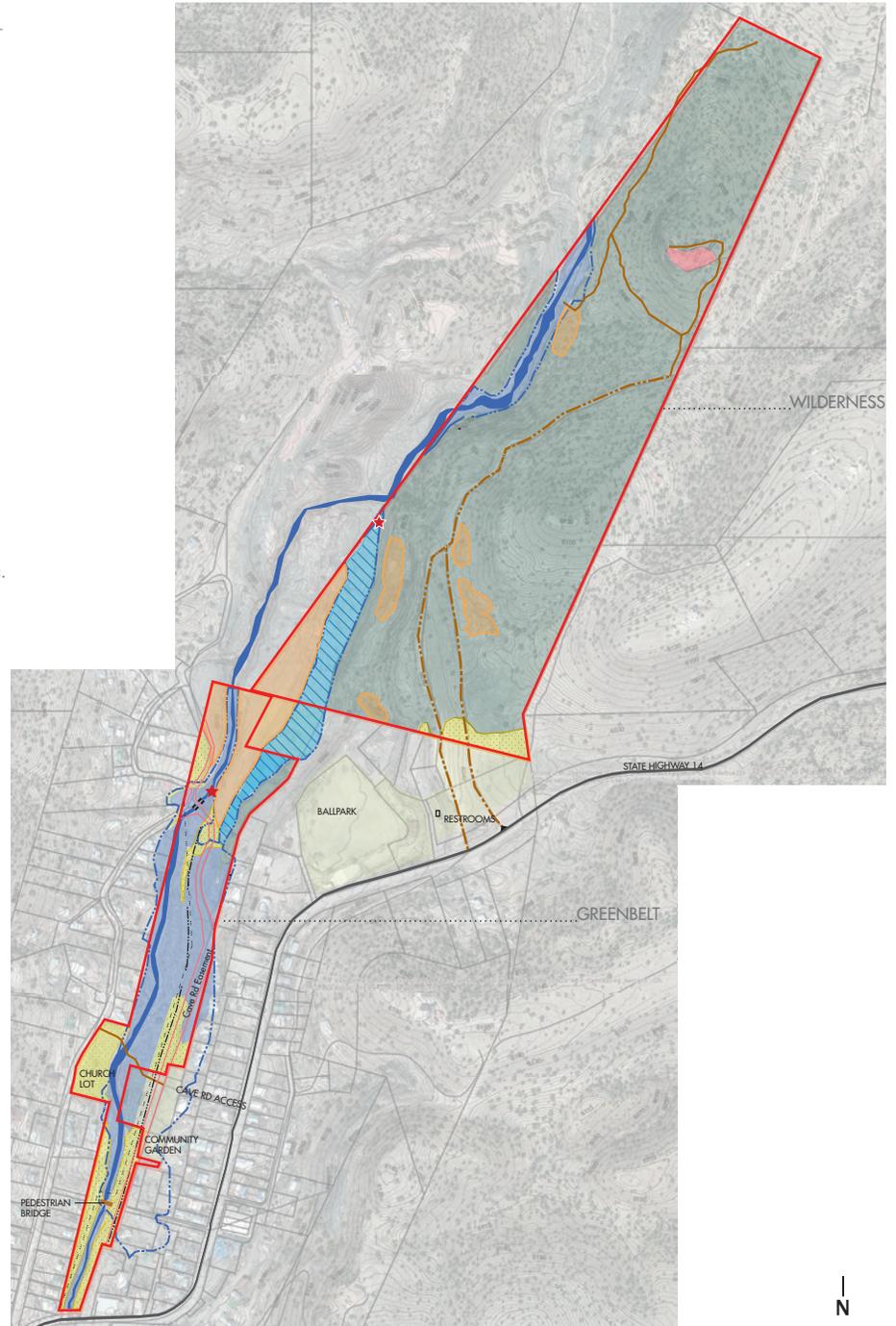


Figure 4. Terrain Units (TU)

2.5. Terrain Unit Descriptions

Terrain Units

Terrain Management Units delineated for the Madrid Open Space are areas that share characteristics of drainage, vegetation, soil or other characteristics that are observable or have unique assets or functional uses. Management activities for arroyo channel and flood plain areas are identified in the Conceptual Plan. The remaining areas require only general management for existing elements within those zones, observation for abrupt changes and to limit improvements in the zones. These identified TMUs will facilitate the monitoring plan and future maintenance actions.

See Appendix C -Santa Fe County Open Space Management, Terrain Unit Descriptions, Madrid Open Space; August 14, 2016 for more detailed descriptions.

Active Arroyo Channel

This unit is the active arroyo channel in the Greenbelt area and typically experiences small floods several times each year. The slope of the channel is 1-2 percent overall, except north of Cave Road. Several recently created levees constrain the ability of the arroyo to disperse storm water flows into normal overflow areas. The floodplain widens north of the existing wooden pedestrian footbridge to the Cave Road crossing. Where the floodplain widens, the active channel can

overbank into adjacent land. At the north end of the Greenbelt, there is a large headcut and deep downcutting occurring in the active arroyo channel.

50-Year Floodzone

This unit makes up nearly the entire Greenbelt area. Historically, the entire area was an active floodplain. Runoff rates are moderate and high in areas where the soils are compacted by roads or trails. Several levees were built in response to flooding in 2013 and appear to be causing flow constriction.

Abandoned Floodplain

Located in the southwest area of the Wilderness, the area was historically the location of the active arroyo channel. The active channel was diverted to the west to enable ore processing and, as a result, historical artifacts are widely scattered in the landscape in this unit. The soils and the vegetation are largely the same as in the 50-year Floodzone. A small active headcut is located on the north end of this zone where the abandoned floodplain meets up again with the active channel.

Concentration Of Cultural Resources

This unit consists of historic coal gob piles, which are low-grade coal waste mounds. These gob piles are a historic feature in the Madrid Historic District and will need to be protected from detrimental effects and

retained as part of the historic landscape of the site. Vegetation cover in the gob piles is sparse to non-existent due to high soil temperatures and lack of organic matter. The primary land use is conservation and archaeological values.

Heavily Impacted Area – Sparse Vegetation

This heavily impacted unit in the Wilderness area is a result of significant disturbance from roads, historic rail beds, and on-going foot and vehicle traffic. Runoff rates are high where soils are compacted by roads or trails except in the Church lot where the soil compaction and runoff are low.

Piñon Juniper Savanna Unit

The Piñon-Juniper Savanna Unit consists of moderate to steep slopes located in the Wilderness area on the northern portion of the Open Space. Soil erosion potential is very high in areas that are disturbed by off-road vehicles and along the steep hiking trail.

Rock Outcrop

The Rock Outcrop is in the north Wilderness area and consists entirely of bedrock material of sedimentary rock located in the wilderness area on the north section of the property. Vegetation is composed of sparse juniper and varieties of grama grasses, galleta, and Indian Ricegrass. A barely visible dirt route provides pedestrian access to the outcrop.



2.6. Plan Implementation and Financing Mechanisms

Plan implementation will start with identified priorities for projects and tasks, and be balanced with staff capacity and funds available to accomplish the tasks.

Implementation of this plan will begin upon approval of the Madrid Open Space Management Plan by the Santa Fe County Board of Commissioners.

A matrix of recommended management activities over the short, mid, and long term phases is contained in *Overall Management Activities Matrix for Madrid Open Space (see Appendix A)*.

Year-1 Implementation

Recommended implementation activities for Year-1 are outlined below.

Community Relations

- a. Meet with the Madrid community civic entities to identify a community liaison group to work with the County to distribute information and help coordinate maintenance and planning for the Madrid OS.
- b. Coordinate with the community liaison group to identify maintenance activities for Year-1.
- c. Meet with the general community to:
 - update on-site County activities,
 - review the status of Madrid OS prioritized projects, review and assess the outcome of Year-1 activities and evaluate priorities for Year-2.

Operations + Monitoring

- a. Integrate recommendations for maintenance monitoring into County staff schedules, and budgets.
- b. Identify appropriate community groups who can assist with cultural resource monitoring and headcut erosion at critical locations after storm events with County staff and establish process to implement that monitoring.

Planning Projects

- a. Begin planning and budgeting for a comprehensive floodplain management plan and projects for the Madrid OS. Initial Year-1 tasks are:
 - consult with possible partner agencies on requirements for drainage plan,
 - explore opportunities for match funding or grants from AML and other agencies,
 - develop engineering scope (*see Appendix D - Recommendation Drainage Assessment and Preliminary Plan for Madrid Open Space*),
 - begin discussion with adjacent landowners on drainage planning process.
- b. Formalize access agreement for Wilderness through parcels controlled by the Madrid Landowners Association and Madrid Volunteer Fire Fighters.
- c. Design and install access control gate for Wilderness parcel.
- d. Evaluate, design and install additional boundary markers, and open space signage.

Maintenance Activities

- a. Schedule and conduct open space maintenance activities with community liaison group.
- b. Evaluate soundness of wooden components of the bridge, and repair or replace as needed.
- c. Discuss and encourage the private owners of Cave Road Easement to establish a process the owners can use to keep the double culverts clear of debris.



Financing Mechanisms, Funding Sources, and Partners

Santa Fe County owns and manages more than 6,600 acres of open space properties and park areas, but it has insufficient funding and staff resources to meet all the 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. This collaborative approach will reduce the need for outside funding for property management and it will help build neighborly relationships and increase buy-in from and stewardship by the people with the greatest interest in the property.

Santa Fe County will pursue funding sources and explore creative funding mechanisms to ensure the financial viability of managing the Madrid OS according to the recommendations of this Management Plan. *(See Table 2 on the next page.)*

Table 2. Potential Funding Sources / Mechanisms & Collaborations

POTENTIAL FUNDING SOURCES	PURPOSE	ACQUISITION TIME FRAME
General Fund (Santa Fe County)	Staff costs	Annual budgeting process
Grants	Planning and/or construction of drainage plan and improvements Staff, contractors, or consultants for various tasks, such as: Boundary marking Signs, bulletin board, gates Monitoring - environment Monitoring - cultural resources	Dependent on funding source timelines
CIP funds	For the same as Grants	Annual budgeting process
General Obligation Bonds	Planning and/or construction of drainage plan or improvements	Every four (4) year cycle

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 monitoring 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
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	Mid-long-term
Establishing an NGO for overarching support to OS property management	Sharing the burden with organized stakeholders	Long-term



MADRID OPEN SPACE PARK APPENDICES (*Separate document*)

APPENDIX A: Overview of Management Activities Matrix for Madrid Open Space

APPENDIX B: New Mexico Abandoned Mine Lands, Madrid's Mining Landscape, Reports + Web Links

APPENDIX C: Terrain Management Units Descriptions for Madrid Open Space

APPENDIX D: Recommendation for Madrid Open Space: Drainage Assessment and Preliminary Plan Scope

APPENDIX E: National Historic District Registration Madrid District, Santa Fe County, New Mexico