

**A Rio Grande Renaissance
Our River's History, Culture and Diversity**

**City of Las Cruces
Rio Grande Riparian Ecological Corridor Project
An EPA Sustainable Development Challenge Grant**

**Comprehensive Plan
May 17, 2004**

Mission of the Rio Grande Corridor Project

The Rio Grande Riparian Ecological Corridor Project seeks to create a guide for future development of the Rio Grande corridor which will be sustainable and non-polluting.

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EXECUTIVE SUMMARY

The Rio Grande Riparian Ecological Corridor Project was created in 2000 through a Sustainable Development Challenge Grant from the Environmental Protection Agency (EPA). The EPA defines sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” Planning decisions must consider and account for long-term impacts and consequences, interdependence of economic, environmental and social well-being, the input of the stakeholders who will be affected by decisions, equity among generations and different groups in society, and proactive prevention which promotes efforts to prevent problems as the first course of action.¹

The Rio Grande Corridor Project has three components: a Comprehensive Plan for development along an 11-mile corridor of the Rio Grande; and two pilot projects -- construction of a 14-acre wetland, and construction of a 1.1-mile multi-use pathway.

The City of Las Cruces, with assistance from the Southwest Environmental Center (SWEC), the Bureau of Reclamation (BOR) and Elephant Butte Irrigation District (EBID), constructed a flow-through wetland which utilizes water from the Picacho Drain. Several acres of Salt Cedar were removed and the area was replanted with native trees and grasses. In coming years, SWEC and EBID will be collecting data to determine whether the removal of salt cedar offsets the use of water in the wetland.

The multi-use pathway was constructed with a mixture of crushed rock and a plant-based stabilizer. This mix allows some degree of permeability while ensuring durability. Durability testing will be conducted in the next twelve months to measure how well this paving method holds up under non-motorized vehicular use.

These pilot projects complement the larger objectives of the Comprehensive Plan for sustainable development along the corridor by creating opportunities for multi-jurisdictional cooperation and public involvement. As pilot projects, they are intended to provide information which may be useful when considering future projects of a similar nature along the river corridor.

The Comprehensive Plan is intended as a blueprint and guide for proposed projects along the corridor which may impact the environment, economic development and quality of life of the region. The Plan suggests many projects which could be carried out by various stakeholders and private land owners in order to accomplish a set of goals created as a result of public input.

To create the goals, workgroups were assembled, with representation from principal stakeholders who manage projects along the river and approximately

¹ Sustainable Communities Task Force Report, “President’s Council on Sustainable Development,” Washington, DC, 1997, page v-vi.

twenty user groups whose interests specifically relate to the Rio Grande corridor. The workgroups conducted several brain-storming sessions to develop a current inventory and an initial list of needs. Two sets of public input meetings were conducted, during which information was gathered asking what residents would/would not like to have happen along the corridor. The workgroups used this public input to create a more comprehensive needs assessment. From this, they created a list of goals and objectives, which form the basis of the Comprehensive Plan.

MAJOR FINDINGS

Recent studies have shown that the combined uses of farm, forest and open land more than pay for themselves, costing a community only \$.36 for every dollar generated. Unfortunately, Dona Ana County is losing prime farmland to development at an alarming rate, creating deficits by residents' high demand for public services, particularly education, social services, public health and safety. For every dollar generated, residential areas cost the community \$1.15. These studies conclude that on average, residential development is expensive and relies on other land uses to balance municipal budgets. ²

In general, the public is in favor of preserving the Rio Grande Corridor in as natural a state as possible, and would support proposals for open space and agriculture preservation, trails and parks along the river and outside the levee boundaries for up to one-half mile. Among residents, issues related to illegal dumping, safety, codes enforcement and vehicle restrictions are also primary concerns. These are problems which have gone un-mitigated for many years since most stakeholder agencies do not have enforcement arms through which they may be addressed. Unless this changes, Dona Ana County is the likely candidate for enforcement, perhaps with assistance from the City of Las Cruces or a specific state agency, such as the State Parks Division.

The Rio Grande Corridor is managed by many stakeholders, all with individual missions and project management practices. In order to carry out projects along the river, multi-jurisdictional cooperation and responsibility is a necessity and must be made a priority. It must be noted, however, that not all stakeholders agree with all goals listed here. In order to carry out any of the projects proposed in this plan, participating agencies must agree on specific project criteria, such that individual stakeholder missions are not compromised.

GOALS

The workgroups decided upon six goals, with objectives and recommendations by which each goal may be achieved. In brief, these are:

1. ***Preserve, enhance and restore native riparian and aquatic habitat diversity in limited project areas within the 11-mile corridor.*** This may be achieved by restoring native vegetation at specific habitat sites on public and private

J. Freedgood, Cost of Community Services Studies: Making the Case for Conservation, American Farmland Trust, Washington DC, 2002, p. 13

land, and within/outside the floodway, and by obtaining water sources needed to achieve habitat restoration. In addition, support of the Mesilla Valley Bosque Park and the development of management partnerships are recommended.

2. ***Preserve farmland and open space adjacent to the Rio Grande*** by supporting various farmland and open space preservation efforts.
3. ***Create a multi-use trail system for the 11-mile corridor*** by establishing a design plan that accommodates all types of non-motorized transportation, then constructing an 11-mile uninterrupted main trail the length of the corridor with small spur trails to various points of interest. These trails would be accessible to the greatest extent possible. In addition, make the river corridor experience “safe, sound and sanitary” by establishing an interagency method of management and enforcement.
4. ***Promote ecotourism*** by creating and supporting appropriate small businesses near the river, such as river walks, bike rentals, stables, outfitters, etc. and by advertising the Rio Grande Corridor as a destination point in New Mexico.
5. ***Expand recreational opportunities*** by building two additional parks along the corridor and providing several access points to the river from major roadways for picnicking, canoeing, horseback riding, etc.
6. ***Educate the public about the ecological, cultural and historical importance of the Rio Grande Corridor*** by creating a Rio Grande Cultural Complex and developing extensive community outreach activities along the corridor.

CONCLUSION

Sustainable development is only meaningful when put into action at the local level where land use decisions are made. The Rio Grande Riparian Ecological Corridor Project offers an opportunity to respond to this challenge by designing a land use plan built around our most important ecological asset, the Rio Grande. It focuses on protecting open space and agricultural lands while meeting the demands of community growth. A specially-formed Management District comprised of representatives from all appropriate agencies may be an effective means to operate and manage completed components of the Comprehensive Plan, and to continually reevaluate its progress. It has also been suggested that a multi-jurisdictional biological management plan for the 11-mile corridor may be useful.

Of greatest concern is increased development near the river. “No further development” along the corridor is both impractical and unrealistic. But responsible planning decisions will ensure that future development does not whittle away at agricultural lands, other open spaces, and the remaining riparian habitat within the corridor, or foreclose opportunities for restoration or rehabilitation of the same. A strong commitment to work together and find common ground is needed on the part of stakeholders and the public.



The Rio Grande Riparian Ecological Corridor Project encompasses 11 miles of the Rio Grande, and is intended for both the east and west sides of the river.

I. INTRODUCTION

PROJECT HISTORY

The Rio Grande Riparian Ecological Corridor Project began in 1999 when a grant proposal was submitted to the Environmental Protection Agency's (EPA) Sustainable Development Challenge Grant program. In June, 2000, the City of Las Cruces received the \$250,000 award to create the Rio Grande Corridor Project. The Project encompasses a distance of eleven linear miles, from the Shalem Colony Bridge to the Mesilla Dam, and is envisioned for both the western and eastern banks of the southern Rio Grande.

The Rio Grande Corridor Project has three components: a Comprehensive Plan, intended as a guide for future development along the river; construction of a one-mile multi-use pathway; and construction of a small wetland. The pilot projects are integral components of the broader Comprehensive Plan. They brought together participating agencies for a common mission, and gave the participants an opportunity to test strategies and processes, which will demonstrate what would need to be done for future projects. The pilot projects also made hands-on public involvement possible, and helped to maintain public interest and support for the Rio Grande Corridor Project by producing visible results within the three-year time frame.

SUSTAINABLE DEVELOPMENT

The EPA defines sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Planning decisions must consider for long-term impacts and consequences, interdependence of economic, environmental and social well-being, the input of the stakeholders who will be affected by decisions, equity among generations and different groups in society, and proactive prevention which promotes efforts to prevent problems as the first course of action. ²

The three challenges facing our community - economic development, a healthy environment, and social equity/quality of life - form the basis of the Sustainable Development Model.

In this model, these three components exist in balance with the others; their characteristics include:

- Social Equity/Quality of Life - clean surroundings, recreation, safety and security, open space, accessible public and alternative transportation, educational opportunities, and aesthetics for everyone.
- Economy - environmentally-conscious industry, eco-tourism, a healthy agricultural base, low unemployment rate, smart growth and suitable wages.
- Environment - restoration of riparian habitat, conservation of biodiversity, conservation of natural resources, pollution prevention.

² Ibid, page v-vi.



The demands of growth will understandably increase economic and quality of life components. Efforts to protect the environment as part of the growth process ensure that a balance is maintained. In order to achieve sustainability and maintain this balance, the Environmental Protection Agency suggests that:

- Public input informs decisions;
- All stakeholders are included in the decision-making process; and
- Public access is ensured following completion of projects.
- Anticipate problems and solve them as part of the planning process.³

The Rio Grande Corridor Project is unique in that it attempts to integrate aspects of the missions of a number of agencies which operate and maintain projects along the Rio Grande. In addition, the Project depends heavily on public input to create and support proposed projects which will be utilized by the citizens and visitors of Las Cruces and Doña Ana County. This, in turn, makes the Rio Grande Corridor of greater value to the region as a whole.

³ Ibid, p. 2.

PLANNING PROCESS

Comprehensive Plan

The goal of this project component is to bring together citizens, government, agriculture, education, religious, business, environmental and recreational groups to develop a written and graphical guide for sustainable development of an 11-mile-long corridor of the Rio Grande, a portion of which falls within the municipal boundary of the City of Las Cruces. The corridor includes La Llorona Park, the approximate half-way point, which is a popular and frequently-used recreational facility owned and maintained by the City of Las Cruces. It is also the only park along this corridor at the present time.

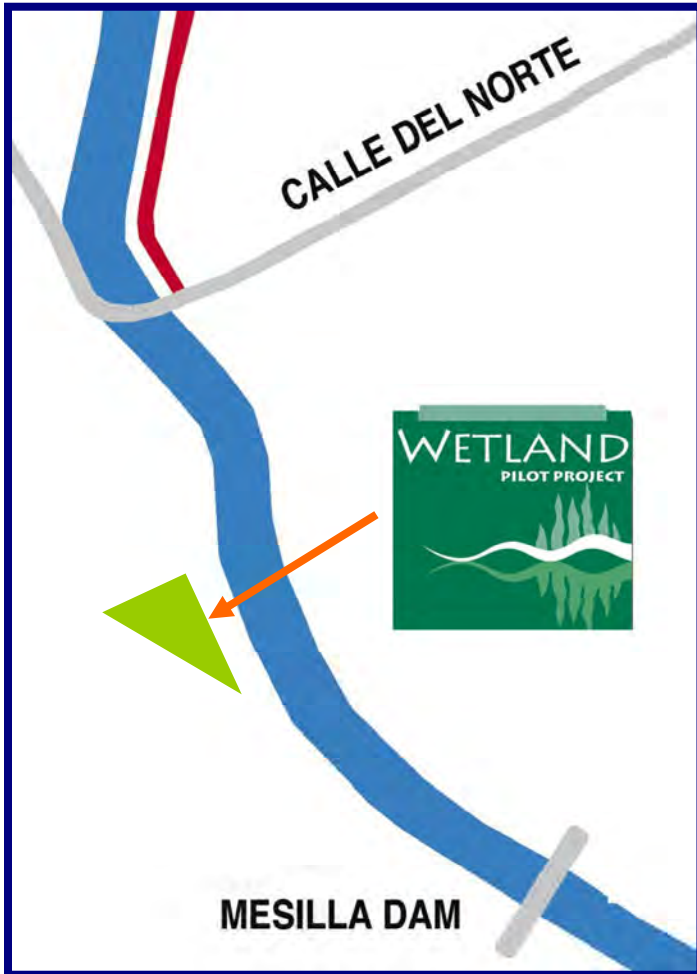
The Plan analyzes and balances the needs of economic development, quality of life and the environment. By encouraging long-term sustainable development, implementation of the Plan would help achieve the following goals:

1. Preserve, enhance and restore native riparian and aquatic habitat diversity in limited project areas within the 11-mile corridor
2. Preserve agricultural lands and open space
3. Create a multi-use trail system for the 11-mile corridor
4. Promote ecotourism
5. Expand recreational opportunities
6. Educate the public about the ecological, cultural and historical importance of the Rio Grande Corridor.

In Las Cruces, children under the age of ten make up 30 % of the population. In twenty years, these youth will lead the community. The Rio Grande Corridor Project stresses various educational aspects, as it is only through education will future generations be equipped to make wise decisions concerning the development and environmental well-being of the river corridor. The Comprehensive Plan is intended as a tool to assist policymakers achieve sustainable development into the 21st century.

Wetland Pilot Project

The goal of the Wetland Pilot Project is to restore a segment of riparian and aquatic habitat within the historic floodplain of the Rio Grande, and in doing so, complement the larger objectives of the Comprehensive Plan for sustainable development along the corridor. A wetland workgroup evaluated several areas along the river and identified nine potential sites for habitat restoration; one was selected for construction of the pilot wetland. This property belongs to the New Mexico Department of Game and Fish (NMDGF) and is within the boundaries of Mesilla Valley Bosque Park. Criteria for selection are to be found in Appendix 1, Criteria for Wetland Selection.



The Wetland Pilot Project is located on approximately 15 acres within the Picacho Bosque. This property is owned by the New Mexico Department of Game and Fish.

The Multi-Use Pathway Pilot Project (below) will extend the existing multi-use path one mile north from La Llorona Park.



Multi-Purpose Pathway Pilot

Trails and greenways positively impact individuals and improve communities by providing recreation and transportation opportunities. They also influence economic and community development. Some of the many benefits of trails and greenways include:

- making communities better places to live by preserving and creating open spaces;
- encouraging physical fitness and healthy lifestyles;
- creating new opportunities for non-motorized transportation and outdoor recreation;
- strengthening local economies;
- protecting the environment; and
- preserving culturally and historically valuable areas.

This 1.1-mile Multi-Use Pathway Pilot extends the existing river pathway northward from La Llorona Park and links with the City's proposed east-west alternative transportation system for bicycles and pedestrians. As with the Wetland Pilot, the pathway will complement the larger objectives of the Comprehensive Plan for sustainable development along the corridor by facilitating public access to amenities near the Rio Grande, and by connecting to a proposed alternative transportation pathway system.

II. STUDY AREA INFORMATION

LOCATION

Nestled within the Chihuahuan Desert, Las Cruces, New Mexico encompasses a panoramic natural landscape. The picturesque desert mesas are set against a green Rio Grande valley with fields of chile and cotton, groves of pecan trees, and acres of vineyards and vegetables. The Rio Grande carves its way throughout the valley floor and serves as a water source for the recharge of aquifers and the irrigation of crops found within the rich fertile valley.

HISTORY

This great river first attracted nomadic groups of the Jornada Mogollon culture who later became farmers, building mud huts beside their fields. When the first large expeditions of Spanish explorers reached New Mexico, they found the domain of the subsistence Native American farmer. Primitive irrigation systems gradually evolved from scooped-out basins to ditches that channeled river water to the crops.

As one of the nation's major north-south rivers, the Rio Grande provided a natural route for the north-bound Spanish colonizers. The mostly flat terrain of southern New Mexico also provided a convenient route for east-west pony express, stage coach, wagon train and rail service. The result was a practical resting place for soldiers, priests, traders, and settlers. ⁴



In addition to attracting human settlers, the Rio Grande, as the major through-flowing stream in the Chihuahuan Desert, has provided unparalleled riparian and aquatic habitats for the flora and fauna of the region for centuries. As recently as the 1800's, the Rio Grande Corridor was lined with a dynamic mosaic of cottonwood/black willow bosque, screwbean mesquite, meadows, wetlands, and oxbows.

CURRENT ISSUES AND TRENDS

Today, little, if any, of the original riparian ecosystem remains intact. With that loss, we no longer reap the benefits provided by a functioning riparian ecosystem. The modern floodplain has been cut off from Rio Grande flows due to reservoir-controlled releases, levee construction, and incisement of the

⁴ G. Owen, Las Cruces New Mexico 1849-1999: Multicultural Crossroads, Cultural Society of Mesilla Valley, 1999, p. xiv

river channel. Agriculture and residential development have replaced the riparian habitat. Flows are controlled through Elephant Butte Dam (built in 1916) and Caballo Dam (built in 1938) to harness the waters for commercial agriculture and to control flooding. South of the Percha Diversion Dam, the river has been dredged and channelized to serve as a conveyance system for irrigation and municipal water use, providing on average 474,000 Acre-Foot (AF) of surface waters annually for irrigation of farmland. Urbanization, flood control, and agricultural production have resulted in a significant loss of wetlands and bosque along the Rio Grande within the Mesilla Valley.

Significant societal choices were made when the Rio Grande in Southern New Mexico was dammed and channelized and its waters regulated. The benefits of these actions were dramatic. The area was settled, farms flourished, other businesses grew from agriculture's success and the agriculture college (NMSU) expanded. Control of the river provided flood control as well, essentially eliminating the periodic deluges that destroyed lives and property. Much of the riparian vegetation was replaced with orchards and farms, which provide an aesthetically pleasing environment in which to live and work.

Society chose in earlier years to corral the natural resources of this area and devote them to its goals of promoting pervasive socioeconomic benefits. The goals of those who forged their lives out of conditions we never face today have been met, and the region as a whole has benefited. The commitment of land and water resources, particularly on a large scale, for the return to or the restoration of pre-existing conditions requires difficult societal choices and alteration of priorities. These choices are never easy because they are scientifically, economically and socially complex.

The Rio Grande is an integral part of Las Cruces' economy, culture and identity. It is the backbone of our community and has a rich and diverse history. Over the years, we have transformed ourselves from a rural small town with an



agricultural-based economy to an urban city with a diverse economy. We have witnessed the community grow outside the confines of the river valley onto the desert mesas. Although we now live beyond her banks, we are becoming increasingly dependent upon the waters of the Rio Grande to sustain our way of life. The Rio Grande services not only agricultural needs, but also municipal and industrial water needs for our urban water users in southern New Mexico and west Texas.

The 2000 U.S. Census reports that Doña Ana County has grown 29% since 1990.⁵ In addition, the population of Las Cruces is projected to increase by 20% in the next ten years.⁶ Recently, much attention has been paid to a Forbes/Milken Institute report which ranks Las Cruces as the best small metro area for business and careers among cities below 177,000 ⁷ and to CNN's *Money Magazine* choosing Las Cruces as one of the eight best cities to retire, based on quality of life, affordability and activities.⁸ As new residents and industries arrive to the region, the economic benefits of open space become increasingly valuable.

The Trust for Public Land lists the following as the economic benefits of open space preservation: ⁹

- Creates a visually aesthetic community;
- Attracts investment;
- Revitalizes cities and attracts people;
- Enhanced and protected natural resources are magnets for tourists;
- Safeguards the agricultural economy and provides scenic vistas; and
- Provides a cost-effective solution to expensive flood control measures.

Open space and trail systems encourage physical exercise such as walking, jogging, bicycling, and horseback riding and are thus valuable for health reasons as well as alternative transportation. They help to connect people to their natural communities, and also to each other.

Also, according to the American Farmland Trust (AFT), we're needlessly wasting one of our most important resources – agricultural land. Less than one-fifth of U.S. land is high quality and we are losing this finest land to development at an accelerating rate. U.S. agricultural land provides the nation -- and the world -- with an unparalleled abundance of food. But farmland means much more than food. Well-managed farmland shelters wildlife, supplies scenic open space, and helps filter impurities from our air and water. These working lands keep our taxes down and maintain the legacy of our agricultural heritage. ¹⁰

In their report, Farming on the Edge, the AFT concludes that:

- Every minute of every day, America loses two acres of farmland.
- We lost farm and ranch land 51 percent faster in the 90s than in the 80s.
- We're losing our best land—most fertile and productive—the fastest.
- Our food is increasingly in the path of development.
- Wasteful land use is the problem, not growth itself. ¹¹

⁵ Population Report 2002, City of Las Cruces, January 2002, p. 3

⁶ Population Report 2002, City of Las Cruces, January 2002, p. 17

⁷ Forbes/Milken Institute, <http://www.forbes.com/2002/05/09bestplaces.html>.

⁸ CNN Money Magazine, http://money.cnn.com/21002/05/01/retirement/bpretire_las_cruces/.

⁹ S. Lerner and W. Poole, The Economic Benefits of Parks and Open Space: How Land Conservation Helps Communities Grow Smart and Protect the Bottom Line, The Trust for Public Land (1999)

^{10, 11} American Farmland Trust, <http://www.farmland.org/farmingontheedge/>

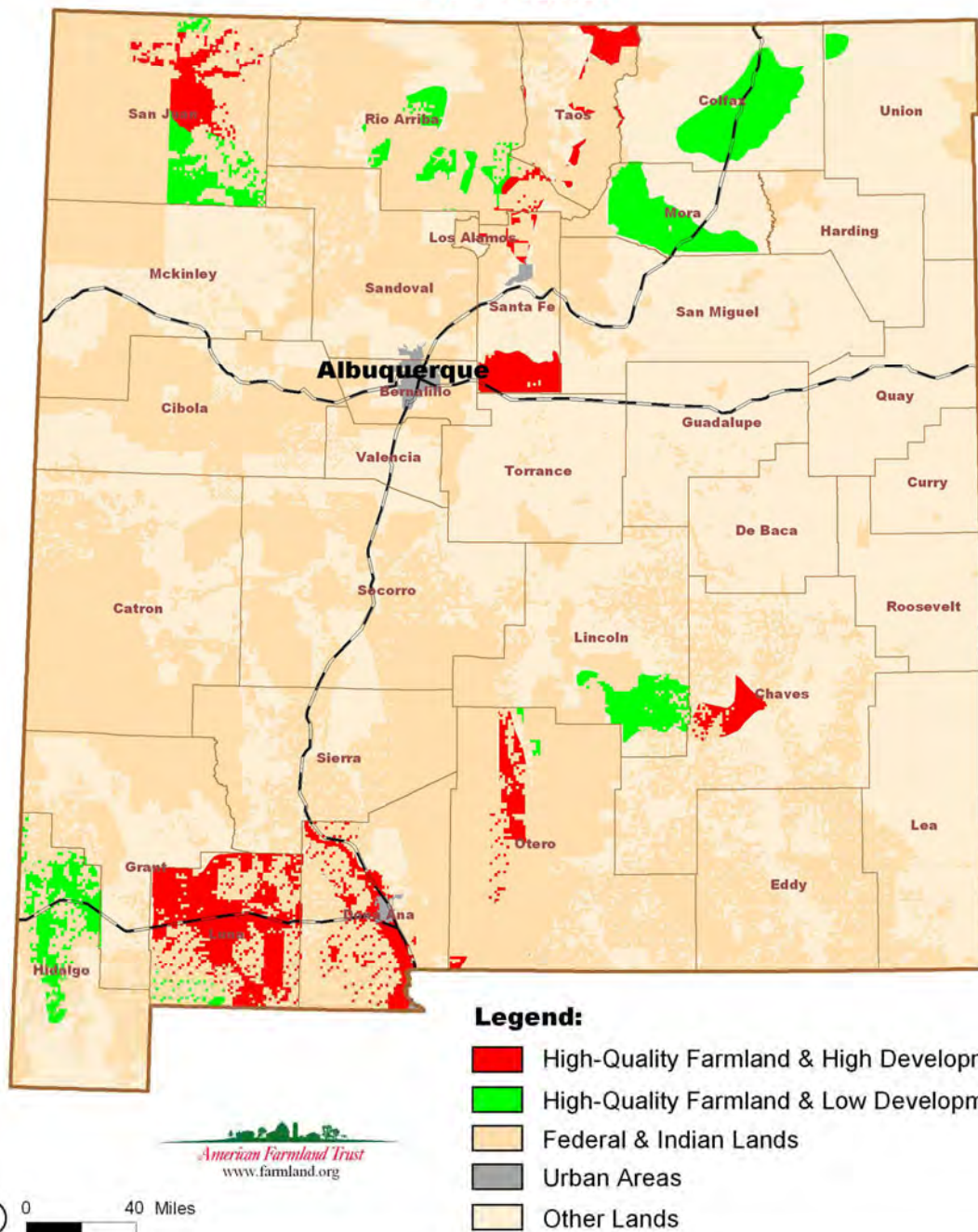
Communities, states and now the federal government are working to protect this irreplaceable resource by:

- Stopping the loss of our best farmland through effective planning and smart growth that directs development to less productive land;
- Permanently saving farms through publicly funded agricultural conservation easement programs;
- Supporting farming practices that enhance the environmental benefits of farmland; and
- Expanding efforts to increase the profitability of urban-edge farming. ¹²

¹² Ibid

FARMING ON THE EDGE

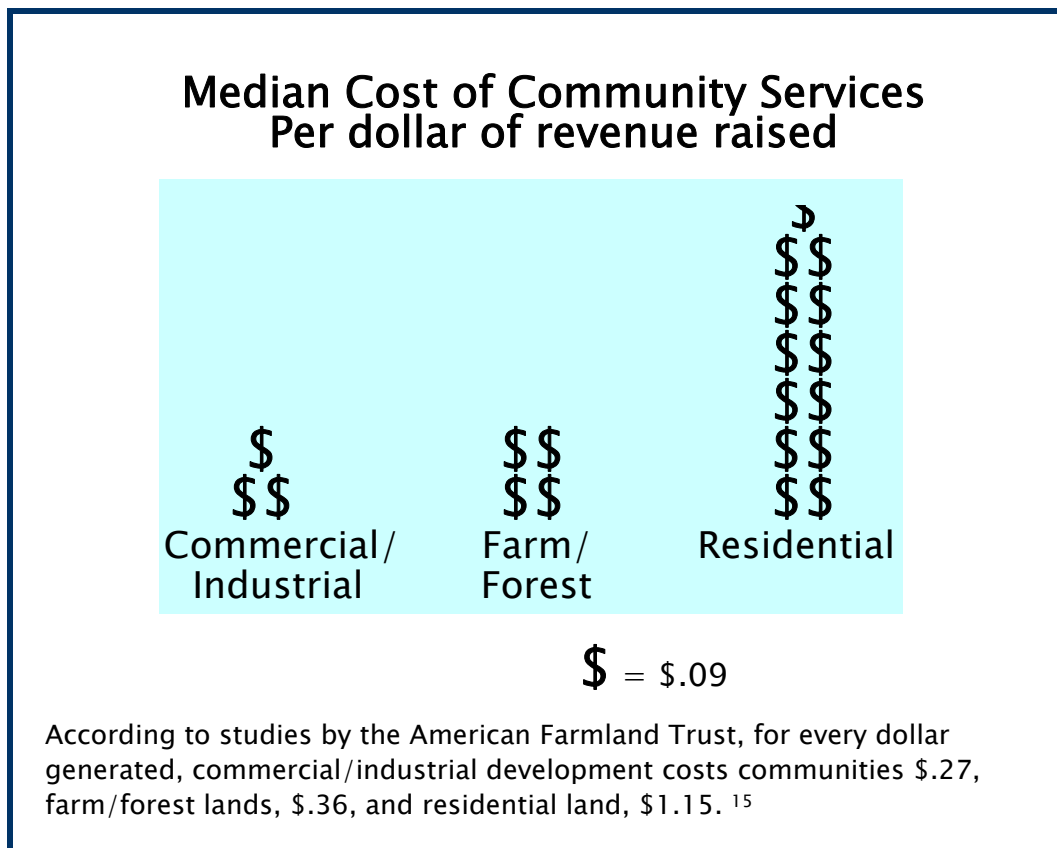
Sprawling Development Threatens America's Farmland New Mexico



New Mexico lost 720 acres per year to development between 1992 and 1997. This is an increase in the rate of lost of 260% over the previous five years.¹³ Doña Ana County is one of the more highly affected areas in the state.

¹³ Ibid

The case for protection of agricultural lands and open space is further supported by Cost of Community Service Studies (COCS) conducted by the AFT and others across the nation. They found that the combined uses of farm, forest and open land always more than paid for themselves. In virtually every study, the agricultural/open land sector combined with commercial/industrial land offset deficits created by residents' high demand for public services, particularly education, social services, public health and safety. Even departments servicing all land uses, such as highway, police and fire, usually spend the majority of their time and budgets serving residents. Most public infrastructure is needed to support residential development, as well. These studies conclude that on average, residential development is expensive and relies on other land uses to balance municipal budgets. ¹⁴



¹⁴ J. Freedgood, Cost of Community Services Studies: Making the Case for Conservation, American Farmland Trust, Washington DC, 2002, p. 13

¹⁵ Ibid

III. INTERGOVERNMENTAL & INTERAGENCY COORIDINATION

The Rio Grande Corridor Project demonstrates the ability and benefits of partnering among a broad and diverse range of stakeholders. The Corridor is managed by a number of different entities, including non-governmental organizations as well as federal and state agencies. In addition, many non-profit user groups play an important role in shaping the future of the corridor by lending public support to projects which meet their needs.

STAKEHOLDERS

Stakeholders are the various federal, local and quasi-governmental agencies which are responsible for the operation and maintenance of projects along the river. In addition to the City of Las Cruces, those are:

- Southwest Environmental Center (SWEC). The mission of the Southwest Environmental Center is to protect the unique natural heritage of the Southwestern borderlands. Specifically, SWEC's efforts along the Rio Grande corridor include the protection of wildlife, habitat and water resources through volunteer activities, education and advocacy.
- Elephant Butte Irrigation District (EBID): As the largest supplier of surface water in New Mexico, EBID serves over 8,000 constituents in Southern New Mexico. More than 90,000 acres of water-righted acres are serviced by the District's network of diversion dams, canals, laterals and drains. EBID is directly involved in the day-to-day management of the Rio Grande and its water supply, and all of the water conveyance facilities from Caballo Dam to the Texas boundary. EBID works with federal, state, local, municipal and other organizations in the region on common issues of water supply, conservation, quality and related matters. As it relates to the Rio Grande Corridor Project, EBID has issued a term permit allowing drain water to flow through constructed wetlands in the Wetland Pilot Project.
- United States Section, International Boundary and Water Commission (USIBWC): The mission of the USIBWC is to apply the rights and obligations which the Governments of the United States and Mexico assumed under numerous boundary/water treaties and related agreements. The USIBWC ensures that water released from upstream reservoirs for delivery to Mexico is in compliance with the Convention between the United States and Mexico concluded May 21, 1906 and is conveyed effectively to American Diversion Dam; flood protection of lands along the project is also provided.
- U.S. Bureau of Reclamation (USBR): If any Rio Grande Project waters are to be used in a given project, the duty of the Bureau is to ensure that the City of Las Cruces agrees to and follows the guidelines of the Sale of Water for Miscellaneous Purposes Act of 1920. The USBR then assists in plans, designs, and technical matters.

- New Mexico Dept. of Game and Fish (NMDFG): The New Mexico Department of Game and Fish is responsible for providing and maintaining an adequate supply of wildlife and fish within New Mexico by using a flexible management system that provides for their protection, propagation, regulation, and conservation. The Department is also responsible for the enforcement of hunting ordinances and restrictions. NMDGF staff also ensure that actions related to the completion of the Wetland Pilot, which is situated on NMDGF property, adhere to their policies and guidelines.

CITY OF LAS CRUCES INTERDEPARTMENTAL COORDINATION

As the Grantee for this project, the City of Las Cruces was responsible for grant oversight, project coordination, and serving as the lead agency; thus the City appointed a staff person to serve as Project Manager. The Project Manager formed an inter-departmental team to assist in completing the Comprehensive Plan and two Pilot Projects. Within the City, there was representation from Community Development, Public Works, Beautification, Parks, GIS, Transit, Utilities and Administration for this effort. Specifically:

- Community Development managed the Rio Grande Corridor Project, and was responsible for agency coordination and public outreach;
- Public Works constructed the Pathway Pilot and provided contract administration for the Wetland Pilot Project;
- Beautification provided trees, landscaping materials, and trash receptacles as part of the City's project match;
- Parks will be responsible for maintenance of the multi-use pathway;
- GIS created all maps used in the project (unless otherwise stated);
- Transit advised the project manager on intermodal transportation;
- Joint Utilities advised the project manager on water resource issues;
- Administration was responsible for grant management.

PROJECT WORKGROUPS

Three workgroups were created to assist the Project Manager in developing the Inventory of current uses, a needs analysis, and goals and objectives for the Comprehensive Plan. The workgroups were:

- Habitat, Water Resources, & Nature;
- Economic Development & Cultural Opportunities; and
- Parks, Recreation & Trails.

The Parks, Recreation & Trails workgroup's activities included completion of the Multi-Use Pathway Pilot; the Habitat, Water Resources, & Nature workgroup's activities included completion of the Wetland Pilot.

Active participation by the community was an important component in forming workgroups, and interested persons from all walks of life were invited to join. This helped ensure that concerns of the public were addressed during strategy sessions. Workgroup members represented a wide range of interests: agencies

responsible for management of Rio Grande Project waters; governmental and non-governmental organizations; entities responsible for long-term planning within the area; non-profit environmental organizations; and special interest groups. In addition to the Project Participants, these include:

Backcountry Horsemen	Natural Resource Conservation Service
Dona Ana Archeological Society	Nature Conservancy of New Mexico
Extra Territorial Zoning Authority	New Mexico Environment Department
La Union Soil and Water Conservation District	NMSU Dept. of Biology
Mesilla Valley Audubon	NMSU Dept. of Civil, Agricultural, and Geological Engineering
Mesilla Valley Bicycle Coalition	NMSU Dept. of Wildlife and Fisheries
Mesilla Valley Economic Development Alliance	Southwest Consolidated Sportsmen
LC Metropolitan Planning Organization	USDA Cooperative Extension
	World Wildlife Fund

NATIONAL PARK SERVICE RIVERS AND TRAILS PROGRAM

The National Park Service Rivers and Trails Program (NPSRT) provided to the City technical assistance with the public participation aspects of the Comprehensive Plan. Assistance focused on projects that intend to develop new trails and protect open space and/or river corridors.

ENVIRONMENTAL PROTECTION AGENCY

The primary focus of the Sustainable Development Challenge Grant is to promote citizen participation in the development of an environmentally-friendly comprehensive plan for urban, suburban, and commercial/industrial growth in the grantee community. For the Rio Grande Corridor Project, the EPA provided guidelines to include the public in choosing projects along the river which would benefit all sectors of the community. The EPA also provided guidelines for ensuring quality control of data collected for each of the pilot projects. The data will be important resources if/when proposed projects in the Comprehensive Plan are actually implemented.

IV. PLANNING BACKGROUND

CITY OF LAS CRUCES COMPREHENSIVE PLAN

Several elements of the City's Comprehensive Plan (1999) include references to open space and environmental protection. For a complete description of these goals, objectives and policies, see Appendix 2.

- **Land Use Element Objective 11:** Establish urban and rural open space networks in the area.
- **Economic Development Element Objective 4:** Maintain the viability of agricultural production within Las Cruces and the Mesilla Valley.
- **Tourism Element Goal 3:** Promote and enhance Las Cruces and the Mesilla Valley as a tourist destination. **Objective 8:** Continue to promote existing and create new tourist activities and events in Las Cruces.
- **Urban Design Element Goal 2:** Preserve and enhance Las Cruces' natural, visual, and historical/cultural resources while reinforcing an overall urban form and character that communicates sensitivity to its physical setting. **Objective 5:** Protect those natural resources and features unique to our region.

In addition, the City's 2003 Zoning Code describes two open space districts, "Recreation" and "Natural/Conservation." These are also described in more detail in Appendix 2.

DONA ANA COUNTY COMPREHENSIVE PLAN

Several elements of Dona Ana County's Comprehensive Plan 1995–2015 include references to open space and environmental protection. For a complete description of these goals, objectives and policies, see Appendix 3.

- **Primary Goal 3:** Goal Statement -- Enhance the quality of life for county residents by providing adequate parks and recreational facilities.
- **Primary Goal 4:** Goal Statement - Support the agricultural industry and strive to maintain the viability of this major sector of the local economy.
- **Primary Goal 5:** Policy for Rural Patterns - Maintain existing rural patterns where feasible. Policy for Land Use Compatibility - Minimize impacts of new development on surrounding land uses.
- **Primary Goal 5:** Rural Areas Goal Statement - Maintain the identity of rural areas by encouraging development compatible with traditional settlement patterns and land uses.

EXTRATERRITORIAL ZONE (ETZ) COMPREHENSIVE PLAN:

Reference to the issues of open space and recreation or the preservation of the Rio Grande is found in several sections of the ETZ Comprehensive Plan. Of the twelve goals mentioned in the plan, two make reference to the Rio Grande and to the preservation of the ETZ's natural resources. The "Future Land Use Concept Map 2020" reflects the type of development pattern that is to be encouraged, as the ETZ develops over the next twenty years.

The objectives listed in the ETZ Plan also support the development patterns illustrated on the Future Land Use Concept Map 2020. Properties located north and south of I-10 or east and west of the Rio Grande are designated as areas suitable for rural or low density residential development. Much of the land adjacent to the river, from the Shalem Colony Trail bridge to the Calle del Norte bridge, is still under cultivation; for the most part is zoned for "large lot development" (requiring a minimum lot size of 1 acre); or, has been left undisturbed. Some of the land adjacent to the river and identified on Map 1 has been designated as "Areas of Critical Environmental Concern." See Appendix 4 for the Future Land Use Concept Map 2020 and a listing of ETZ Goals, Objectives and Policies which refer to the Rio Grande corridor.

2003 TOWN OF MESILLA COMPREHENSIVE PLAN

The 2003 Mesilla Comprehensive Plan builds upon past planning efforts undertaken in the Town. Its primary focus is preservation of the Town's character by prioritizing agriculture and open space as a land use and maintaining the historic significance of the Town.

The Preferred Land Use Scenario recommends that the Historic District be expanded in order to accommodate smaller lots in the more urbanized areas of the Town, which could relieve development pressures on the larger agricultural parcels, which already exist in Mesilla. The plan also designates certain areas for agricultural preservation, including lands adjacent to the Rio Grande.

Several tools have been identified that could promote the preservation and enhancement of agricultural lands within Mesilla. These include:

- Purchase of Development Rights by the Town to preserve agriculture and open space;
- Dedication of open space to the Town;
- Use of cluster development in some areas which provide increased density in exchange for open space;
- Working with a land trust or land bank to acquire agricultural land/open space; and
- Utilizing agricultural zoning that designates 20 to 40 acre lots.

The Comprehensive Plan for the Town of Mesilla is expected to complete in the spring, 2004.

**UNITED STATES SECTION, INTERNATIONAL BOUNDARY & WATER COMMISSION,
RIO GRANDE CANALIZATION PROJECT --
ENVIRONMENTAL IMPACT STATEMENT AND RIVER MANAGEMENT PLAN**

The USIBWC completed their Draft Environmental Impact Statement (DEIS) for the Rio Grande Canalization Project in December 2003. The USIBWC, in accordance with the National Environmental Policy Act (NEPA) of 1969, analyzed the effects of four alternatives for future operation and maintenance of the Rio Grande Canalization Project and implementation of environmental enhancements. The project covers 105 river miles from Percha Diversion Dam, New Mexico south to El Paso, Texas. The USIBWC operates and maintains the project to facilitate Rio Grande water deliveries to users in southern New Mexico, west Texas, and Mexico. The project also includes a levee system for flood control.

As described in the DEIS, the Las Cruces River Management Unit (Shalem Colony Trail Bridge to Mesilla Diversion Dam) provides significant opportunities for managing the flood plain in a multiple-use manner. Despite urbanization constraints, considerable improvements in the form of recreation areas and selective habitat are possible. Local agency cooperation is required to fully realize potential. Emphasis is on enhancing and creating habitat associated with spillways and connecting sites within the current no-mow zone. Further mowing reduction and green zone management should include salt cedar control. See Appendix 5, USIBWC Rio Grande Canalization Project Environmental Impact Statement, for more information.

**1984 SOUTHERN RIO GRANDE OUTDOOR RECREATION MASTER PLAN,
NEW MEXICO STATE PARKS DIVISION**

In 1979, legislative representatives from the Southern Rio Grande region, backed by local officials, introduced appropriation bills for a regional recreation master plan which received passage in 1983. A follow-up land acquisition funding bill was introduced, passed and signed into law in 1984. The Southern Rio Grande Study area follows an 85 mile reach from Caballo Dam to Anthony, New Mexico. The direction of the planning process was to define the corridor's resource capabilities and sensitivity to human use and recreation potentials.

Within the 11-mile study area of the Rio Grande Corridor Project, four potential park sites were identified:

- Shalem Colony Bridge – Picnic and day use area
- Mesilla Bridge (referred to as the Sage property in Plan) – Recreation potential
- Picacho Bosque (referred to as the Old Refuge in plan) – Recreation potential
- Mesilla Dam -- Picnic and day use area

See Appendix 6, "1984 Southern Rio Grande Outdoor Recreation Master Plan" for a description of each of the above sites.

MESILLA VALLEY NATURE CENTER FEASIBILITY STUDY

Following completion of the 1984 Southern New Mexico Outdoor Recreation Master Plan, additional funds were provided to purchase land in this corridor. One of the properties acquired is a 24.57 acre parcel located approximately six miles north of Las Cruces between Highway 185 and the levee bordering the Rio Grande. In 1993, the Legislature appropriated \$30,000 to prepare a feasibility study for a Mesilla Valley Regional Nature Center at this site.

The study concluded that the site would offer some ideal conditions for restoration, revegetation, wildlife habitat improvement and environmental education activities. However, its relatively small size reduces the extent of development which could occur. Also, balancing human and wildlife use of the area would require careful planning. Inclusion of parking, picnic areas, trails, a wetland, interpretive information and habitat improvements would limit opportunities for any additional development. The report recommended that if the site were to be chosen for a nature park, a second area be considered for further expansion of facilities.

MESILLA VALLEY BOSQUE PARK FEASIBILITY STUDY

In 2001, the New Mexico Legislature passed a House Joint Memorial (HJM) 61, requesting a study to evaluate the feasibility of a proposed Mesilla Valley Bosque Park (MVBP) along the Rio Grande in Dona Ana County. Grassroots organizations already have done some planning, community organizing, and fundraising in support of the proposed Park. The proposed site include properties held by several private and public owners, including the New Mexico Department of Game and Fish, the United States Section, International Boundary and Water Commission, Elephant Butte Irrigation District, the Bureau of Land Management and Harris Farms.

The report concluded that the proposed Mesilla Valley Bosque Park is feasible. It would serve an important need by providing outdoor nature education and recreation in south-central New Mexico. Three crucial steps must occur before development can proceed: 1) an operator must be identified, 2) agreements must be executed for acquisition or management of park lands, and 3) access must be arranged. Once developed, the proposed MVBP would offer New Mexicans various amenities such as hiking, walking, fishing, bird watching, bosque restoration activities and nature education.

LAWS AND REGULATIONS AFFECTING STUDY AREA

Approximately 90% of the privately-owned land adjacent to the corridor is currently under cultivation. It is zoned as residential, with the exception of two parcels with a commercial or industrial designation. Under a residential designation, development of a lesser impact is allowable. Examples would be parks, open space, pathways, archery ranges, general farming, pastures, wildlife sanctuaries, etc.

Several federal laws regulate activities and projects within the 11-mile study area. Primarily, these come into effect when land and vegetation are disturbed or when waters of the Rio Grande are affected. For the purposes of the Rio Grande Corridor Project and the two pilot projects, these are:

National Environmental Policy Act (NEPA) -- passed by Congress and signed into law by Richard Nixon, NEPA requires that the environmental, social, economic and other impacts of federally funded projects be considered prior to expenditure of those funds. For a more detailed description of the NEPA process, see Chapter VII, Implementation of Projects.

Endangered Species Act - provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found.

Section 7 of the Endangered Species Act directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the U.S. Fish and Wildlife Service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of Federal lands as well as other Federal actions that may affect listed species, such as Federal approval of private activities through the issuance of Federal permits, licenses, or other actions.

Clean Water Act - sets the basic structure for regulating discharges of pollutants to waters of the United States, including wetlands.

Section 401 - State Certification of Water Quality. Section 401 gives States the authority to review and approve, condition, or deny all Federal permits or licenses that might result in a discharge to State waters, including wetlands. States make their decisions to deny, certify, or condition permits primarily by ensuring the activity will comply with State water quality standards. Certification by the State of New Mexico Environment Department (NMED) affirms that the project has complied with the Clean Water Act.

Section 402 - National Pollutant Discharge Elimination System (NPDES). NPDES permits are issued for discharges with potential impact on waters of the United States. The Rio Grande is a water of the U. S. and therefore, with regard to Section 402 of the Clean Water Act, an NPDES permit is required to address sedimentation and/or erosion potentially created as a

result of the construction or operation of the project. The purpose of this requirement is to minimize these impacts to the Rio Grande and its aquatic life.

Section 404 -- establishes a program to regulate the discharge of dredged and fill material into waters of the U.S., including wetlands. No discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. Approved permits must demonstrate that the entity has taken steps to avoid wetland impacts where practicable; minimize potential impacts to wetlands; and provide compensation for any remaining, unavoidable impacts through activities to restore or create wetlands. Permits are issued by the U.S. Army Corps of Engineers.

The State Historical Preservation Officer (SHPO) – The State Historic Preservation Officer, in the Historic Preservation Division of the Department of Cultural Affairs, "reviews state undertakings to determine their effect upon significant historic properties"¹⁶ located on State land and are protected by the Cultural Properties Act. These include prehistoric and historic archaeological sites, and architectural properties. Other types of properties include Native American Traditional Cultural Properties (TCPs) and landscapes. The definition of a "cultural property" is a structure, place, site or object having historic, archaeological, scientific, architectural, or other cultural significance."¹⁷ It is unlawful for any person to excavate, injure, destroy, or remove any cultural property or artifact on State land without a permit. It is also unlawful for any person to intentionally excavate any unmarked human burial, and any material object or artifact interred with the remains, located on any non-federal or non-Indian land in New Mexico without a permit. In order to construct the Picacho Wetland Pilot, approval from the State Historic Preservation Officer was necessary. The Picacho Drain provides water for the wetland and is part of the Elephant Butte Irrigation System of dams, canals and drains. This system is listed on the State Register of Historic Properties, and as such, is protected under the Cultural Properties Act. The SHPO determined that use of the drain in the wetland project would not alter its intended use, and approved the project with the condition that interpretive signage be provided at the wetland which explains the history of the Elephant Butte Irrigation System.

Act of August 27, 1935 and Act of August 29, 1935 – The Act of August 27, 1935 authorized the Secretary of State to lease lands to citizens of the United States through the International Boundary Commission (now the USIBWC). Pursuant to a letter dated September 12, 1949, Secretary of State Dean Acheson further delegated the authority to lease to the Commissioner. The Act of August 29, 1935 authorized the construction and operation of the Canalization Project. It is under these acts that the USIBWC grants permits for certain activities, including recreational use, within the project rights-of-way.

¹⁶ Cultural Properties Act (18-6-8).

¹⁷ Ibid, (18-6-3).

V. SUMMARY OF DATA ANALYSIS

The workgroups (Habitat, Water Resources, & Nature; Economic Development & Cultural Opportunities; and Parks, Recreation & Trails) met collectively every two months, and each workgroup met independently as needed. Goals and objectives were generated from the results of an inventory of current uses, input from public meetings and community surveys, and the needs analysis. The needs analysis supports a list of various projects along the Rio Grande which would fulfill the mission of the Rio Grande Corridor Project and the overall goals of the Comprehensive Plan.

INVENTORY OF CURRENT USES OF THE RIO GRANDE CORRIDOR

Water Resources: In terms of water resources, the Rio Grande is used for flood protection, irrigation, downstream water deliveries, point-source discharges (CLC wastewater), spillways and drains (EBID).

Habitat: There are many existing habitat areas located in the floodway, spillways, drains, and on private land adjacent to the river. These areas are in natural states, including remnant wetlands. Several marshy areas along the banks of the river attract unique bird and animal species, and provide an opportunity for nature watching.

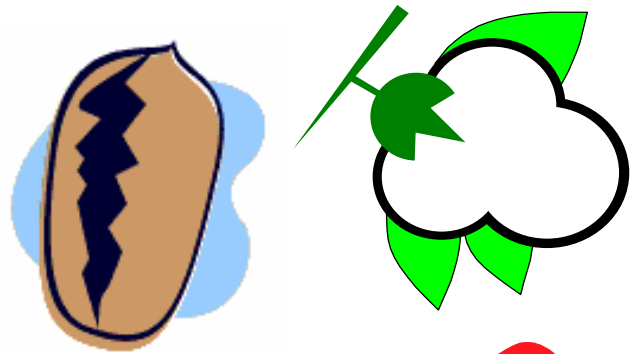
Parks: Currently the only official park in the corridor is La Llorona Park on Picacho Avenue, and is the approximate half-way point of the corridor. The park is primarily used for daytime recreation and as a rest stop for travelers on U.S. Highway 70. The City of Las Cruces maintains facilities that include playground equipment, park benches, picnic tables, grills, restrooms, a parking area, and a meandering trail throughout the small park.

Recreation: Current recreational activities include hiking, biking, horseback riding, fishing, nature watching, play ground activity, hunting, off road vehicle use and canoeing, all on an informal basis. The area is also used for picnicking and simply as an area to enjoy the outdoors.

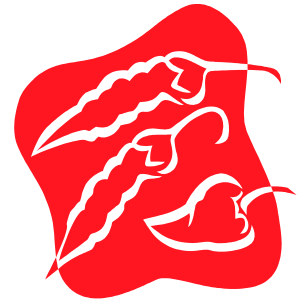
Trails: A 3-mile multi-use asphalt path receives ample use by visitors and residents of the area. Trail heads with parking are located at both ends of the pathway at Mesilla Bridge and La Llorona Park. The majority of the trails that currently exist in this corridor have been identified as unofficial trails. They are disturbed areas that have been created mainly by the unauthorized vehicular use along the river bank. The levee road, a straight compacted gravel surface that parallels the river, is also an unofficial trail used by both authorized and unauthorized users.

Economic Development: In 2000, Dona Ana County ranked second in the state in cash receipts from farm commodities. Approximately \$280M was generated through agriculture, with 61,294 acres in production, as follows:

- Pecans 30% or 18,587 acres
- Cotton 21% or 13,128 acres
- Alfalfa 19% or 11,659 acres
- Corn 11% or 6,580 acres
- Onions 5% or 3,167 acres
- Chile 4% or 2,526 acres
- Lettuce 2% or 1,193 acres ¹⁸



In addition to agriculture, passive and active recreation opportunities provide an enhanced quality of life for residents and visitors alike, which provide an economic benefit to the region. These include walking, running, picnicking, bird-watching, biking, horseback riding along pathway and levee roads, some canoeing, off-road vehicle use on the mesa west of Mesilla Dam, and hunting and fishing in limited areas.



Cultural and Historical Asset: As a cultural and historical asset, the Rio Grande corridor is unsurpassed in the region. Unique geological formations, evidence of pre-dinosaur life, remnants of Native American cultures, and historic artifacts of the settling of the area are but a few examples of the rich and extensive historic value of the region. See Appendix 7 for a more comprehensive list of the cultural and historical assets of the Rio Grande Corridor.

RESULTS OF SURVEYS AND PUBLIC INPUT

Two sets of three public scoping meetings were held to seek input on desirable uses for the Rio Grande corridor, and to identify problems and concerns. At each meeting, a 30-minute general overview of the project was followed by a question and answer period, then a break out session. This allowed individual discussion with Stakeholder representatives. Participants were also invited to write suggestions on large maps or submit them on index cards.

In addition, various surveys were distributed at the public meetings and via direct mail. These included a broad survey about the corridor in general and two individual surveys concerning trails and wetlands. The Comprehensive Plan draft was then distributed to stakeholders and user groups, and was posted on the City's web site. Feedback was incorporated into the final document. See Appendix 8 for a more detailed description of comments and survey results and Appendix 10 for comments by Elephant Butte Irrigation District and United States Section, International Boundary and Water Commission.

¹⁸ New Mexico Agricultural Statistics 2000, U.S. Dept. of Agriculture, New Mexico Agricultural Statistics Service, Las Cruces NM, 2000, p. 5-6

In summary, the highest priorities for development of projects along the river include those which provide:

A. An enjoyable nature experience for visitors

1. Bird watching
2. Nature areas
3. Quiet environment
4. Open spaces

B. Protection of the natural environment and resources

1. Protection of agricultural lands
2. Protection of habitat, wildlife, vegetation & water
3. Habitat enhancement

C. A “safe, sound, and sanitary” corridor

1. Trash collection
2. Security
3. Vehicle restrictions
4. Enforcement of laws and codes pertinent to activities along the corridor

D. An extensive trail system

1. Nature trails
2. Non-motorized, connecting trails to mountains, high desert and other regional trails
3. Trails with gravel or natural surfaces

E. Educational opportunities

1. Volunteerism
2. Guided tours
3. Nature Park
4. Cultural Center

F. Successful economic development

1. Preserve farmland
2. Create ecotourism opportunities
3. Carefully plan further residential and commercial development near the corridor
4. Promote the use of facilities along the river for special events, outdoor sports, weddings, meetings, conferences, etc.

NEEDS ANALYSIS

The greater Las Cruces metropolitan area is growing at a rate of approximately 100 families per month, and as it does, the need for open space, a healthy river ecosystem and the continued economic viability of agriculture becomes more and more important. In order to protect our natural resources, scenic views, and improving quality of life, stakeholder agencies which manage projects along the Rio Grande corridor must continue to work together toward common goals. Based on an evaluation of the current inventory of uses for the corridor, discussions with stakeholder representatives, and an analysis of public survey results, workgroup participants identified the following needs:

- The corridor contains some of the best riparian habitats in southern New Mexico. There appears to be strong support for the development of additional riparian areas along the corridor that would provide opportunities for further habitat enhancement, restoration and education. However, balance must be found with other appropriate uses.
- Due to the economic impact made by agriculture in the region, and its significance as a rural buffer between natural open space and urbanized commercial/residential uses, it is important to preserve agricultural lands along the corridor.
- There is a high level of concern about unauthorized motorized vehicle use, trash, and security along the corridor. As development increases and the region grows, enforcement of existing ordinances and the creation of new ones which address these problems will be critical.
- In summarizing the results of the public surveys, 84% of the respondents said they would visit a nature park along the river if one existed, but only 55% said they would visit a cultural center along the river if one existed. However, when asked what kinds of opportunities they would like to see developed, 36% (highest percentage of respondents for this question) said a nature center which includes historical information about the river would be important. This would indicate that people make little distinction between culture, history and nature, and that an effort to increase the awareness of cultural and historical amenities along the corridor would be a worthwhile endeavor.
- Opportunities for volunteer and educational projects are also important and should be implemented in all facets of development to make the enhancements to the corridor a feasible reality.
- Continued agency commitment by stakeholders (City of Las Cruces, Town of Mesilla, Dona Ana County, Elephant Butte Irrigation District, United States Section, International Boundary and Water Commission, Bureau of Reclamation, New Mexico Department of Game and Fish, etc.) will help protect the corridor from environmentally-unfriendly activities. This in turn protects both wildlife habitat and the agricultural base of the corridor. Responsible enforcement of existing and future regulations

related to hunting, trash dumping, noise and traffic must be made a priority through secured funding for long range plans and projects.

- Continued and improved quality of life attracts industry, business, new residents and tourists. Actions which fulfill the need for open space, environmental education and recreation for current and future citizens are of the highest importance.



PECANS: Pecan production for New Mexico's orchards totaled 35 million pounds in 2000. Orchards in Dona Ana County produced 25 million pounds, or 71% of that total, bringing \$34.0M to the local economy.¹⁹

Due to the economic impact made by agriculture in the region, and its significance as a rural buffer between natural open space and urbanized commercial/residential uses, it is important to preserve agricultural lands along the corridor.

¹⁹ New Mexico Agricultural Statistics 2000, U.S. Dept. of Agriculture, New Mexico Agricultural Statistics Service. Las Cruces NM. 2000. p. 65.

VI. GOALS, OBJECTIVES AND RECOMMENDATIONS

INTRODUCTION

As defined by the World Commission on Environment and Development, sustainable development “meets the needs of the present without compromising the ability of future generations to meet their own needs.”²⁰ This process depends on:

- Recognition of the interdependence of economic, environmental, and quality of life needs;
- Decision-making that is inclusive, participatory, and transparent, and which considers the long-term impacts and consequences of the project;
- Promotion of efforts to prevent problems as the first course of action, and
- Promotion of equity between generations and among different groups in society.

The Rio Grande is one of the area’s most important ecological, cultural and economic assets. A land use plan for the Rio Grande should identify a multitude of needs, and meet those needs while conserving resources and accommodating the continued existence of native flora and fauna. It was the responsibility of the Project workgroups to ensure that the proposed goals and objectives were assessed using these criteria.

It must be noted, however, that not all stakeholders agree with all goals listed here. In order to carry out any of the projects suggested in this plan, participating agencies must agree on specific project criteria, such that individual stakeholder missions are not compromised. In addition, this Plan does not change current laws or ordinances pertaining to development along the corridor.

GOALS, OBJECTIVES AND RECOMMENDATIONS

As a result of reviewing the needs analysis, the workgroups decided upon the following Project goals:

1. Preserve, enhance and restore native riparian and aquatic habitat diversity in limited project areas within the 11-mile corridor;
2. Preserve agricultural lands and open space adjacent to the Rio Grande;
3. Create a multi-use trail system for the 11-mile corridor;
4. Increase ecotourism;
5. Expand recreational opportunities; and
6. Educate the public about the ecological, cultural and historical importance of the Rio Grande Corridor.

²⁰ The World Commission on Environment and Development, Our Common Future (Oxford: Oxford University Press, 1987), p. 43.

Goal 1: Preserve, enhance and restore native riparian and aquatic habitat diversity in limited project areas within the 11-mile corridor.

Objective 1.1: Restore native vegetation within limited identified habitat sites along the corridor, consistent with the guidelines set forth in Objective 1.2, below.

Recommendation A: Control of salt cedar and other exotic plants within USIBWC floodway is encouraged. Where appropriate, undertake revegetation with native trees, shrubs, grasses and wildflowers, provided there is no additional depletion of water.

Recommendation B: Pursue implementation of habitat enhancement at nine sites identified by the wetland workgroup. See Appendix 1, "Preferred Habitat Sites and Criteria for Selection."

Recommendation C: Minimize mowing and grazing within floodway to the greatest extent possible, with consideration given to weed management.

Recommendation D: Research and monitor the capacity of proposed restored wetlands to improve water quality from both storm water and agricultural drainage.

Objective 1.2: Identify and obtain water rights needed to achieve habitat restoration and protection through a variety of means that do not unduly impact agricultural and municipal uses.

Recommendation A: Develop incentives for municipal water conservation and mechanisms for utilizing conserved water for habitat restoration.

Recommendation B: Develop drought-contingency plan for suggested habitat enhancement sites noted in Objective 1.1B.

Objective 1.3: To the greatest extent possible, identify and protect upland habitats and corridors outside the floodway for east-west movement of targeted wildlife species across and along the flood plain.

Recommendation A: Revise City management practices to improve habitat value along arroyos, spillways, drains, and outfall channels, and identify opportunities to work with other entities to accomplish the same.

Recommendation B: Revise management practices to ensure wildlife protection outside designated hunting areas.

Recommendation C: Carefully control development adjacent to arroyos, spillways, drains, outfall channels, etc., both public and private, by creating buffers, e.g. overlays, easements, setbacks, in order to further protect habitat corridor.

Objective 1.4: Support the creation of the Mesilla Valley Bosque Park (MVBP) as envisioned in the Southwest Environmental Center proposal.

Recommendation A: Secure the use of public and private land identified in the MVBP plan.

Recommendation B: Continue pursuit of state park status for MVBP, or identify other management entity.

Recommendation C: Complete MOU with pertinent stakeholders to operate and manage park.

[Editor's Note: As of this writing, the proposed Mesilla Valley Bosque Park is slated to become New Mexico's 33rd state park. Funding for a feasibility study and partial land acquisition has been obtained.]

Objective 1.5: Develop biological management partnerships to strengthen restoration and protection efforts.

Recommendation A: Secure partnerships with private landowners adjacent to floodway to restore/enhance native habitat on private lands. This may include voluntary vegetation management guidelines within and outside of floodway that encourage native plants, eradication of salt cedar and other exotics.

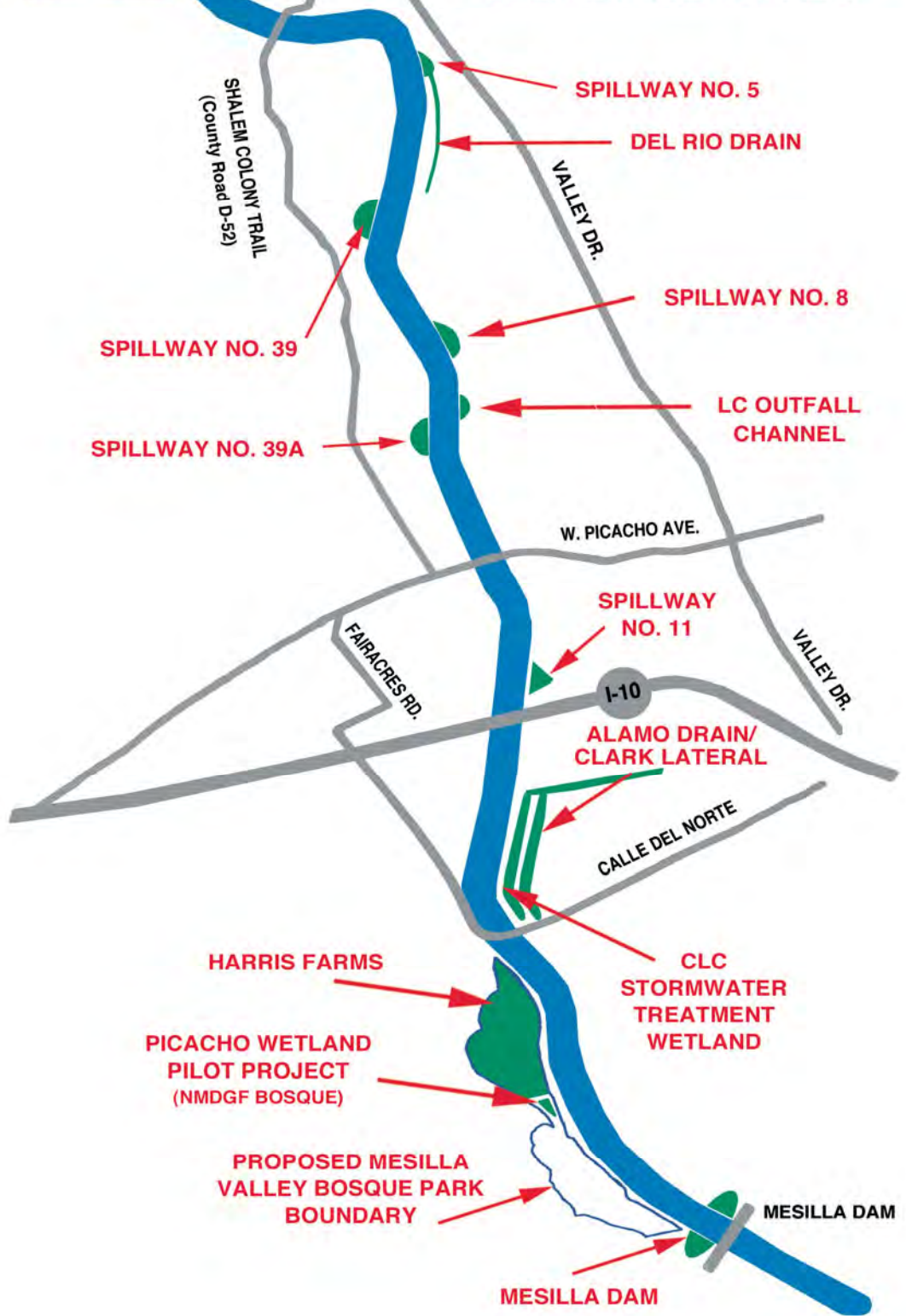
Recommendation B: Build partnerships with universities and research institutions to develop research projects within the river corridor, and to develop stewardship activities to support management of habitat areas.

Recommendation C: Develop and implement wetland management practices to maximize vector control.

[Editor's Note: In order to support Goal 1, Objectives 1–3 where such activities would present a likelihood of attracting endangered species, the Elephant Butte Irrigation District would require a Safe Harbor Agreement under the Endangered Species Act.]



POTENTIAL WETLAND SITES



Goal 2: Preserve agricultural lands and open space adjacent to the Rio Grande.

Objective 2.1: Encourage farmland preservation efforts.

Recommendation A: By way of the local or state government or non-governmental entity, establish the Natural Resources Conservation Service (NRCS) Farmland and Ranch Protection Program.

Recommendation B: By way of the local or state government or non-governmental entity, create a land trust for the river corridor, or work with existing land trusts such as the New Mexico Land Conservation Coalition.

Recommendation C: Endorse and participate in Community Supported Agriculture programs and Community Food Programs which link small farms with consumers.

Recommendation D: Support incentives to develop organic farming for local markets.

Recommendation E: Include desirable farmland and open space along the corridor in the Southern NM Land Management Act, in either Title I (farmland protection) or Title II (open space preservation).

Recommendation F: Include desirable farmland and open space protection in the revision of the Bureau of Land Management's Mimbres Regional Management Plan as an extension of their mission.

Objective 2.2: Encourage creation, enhancement, and preservation of privately-owned open space areas near the corridor through additional federal or state programs.

Recommendation A: Educate landowners about the NRCS Wildlife Habitat Incentives Program, the NRCS Wetlands Reserve Program, the NRCS Environmental Quality Incentives Program, and the NRCS Resource Conservation and Development Program and encourage application. See "Implementation of Projects" chapter for more information about these programs.

Recommendation B: Educate landowners about the NM Land Conservation Incentives Act and encourage the donation of land or development rights of land containing significant natural, open space, and historical resources.

Objective 2.3: Support efforts by land owners and local governments to create development consistent with other goals and objectives stated in this Plan, in order to maintain the rural character of the corridor.

Recommendation A: Create new policies and ordinances, and promote existing ordinances, that allow non-traditional development strategies. For example, cluster subdivisions that take into account bonus densities to encourage conservation easements or continued agricultural use.

Recommendation B: Support establishment of the Open Space and Trail Network plan and authority to assist in open space and trail preservation within and outside of the corridor.

Recommendation C: Identify and preserve sites that offer historical, geological, archaeological and cultural insights into the Rio Grande corridor such as the Mexican Land Grants, the scenic overlook on I-10, the proposed West Mesa Regional Park adjacent to the overlook, and the Jornada Mogollon summer camps. See Appendix 7 for more information on these and other points of interest.

For a summary of NRCS programs, as well as other land management and conservation incentives, see Chapter VII, Implementation of Projects.

Goal 3: Create a multi-use trail system for the 11-mile corridor.

Objective 3.1 -- Establish a design plan for the trails and open space areas that accommodate all types of non-motorized transportation and integrates existing or proposed alternative transportation pathways.

Recommendation A: Identify amenities, rest areas, parks, trails, parking, emergency services, locations of trail maps and interpretive signage, multi-use, equestrian, and walking pathways, observation areas, interpretive walkways and blinds to view wildlife, etc.

Recommendation B: Identify surfaces appropriate to use, for both paved and unpaved pathways. All surfaces should be low maintenance and durable with the ability to withstand periodic flooding. Preference should be given to recycled and/or permeable materials.

Recommendation C: Identify accessible trails, and design them to be built with materials that allow safe maneuverability for all disabled persons

Recommendation D: Design main trail to connect to urban hubs.

Recommendation E: Establish an interpretive theme with design elements that are consistent in trails, park facilities and interpretive signage.

Recommendation F: Signage shall be bilingual and shall be of a substantial quality to withstand weather and vandalism.

Objective 3.2: Build an 11-mile uninterrupted main trail the length of the corridor with small spur trails off the main trail to points of interest

Recommendation A: These trail spurs shall be for pedestrian and equestrian use only.

Recommendation B: Trail spurs shall be of a width appropriate to the geography of the surroundings, and follow existing contours of land whenever possible.

Objective 3.3: Provide accessible facilities to the greatest extent possible.

Recommendation A: Create adequate accessible parking areas at trail heads. The parking plan shall accommodate disabled persons, large vehicle parking and parking needs for equestrians.

Recommendation B: Provide bike racks at trail heads.

Recommendation C: Provide water sources and hitching posts at trail heads for equestrian use.

Recommendation D: Establish bus routes with bus stops and “Park and Ride” locations at trail heads.

Recommendation E: Utilize the Las Cruces Metropolitan Planning Organization’s Bicycle Plan by creating several junctions along corridor.

Recommendation F: Implement the Metropolitan Planning Organization’s Arroyos and Canals Trail System.

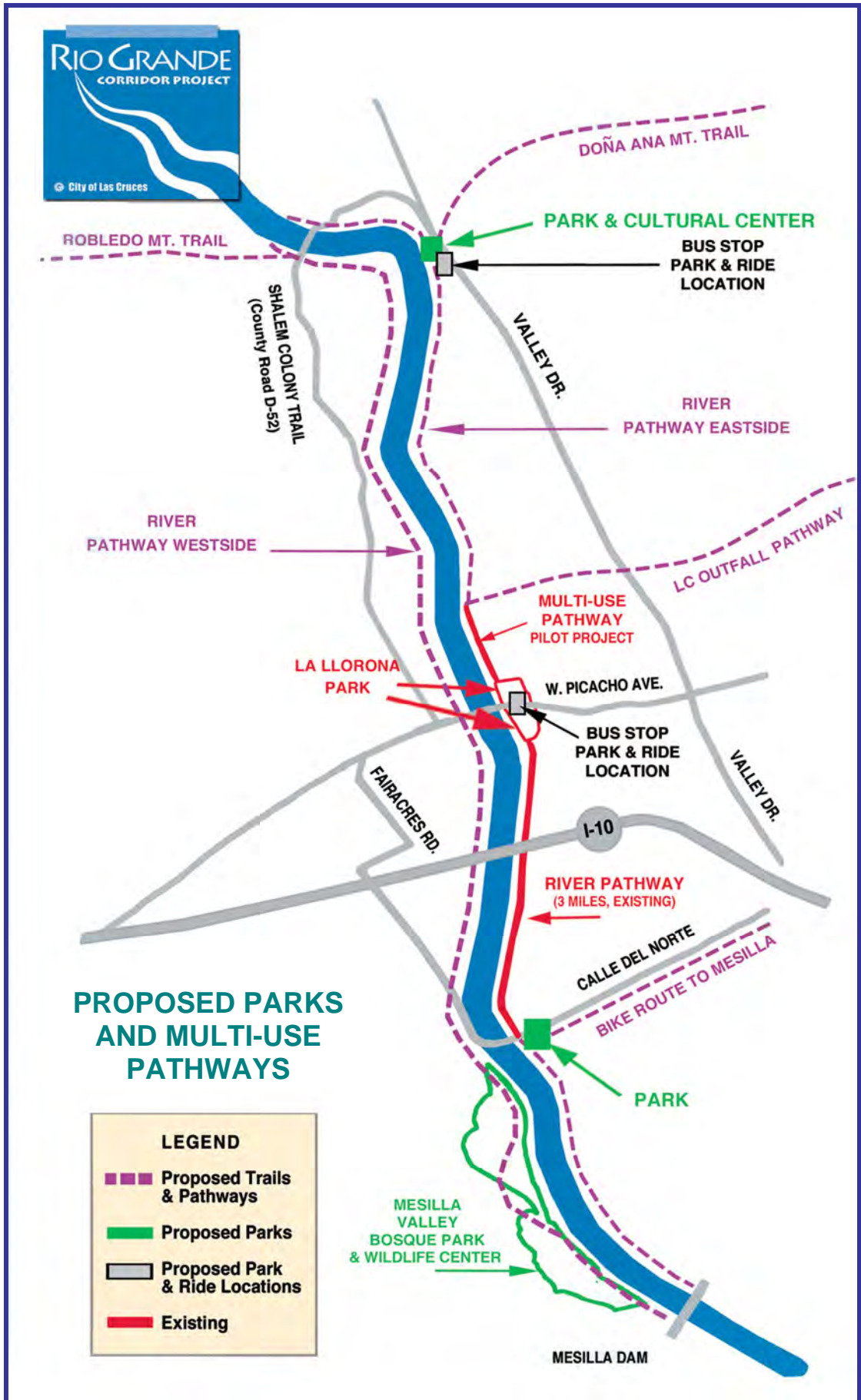
Objective 3.4: To the greatest extent possible, make the river corridor experience “safe, sound, and sanitary.”

Recommendation A: Establish an interagency method of management that enforces restrictions relating to vehicular access, noise, illegal dumping, hunting, polluting activities, etc.

Recommendation B: Establish and carry out a Plan for operation and maintenance that includes emergency vehicle access to corridor.

Recommendation C: Provide lighting, restrooms, trash cans, benches, and emergency telephones at parks and intervals along main trails as needed.

Recommendation D: Restrict vehicles to parking lots at urban hubs by identifying other possible access points to the levee and blocking them.



Goal 4: Increase ecotourism

Objective 4.1: Encourage appropriate small businesses near the river (outside the levees), such as a river walk and trail, outfitters, stables, and facilities for concerts, conferences, weddings, etc.

Objective 4.2: Advertise and promote the Rio Grande Corridor as a destination point in New Mexico.

Recommendation A: In partnership with City of Las Cruces Convention and Visitors Bureau, New Mexico State Parks Division, New Mexico Department of Tourism, Southwest Environmental Center, NMSU and other organizations, develop a comprehensive program to promote the corridor and its various amenities, especially as more amenities are developed.

Recommendation B: Target specific user groups to promote use of area for sponsored events, such as marathons, bike races, hiking, music festivals, etc.

Recommendation C: Develop a model for successful ecotourism projects.

Goal 5: Expand regional and local recreational opportunities.

Objective 5.1: Build two additional parks along 11-mile corridor

Recommendation A: Limit formal parks to urban hubs on east side of river, i.e. Shalem Colony Bridge, Picacho Bridge and Mesilla Bridge

Recommendation B: Parks shall serve as trail heads.

Recommendation C: Provide picnic tables, park benches, gazebo or shelter, and a playground at each park.

Objective 5.2: Provide access to river.

Recommendation A: Provide put-ins for canoes and kayaks at appropriate points along corridor.

Recommendation B: Identify areas for fishing at urban hubs and at various points along the trails.

Objective 5.3: Identify hunting areas within corridor with clearly marked signage that includes hunting guidelines and restrictions.

Recommendation A: Hunting restrictions and regulations shall be enforced by NMDGF.

Goal 6: Educate the public about the ecological, cultural and historical importance of the Rio Grande Corridor.

Objective 6.1: Create a Rio Grande Cultural Complex.

Recommendation A: Build and operate a nature center as envisioned by the Mesilla Valley Bosque Park (MVBP) Plan.

Recommendation B: Build and operate a Rio Grande Cultural Center, which would include Centers for Public Archeology and Public History.

Recommendation C: Establish a Wildlife Rehabilitation Center, which would rehabilitate injured and sick animals.

Objective 6.2: Develop community outreach activities along river corridor.

Recommendation A: Partner with appropriate organizations and agencies to secure funding to build and operate various facilities.

Recommendation B: Partner with appropriate organizations to sponsor conferences, create research opportunities for NMSU, UNM and other universities, and provide outdoor classroom and volunteer opportunities for school children, youth groups and college students.

VII. IMPLEMENTATION OF PROJECTS

INTRODUCTION

As various agencies came together to plan the Pilot Projects, three factors emerged as being crucial to their completion and success:

- Project responsibility;
- Fundraising; and
- Long-term management.

The Pilot Projects brought together participating agencies for a common mission, and gave the participants an opportunity to test strategies and processes which will demonstrate what would need to be done for larger projects proposed in this Plan. Future planners who contemplate the proposed projects described in this Plan should address these issues before beginning.

This section outlines some of the basic mechanisms under which these projects could be undertaken and managed. “Management” could include planning, land acquisition, site development, operations and maintenance, enforcement, etc.

There are many ways that proposed projects could be managed, although all would require some degree of multi-jurisdictional responsibility. As federal, local and non-governmental agencies continue their efforts to complete projects along the river, cooperation becomes increasingly important. The integration of agency missions may result in completed projects that serve many purposes, hence allowing funding dollars to do more. This cooperative approach requires responsible operation and maintenance (O & M) practices at the outset and secure funding to ensure successful O & M for many years to come.

LONG TERM MANAGEMENT AND MULTI-JURISDICTIONAL RESPONSIBILITY

Because many stakeholders exist, projects along the Rio Grande Corridor could easily involve more than one entity; therefore some extent of multi-jurisdictional responsibility is necessary. There are various mechanisms by which two or more governmental bodies (and potentially other types of organizations, such as non-profits) could formalize an agreement to work together on project management. There are advantages and disadvantages to such arrangements:

General Advantages to all types of multi-jurisdictional management:

- **Coordination:** decision-making would be streamlined (i.e. regional planning, prioritization of projects, management policies, etc).
- **Economic Efficiency:** joint efforts in planning, management, etc. reduce the need for duplicated efforts and expenses by each independent body.

- Funding Edge: some grants/foundations like to see evidence of cooperative efforts/collaborations.
- Better Preparation: Allows rapidly growing municipalities to better prepare for future needs by planning and investing in projects beyond their current boundaries.
- Stakeholder Inclusion: Could allow for participation of multiple stakeholders for lands that are either at the edge of multiple jurisdictions (e.g. the river, which abuts CLC, DAC, and Town of Mesilla, and also includes various private, state and federal land owners/managers), or cross jurisdictional boundaries (e.g. arroyos, irrigation canals/drains).
- Appears to match the CLC Comprehensive Plan's Policy 11.3 "The City shall encourage the establishment of a Las Cruces Area Open Space Authority for the purposes of acquiring land and assisting in planning for open space networks" (page 1-41).

General Disadvantages to all types of multi-jurisdictional management:

- Control: Entities may be hesitant due to distrust or concerns about a loss of control. Particularly if the financial resources of and the characteristics of the population served by each government differ greatly, it may be difficult to reach agreement about specific responsibilities.
- Missions: Each entity strives to carry out projects that meet its organizational goals. When the goals conflict with those of other entities, each would need to compromise in order to accomplish common goals.

SPECIFIC TYPES OF MULTI-JURISDICTIONAL MANAGEMENT

Joint Powers Agreement (JPA):

- A contract between (generally) two governmental entities to create a third entity, with joint input/sharing of funding. This party has its own budget and is fiscally responsible for it.
- Authorized by State statute (NMSA 11-1-1 to 11-1-7). Literally, gives entities power to do jointly what each does separately, if it is common to both. Gives powers to new entity to have management control, have its own governing body (board of directors, etc.), be fiscally responsible, etc.; amount of funding by each entity is determined by what all agree to.
- JPA's can be set up between any intergovernmental authorities: federal, state, public corporation, tribe, county, city, school districts. It is a relatively simple and familiar mechanism; multiple models exist.
- Has no taxing authority. Therefore, the third entity might be heavily dependent upon funding provided by the original governments, coming from their general funds. This could intensify competition for general fund dollars within those original governments.

Memoranda of Understanding/Agreement (MOU/MOA)

- Legally enforceable document which spells out responsibilities of each party.
- Generally project specific, thus not suitable as the sole basis for managing certain types of projects.

Special Districts

- In general special districts are described as limited-purpose governments, which sometimes can function across jurisdictional boundaries, to provide various services and amenities such as an open space and trail system or a regional park system. Examples include the Las Cruces School District and the Elephant Butte Irrigation District.
- Special districts typically have taxing authority. This could allow for funding stream independent of general funds of existing governmental bodies, thus reducing competition for limited funds.
- If voters are mistrustful of existing governments, a distinct body such as a special district might have a better chance of passing tax increases.
- Special districts are created by State statute. Creating a new one may require amending existing state legislation or creating new legislation.
- Complicated to set up; typically require public election for all residents/property owners within proposed district boundaries. May require public petition as well.

Contracts & Agreements.

- Legally binding agreements for a specific purpose, usually for a specific time frame which details responsibilities of each party.
- Used most often when one party is providing a service to another party. Contracts and agreements have limited application.
- Generally project specific, thus not suitable as the sole basis for managing certain types of projects.

Non-profit Organization or Coalition

- Are flexible in scope, and would be able to facilitate a broad array of projects, such as certain land transfers, certain funding opportunities, and to hold/oversee conservation easements.
- Non-profits are able to engage in certain types of financial activities more easily than governmental bodies. This makes it possible to acquire properties with private funding, and possibly at below market value.

- No taxing or bonding authority; funding comes from grants, endowments, etc. Funding sources are generally limited in time frame and must be renewed. This makes long term planning tenuous.
- For a non-profit to carry out and manage a regional project, agreements would have to be created with the various jurisdictions to define roles and responsibilities.

Management by Individual Stakeholders

- Stakeholders (such as municipalities, federal/state agencies, etc.) would take on the responsibility to carry out and manage a specific project or cluster of projects, such as wetlands or trails, within their own boundaries. This could happen within existing departments or by creating new ones.
- Governments don't need to overcome "control" concerns described under Multi-Jurisdictional Responsibility.
- Would miss out on "Coordination," "Economic Efficiency," "Funding Edge," "Better Preparation," and "Stakeholder Inclusion" advantages described under Multi-Jurisdictional Responsibility.
- To be successful on a regional scale, efforts would have to be coordinated to some degree. This ensures integrity of projects that cross jurisdictions, and that adjacent land use plans in different jurisdictions are compatible. Regional planning could perhaps precede separate management.

Hybrid

- Some projects are managed within individual, existing jurisdictions, and others are managed under one (or more) multi-jurisdictional framework(s).
- Would allow individual stakeholders to maintain control of certain projects within their boundaries, which might lessen the control concerns of a completely multi-jurisdictional approach.
- Could allow for a phased-in move toward a largely multi-jurisdictional approach
- Determining which projects fit under which management scheme could be problematic. Would it be determined by age, size, location, physical features, or some other characteristics?
- Could require multiple JPA's, MOU's, or other types of agreements if different projects are managed under different stakeholder frameworks or if projects are added sequentially.

FUNDRAISING

There are several funding mechanisms available to local governments for acquiring and protecting open spaces and trails corridors. This section explains a few examples.

Over the past 30 years, local government borrowing to acquire open space and trails has accelerated remarkably. Although competition for general obligation bonds is typically keen among the many local government programs in need of financing, voters in diverse communities across the country have proven to be supportive of bonds dedicated to open space programs. Both Bernalillo and Santa Fe Counties recently approved bonds to support open space and trails acquisition. Sometimes, open space protection is packaged with park and recreation or capital funding measures; in other instances, open space programs are funded by a separate bond or paired with related conservation programs. Revenue bonds are used by some communities to avoid the ceilings that constrain general obligation debt. Voter approval is not necessarily required because the government is not obligated to repay the debt if the revenue stream does not flow as predicted. Revenue bonds typically cost more to package than general obligation bonds.

A set-aside from the gross receipts tax may be dedicated to an open space and trails program. This has the advantage of being relatively easy to administer and can tap into tourism profits generated in part by open space amenities. However, revenue from this tax also declines if the economy slows. Another drawback is that the gross receipts tax is regressive, falling disproportionately on lower-income people. Limiting the set-aside to certain types of sales (airport use, rental cars, lodging, recreational equipment, gasoline, alcohol, tobacco, etc.) can help to make the tax more progressive or address other social objectives. Albuquerque has used a special gross receipts tax set aside to fund land acquisition.

Real estate transfer taxes have been levied to support land acquisition and conservation programs in at least nine states and localities. This tax, which taps a percentage of funds generated by development, is relatively easy to collect and can be structured to increase with the value of the property involved in the transaction. Passing a transfer tax is difficult because real estate and housing interests mount strong opposition campaigns. Another drawback is that the revenue stream can be highly unreliable if the real estate market fluctuates widely. To address affordable housing concerns, one community exempted the first \$75,000 of the purchase price of a primary residence for first time buyers.

Recognizing the long-term responsibilities of open space and trails management, land conservation advocates often try to establish trust funds that earmark revenue sources to build up a sustainable principal that yields regular earnings. Trust funds can finance a comprehensive program over a period of years and can insulate spending from the fluctuations of the economy. The administration of trust funds can vary. Some are structured to allow for spending of capital, usually after a specified amount has accumulated; others provide that only interest can be spent. Revenues used to support a

trust fund include general appropriations (either one time or ongoing), lotteries, mitigation funds, special taxes, user fees, and severance payments on natural resources extracted from public lands.

Benefit Assessment Districts create a financing mechanism to provide community services, facilities, or infrastructure within defined boundaries. Typically a levy is placed on individual parcels, and the assessment is structured so that landowners pay in proportion to their benefit, which may mean a flat surtax per property or a percentage value. Benefit districts have been created to finance parks, recreational uses, and open space, as well as schools, road, sewage, and other traditional community infrastructure. Irrigation districts are common in New Mexico.

Through state and local regulations, the development process has become an important source of funding to pay for community infrastructure, including open space. The source of funding is private, but the process by which these funds are raised and allocated is authorized by public action, either in specific legislation or in more general home rule authority.

Impact fee programs have been authorized in at least 15 states. Several states have enacted legislation to ensure that fees are reasonable and related to actual estimates of the impact of a development. Exaction arrangements are controversial and it can be difficult to meet the legal requirements to demonstrate the nexus between new development impacts and the cost and type of exactions.

From the perspective of open space conservation it is important to pool the development impact fees to provide a fund for off-site purchases of sizeable tracts of open space, but this raises additional administration questions regarding the criteria for site selection, and who should decide. Mitigation banks provide a mechanism to deal with the difficulty of balancing the costs of impacts with the benefits of open space protection in a single transaction. Accounting systems are established to assess both the environmental damage of development and the benefits of resource protection or restoration. The most common examples of mitigation banks relate to wetlands, but the concept is also being applied to state highway projects. Many states require off-site mitigation for violations after the fact or when the value of mitigation lands is deemed necessary to off set proposed impacts.

If there is a consensus that the local government is holding non-essential public property, these lands can be exchanged for preferred open spaces or sold and the proceeds dedicated toward open space acquisition. A successful exchange of properties usually requires time and it can be difficult to match the values in the exchange. Exchanges often require the participation of a third party to negotiate linked cash sales with the landowner and the local government.

A variation on this option is a partial development transaction. An open space parcel can be split, selling a minor portion for development and using the proceeds to help secure the major portion as protected open space. Again

these arrangements can be difficult for a governmental entity to negotiate and frequently involve multiple parties.

Funding problems frequently prompt a local government to call on partners for help. A private non-profit partner can promote a tax-deductible bargain sale or donation to bring down the price of a project. Non-profits can also sponsor private fund-raising campaigns, solicit contributions from a variety of sources, and educate voters about a bond referendum. With their inherent flexibility, non-profit partners can combine funds from two or more sources to support priority projects and may be able to respond quicker to respond more quickly to opportunities than local governments.

Land Trusts are local, regional, or statewide nonprofit conservation organizations directly involved in helping protect natural, scenic, recreational, agricultural, historic, or cultural property. Land trusts work to preserve open land that is important to the communities and regions where they operate. Land trusts respond rapidly to conservation needs and operate in cities, rural, and suburban areas. Tools used by land trusts to accomplish these goals include land purchases, land donations, life estates, transfer of developments rights, and conservation easements.

Water banking is an institutional mechanism that facilitates the transfer of water use entitlements, particularly the temporary transfer of water. Water banks can be useful tools in facilitating transfers to uses other than irrigation.

ASSISTANCE PROGRAMS AND OTHER RESOURCES

NATURAL RESOURCES CONSERVATION SERVICE

The Natural Resources Conservation Service (NRCS) provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

The Farm Security and Rural Investment Act of 2002 (Farm Bill) is landmark legislation for conservation funding and for focusing on environmental issues. The conservation provisions will assist farmers and ranchers in meeting environmental challenges on their land. This legislation simplifies existing programs and creates new programs to address high priority environmental and production goals. The 2002 Farm Bill enhances the long-term quality of our environment and conservation of our natural resources. The NRCS administers the following programs authorized or re-authorized in the 2002 Farm Bill:

Conservation of Private Grazing Land Program (CPGLP) is a voluntary program that helps owners and managers of private grazing land address natural resource concerns while enhancing the economic and social stability of grazing land enterprises and the rural communities that depend on them.

The Conservation Security Program (CSP) is a voluntary program that provides financial and technical assistance for the conservation, protection, and improvement of soil, water, and related resources on Tribal and private

lands. The program provides payments for producers who historically have practiced good stewardship on their agricultural lands and incentives for those who want to do more. The program will be available in fiscal year 2003.

Environmental Quality Incentives Program (EQIP) is a voluntary conservation program that promotes agricultural production and environmental quality as compatible national goals. Through EQIP, farmers and ranchers may receive financial and technical help to install or implement structural and management conservation practices on eligible agricultural land.

Farm and Ranch Lands Protection Program (FRPP) is a voluntary program that helps farmers and ranchers keep their land in agriculture. Participating landowners agree not to convert their land to non-agricultural uses and to develop and implement a conservation plan for any highly erodible land. Working through existing programs, USDA joins with state, tribal or local governments and/or non-governmental organizations to acquire conservation easements from willing landowners. To participate, a landowner submits an application to an entity that has an existing farmland protection program.

The National Natural Resources Conservation Foundation (NNRCF) promotes innovative solutions to natural resource problems and conducts research and educational activities to support conservation on private land. The NNRCF is a private, nonprofit 501(c)(3) corporation. The foundation builds partnerships among agencies and agricultural, public, and private constituencies interested in promoting voluntary conservation on private lands.

The Resource Conservation and Development Program (RC&D) encourages and improves the capability of civic leaders to plan and carry out projects for resource conservation and community development. Program objectives focus on “quality of life” improvements achieved through natural resources conservation and community development. Such activities lead to sustainable communities, prudent land use, and sound management and conservation of natural resources.

The Wetlands Reserve Program (WRP) is a voluntary program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private land in an environmentally beneficial and cost-effective manner. The program provides an opportunity for landowners to receive financial incentives to enhance wetlands in exchange for retiring marginal land from agriculture.

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program that encourages creation of high quality wildlife habitats that support wildlife populations of National, State, Tribal, and local significance. Through WHIP, NRCS provides technical and financial assistance to landowners and others

to develop upland, wetland, riparian, and aquatic habitat areas on their property.

New Mexico Plant Materials Center The New Mexico Plant Materials Center develops, tests and transfers native plants that can help solve conservation problems. Environmental conditions in these areas combine to produce a variety of problems needing plant material solutions. These problems include low precipitation, high intensity rainfall, wind, topography and varied land uses. The Center collects superior adapted plants for testing, selecting, and releasing to commercial growers along with seed and plant production technology. Additionally, plant establishment technologies are developed or refined that require minimal or no irrigation in the arid southwest.

Technical Assistance (TA) The Natural Resources Conservation Service provides technical assistance to district cooperators and other land users in the planning and application of conservation treatments to: control erosion and improve the quantity and quality of soil resources; improve and conserve water; enhance fish and wildlife habitat; conserve energy; improve woodland, pasture and range conditions; and reduce upstream flooding. All are intended to protect and enhance the natural resource base.

For more information about these and other conservation programs, contact the local USDA Service Center, listed in the telephone book under U.S. Department of Agriculture, or the local conservation district. Visit NRCS on the Web at: <http://www.nrcs.usda.gov/programs/farmbill/2002/> Visit USDA on the Web at: <http://www.usda.gov/farmbill>

PASO DEL NORTE WATERSHED COUNCIL

The Paso del Norte Watershed extends along the Rio Grande/Rio Bravo from Elephant Butte Dam to Fort Quitman, Texas. The water supply for the Paso del Norte is drawn from the Rio Grande/Rio Bravo and two major regional aquifers, the Hueco and Mesilla Bolsons. The Paso del Norte Watershed Council was established in 2000 to investigate, develop, and recommend options for watershed planning and management and to explore how water-related resources can best be balanced to benefit the Rio Grande ecosystem and the interests of all watershed stakeholders.

The PdNWC is comprised of representatives from water users in the region, and provides a forum for discussing a wide range of issues related to water, including water delivery, water quality, upland grazing, habitat restoration, soil conservation, aquifer recharge, and planning for population growth in the watershed's three major cities – Las Cruces, El Paso and Juarez.

Due to the complexity of interests and jurisdictions in the region, there is a need for a coordinated system to facilitate communication and promote cooperation for the purpose of balancing the needs of all stakeholders. The Council provides such a system for exchanging data and other information pertinent to watershed management in the Paso del Norte region.

ORGANIC FARMING AND COMMUNITY FOOD PROJECTS

Organic farming is one of the fastest growing segments of U.S. agriculture during the 1990s. USDA estimates that the value of retail sales of organic foods in 1999 was approximately \$6 billion. The number of organic farmers is increasing by about 12 percent per year and now stands at about 12,200 nationwide, most of them small-scale producers. According to a recent USDA study, certified organic cropland more than doubled from 1992 to 1997.²¹

The recent passage of the National Organic Program Final Rule, coupled with growing consumer support for organic foods, has made farming organically an increasingly viable alternative for many farmers. In addition, there has been renewed awareness of organic agriculture on the part of public interest groups, marketing organizations, and agricultural researchers.

The following resources provide important information for farmers in the region interested in converting to organic:

Alternative Farming Systems Information Center web site is a helpful starting point for those interested in organic production in agriculture. www.nal.usda.gov/afsic/ofp/

Organic Farming Research Foundation (OFRF) promotes organic farming through funding of on-farm research and dissemination of the results. Their competitive grants program has supported on-farm research for the past 10 years, and the information gathered from these projects is available to the public free of charge. The Foundation also offer technical support to those farmers, students and researchers who are interested in developing on-farm organic research projects. www.ofrf.org

Appropriate Technology Transfer for Rural Areas (ATTRA) provides technical assistance to farmers, Extension agents, market gardeners, agricultural researchers, and other Ag professionals. ATTRA addresses topics related to sustainable farming production practices, alternative crop and livestock enterprises, and innovative marketing. In addition to direct assistance, ATTRA provides farmer-ready resources including organic production publications. There are also newsletters, related links and resource guides. www.attra.org/

USDA Cooperative State Research Education, and Extension Service – Sustainable Agriculture Research and Education (SARE) works to increase knowledge about -- and help farmers and ranchers adopt -- practices that are economically viable, environmentally sound and socially responsible. SARE offers a nationwide competitive grants program. The SARE website offers abstracts or full-text publications on sustainable agriculture, a description of the SARE grant program, links to educational resources for

²¹ USDA News Release, no. 0425.00, December 20, 2000

producers and sustainable agriculture practitioners or SARE educators, and a searchable database of SARE-funded projects, many of which are organic-related. www.sare.org

Community Food Projects may be designed to meet various needs: the food needs of low-income people; increasing the self-reliance of communities in providing for their own food needs; and promoting comprehensive responses to local food, farm, and nutrition issues. They also meet specific State, local, or neighborhood food and agriculture needs for infrastructure improvement and development, planning for long-term solutions, or creating innovative marketing activities that mutually benefit agricultural producers and low-income consumers. Some examples include:

Farmers markets provide an opportunity for consumers to meet and talk directly with the people who grow their food. Farmers, too, can learn more about their customers.

Community and school gardens can provide an important source of fresh produce, particularly for under-served populations in low-income neighborhoods. They become a good source of information about growing food as well as places for community gatherings.

Community supported agriculture (CSA) allow people to buy shares in the harvest of a farm before the crops are planted. Essentially, consuming households purchase shares in the crop of a given farm, hence taking on part of the risk that farmers face. The farm plans production and cropping mix to meet the diverse produce needs of its subscribers. Consumer shares, prepaid, in full or in installments, entitle households to receive a supply of produce each week for the duration of the harvest. Beyond its purely economic advantages, CSA's development links consumers and producers. They are also an effective alternative form of marketing for smaller growers.

IMPLEMENTATION OF PILOT PROJECTS

INTRODUCTION

The goal of the Picacho Wetland Pilot Project is to restore a segment of riparian and aquatic habitat within the historic floodplain of the Rio Grande, and in doing so, complement the larger objectives of the Comprehensive Plan for sustainable development along the corridor. The Multi-use Pathway Pilot project also complements these objectives by facilitating public access to amenities near the Rio Grande, and by connecting to a proposed alternative transportation pathway system.

In order to complete both Pilot Projects, it was first necessary to draft an Environmental Assessment (EA) for each. The EAs for the Picacho Wetlands Pilot Project and the Multi-use Pathway site were prepared in compliance with requirements of the National Environmental Policy Act (NEPA). NEPA provides an umbrella for emphasis on pollution prevention in all federal activities; its purpose is "to promote efforts which will prevent or eliminate damage to the environment...." ²²

Section 101 of NEPA contains Congress' recognition of "the profound impact of man's activity on the interrelations of all components of the natural environment" and "to use all practicable means and measures...to create and maintain conditions under which man and nature can exist in productive harmony."²³ In order to carry out this environmental policy, Congress required all agencies of the federal government to act to preserve, protect, and enhance the environment.²⁴

Further, Section 102 of NEPA requires the federal agencies to document the consideration of environmental values in their decision making in "detailed statements" known as environmental impact statements (EIS). ²⁵

The premise of NEPA's policy goals, and the thrust for implementation of those goals in the federal government through the EIS process, is to avoid, minimize, or compensate for adverse environmental impacts before an action is taken. Compliance with the goals and procedural requirements of NEPA, thoughtfully and fully implemented, can contribute to the reduction of pollution from federal projects, and from projects funded, licensed, or approved by federal agencies.

²² The National Environmental Policy Act of 1969, as amended, (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982), 42 USC § 4321.

²³ Ibid, § 4331(a).

²⁴ Ibid, § 4331(b).

²⁵ Ibid, § 4332(2)(C)).

A critical portion of the Environmental Assessment process is consultation with federal and state agencies and Native American tribes that oversee areas potentially impacted by the project. This consultation was carried out and the comments of the agencies that responded were incorporated into the final EAs.

Any Federal project that is not categorically excluded from NEPA is required to have a Finding of No Significant Impact (FONSI) issued by the U.S. Bureau of Reclamation prior to commencement of construction. Once the Environmental Assessments were determined to be satisfactory to the BOR, i.e. all appropriate permits and conditions have been approved by all involved agencies, the FONSI was published with a comment period for public input. After receipt and incorporation of any public comments received, the FONSI was issued for the project, and construction was able to begin.

WETLAND PILOT COMPONENT

Wetlands provide numerous ecosystem services such as attenuation of flood waters, and filtration of impurities from water. Wetlands provide natural laboratories for ecosystem functions and services, biogeochemical processes, ecology and wildlife sciences. A wetland, especially one that is connected to alternative transportation pathways or a component of a linear river park, can improve quality of life by providing an enticing alternative to the urban fray with its share of solitude, wildlife and water.

Further, wetlands can provide a significant boost to the local economy as a noteworthy tourist attraction. Bird-watching is an important economic contributor to Socorro County, the home of the Bosque del Apache National Wildlife Refuge. Like the Bosque del Apache, the Rio Grande is situated on the Central Migratory Pathway. Many neo-tropical migrant and wintering birds use this Pathway as they travel from their summer to winter homes. This brings a diverse array of songbirds, shorebirds, and waterfowl through the Mesilla Valley.

The National Wetland Inventory maps indicate several historic wetlands were located within this 11-mile-long stretch of the Rio Grande, including the sites of the City's Wastewater Treatment Plant Treated Water Return and the Stormwater Outfall Channel, both of which are listed as potential restoration sites for native vegetation planting in Appendix 5. The Wetland Workgroup chose one site from those listed for construction of a pilot wetland. This site falls within the Picacho Bosque, owned by the New Mexico Department of Game and Fish. The site is also within the boundaries of the proposed Mesilla Valley Bosque Park, an effort spearheaded by the Southwest Environmental Center

Restoration of a wetland will move the existing riverine corridor to a greater value or higher use than one we have accorded it to in the past. Constructing the wetland satisfies the long-range goals set forth in the 1999 City of Las Cruces Comprehensive Plan, the 1994 Parks, Recreation and Open Space Master Plan, the 1992 City of Las Cruces Storm Water Management Policy, the Las Cruces Metropolitan Planning Organization 20-Year Transportation Plan, the

Table 1: Summary of Permitting and Coordination Requirements for Picacho Wetland and Multi-use Pathway Pilots

Organization	Wetland Requirement	Pathway Requirement	Permit/Coordination
United States Section, International Boundary and Water Commission (USIBWC)	Right-of-way limited controlled vehicle access (handicap, emergency, special events and maintenance) of levee road and floodway.	Authorization for land use to build pathway. Right-of-way limited controlled vehicle access (handicap, emergency, special events and maintenance) of levee road and floodway.	Lease Agreement Right-of-Way Permit
Elephant Butte Irrigation District (EBID)	Use of Picacho Drain waters for wetland. Use of Picacho Drain road for wetland access.		3-way Short-term Special Use Permit between CLC, SWEC and EBID.
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act, Section 7: Assessment of impact to Threatened, Endangered and Sensitive Species.	Endangered Species Act, Section 7: Assessment of impact to Threatened, Endangered and Sensitive Species.	Coordination/ Approval
NM Department of Game & Fish (NMDGF)	Endangered Species Act, Section 7: Assessment of impact to Threatened, Endangered and Sensitive Species.		Coordination/ Approval
NM Department of Game & Fish	Approval for use of NMDGF land for wetlands		Memorandum of Understanding with SWEC
NM State Historic Preservation Office (SHPO)	Coordination regarding locating and reporting of existing cultural resources sites identified within boundaries of planned expansion but outside of construction boundaries	Coordination regarding locating and reporting of existing cultural resources sites identified within boundaries of planned expansion but outside of construction boundaries	Coordination / Approval
US Army Corps of Engineers (USACE)	Clean Water Act, Sections 401, 402 and 404 determination		Coordination
New Mexico Environment Department (NMED)	Clean Water Act, Section 401 certification		Certification
Southwest Environmental Center (SWEC)	Agreement for use of NMDG&F land for wetlands		Memorandum of Understanding between CLC and SWEC
US Bureau of Reclamation (BOR)	Coordination regarding impacts to Elephant Butte Project.		Coordination. Issuance of Finding of No Significant Impact (FONSI)

Regional Transit Study/Plan, the 1984 Southern Rio Grande Outdoor Recreation Master Plan, and the Doña Ana County and Extra Territorial Zone planning documents. The project dovetails nicely with the current thinking and interests of a number of agencies who are also addressing habitat enhancement along the river. These include the USIBWC EIS Canalization, the ACOE wetland restoration efforts and EBID's water quality improvement projects.

Wetland Workgroup

The Wetland workgroup was charged with the task of developing criteria for wetland selection and creating plans for salt cedar removal, revegetation, operation and maintenance, and public access. Workgroup members represented the CLC, USIBWC, SWEC, NMSU, EBID, USBOR, NMDGF, NRCS, Audubon Society, and Bosque del Apache Wildlife Refuge.



Figure 1 - Oblique Aerial View, from the north, of the Picacho Bosque, owned by the New Mexico Department of Game and Fish. The City of Las Cruces Picacho Wetland Pilot Project site is located within this property (circle), west of the Picacho Drain. Photo courtesy of David Groeneveld.

Permitting Process

In the case of the City of Las Cruces Picacho Wetlands Pilot Project, the level of effort required to address NEPA requirements called for an Environmental Assessment rather than the more exhaustive Environmental Impact Statement (EIS), as recognized by the lead federal agency for the project, the Bureau of Reclamation. The EA process looks at a wide variety of potential impacts of projects receiving federal funding. Among those of particular import to this project were those to Threatened and Endangered Species (TES), wetlands areas and cultural resources.

Specific studies conducted as part of the Wetlands EA were a Biological Evaluation to assess the potential impacts to TES and a Cultural Survey (CS) to assess the potential impact to cultural resources. The findings of the BE led to preparation of two separate studies: a nesting survey to determine the potential impact to the endangered Southwest Willow Flycatcher and a wetlands delineation. The wetlands delineation was based on evidence of a pre-existing wetland within the project site, and includes a formal assessment of the boundaries–delineation of the wetland.

With regard to cultural resources, the findings of the CS identified that the Picacho Drain, as part of the Elephant Butte Irrigation District, is listed as a historic structure. This finding required additional coordination with the SHPO to identify the impacts of the project on this historic structure. The SHPO consultation resulted in approval of the project, with a recommendation that interpretive signage be installed explaining the history and significance of the Rio Grande Project and the Elephant Butte Irrigation District.

Acquiring water for the wetland was accomplished through a special use permit from EBID. Under the terms of this permit, water from the adjacent Picacho Drain would be allowed to flow through the wetland before emptying into the Rio Grande, one-half mile south of the wetland site. (See “Design Process,” below).

Also, see Table 1: Summary of Permitting and Coordination Requirements for Picacho Wetland and Multi-use Pathway Pilots, page 62, for a summary of permitting requirements.

Design Process

Ross Coleman of Hydra Aquatics, Inc. was hired as the design firm for the Picacho Wetland. The design process began with a field trip to the site, followed by a meeting with the designer and the project participants. Wetland criteria were discussed at that time. Ross Coleman then developed a preliminary design which was reviewed by the project participants and presented to the public at public meetings. Feedback from these discussions led to the revision of the design, which was then approved by the project participants.

The EBID special use permit allows about 700 feet of the Picacho Drain to be removed and the drain flow diverted into the adjacent constructed wetlands. The drain water then flows through the wetland into the Rio Grande. The key condition in this EBID permit is that there be no net loss of drain water flow into the river. EBID and others are monitoring the wetland/bosque area, and if the effects are positive EBID will evaluate continuation of the special use permit before its expiration in 2006.

Construction

Construction of the wetland was awarded by RFP/Bid process to CMC Construction, Inc. Upon completion of the permitting process and issuance of the FONSI, construction began. Construction of the wetland consisted of excavating two ponding areas, the Palustrine Wetland and the Wet Meadow. In order to allow water from the Picacho Drain to flow into these ponding areas, 600 linear feet of the west bank of the drain were removed. Water flowing south circulates through the wetland area and continues flowing south until it empties at the mouth of the drain into the Rio Grande.

Dirt from the excavation was piled to the north of the ponding areas, creating a hill which will serve as an observation area. A trail was cleared over the hill, as well as around it, and continues through the wetland to the point at which a culvert was installed to transfer water from the Wet Meadow to the Palustrine Wetland. An additional observation area was constructed at this point. Future plans include a duck blind and an additional observation area.

Operation and Maintenance of the Wetland

The Operation and Maintenance Plan was drafted by the Southwest Environmental Center (SWEC) and approved by the project participants. See Appendix 9 "Operation and Management Plan for the Picacho Wetland Pilot Project."

Funding and Budget

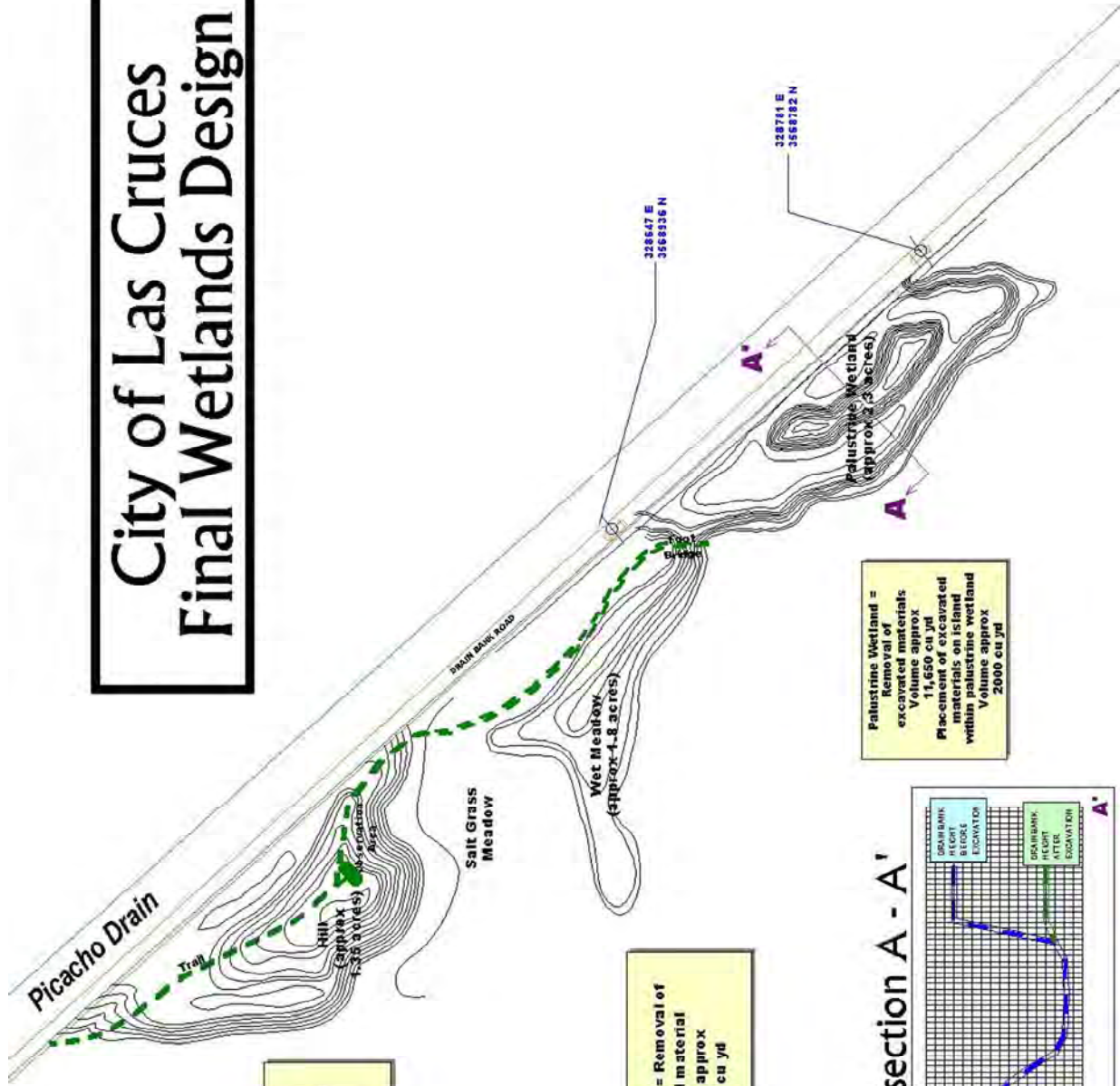
Funding for the Picacho Wetland Pilot Project was provided in part by the EPA Sustainable Development Challenge Grant (\$140,800) and the U.S. Bureau of Reclamation Wetlands Restoration Grant (\$25,000)

**Picacho Wetland Pilot Project
Budget Summary**

Personnel --	CLC*	EPA	Cash/In Kind
Consultant (General)		17,000	Cash
Consultant (General)		25,000	Cash
Consultant (Environ. Assess.)		27,800	Cash
Construction	20,000	55,000	Cash
Tree Planting (Labor-SWEC)	4,000		In Kind
Support Personnel - Planners, GIS Specialists, Surveyors, etc.	20,000		Cash
Consultant (FONSI-BOR)	5,000		Cash
Consultant (Construction Oversight)		5,000	Cash
Consultant (NMSU Piezometer Wells-installation & monitoring)	5,800		In Kind
Flora/Fauna Inventory (NMSU)	13,600		In Kind
Installation of Culverts (EBID)	unknown		In Kind
Excavation of Drain Bank (EBID)	unknown		In Kind
Materials			
RTU		1,000	Cash
Water Quality Sensors		1,700	Cash
Culverts		3,000	Cash
Piezometer Wells		900	Cash
Signage		2,000	Cash
Trash Receptacles - 2		600	Cash
Benches - 2		1,800	Cash
Trees (1,200-SWEC)	6,000		Cash
Subtotal Wetland Component	74,400	140,800	

* Includes BOR Grant

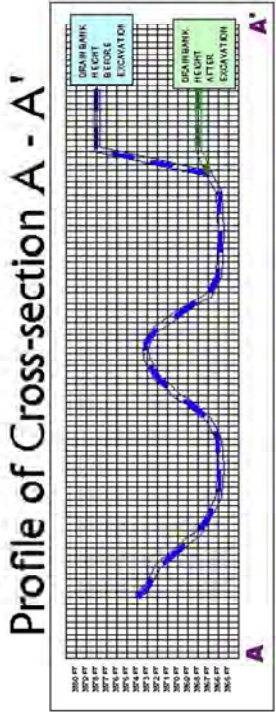
City of Las Cruces Final Wetlands Design



Hill = Placement of excavated materials
Volume approx
14000 cu yd

Wet Meadow = Removal of excavated material
Volume approx
14350 cu yd

Palustrine Wetland = Removal of excavated materials
Volume approx
11,650 cu yd
Placement of excavated materials on island within palustrine wetland
Volume approx
2000 cu yd



MULTI-USE PATHWAY COMPONENT

A 1994 survey for the City's Parks, Recreation and Open Space Master Plan indicated that 10.8% of all households had at least one member who engaged in some form of bicycling activity, compared to a statewide average of 4.8%. An additional survey indicated that after driving, walking and biking are the most common forms of transportation to/from work. Due in part to an even terrain and favorable weather year-round, biking and walking are increasingly popular forms of transportation in the community. To address this trend, the City's Comprehensive Plan calls for development of bikeways, routes and pedestrian facilities as part of its transportation plan and multi-modal transportation system.

In addition, the federal Transportation Efficiency Act (T-21) has outlined several factors that must be considered in the development and implementation of transportation plans which relate specifically to the proposed Multi-Use Pathway:

- Emphasize the preservation of the existing transportation system;
- Protect and enhance the environment, promote energy conservation, and improve quality of life;
- Promote efficient system management and operation;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight; and
- Increase the accessibility and mobility options available to people and for freight.²⁶

Increasingly, combined modes of transportation are becoming more popular among citizens. By making use of public transportation, bike routes, comfortable walking routes, and Park-and-Ride services, commuters are able to expand their transportation options. The extension of the existing pathway along the Rio Grande provides further linkage with the city's larger mobility plan.

The City's Twenty Year Transportation Master Plan calls for installation of bike racks on all RoadRUNNER Transit buses. Bike racks expand the viability of public transportation up to two-miles from the interchange node at Picacho Avenue (a point at which the pathway and roadway intersect). Residential communities along the pathway will be able to access the trail and commute to Picacho Avenue where they have linkage to public transportation. Picacho Avenue is the east-west corridor anticipated to connect Las Cruces with the rapidly developing West Mesa Industrial Park and the Las Cruces International Airport. Additionally, the region's Park-and-Ride Plan anticipates remote commuter parking lots. La Llorona Park, located at Picacho Avenue and the river, presents an opportunity for such a commuter Park-and-Ride lot which would be easily accessed by pathway bicyclists.

²⁶ Metropolitan Planning Organization Transportation Plan 2000 for Las Cruces, Dona Ana County and Mesilla, June, 2000.

Enhancement of the multi-use pathway structure further improves quality of life for our citizens by providing increased physical fitness and recreational opportunities, and aesthetics. The pathway also allows more immediate access to wetlands, open spaces and the entire river corridor.

Parks, Recreation and Trails Workgroup

The Parks, Recreation and Trails workgroup was charged with the task of developing criteria for construction of the multi-use pathway pilot. These include: paving material; design; accessibility; connectivity; and data collection. Members represented the CLC, NPSRTP, Town of Mesilla, Mesilla Valley Bicycle Coalition, and USIBWC.

Permitting Process

For the Multi-use Pathway Pilot Project, the level of effort required to address NEPA requirements were far less than that of the Wetland Pilot. Ownership of the land remains under USIBWC, with a Right-of-Way Agreement in place to allow the City to construct the pathway. Maintenance responsibilities following construction fall to the City, as an Amendment to a 1996 Lease Agreement allowing construction of La Llorona Park and the three-mile riverside pathway.

See also Table 1: Summary of Permitting and Coordination Requirements for Picacho Wetland and Multi-use Pathway Pilots, page 62.

Design Process

Workgroup members conducted a field trip and developed a preliminary design on site, with attention to preserving as much vegetation as possible and allowing the pathway to meander as dictated by vegetation clusters. The design was put to paper by the City's Public Works Department, presented at a series of public meetings and sent to USIBWC for review. Following public comment and feedback from the USIBWC Engineering Department, a final design was created and approved by the project participants. See Pathway Design, p. 71.

Construction

The pathway is constructed with an aggregate of crushed rock and a vegetable-based binding agent above a layer of base course gravel, to a width of ten feet. This mixture is intended to create a semi-permeable surface which will diminish run-off to some extent.

An slope of 5% was integrated into the design at the point where the pathway climbs the bank of the levee road to connect with the Las Cruces Outfall Channel bank. This incline was determined by ADA standards for use by disabled persons. See Pathway Cross-Section, p. 72.

Operation & Maintenance

Maintenance responsibilities fall to the City, as determined in an Amendment to the 1994 USIBWC Lease Agreement allowing construction of La Llorona Park and the 3-mile riverside pathway. O & M primarily consists of trash collection and occasional cleaning of the pathway. Weed eradication from the pathway surface will be necessary from time to time. This 1.1-mile section falls within one of USIBWC's No Mow Zones, which extends a width of 35 feet from the banks of the Rio Grande from La Llorona Park to Shalem Colony Trail Bridge, a distance of five river miles on each side of the channel. Regular maintenance mowing and clearing is continued outside this Zone.

Data Collection

Data will be collected at three month intervals for twelve months to determine the degree of permeability and durability. It is proposed that this data will contribute to the body of knowledge of the usefulness of alternative materials in the construction of larger transportation corridors, in their ability to reduce pollution from stormwater run-off and non-point source pollution.

In addition, surveys will be conducted to gather information from pathway users, such as mode of use, preferred surface, frequency of use, etc. This information will be useful when designing and constructing other pathways and trails along the corridor.

Funding and Budget

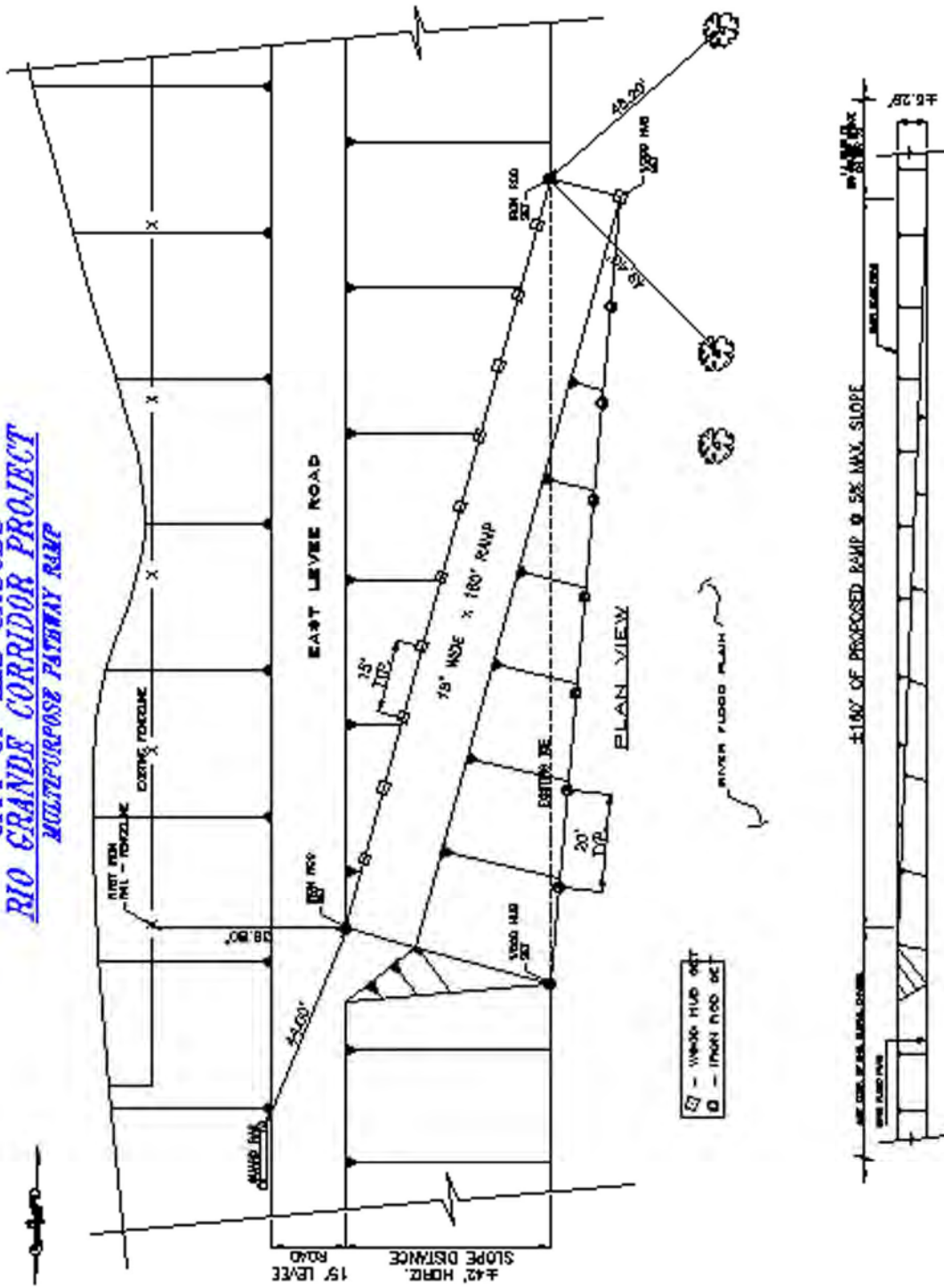
Funding for the Multi-Use Pilot Project was provided by the EPA Sustainable Development Challenge Grant in the amount of \$66,700.

Multi-use Pathway Pilot Project Budget Summary

Personnel	CLC	EPA	Cash/InKind
Construction (Pathway)	40,000		Cash
Support Personnel-Pathway	3,000		Cash
Consultant - Data Collection		6,000	Cash
Materials			
Paving Materials		55,000	Cash
Trash Receptacles		1,200	Cash
Benches - 3		3,000	Cash
Signage		1,500	Cash
Trees - Pathway Revegetation	1,000		Cash
Total - Pathway Component	44,000	66,700	



**CITY OF LAS CRUCES
RIO GRANDE CORRIDOR PROJECT
MULTIPURPOSE PATHWAY RAMP**



VIII. CONCLUSION

Sustainable development is only meaningful when put into action at the local level where land use decisions are made. The Rio Grande Riparian Ecological Corridor Project offers an opportunity to respond to this challenge by designing a land use plan built around our most important ecological asset, the Rio Grande. It focuses on protecting farm land, open space and our native plant and animal species while fulfilling the needs and meeting the demands of community growth.

Of greatest concern is increased development near the river. Of course, “no further development” along the corridor is both impractical and unrealistic. But responsible planning decisions will ensure that future development does not whittle away at agricultural lands, other open spaces, and the remaining riparian habitat within the corridor, or foreclose opportunities for restoration or rehabilitation of these in the future.

In coming together to create this Plan and complete two construction pilot projects, agencies which manage projects along the river defined goals and objects which, when implemented, meet community need for habitat protection, continued economic growth and an improved quality of life. A strong commitment to work together and find common ground is needed on the part of these stakeholders and the public.

IX. DEFINITIONS AND ACRONYMS

AFT – American Farmland Trust
BOR – U.S. Bureau of Reclamation
CLC – City of Las Cruces
COCS – Cost of Community Services
CSA – Community Supported Agriculture
DAC– Dona Ana County
EA – Environmental Assessment
EBID –Elephant Butte Irrigation District
EIS – Environmental Impact Statement
EPA – Environmental Protection Agency
ETZ – Extra-Territorial Zone
USIBWC –United States Section, International Boundary and Water Commission
JPA – Joint Powers Agreement
MOU – Memorandum of Understanding
MVBP – Mesilla Valley Bosque Park
NEPA – National Environmental Policy Act
NMDGF – New Mexico Department of Game & Fish
NMSU – New Mexico State University
NPSRTP – National Park Service Rivers and Trails Program
NRCS – Natural Resources Conservation Service
O & M – Operation and Maintenance
PACE – Purchase of Agricultural Conservation Easements
PdNWC – Paso del Norte Watershed Council
SHPO – State Historical Preservation Officer
SWEC – Southwest Environmental Center
UNM – University of New Mexico

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APPENDIX 1

PREFERRED HABITAT SITES AND CRITERIA FOR SITE SELECTION

The Wetland Workgroup identified nine potential wetland sites within the 11-mile corridor. These sites underwent a preliminary assessment to determine their suitability under the following criteria:

- Compatibility with United States Section, International Boundary and Water Commission (USIBWC) mandate for flood control and Rio Grande Project water deliveries;
- Identifiable source of water, water quantity, seasonal availability and feasibility of acquiring water rights;
- Water quality;
- Existing land use and occurrence of native habitat;
- Land ownership;
- Identity of an entity responsible for operation and maintenance including assumption of liability;
- Capacity to reduce point or non-point source pollution;
- Potential for preservation of open space and enhancement of a linear park along the Rio Grande;
- Connectivity to existing or proposed alternative and traditional transportation pathways;
- Feasibility of using the site to educate the public about the importance of ecosystem functions and services and other fields;
- Feasibility of using the site as a research facility for Doña Ana Community College (DACC) or New Mexico State University (NMSU);
- Potential for eco-tourism;
- Accessibility and jurisdictional issues of fire, police and emergency vehicles.; and
- Habitat integrity.

The Wetland Workgroup then conducted a field trip to each site after which the top five were ranked using the criteria identified above. The two sites with the highest scores¹ were selected as the preferred and alternate site for construction of a wetland and the remaining sites prioritized. Refer to page 41 for locations of the following sites.

Preferred and Alternate Sites for the Wetland Pilot Project:

1. Preferred Site: The Picacho Bosque, New Mexico Department of Game and Fish property located within the Southwest Environmental Center's proposed Mesilla Valley Bosque Park.

The NMDGF property located within the SWEC's proposed Mesilla Valley Bosque Park achieved a score of 24 out of a total available 28 points and was recommended as the preferred site for establishment of a wetland. In summary, the site was selected for the following reasons:

- the site affords some of the best remnants of riparian habitat in Mesilla Valley thereby increasing the potential success of restoration efforts;
- site integrity is high and is located adjacent to other lands suitable for enhancement;

¹ Harris Farms, although the second highest ranking site, was later determined not to be available within the timeframe of this project. See No. 5, below.

- SWEC has volunteered to accept responsibility for operation and maintenance of the wetland and assume liability;
- several other stakeholders benefit from the selection of this site in the form of water quality improvements and recognition of good will in the community; and
- no land acquisition is required.

2. Alternate Site: U.S International Boundary & Water Commission Clark Lateral Habitat Enhancement Site.

The USIBWC Clark Lateral Habitat Enhancement Site adjacent to the City of Las Cruces' Proposed Alamo Drain Stormwater Wetland site achieved a score of 17 out of a total available 28 points and was recommended as the alternate site for establishment of a wetland. In summary, the site was selected because:

- the site is the location of a historical secondary channel in the Rio Grande thereby increasing the potential success of restoration efforts;
- the City of Las Cruces stands to benefit from the selection of this site in the form of water quality improvements to stormwater, if a stormwater wetland is built adjacent to the USIBWC Clark Lateral habitat enhancement site;
- the site complements the existing City of Las Cruces river park as it is located at the southern terminus of the bicycle path;
- site integrity is high as the USIBWC site and CLC Alamo Drain Stormwater wetland are located immediately adjacent to each other and can increase the total amount of contiguous habitat;
- CLC will assume operation and maintenance of the Alamo Drain Stormwater Wetland site if constructed; operation and maintenance of the habitat enhancement located within the USIBWC right of way would be pending a maintenance and security agreement; and
- no land acquisition is required.

Remaining Three Sites in Order of Priority:

3. Dona Ana Dams 1 And 2 Outfall Channel, Spillway 5 And Del Rio Drain (Score = 14 out of 28):

Three of the proposed wetland sites converge at this location. The site would consist of about 30 acres within the floodway, Spillway 5 or the outfall channel and the EBID right of way adjacent to the drain. Potential sources of water are surface, spillwater and stormwater. The area has a limited amount of native vegetation although USIBWC has suspended its mowing practices within the floodway at this site for a distance of 35 feet, and the drain provides a 60-ft. corridor of riparian vegetation. Habitat enhancements would consist of widening the mouth of the spillway/outfall channel to provide for backwater habitat and possibly sloping the river bank to permit overbank flooding. The site is immediately adjacent to a large residential development which would dictate additional considerations be taken into account. Operation and maintenance potentially borne by USIBWC as one of their habitat enhancement sites.

4. Spillway 11 (Score = 13 out of 28):

This is a relatively small site contained within the floodway. The source of water is spillwater and surface water. Habitat enhancement would consist of widening the mouth of

the spillway and creating a backwater habitat. Native vegetation lines the spillway, but the band of vegetation is relatively narrow. The Spillway is located immediately upstream from the City's wastewater discharge and is on the City's bicycle path. USIBWC had not identified this site as potential habitat enhancement site and no other entity has indicated an interest in operation and maintenance of a wetland at this site.

5. Harris Farms:

This site is about 50 acres in size and privately owned by Harris Farms. The site is a wet meadow, a relatively rare wetland habitat in Mesilla Valley. Although privately owned, the site was considered because of NRCS' interest in enrolling the site in the federal Wetland Reserve Program. The site was disqualified from further consideration after it was clarified that Harris Farms would be unable to convey title or easement on the property until 2004, after the present EPA grant period has expired.

Remaining Four Sites (not ranked in order of priority):

- State Parks Division Parcel:

This approximately 25-acre site is owned by the State of New Mexico Department of Natural Resources and is located on the east river bank between the levee and Valley Drive south of Shalem Colony Bridge. The Department of Natural Resources purchased the land in 1992 for development of the "Mesilla Valley Regional Nature Center" including a 2-acre shallow wetland fed by groundwater. Although currently undeveloped and state owned, the land has limited potential as a wetland. The proposed wetland is small, e.g., 2-acres, and is cutoff from the floodway by the levee. The site has been recently plowed and no or little vegetation currently exists there. Soils are high in salinity.

- Las Cruces Outfall Channel And Spillway 39A:

Two of the proposed wetland sites converge at this location. This site is upwards of 42 acres, spans both the east and west side of the floodway and comprises habitat enhancement within the floodway and the Outfall Channel. Proposed habitat enhancement is to widen Spillway 39A and Outfall Channel to provide backwater habitat and possibly slope the river bank to facilitate overbank flooding. The site was not selected because the habitat enhancement would be primarily reliant on surface water, existing habitat is largely modified, and the site is not contiguous with other natural areas.

- Picacho Dams North And South Outfall Channel or Spillway 39:

This site falls on the west river bank and consists of the Outfall Channel to Picacho Dams North and South, and Spillway 39 which flows from the Picacho Lateral. Proposed habitat enhancement is to widen Spillway 39 and the Outfall Channel to provide backwater habitat and possibly slope the river bank to facilitate overbank flooding. The site was not selected because the habitat enhancement would be primarily reliant on surface water, existing habitat is largely modified, the site is not contiguous with other natural areas and no City parks are currently located on west bank to facilitate public access.

- Spillway 8:

This site is 26 acres. Proposed habitat enhancement is to widen Spillway 8 and Outfall Channel to provide backwater habitat and possibly slope the river bank to facilitate overbank flooding. The site was not selected because the existing habitat is largely modified, and the site is not contiguous with other natural areas.

Membership of the Wetland Workgroup:

The Wetland Workgroup is a voluntary workgroup comprised of 18 individuals who represent a diverse and inclusive group of stakeholders in the Rio Grande and the riparian corridor. Federal agency members include the United States Section, International Boundary and Water Commission (Doug Echlin), the Bureau of Reclamation (Mike Landis), the Natural Resources Conservation Service (Mary Sanchez and Barbara Peregrino), and the U.S. Fish and Wildlife Service (John Taylor). State agency and institution members include New Mexico Game and Fish (Pat Mathis), the Elephant Butte Irrigation District (Michael Riley and Henry Magallenez), and New Mexico State University Departments of Fisheries and Wildlife (Drs. Paul Turner and Martha Desmond) and Civil Engineering (Dr. Nicosio Lozano). Local government members include Doña Ana County (Paul Dugie), and the City of Las Cruces (Dan Santantonio, Dave Church and Carol McCall). Non-governmental organization members include the Southwest Environmental Center (Kevin Bixby) and the Mesilla Valley Audubon Society (Dr. Gordon Ewing). Beth Bardwell chaired the workgroup.

APPENDIX 2

CITY OF LAS CRUCES COMPREHENSIVE PLAN

LAND USE ELEMENT

Land Use Objective 11: Establish urban and rural open space networks in the area.

Policies:

11.1. The City shall encourage the preservation and provide a system of open space on the mesas and in the valley in order to provide a desirable environment and quality of life in the urban area as well as perpetuating the unique natural and rural environments of the region.

11.2. The City shall work with the Bureau of Land Management and the State of New Mexico to preserve arroyos on the east and west mesas as open space.

11.3. The City shall encourage the establishment of a Las Cruces Area Open Space Authority for the purposes of acquiring land and assisting in planning for open space networks.

11.4. Parks and recreation facilities and schools shall be focal points around which open space networks shall be organized.

11.5. The City shall encourage the dedication of undeveloped open space. Undeveloped open space shall include all types of sensitive areas, such as arroyos.

11.6. Developed open space shall include those parcels of land, such as roadway medians, which are improved and landscaped according to City codes and design standards. Developed open space shall not be considered as park space.

11.7. The City shall continue to work with the Bureau of Land Management and the State of New Mexico in the establishment of the Rio Grande Corridor Recreation Area.

11.8. The City may consider offering density bonuses, or waivers to park fees, for development in exchange for dedications of land for open space where such dedications lend to open space networks.

Agriculture

With an extensive irrigation channel system and a long growing season, the Mesilla Valley is one of the most productive agricultural areas in the United States. Agriculture comprises an important sector of the Las Cruces area's economic base, and can continue to provide a relatively stable employment sector for our population. Consistently high quality products, and agricultural research activities by New Mexico State University insure that the Las Cruces area will continue to play a strong role in our region's agricultural industry.

Agriculture in the Mesilla Valley not only represents a viable sector of the local economy, but also represents our regional cultural heritage. Our quality of life is greatly enhanced by

agriculture economically, culturally, and environmentally as it contributes significantly to our open space which connects us to our natural surroundings. For these reasons, agriculture should be considered a viable and compatible land use in the Land Use Element.

Land Use Objective 2: Establish policies to support the viability of agriculture and the co-existence of agriculture with other land uses

ECONOMIC DEVELOPMENT ELEMENT

Economic Development Objective 4: Maintain the viability of agricultural production within Las Cruces and the Mesilla Valley.

Policies:

4.1 Agricultural producing properties should be maintained in large parcels or tracts to keep production at a premium but also recognizing that small agricultural parcels within the urbanized area of the City provide open space, buffers differing uses and should be encouraged to remain.

4.2 Encroachment of small lot development into large, unbroken agricultural areas located near or along the City limits between urbanized and rural areas should be discouraged.

4.3 Allow the transfer of development rights or provide bonuses in densities to other areas of the community in order to preserve agricultural properties and potentially environmentally sensitive area.

4.4 Packaging and shipping of locally produced agriculture products on properties zoned for agricultural or agricultural-related uses should be allowed.

URBAN DESIGN ELEMENT

Conservation/Preservation

Our natural surroundings are picturesque and serene. The City of Las Cruces intends to protect and preserve the characteristics that make our city and community unique and memorable. In this document, conservation addresses nonrenewable natural resources such as: open space, arroyos, river valley, natural landscaping, as well as historical and cultural resources.

Urban Design Goal 2 Preserve and enhance Las Cruces' natural, visual, and historical/cultural resources while reinforcing an overall urban form and character that communicates sensitivity to its physical setting.

Objective 5 Protect those natural resources and features unique to our region.

Policies:

1. Advocate an appropriate balance between physical development and open space that will provide a desirable environment and quality of life in the urban area as well as perpetuating the unique natural and rural environments of the region.

2. Encourage new development to provide networks of open space. Open space should be linked with parks and recreational trails so that any open space areas may be considered "usable" space. Development waivers, such as density bonuses, shall be used as incentives to developers to create and/or maintain open space.

3. Encourage the protection of arroyos and other sensitive lands from development so that they remain in their natural state especially where such areas lend to an open space network.

4. Encourage the preservation of agricultural pockets in the developed area of the City as one means of retaining a rural character. Agricultural pockets will be considered as open space which will add to our unique urban/rural views. The preservation of these areas will also provide as a reminder of our agricultural history.

TOURISM ELEMENT

Tourism Goal 3: Promote and enhance Las Cruces and the Mesilla Valley as a tourist destination.

Objective 8: Continue to promote existing and create new tourist activities and events in Las Cruces.

Policies

8.6 Promote local businesses as part of tourism promotion efforts that will include advertise local businesses in Tourism magazines and support group marketing efforts of local businesses throughout the country.

CITY OF LAS CRUCES 2003 ZONING CODE

Sec. 38–41.1 Open Space Zoning Districts

A. PURPOSE:

The Open Space Zoning Districts are intended to:

Allow both public and private lands to serve as areas providing both active and passive recreational opportunities in either a developed (modified) or natural setting.

Protect, preserve and/or restore natural resources and open spaces such as areas of undisturbed native vegetation, arroyos and major land features when development within these areas would be detrimental to the health, safety and general welfare of City residents.

Establish buffer areas that are aimed at mitigating issues involving potentially incompatible land uses.

For purposes of these zoning districts, applicable public and private lands whether developed or in their natural state will be considered as open space. Application of the OS zone designations to private land requires the express written consent of the property owner(s). Designation of the OS zone on private land or portions thereof in no way exempts property that may be under development from complying with LCMC

Chapter 32 – Design Standards, Section 32–279 (Public Sites and Open Spaces). Developments that incorporate open space into the overall project design and/or provide applicable facilities or improvements to these open spaces may be subject to special development considerations and flexibility which may include density bonuses, variances and other similar development incentives. Consideration and review of open space designs shall be on a case by case basis and must be deemed beneficial to the City’s overall open space network. The City may either approve or reject any proposal. Acceptance of an open space proposal does not guarantee acceptance of these areas for City maintenance.

B. ZONING DISTRICT:

OPEN SPACE

OS–R OPEN SPACE – RECREATION

OS–NC OPEN SPACE – NATURAL/CONSERVATION

C. *DEVELOPMENT STANDARDS: Specific requirements for these zoning districts vary depending on the intended use of the proposed open space and any anticipated impact to surrounding properties. Other development requirements above and beyond what is included in this section may apply and as such, reference to applicable Chapters within the Las Cruces Municipal Code is recommended.*

5–2–2

OPEN SPACE USES:

“A” – Allowed Uses: These uses are allowed if they comply with the development standards deemed applicable by the City, other requirements of this Article and all other articles of this Zoning Code if applicable. There also may be requirements in the municipal Code with which specific land uses must comply.

“C” – Conditional Uses: These uses are permitted; however, unique conditions for each conditional land use are listed after the land use table or in Section 38–53, Conditional Uses Enumerated. There also may be requirements in the Municipal Code with which specific land uses must comply.

“S” – Special Uses: These uses are generally not permitted by right in a zoning district, but through review and approval to determine surrounding area impacts, may be allowed. Requirements for special uses are listed after the land use table or in Section 38–54, Special Use Permits. There also may be requirements in the Municipal Code with which specific land uses must comply.

OPEN SPACE USES BY DISTRICT

USES/DISTRICT	OS–R
Uses	
Accessory Uses and Structures	C ₁
Archery Range (Indoor/Outdoor)	A/S ₁
Batting Cages	C ₅

Community Buildings – Uses (see Section 38–53)	C
Country Club (see also Sections 38–53 and 38–54)	S ₂
Golf Course (see Section 38–54)	S
Golf Course, Minature	C ₅
Golf Driving Range (see Section 38–54)	S
Greenhouse (Non–Commercial), Garden Shed or Tool Shed	C ₁
Park (see Section 38–53 and Chapter 20)	C
Public/Private Utility Installation, e.g., substations, waterwells, transformers, regulators, lift stations, tele–communication site	C ₄
Raising of Animals, crops, and trees	C ₃
Recreational Courts (non–commercial)	A
Swimming Pool (see Section 38–53)	C
Temporary Uses	C ₂

5-2-3

USES/DISTRICT

OS-NC

Uses

Nature Park (see Section 38–53 and Chapter 20)	C
Recreational Trail/Path	C ₆

Condition Notes:

1. Structures shall be directly related to the use, maintenance or enjoyment of the subject open space. Examples include equipment buildings, gazebos, monuments, restrooms, play equipment, amphitheatre, etc.
2. Christmas Tree Stands, Fireworks Stands, Flea Markets, and Yard, Garage or Rummage Sales on Public Property are prohibited. See Section 38–50 and 38–53 for specific temporary use restrictions.
3. The raising of animals shall be consistent with Chapter 7 of the Municipal Code and shall be kept three hundred (300) feet from adjacent residential property. Raising of crops and trees shall be kept at least one hundred (100)feet from adjacent residential property. There shall be no significant nuisance to neighboring property at the property line due to odor, dust, fertilizer, herbicides, and no prolonged use of noisy equipment.
4. See Section 38–53. A solid wall or fence shall surround the installation. Landscaping shall be provided to screen and/or buffer the installation as necessary to allow the use to blend with the surrounding properties and minimize noise and visual pollution. When wells are proposed or already situated on property, consideration and adherence to established well head protection policy shall be followed to the extent possible. Telecommunication structures shall be designed to blend into the surrounding landscape or if attached to a structure, the structure itself. Facial mounts are required as applicable and tower structures shall be designed with concealment in mind. Options

include but are not limited to flag poles, outdoor lighting standards, towers that mimic trees, etc.

5. Allowed if an integral part of a recreational open space design. Landscaping shall be provided to screen and/or buffer the use as necessary to allow the use to blend with the surrounding properties and minimize noise and visual pollution as applicable.
6. These facilities are intended to facilitate access through and enjoyment of applicable areas. Accessory uses such as water fountains, benches, and shade structures may be incorporated into the overall design, but must directly benefit or serve the dominant use.

Special Use Notes:

1. See Section 38-54 and Section 19-164 of the Municipal Code.
2. Country club must be designed in concert with a golf course or similar type of large open land area.

5-2-4

Appendix 3

DONA ANA COUNTY COMPREHENSIVE PLAN

Doña Ana County Comprehensive Plan 1995 - 2015

PRIMARY GOAL 3: PROVIDE COMMUNITY FACILITIES AND SERVICES.

PARKS AND RECREATION

Doña Ana County has 539.9 acres of park and recreational areas that includes three community parks within the Las Cruces city limits. The county has twelve parks that contain 70.9 total acres. There are 452 acres of regional space that is available to the county which includes: Burn Lake in Las Cruces, Leasburg Dam State Park, Fort Selden State Monument, Dripping Springs recreation area, and the Aguirre Springs recreation area. Community residents have identified parks and recreation as a high priority for improvement by the county. Additional neighborhood and community parks are needed to serve rural areas. Eighty acres of additional park space will be needed each year to meet needs of county residents based on national standards (see Appendix, Table 13).

Goal Statement: Enhance the quality of life for county residents by providing adequate parks and recreational facilities.

Policies

- Guide the development of parks and recreational areas throughout the county.
- Maintain and upgrade existing parks and recreational facilities.
- Coordinate with municipalities and the private sector to provide community and regional parks.

Actions

- ✓ Identify sites for future recreational facilities which can be acquired from the Bureau of Land Management, and other public and private agencies.
- ✓ Establish standards for park and recreation facilities to meet the needs of communities.

[Dona Ana County Comprehensive Plan Page 35]

PRIMARY GOAL 4: PROMOTE ECONOMIC DEVELOPMENT AND EMPLOYMENT OPPORTUNITIES.

Goal Statement: Support the agricultural industry and strive to maintain the viability of this major sector of the local economy.

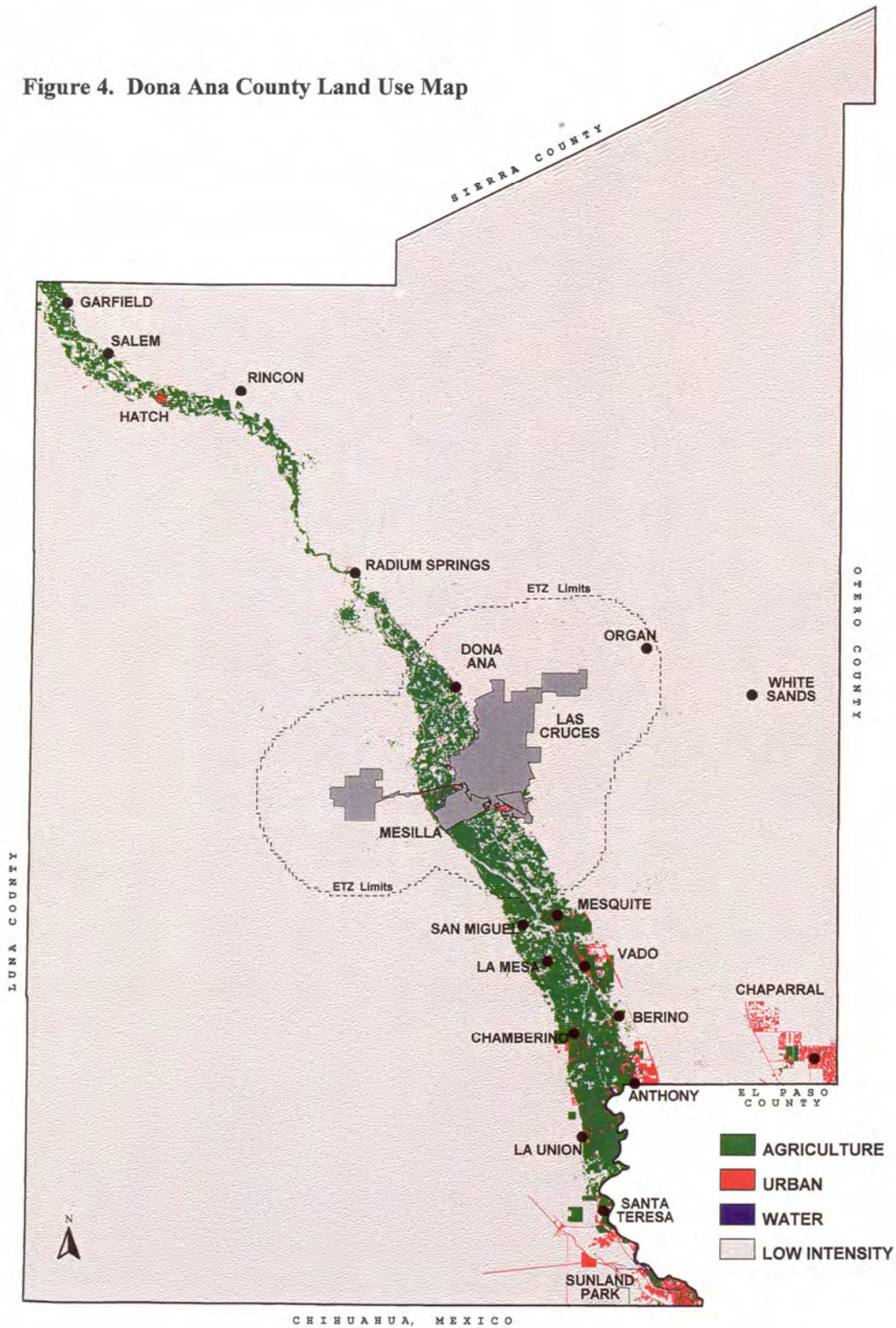
Policies

- Develop programs which assist agricultural uses to remain economically viable.
- Develop incentives for proper site selection for the processing of raw agricultural products into retail goods.
- Promote agri-business and agriculture related industry.

Actions

- ✓ Encourage location of agri-business near existing transportation routes and rail lines.

Figure 4. Dona Ana County Land Use Map



SOURCE: DONA ANA COUNTY DATA FILES - LANDUSE INVENTORY 1992 &
 GEOGRAPHIC APPLICATION RESEARCH LABORATORY, LANDSAT TM 1992
 PREPARED BY: DAC-COMMUNITY DEVELOPMENT DEPARTMENT-GIS DIVISION - MAY, 1995

[Dona Ana County Comprehensive Plan Page 43]

PRIMARY GOAL 5: ADOPT AND IMPLEMENT A LAND USE PLAN.

Policy for Land Use to Control and Abate the Unsightly Use of Land and Buildings.

- Establish land use standards to control the unsightly use of land and buildings.

Actions

- ✓ Develop land use regulations that include standards for screening industrial and commercial uses, and outside storage of bulk materials.
- ✓ Enforce existing county ordinances regarding junk vehicles, outbuildings, and outdoor storage.

Policy for Rural Patterns

- Maintain existing rural patterns where feasible.

Actions

- ✓ Development of rural areas of the county will include appropriate infrastructure to accommodate the proposed development.

Policies for Land Use Compatibility

- Encourage the compatibility of uses with the environment and surrounding land uses.
- Minimize impacts of new development on surrounding land uses.

Actions

- ✓ Buffer incompatible land uses.
- ✓ Protect and preserve historic districts and buildings from incompatible uses.

PRIMARY GOAL 5: ADOPT AND IMPLEMENT A LAND USE PLAN.

Policy for Land Exchange

- Use the comprehensive plan to guide locations for land exchange and disposal of Bureau of Land Management (BLM) and state lands.

Actions

- ✓ Encourage the establishment of a buffer zone through acquisition or exchange of state and BLM lands along the mountain ranges.

RURAL AREAS

Goal Statement: Maintain the identity of rural areas by encouraging development compatible with traditional settlement patterns and land uses.

Policies

- Allow for development in rural areas consisting of ranches, farms, single family homes on large lots.
- Higher density development may occur at appropriate locations within rural villages or townsites or within planned communities.
- Limited mixed land uses will be allowed through approval of home occupations and cottage business/industry that meet standards in the adopted land regulations.
- Promote development of neighborhood commercial and light industrial business within the rural areas.
- Promote agri-business and agriculture related industry.

Actions

- ✓ Establish performance standards for land use in rural areas.
- ✓ Establish land development regulations that recognize unique platting patterns and community character in existing villages and townsites.

[Dona Ana County Comprehensive Plan Page 49]

APPENDIX 4

EXTRATERRITORIAL ZONE (ETZ) COMPREHENSIVE PLAN

The ETZ comprehensive plan addresses issues relevant to the development of property along the river, open space concerns and the preservation of natural resources under the following goals, objectives, policies and programs:

Goal 3: support a balanced program of protection and conservation of open space, scenic lands, historic areas and archeological sites in order to (in this situation) protect the views of mountains and river.

Objective 3.2: Promote a coordinated open space and recreational program for long range provision of region-serving recreation, open space and scenic lands protection.

Policy 3.2.2: Provide for multi-use parks and open space linkages to support development of a plan for regional parks, trails and open-space activities and facilities.

Goal 4: Protect the Extraterritorial Zoning area's natural resources relative to the preservation of unique natural areas, native vegetation and wildlife habitat.

Objective 4.4: The ETZ shall protect and preserve native vegetation and wildlife habitat areas and shall especially seek to protect unique natural areas and rare and endangered plant and animal species.

Policy 4.4.4: The ETZ and County shall assist in the development and implementation of plans for the preservation, protection and management of important riparian and wetland habitat areas along the Rio Grande.

ETZ 2000-2020
Comprehensive Plan
Map 1
Future Land Use
Concept Map 2020



Legend

- Potential Commercial Site
- Interchange
- ETZ Boundary
- Rio Grande
- Urban Growth Boundary

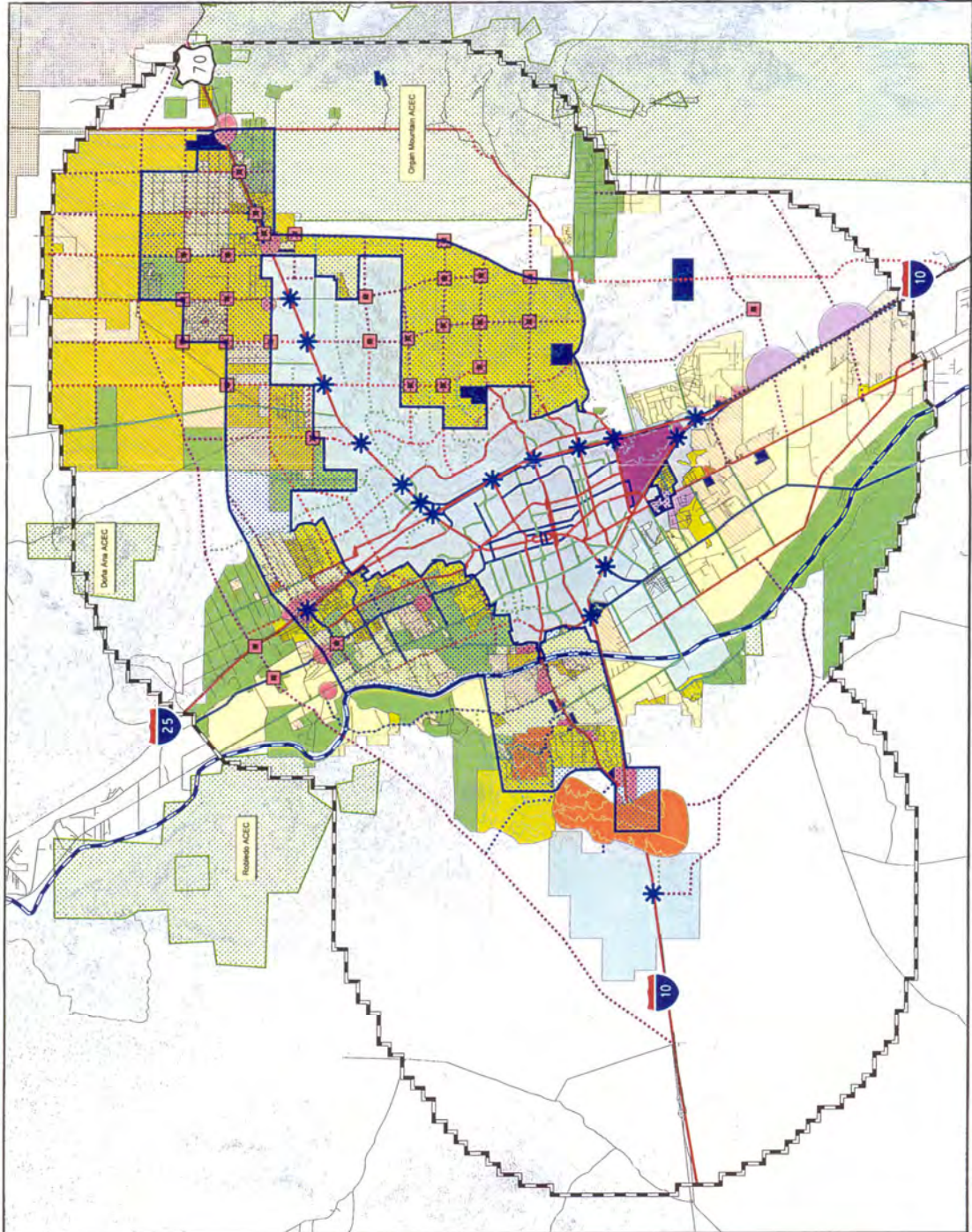
M.P.O. 2000

- COLLECTOR EXISTING
- COLLECTOR PROPOSED
- CORRIDOR PROPOSED
- MAJOR ART EXISTING
- MAJOR ART PROPOSED
- MINOR ART EXISTING
- MINOR ART PROPOSED

- Areas of Critical Environmental Concern
- NMSU
- WSMR / NASA
- Town of Mesilla
- City of Las Cruces

Future Land Use

- Vacant Land Through 2020
- Industrial Areas
- Commercial / Industrial
- Commercial Areas
- Rural Residential
- Low Density Residential
- Medium Density Residential
- High Density Mixed Use
- Mobile Home Areas



APPENDIX 5

UNITED STATES SECTION, INTERNATIONAL BOUNDARY & WATER COMMISSION RIO GRANDE CANALIZATION PROJECT ENVIRONMENTAL IMPACT STATEMENT

Description

The Rio Grande Canalization Project covers 105 river miles from Percha Diversion Dam, New Mexico south to El Paso, Texas. The USIBWC operates and maintains the project to facilitate Rio Grande water deliveries to users in southern New Mexico, west Texas, and Mexico. The Canalization Project was constructed between 1938 and 1943 in compliance with the convention between the United States and Mexico concluded May 21, 1906 to provide for the equitable division of the waters of the Rio Grande for use in the two countries. The project included acquisition of right of way for the river channel and adjoining floodways and improvement of the alignment and efficiency of the river channel to convey water deliveries. The Canalization Project also controls floods by means of a levee system in the river reach that extends through the Rincon and Mesilla valleys of New Mexico and El Paso Valley of Texas.

The USIBWC, in accordance with the National Environmental Policy Act (NEPA) of 1969, evaluated river management alternatives for future operation and maintenance of the Canalization Project to enhance ecosystem restoration while accomplishing the flood control and water delivery mission. The alternatives analyzed in the Draft Environmental Impact Statement, released for public review and comment in December 2003, can be summarized as follows:

No-Action Alternative: Continues current operation and maintenance activities.

Flood Control Improvement Alternative: Considers an increase in flood containment capacity by raising levees along 60 miles, constructing 6 miles of new levees, and building a 2.8 mile floodwall in the Canutillo, Texas area. Additionally, changes would be made in the livestock grazing lease management program to reduce erosion.

Integrated USIBWC Land Management: In addition to the flood control improvement and erosion protection works of Alternative 2, this alternative incorporates environmental measures within the floodway in lands under USIBWC jurisdiction. Planting of native riparian species in the floodway would be coupled with stream bank reconfiguration to allow overbank flows within the floodway.

Targeted River Restoration: This alternative also builds on the improvements of Alternative 2, with emphasis on environmental measures associated with partial restoration such as pulse water flows to promote riparian corridor development, opening of meanders, and modification of arroyos to increase aquatic habitat diversification. Environmental measures would extend beyond the USIBWC right of way through the use of voluntary conservation easements.

The DEIS identifies potential river restoration enhancement measures as linear and point projects. Linear projects extend over several miles of the Canalization Project and are identified by four measures: 1) modification of grazing practices to control erosion and reduce sediment load, 2) modification of grassland management (mowing regimes), 3) use of seasonal peak flows to promote regeneration of native riparian vegetation, and 4) voluntary conservation

easements (agriculture and preservation easements). Point projects are limited to site specific locations offering unique opportunities for implementation of environmental measures. Point projects, likewise, are represented by four measures: 1) planting native vegetation or enhancement of existing bosques, 2) bank shavements, 3) opening former meanders, and 4) modification of dredging at arroyos.

Within the 11-mile corridor from Mesilla Diversion Dam upstream to Shalem Colony Trail Bridge, linear project opportunities include nearly 140 acres of modified grazing and some 300 acres of grassland management modification. Point projects within the same reach include about 137 acres of native vegetation planting under both the Integrated USIBWC Land Management Alternative and Targeted River Restoration Alternative.

The Act of August 27, 1935 authorized the Secretary of State to lease lands to citizens of the United States through the International Boundary Commission (now the USIBWC). Pursuant to a letter dated September 12, 1949, Secretary of State Dean Acheson further delegated the authority to lease to the Commissioner. The Act of August 29, 1935 authorized the construction and operation of the Canalization Project. It is under these acts that the USIBWC grants permits for certain activities, including recreational use, within the project rights-of-way.

USIBWC Canalization Project
Las Cruces River Management Unit:
(Refer to page 41 for locations of the following sites.)

Spillway No. 5

Spillway No. 5 is a 30-acre site located on the eastern bank of the river at mile 50. The mouth of the Spillway could be converted into an embayment to provide wetlands and aquatic habitat. Cluster plantings of cottonwoods have become established on the western side of the river. The site is within a green zone and includes two Spillways and a pole planting area.

The cottonwood plantings should be expanded and additional native vegetation established. The point bar at mile 50.5 can be regarded to slope more gradually to the water's edge for additional wetland habitat. Managing the site in conjunction with Las Cruces parks and recreation would maximize the benefit of enhancement actions. The Las Cruces sites provide good multiple use management opportunities.

Spillway No. 39

Spillway No. 39 is a 42-acre site. The site is within the right-of-way and includes areas on both sides of the river. The areas are currently mowed. Residential and commercial development exists east of the right-of-way and agricultural land uses are adjacent to the western edge of the right-of-way.

The mouth of the Spillway could be converted into an embayment to provide wetlands and aquatic habitat. Plantings on the right-of-way at mile 48.5 can be expanded to provide additional native vegetation for uplands and riparian habitat. Managing the site in conjunction with Las Cruces parks would maximize the benefit of enhancement actions. An embayment at this location would create additional aquatic habitat. In addition, the relatively wide right-of-

way at this location allows space for planting of cottonwoods and other native vegetation near the embayment for additional habitat.

Spillway No. 8

Spillway No. 8 is a 26-acre site entering the east bank of the river at mile 47.5. The site is currently mowed and bounded by a levee. Agricultural land is east of the levee.

An embayment at this location would create additional aquatic habitat. In addition, the relatively wide right-of-way at this location allows space for planting of cottonwoods and other native vegetation near the embayment for additional habitat.

Spillway No. 39A

Spillway No. 39A is a 23-acre site entering the east bank of the river at mile 46.5

An embayment at this location would create additional aquatic habitat. The right-of-way is relatively narrow and does not provide much room for additional vegetation.

Clark Lateral and Alamo Drain

The USIBWC right-of-way extends past the levee to the Clark Lateral on the east side of the river at mile 43. Grass and shrubs dominate the area due to mowing, although some mature acacia and cottonwoods are present at the south end. Wetlands vegetation includes *Scirpis americanus* and *Distichlis spp* (salt Bermuda). Little non-native vegetation was noted.

The area outside the levee could be used to establish wetlands habitat. Soil samples taken during irrigation season indicated that soil moisture was high near the surface of the ground. Vegetation in this area would not impact flood flows. Inside the levee, the right-of-way is relatively wide indicating that native vegetation could be established without restricting flood flows. A river channel originally flowed through this area, and this flow could be reestablished by excavating the old channel. An island would be created to provide riparian habitat and the slow velocity water in the excavated channel would provide aquatic habitat.

NMDGF Bosque (Picacho Bosque)

A privately owned tract of land on the west side of the river near mile 41.5 has been identified by SWEC as the potential site of Bosque Park. The presence of an old channel through the tract is evident from vegetation and from historical maps. Undeveloped land south of this tract is owned by NMGF, locally known as Picacho Bosque.

Reportedly, the EBID has verbally agreed to allow water from the nearby Picacho Drain to be diverted through a meandering course and out of the levee. Riparian and wetlands vegetation would be established in the park.

In coordination with this concept, the west levee could be set back to allow the floodway to encompass the park. This would provide additional floodway capacity to permit native vegetation to grow on both sides of the river. Water from Picacho Drain could also be allowed to flow into the NMGF property, creating additional riparian habitat.

Mesilla Dam

Mesilla Dam is a small 1-acre tract located at mile 39.5 but includes almost 15 acres of potential aquatic habitat.

The primary enhancement actions are for improving aquatic habitat. The key to enhancements is to provide a diversity of aquatic habitat during high flow conditions such as still backwater areas. Improvements include creating a stepped channel leading from the dam spillway (fish passage) that would connect approximately 1- acres of low-velocity water upstream of the dam.

APPENDIX 6

SOUTHERN NEW MEXICO OUTDOOR RECREATION MASTER PLAN

Four sites along the Rio Grande were identified in the 1984 Southern Rio Grande Outdoor recreation Master Plan as potential recreation areas. These are:

Shalem Bridge

Existing conditions:

1. No existing public facilities
2. Narrow floodplain
3. Vegetation and wildlife

Proposed Improvements:

1. Picnicking – limit day use on east bank; continue picnicking and boating access; provide comfort station outside levee area
2. Vehicular circulation – Designate a total parking area of 30 spaces (15 paved and 5 overflow)
3. Landscaping – Provide trees and erosion control planting

Sage Property (Mesilla Bridge)

Existing Conditions:

1. No existing public facilities
2. Wildlife Preserve, \pm 25 acres
3. Vegetation/Wildlife

Proposed Improvements:

1. Continue wildlife reserve area
2. Allow horseback riding trail access
3. Verify State ownership

Old Refuge (Picacho Bosque)

Existing Conditions:

1. No existing public facilities
2. Wildlife reserve, \pm 60 acres
3. Vegetation/Wildlife

Proposed Improvements:

1. Continue as bird/wildlife reserve area
2. Allow restricted walk-in/bird watcher access
3. Verify State ownership

Mesilla Dam

Existing Conditions:

1. No existing public facilities
2. Day use (no designated spaces)
3. Historic dam site
4. Private Las Cruces Motocross Park to the southwest
5. Adjacent dump site to the west
6. Private grazing lease areas to the south
7. Vegetation/Wildlife
8. Ownership (EBID and private lands)

Proposed Improvements:

1. Provide portable chemical toilets
2. Rehabilitate day use area, including tree planting and erosion control, 8 to 10 picnic unites and parking for 10 to 15 vehicles.
3. Improve designated road system, including traffic control and surfacing of selected roads and parking areas on the east side of the river.
4. Control northwest river trail access and limit to walk-in and service only.
5. Establish a bosque/wildlife reserve area on northwest lands.
6. Acquire bosque/wildlife reserve area to the northwest and southwest of Mesilla Bridge.

Note: The Bureau of Reclamation would discourage any formal recreation development at Mesilla Dam. Although the dam's environs are presently used for unsupervised recreation, any formal recreational development would make operation and maintenance of the dam more difficult, particularly in terms of vandalism, trash, and increased traffic problems associated with the one-lane roadway over the dam.

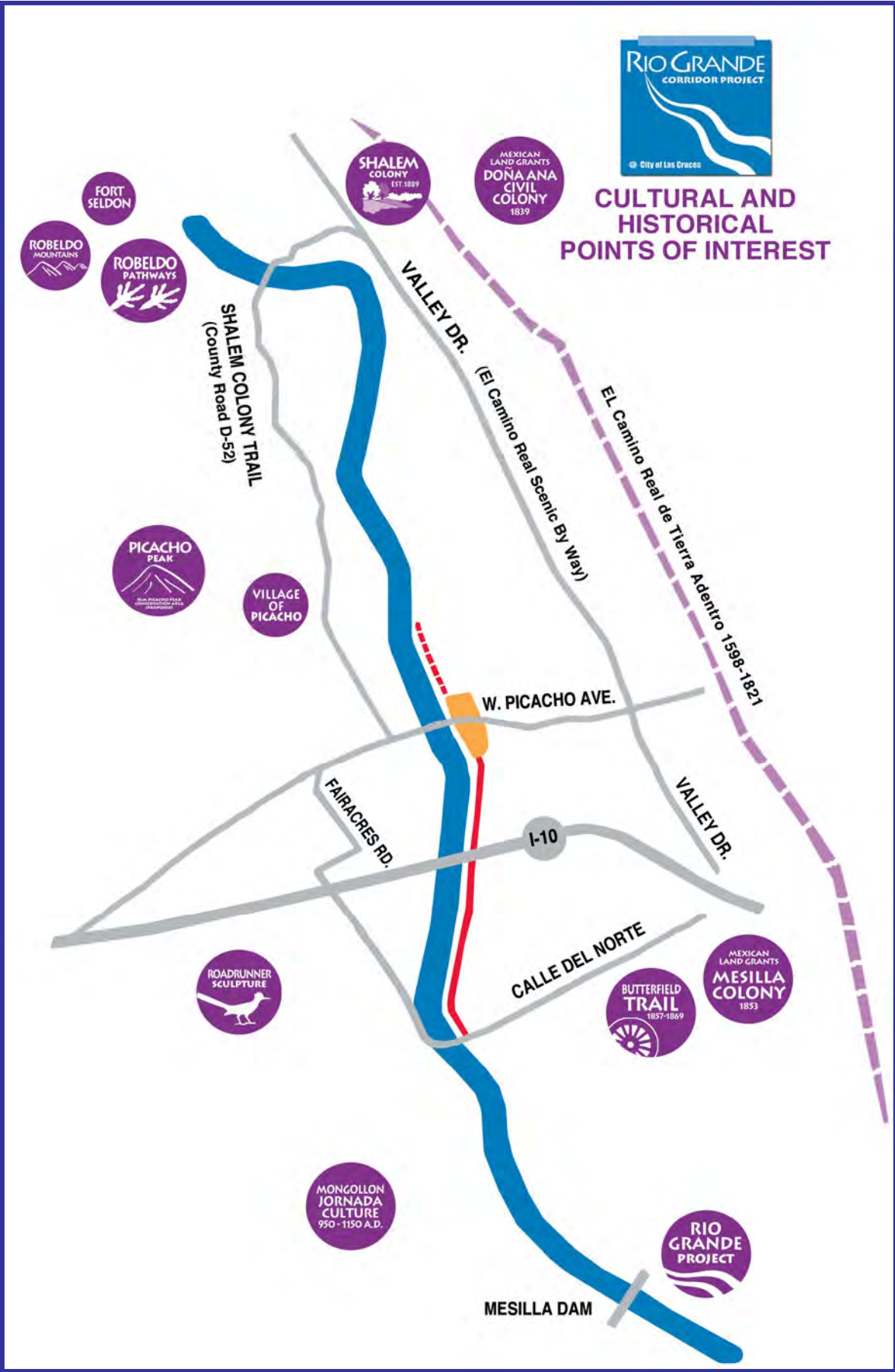
APPENDIX 7

CULTURAL AND HISTORICAL ASSETS ALONG CORRIDOR

- **Box and Apache Dams and Canyons.** These canyons in the southern Robledo Mountains have excellent exposures of river deposits of the ancestral Rio Grande, 3.5 – 2.5 million years ago. Sedimentation at these sites ended when the area was uplifted along the East Robledo fault, forcing the river onto the downthrown block towards Las Cruces.
- **Butterfield Trail.** Named for John Butterfield, the Butterfield Overland Mail route ran 2701.5 miles from St. Louis, MO, to Stockton, CA. The mail route lasted from 1857 to 1869, but the Butterfield Trail continued to be major stagecoach route west until 1881, when the southern-route transcontinental railroad was completed. The trail entered the Rio Grand Valley north of Picacho Peak and had a stop in Mesilla at what is now La Posta Restaurant.
- **El Camino Real/Chihuahua Trail.** Established in 1540, this north-south trail was used by Spanish explorers to look for the fabled "Seven Cities of Gold." It traversed what is now Dona Ana County, south to north, following the Rio Grande most, but not all, of the way through the county.
- **Los Tules Site, Mogollon-Jornada Culture.** On the bluffs overlooking the Rio Grande is this site of a Mesilla Phase Mogollon pit house (believed to be one of several in the area dating from 950 -- 1150 A.D. The Mogollon, along with the Anasazi and Hohokam, were the earliest Native American cultures found in the Southwest, and their presence has been documented all along the west mesa. One group of Mogollon that settled in the Mimbres River Valley north of Deming is famous for the distinctive imagery on their pottery.
- **Mt. Robledo Heliographs** -- These ingenious devices sent Morse code by flashes of sunlight. With a telescope, messages sent from one mountain peak to another could be read from long distances, and then be relayed to the next station. In the Chihuahuan Desert, Fort Selden was responsible for a heliograph station on top of the Robledo Mountains.
- **Paleozoic Trackways.** In the Robledo Mountains near the village of Dona Ana, this is the site of perhaps the world's best preserved fossil footprints – trackways – of early Permian animals that roamed the earth 70 million years before the dinosaurs. They are considered to be among the best examples yet discovered, and have drawn the attention of paleontologists from around the world. This area is protected by the Bureau of Land Management.
- **Pedro Robledo's grave.** Robledo was a colonist during the term of Gov. Juan de Oñate, and died in the vicinity. He was buried across from Ft. Selden. The nearby mountain range bears his name, as does a military camp, active in 1853 and 1861–1863, used by both federal and Confederate soldiers in campaigns against the Apaches.
- **Picacho Peak.** Volcanic geological formation with fossils
- **Shalam Colony** – 1881–1907. This compound was created by religious cultists who raised orphan children. Some original buildings are still standing. The site is located north of Las Cruces, near the Village of Dona Ana.
- **The Gadsden Purchase** -- By the treaty of Guadalupe-Hidalgo, signed February 2, 1848, at the close of the Mexican War, the Republic of Mexico ceded to the United States the territory now comprising most of New Mexico, Arizona, California, Colorado, Utah and Nevada. This constituted about 200,000 square miles or two-fifths of Mexico's territory at the time. When the property was surveyed to mark international boundaries, it was discovered that the Mexican border was miscalculated. Additional land was purchased

from Mexico -- parts of southern New Mexico and Arizona -- and became part of the United States. Named for James Gadsden (1788–1858) who brokered the deal.

- **The Mexican Land Grants.** These were created to help small villages keep their identities after the U.S.–Mexican War. Only lands west of the (then) Rio Grande were granted. The flood in the 1860's moved the river to its present location. The Mesilla Colony Tracts 1 and 2 (in 1853) were comprised of over 21,600 acres, thus creating the Town of Mesilla. The Dona Ana Civil Colony (1839), now the Village of Dona Ana, was 35,000 acres.
- **The Rio Grande Project** and the EBID network of dams, canals and drains, including Mesilla Dam, Dona Ana and Madre (Mesilla) Acequias (Drains). The Rio Grande Project furnishes a full irrigation water supply for about 178,000 acres of land and electric power for communities and industries of the Rio Grande Valley in south–central New Mexico, west Texas and Mexico. The Project is listed on the State Register of Cultural Properties.
- **Roadrunner Sculpture** – Created in 1992 by artist Olin Calk, the Roadrunner is made entirely of salvaged materials from the City of Las Cruces Landfill. The bird, which stands 20 feet high and measures 42 feet long from beak to tail feather tips, has been billed as the world's largest roadrunner. It sits atop the Scenic View rest area west of the Rio Grande.
- **Village of Old Picacho** -- settled in 1867–68 on the banks of the Rio Grande at the foot of Picacho Peak. It was a stage road at one time and the first stop north of the town of Mesilla on the Butterfield State Route.



APPENDIX 8

PUBLIC INPUT AND SURVEY RESULTS

“The City of Las Cruces is developing a Comprehensive Plan which will guide potential development of the Rio Grande area in such a way that ensures protection of natural resources, wildlife habitat, and the valley’s agricultural base. The following questions are designed to give us an idea of what types of development, if any, the public would like to see. Questions 1–4 were optional, and asked the following: 1) Age: 2) Gender: 3) Approximately how far do you live from the Rio Grande? 4) Do you have school-aged children (i.e. under 15)?”

The Answers to Questions 5 through 13 were compiled and summarized as follows.

Question 5 What activities should be encouraged along the Rio Grande?

Activity	% of responses
<u>Mobility</u>	> 100%
Walking	43%
Biking	37%
Hike	20%
Run	18%
Rollerblade	2%
Parks & Recreation	42%
Nature	34%
Habitat Restoration	28%
Fishing	19%
Non-motorized Boating	15%
Enforcement	9%
Horseback Riding	9%
Culture	7%
Economic	5%
Swimming	4%
Hunting	3%
Camping	3%
Dog walking	1%
Motocross	< 1%
Extend trail	< 1%

Question # 6: What activities should be discouraged along the Rio Grande?

Activity	% of responses
Motorized Vehicles	51%
Hunting and shooting	34%
Drinking, partying, IV drug use, and fireworks	29%
Littering, illegal dumping, oil change	23%
Swimming	13%

Commercial development	13%
Residential development	13%
Agriculture, livestock grazing, stockyards and cessation of flows during non-irrigation season	7%
Camping	5%
Noise pollution	5%
Motorized boats	3%
Mowing of vegetation	3%
Activities that harm the river and environment	3%
Fishing	2%
Lighting	2%
All activities associated with people	2%
Parks	2%
Dogs without leashes	2%
Unspecified illegal activities	2%
Large social gatherings	2%
Sewage discharge	1%
Activities that result in erosion and dust	1%
Horseback riding	1%
Concerts	1%
Trespass onto private property and associated theft	1%
Salt Cedar	1%
Pedestrian and bike trails	1%
Rafting	1%
Field sports	1%

Question # 7: What type of activity do you currently enjoy along the Rio Grande?

Activity	% of responses
Walking (hiking)	68%
Bird watching, nature watch	48%
Biking	32%
Picnicking	12%
Horseback riding	8%
Fishing	6%
Quietness	3%
Canoeing	2%

Question 8: What is your biggest concern related to activity along the river?

Activity	% of responses
<u>Increased Activity: (104)</u>	82%
Speeding	<1%
Dust	2%
Noise	3%
Safety	18%
Trash	33%
Patrolling	6%
Parking	< 1%
Traffic	17%
“Can’t get in and out of the river.”	<1%
<u>Illegal activity:</u>	20%
Illegal activity	3%
Robbery	5%
Vandalism	5%
Fireworks	<1%
Fires	<1%
Parties	6%
Homeless	<1%
<u>Sporting activities:</u>	26%
Hunting	9%
ATVs	9%
Shooting	5%
Swimming	2%
Horseback riding	<1%
Fishing	<1%
<u>Nature/Habitat:</u>	58%
Water conservation	10%
Development	9%
PollutioN	9%
Lack of bird sanctuary	<1%
Cutting trees	2%
Salt cedar	2%
Destruction of habitat	28%
“Irrigators’ control over riparian areas.”	<1%
<u>Property Ownership</u>	2%
Zoning restrictions	<1%
Respect for farmers	<1%
Devaluation of property values	<1%
Mosquitoes	3%

Question # 9: What are the top 3 amenities that you would like to see along the Rio Grande?

Activity	% of responses
Trees and vegetation, wetlands, nature park and interpretive signage	67%
Pedestrian and jogging trails	64%
Bike trails	34%
Bathrooms	24%
Trash cans	21%
Benches	18%
Picnic facilities	15%
Water fountains	11%
Boating and launch area	10%
None	9%
Increased security	8%
Agriculture	1%
Parking lot	3%
Camping	1%
Fishing	1%
Water flowing in the river	1%
Shade shelters	1%

Question # 10 What types of resources need to be protected or restored?

Resources	% of responses
Wildlife	50%
Vegetation	48%
Water and Water Flow	46%
Natural Habitat	21%
Trees Cottonwood	13%
Fishing	11%

Question 11 Would you visit a nature park along the river?

Number of responses: 131
 Number of Yes's: 111 or 85%
 Number of No's: 20 or 15%

Question # 12: What kinds of cultural opportunities would you like developed?

Activity	% of responses
Nature center, programs, walks incl. historical information about the river	36%
Music and theatre	19%
Unspecified educational opportunity	14%
None	14%
River festival	9%
Human historical programs, preservation and interpretive signage	6%
Cultural and visitor center	3%
Rafting	3%
Coffee shops	1%
Amphitheater	1%
Native American center	1%
Solar and wind demonstration areas	1%
Agriculture	1%
Monuments	1%

Question # 13: Would you visit a culture center along the river?

Summary:

- Total of 135 surveys responded to Question 13.
- 75 said they would visit a cultural center and 60 did not respond

Cultural Center	% of responses
YES	55%
No or no response	45%

APPENDIX 9

OPERATION AND MANAGEMENT PLAN FOR THE PICACHO WETLAND PILOT PROJECT Submitted by the Southwest Environmental Center, December 2002

Picacho Wetland Pilot Project Overview

Location and Management

The Picacho Wetland Pilot Project (Wetland Project) encompasses approximately 47 acres of riparian and upland habitats known as the Picacho Bosque Wildlife Management Area (PBWMA), owned and managed by the New Mexico Department of Game and Fish (NMDGF). The Wetland Project was developed through the collaborative efforts of the City of Las Cruces (CLC) and the Southwest Environmental Center (SWEC) with significant assistance from NMDGF, Elephant Butte Irrigation District (EBID), and the United States Section, International Boundary and Water Commission (USIBWC). The Wetland Project is coordinated and maintained by the SWEC in accordance with a 2001 Memorandum of Understanding (MOU) reached with the NMDGF, who retains full management authority of the area.

The Wetland Project is located 1-mile south of the Mesilla Bridge on the western bank of the Rio Grande, approximately 2 miles West of Mesilla, NM [See Map 1]. The 47-acre PBWMA is bisected on a north-south axis by the Picacho drain [See Map 2]. The Wetland Project is primarily focused on the western portion of PBWMA, as divided by the Picacho drain. Geographically, the northern boundary of the Wetland Project is the fence line just south of the USIBWC levee, the eastern boundary is the Picacho drain levee, the western boundary is the sandy bluffs of the West mesa escarpment, and the southern boundary is the NMDGF property line approximately 300 feet south of the confluence of the Picacho drain and the Rio Grande.

Project History

The Picacho Wetland Pilot Projects' roots date back to 1997 when the Southwest Environmental Center first developed a proposal for a Wetland restoration project at the PBWMA. However, restoration efforts such as cottonwood and willow pole plantings date back to the 1970's. The first funding for the Wetland Project, a small grant from the EPA Non-point sources pollution program, allowed SWEC to begin the initial planning for the project and to continue to recruit additional partners and funding.

In early 2001, the Wetland Project began in earnest when SWEC and NMDGF signed a MOU permitting the access, construction, monitoring, and maintenance of the project. In March 2001, SWEC was awarded additional funding for the Wetland Project from the EPA Wetland Program and the NMDGF Share with Wildlife Program. During this same period the CLC was awarded funding from the EPA for its Rio Grande Corridor Project, which included the construction of a pilot wetland project. The CLC formed a steering committee for the pilot wetland project that identified and evaluated 11 possible sites for the pilot project. On August 22, 2001 this steering committee selected the PBWMA as the preferred location of the pilot project. In February 2002, SWEC and the CLC signed a Sub-MOU (subservient to the SWEC/NMDGF MOU) to jointly develop the Picacho Wetland Pilot Project. The following month

EBID granted CLC and SWEC a Special Use Permit allowing modification of a portion of the Picacho drain for the purposes of the Wetland Project.

Restoration work including native tree plantings, beaver proofing trees, collecting native grass and shrub seeds, saltcedar removal, and flora and fauna monitoring was coordinated by SWEC beginning in early 2002 and continuing throughout this and subsequent years. In August 2002, Hydra Aquatics of Tijerras, NM., produced the *Picacho Wetland Pilot Project: Wetland Design, Restoration and Site Plan*. In November 2002, CMC Construction of Truth or Consequences, NM was hired by the CLC to excavate the wetland ponds. Excavation work began in January 2003 and was completed by the end of the year. *[Editor's Note: Excavation and construction of the wetland was completed in May 2003.]*

Physical Attributes

The Picacho Wetland Pilot Project encompasses approximately 47 acres of the PBWMA. Approximately 75% of the site is located in the historic Rio Grande floodplain with the remainder of the site located on the sand hills that form the transition between the floodplain and the west Mesa escarpment. Two large arroyos drain into the project site on its western boundary, creating large sandy alluvial fans that represent the majority of the upland habitats at the Wetland Project. Approximately half of the floodplain area is comprised of heavy clay soils with the remainder comprised of silty clay soils (Lozano 2001). Salinity tests conducted by Taylor (2002) revealed that salinity levels in these floodplain soils are exceedingly high, beyond the salinity threshold of many desirable riparian tree species. Lozano (2002), reported that groundwater levels in the floodplain area of the Wetland Project were an average of 1–3 feet below the surface. A 700-foot section of the drain bank has been breached in two locations at both ends of the drain bank directly adjacent to one of two ponds excavated in the floodplain section of the Wetland Project site. The larger and deeper of the two ponds, a palustrine wetland, encompasses approximately 2.3 acres. A shallower pond, wet meadow/emergent wetland, encompassing approximately 1.8 acres is connected to the larger pond via a 25-foot wide channel flowing through 1–3 5'diameter culverts.

Because of the direct hydrologic connection established between the constructed wetland ponds and the Picacho drain through removal of the drain bank, water levels within the constructed ponds is dependent on surface water levels in the Picacho drain. Water levels in the Picacho drain adjacent to the Wetland Project are greatly influenced by water levels in the Rio Grande due to the close proximity of the Wetland Project to the drains' confluence with the Rio Grande. Water levels in the Rio Grande are highly seasonal, corresponding with the irrigation season, with peak flows in the summer and minimal flows in the winter. While normally the variation between summer and winter water levels in the Picacho drain is approximately 2 feet, in most years, beaver dams on the Picacho drain at its confluence with the Rio Grande maintain stable year-round water heights. Like the Rio Grande, water flow in the Picacho drain is seasonal, corresponding with the irrigation season. During the height of the summer irrigation season water flow averages 10 cubic feet per second (cfs) (2 acre/feet per day). This flow drops to an average of 2 cfs during the winter months. The average pan evaporation in the wetland project is 6 feet/yr.

Biological Attributes

The PBWMA is of great ecological importance to the flora and fauna of the Rio Grande corridor because it contains some of the last remnants of a once-common habitat in the Rio Grande

valley of southern New Mexico. According to data presented by Stotz (2000), 98% of the native riparian forest in the Mesilla Valley has disappeared since the 1800's. Agricultural and Municipal development has claimed most of the once broad floodplain of the Rio Grande and what remains of the Rio Grande floodplain is a narrow strip of mowed grassland between the riverbank and levees. Because of this great scarcity of riparian forest habitats, those that do remain, like the PBWMA, retain great ecological importance.

Ongoing surveys conducted by SWEC staff and volunteers, NMSU students, and the Mesilla Valley Audubon Society have gathered a considerable amount of information regarding the flora and fauna of the project site. The project site is refuge to at least 27 plant species, 256 birds, 21 fish, 61 reptiles and amphibians, and 38 mammals (Kay Casa 2002, Stotz 2002, NMSPD 2002).

Six general vegetation communities are present at the project site. These communities include: saltcedar monocultures, coyote willow thickets, saltgrass meadow, emergent marsh, cottonwood gallery, and upland grass and shrub. The following are the descriptions of the habitat types in Wetland Project:

Saltcedar Monoculture – Extensive stands of dense, mature saltcedar trees ranging from 15–35 feet tall. Stands have no interspersed native vegetation or ground cover. Displaced native vegetation includes cottonwoods and upland grass and shrubs. The saltcedar stands are restricted to the sandy alluvial deposits from the two large and numerous small arroyos on the western boundary of the project site. These stands occupy approximately 15 acres of the project site.

Coyote Willow Thickets – The wettest and southern portion of the floodplain soils (silty clay) is occupied by a 6 acre stand of 15–20' coyote willow. The dense stand of coyote willow receives considerable disturbance from beavers and has a scattered under story of bullrush, yellow-nut sedge, and seep willow. Coyote willow thickets are easily propagated from harvested 'whips' planted in saturated soils.

Saltgrass Meadow – The northern half of the floodplain soils at the site are occupied by saltgrass groundcover. Shrubs, including 4-wing saltbush, wolf berry, screwbean mesquite, and seep willow, of various densities occupy portions of the saltgrass meadow community. This community is exceedingly rare in southern New Mexico and difficult to reestablish.

Emergent Marsh – This plant community exists within and around the excavated wetland ponds. Common species include cattails, bulrush, Torrey's rush, American sedge, three-sided sedge, and yellow-nut sedge.

Cottonwood Forest – This community has retreated in size as beaver predation and increasing salinity levels have rendered large portions of the site unsuitable for cottonwood forests. A half-acre stand of 30 year old cottonwoods with a dense under story of three-leaf sumac remains in the southwest corner of the Wetland Project site. Scattered mature cottonwoods and Gooding's willow occur throughout the project site.

Upland Grass and Shrub – The xeric portions of the site that are not occupied by saltcedar monocultures are comprised of a mixed community of grass and shrubs. Honey mesquite and 4-wing saltbush predominate this community type. Scattered grasses, cactus, and yucca are also found in this community.

Due to its diverse vegetation communities and proximity to both upland and riparian habitats, the PBWMA provides a rare refuge to a wide range of animals. Common mammals include coyote, bobcat, beaver, long-tail weasel, muskrat, cottontail rabbit, and eight species of rodents and two bats. Reptiles include diamondback rattlesnake, king snake, red eared slider, spiny soft-shell turtle, and four small lizard species. Up to 21 species of native and non-native fishes occur in or adjacent to the PBWMA (Kay Casa 2002). Species accounts from Audubon Christmas Bird Count and other surveys have found 256 bird species occurring in the PBWMA. The high number of bird species is due to diverse riparian and upland habitats found in the project site and includes both resident and many migratory species.

A number of rare or threatened and endangered animals occur or likely occur within the PBWMA. These species and their status are as follows:

Anthony Blister Beetle	<i>Lytta mirifica</i>	Fed-SOC
Texas Horned Lizard	<i>Phrynosoma cornutum</i>	Fed-SOC
White-faced Ibis	<i>Plegadis chihi</i>	Fed-SOC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Fed-Threatened
Common Ground Dove	<i>Columbina passerina pallescens</i>	State-Endangered
Burrowing Owl	<i>Athene cunicularia hypugaea</i>	Fed-SOC
Western Yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Fed-candidate (warranted)
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	Fed-Endangered
Bell's Vireo	<i>Vireo bellii</i>	State-Threatened
Varied Bunting	<i>Passerina versicolor</i>	State-Threatened
Fringed Myotis	<i>Myotis thyssanodes</i>	Fed-SOC
Yuma Myotis	<i>Myotis yumanensis</i>	Fed-SOC
Pecos River Muskrat	<i>Ondatra zibethicus ripensis</i>	Fed-SOC
Desert Pocket Gopher	<i>Geomys bursarius arenarius</i>	Fed-SOC

Administration

The NMDGF, as the owner of the PBWMA, has the ultimate responsibility for management of the area and final decision power in proposed improvements. The June 2001 MOU signed between NMDGF and SWEC permits access, construction, monitoring, and maintenance needed to undertake the Wetland restoration project. This MOU has a term of 5 years and an option for renewal of another 5 years. All commitments made in the Operation and Management Plan are valid only as long as this MOU is in effect.

In February 2002, SWEC signed a Sub-MOU with the CLC to partner in the construction and development of the Wetland Project. This Sub-MOU expires in June 2003. As per this Sub-MOU, SWEC agrees to maintain the functionality and coordinate public access to the Wetland Project so long as the MOU between NMDGF and SWEC is valid. *[Editor's Note: The Sub-MOU expired with the completion of wetland construction in May 2003.]*

In February 2002, SWEC and CLC were granted a Special Use Permit by the EBID to use the Picacho drain as the water source for the Wetland Project. EBID will retain full management authority over its lands and will conduct all work associated with the Wetland Project on its property. Prior to expiration of the current permit on June 13, 2006, SWEC will request the EBID that a second Special Use Permit be granted so that the project can continue beyond the term of the current permit.

SWEC will obtain all necessary permits from USIBWC to allow for limited vehicular access and non-motorized public access across its levee road between the Mesilla Bridge and the north end of the Wetland Project. These permits shall be secured in timely manner to allow promotion of public access by Fall 2003. *[Editor's Note: Status unknown.]*

Upon approval by SWEC, NMDGF, CLC, EBID, BOR, and USIBWC, this document becomes the principal guide for operation and maintenance of the Wetland Project by SWEC. Full implementation of this plan shall begin no later than June 2003.

The principal manager of the Wetland Project shall be the SWEC's Field Restoration Coordinator (FRC). The FRC will report directly to the Executive Director, who reports to SWEC's Board of Directors.

A project steering committee comprised of project stakeholders and technical experts was originally assembled by the CLC to assist with planning of the Wetland Project. This group will remain intact to act as an informal advisory board throughout the term of the Wetland Project.

Goals

It is the Primary Goal of the Picacho Wetland Pilot Project to restore, preserve and manage in as near natural conditions as possible the PBWMA as an example of riparian and related ecosystems of the Rio Grande in southern New Mexico.

A Secondary Goal is to protect rare, threatened and endangered plants, animals, and habitats that occur in the PBWMA.

A Tertiary Goal is to fully develop the Wetland Project's potential as an example of a riparian restoration project. Experiences, recommendations, pitfalls, and technical expertise will be used to promote and encourage future wetland restoration projects in southern New Mexico.

A Subordinate Goal is to permit and encourage human uses of the PBWMA that do not unduly conflict with the Primary and Secondary Goals of preservation of these values. Whenever there is a conflict in determining appropriate uses of the Wetland Project, the two preservation goals shall prevail over the Subordinate Goal.

Uses of the Picacho Wetland

Use of the Wetland Project shall be managed so that public use of the site remains compatible with the wildlife needs and goals set for the PBWMA.

The following are the permissible uses of the Picacho Wetland Pilot Project:

1. As habitat for native plants and animals.
2. For recreational observation of scenery, geology, plants and animals, within allowed public access areas. Public boating, canoeing or swimming is not allowed in the Wetland Project. All pets must remain in control of their owner at all times. No motorized vehicular access is allowed. Bicycle and horseback access is allowed. No livestock may graze in any portion of the Wetland Project. The U.S. section of the United States

Section, International Boundary and Water Commission will be responsible for enforcing public access regulations on the levee road.

3. For fishing. Hunting in the Wetland Project area is highly discouraged due to the immediate proximity of residential housing to the western boundary of the PBWMA. Hunting can only be prohibited on NMDGF lands through direct action of the NM Game Commission. SWEC will pursue removal of the PBWMA from NMDGF lands open to hunting. The NMDGF will be responsible for enforcing all hunting and fishing regulations.
4. For scientific study and research of plants and animals and their environment.
5. As an outdoor classroom for carefully controlled visits by schools, colleges, and other community groups for study of plants, animals and their environment.
6. For only those necessary minimum human developments in accordance with the adopted goals.
7. Miscellaneous – For uses not enumerated above, but allowed only by formal action of NMDGF.

NOTE: Any use not in accordance with the above should be reported to SWEC and NMDGF and/or Dona Ana County Sheriff Department.

Scientific Research

Scientific research is permitted and encouraged in the Wetland Project. The highest priority for research is to contribute to the annotated checklist of plants and animals that occur in the PBWMA and monitoring the ecological effects of habitat manipulations. All proposed research must be approved by appropriate state and federal agencies, and coordinated with SWEC. SWEC will request copies of reports from studies done at the Wetland Project. Such records will be permanently stored in SWEC's library and disseminated to interested parties.

SWEC will establish 7 permanent camera positions to record ecological changes at quarterly intervals [See Map 5]. SWEC staff will collect and compile this data into an annual Restoration Progress Report. Overall ecosystem condition will be assessed annually using TR 1737-15 1998 (BLM), *A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas*. The Wildlife Science department at NMSU will continue to conduct annual flora and faunal surveys. Results of their studies are available at http://leopard.nmsu.edu/wlsc_555/default.htm. Collected specimens are housed in the department's museum collection.

Development and Management of the Resources

Public Access and Use

Minimum developments (i.e. Trails, viewing blinds, signage) are allowed only as they are essential to provide for the permitted uses of the Wetland Project under the adopted goals. Developments by themselves are not to be an attraction to visitors, but are permitted only to facilitate observation and protection of the natural values of the Wetland Project. All

developments must be approved by NMDGF and will be maintained by SWEC so long as the MOU is in effect. NMDGF retains full management authority at the PBWMA, including the Wetland Project. The Picacho drain and any structures within it are the property and responsibility of EBID and are not part of the Wetland Project. The USIBWC levee used to access the Wetland Project is the property and responsibility of USIBWC. SWEC will obtain and maintain any and all necessary permits from USIBWC to allow for unrestricted non-motorized public access and limited vehicular access for maintenance and other permitted events across its levee right-of-way between the Mesilla Bridge and the Wetland Project. SWEC shall maintain \$1,000,000 general liability coverage for its direct actions associated with the Wetland Project.

All public access to the Wetland Project will conform to the public access requirements and restrictions as set forth in the MOU (NMDGF/SWEC), Sub-MOU (SWEC/CLC), Special Use Permit (EBID-SWEC/CLC), and the above-mentioned USIBWC permit. SWEC will encourage public use of the Wetland Project according to the following conditions:

- Only non-vehicular access is permitted
- Access shall be free of charge
- Access to the Wetland Project will be via the USIBWC levee road leading south from Mesilla Bridge
- Pets shall remain in control at all times and prevented from grazing, and pet owners will be responsible for cleaning up after their pets.
- Visitors shall refrain from entering posted portions of the wetland project site due to habitat protection or restoration efforts.
- SWEC shall advertise and provide 4-guided tours of the Wetland Project per year

The general public will access the Wetland Project via the USIBWC levee road leading south to the site from the Mesilla Bridge [See Map 2]. Parking will be allowed in the small dirt areas on the north and south sides of the Mesilla Bridge. The Picacho Wetlands trailhead and parking areas will be properly signed. The gate across the levee road at the Mesilla Bridge will remain locked at all times, allowing only non-motorized public access along the levee road to the Wetland Project, a distance of 1-mile. Immediately after the levee road crosses the Picacho drain, the Nature Trail leading over the observation hill to the south will provide entry to the Wetland Project [See Map 4]. General public access to the Wetland Project from Mesilla Hills Drive (private) is illegal and will be strongly discouraged and appropriately signed. The levee leading to, and roads within, the Wetland Project are to be used by motorized vehicles only for approved maintenance, research, and protection of the Wetland Project. However, the levee road leading to the Wetland Project shall occasionally be used for specifically permitted and highly controlled public vehicular access, as per the previously mentioned USIBWC permit.

Visitors must stay on the designated trails to minimize destruction of vegetation, disturbance of wildlife, and for their own protection. Certain areas of the Wetland Project may temporarily be off-limits to the public while restoration work is in progress. The trail system [See Map 4] is designed to take visitors through all habitat types at the Wetland Project. A small observation blind, to be constructed from plant and earth materials at the site, will allow visitors and researchers to observe wildlife from the elevated portion of the trail crossing over the culverts connecting the wetland ponds. A viewing area with benches will be available from the top of the hill created from the spoil dredged from the wetland ponds. Several benches constructed of saltcedar will be placed along the trails within the Wetland Project. A trash receptacle will be located at the entrance to the Wetland Project. SWEC will be responsible for upkeep of this trash receptacle. Handicapped and disabled persons unable to travel the 1-mile distance along

the levee to the project site will have the opportunity to participate in guided tours of the Wetland Project, described in the next section 'Interpretation,' that will include a controlled car pool along the levee to the project site. One vehicle will be accessible. Improved trails are designed to have a maximum slope of no more than 13% and the 5' wide walkway will be constructed of crusher-fines to facilitate accessible travel. Unimproved trails shall be cleared of aerial vegetation but will not have a maintained trail surface.

It is the responsibility of SWEC to coordinate posting of the perimeter of the project site and access routes with signs detailing rules within the Wetland Project area. SWEC will coordinate with project partners in developing the content of posted signs. SWEC shall request assistance from NMDGF, USIBWC, and EBID in producing signage that details the permitted uses and relation to the Wetland Project of their respective lands. SWEC shall request assistance from CLC for production of informational and educational signs. Posting will consist of the following:

1. All rules and regulations will be posted on signs at the locked levee gate at the Mesilla Bridge and at the start of the nature trail at the entrance to the Wetland Project.
2. Signs stating the wetland project and access rules will be posted around the perimeter of the Wetland Project at all points of logical public access.
3. NMDGF signs stating the PBWMA will be posted at the same frequency as above in accordance with 19.3110.19 NMAC.
4. Warning signs will be placed on trails and roads that have recently been obstructed by fence repairs or construction of a gate.

The PBWMA was fenced with a 4-wire barbed wire fence in 1990. Since then the fence has been cut in numerous places where roads or trails were obstructed by the fence. Funds will be sought to repair the fence and to construct gates at all access roads. Any fence repairs or gate construction that obstruct access across a road or trail will be clearly marked with bright paint and flagging. Signs will warn persons traveling on such roads and trails of the existence of an upcoming fence or gate. It will be the responsibility of SWEC to ensure that all fences and barriers are in good repair.

Habitat Restoration

In order to maximize the ecological potential of the Wetland Project several habitat manipulations are planned. Restoration activities are intended to enhance existing native vegetation, create additional native habitats, and control threats posed by exotic species. Additionally, saltcedar removal is in effect serving as the water source for the Wetland Project. EBID has determined that the water savings realized through the removal of 8.2 acres of saltcedar [1 acre of open water requires removal of 2 acre saltcedar (King 2002)] shall be sufficient to off-set increased depletions in the Picacho drain associated with the construction of 4.1 acres of ponded water. Based upon recommendation presented by Taylor (2002) and Coleman (2002), SWEC has developed a Vegetation Management Prescription for the Wetland Project. The prescribed habitat manipulations are listed according to vegetation community type below [See Wetland Vegetation Communities Map, below]:

Saltcedar Monoculture - Approximately 8 acres of monolithic saltcedar stands located on the alluvial fan of the two large arroyos will be removed during early 2003 using bulldozers and root plows. A narrow band of saltcedar trees spanning the width of the arroyos just above the floodplain will remain intact in order to anchor the sandy soils. This narrow band of trees will be killed and the aerial vegetation left intact through the ground application of Garlon or Arsenal brand herbicide. Re-vegetation efforts will begin immediately after each area is mechanically cleared (and slash burned) in order to reduce erosion. Low wooden structures constructed of salt cedar will be used to slow water flowing through the treated areas. This will further reduce soil erosion, as well as protecting planted seeds and increasing surface water percolation to the groundwater. Follow-up treatments of re-sprouting saltcedar will occur each year using trained goats in a managed grazing regime to suppress saltcedar re-sprouting.

Native grasses and the upland shrub, 4-wing saltbush, will be seeded from locally collected and purchased seed stock. Saltbush will be seeded immediately after salt cedar removal and grasses will be seeded at the onset of the 2003 summer monsoon season. 1000 - 1500 honey mesquite seedlings will be planted immediately following the saltcedar removal. Substantial natural recruitment of upland species such as honey mesquite, saltbush, and Yucca should also occur in this area.

In addition to above mentioned upland species, at least 100 cottonwood trees will be planted in the cleared alluvial fans in areas with adequate depth to groundwater (approximately 3 acres) and suitable maximum salinity levels. Because of the flushing action of the arroyos, these two areas have the lowest salinity levels at the project site and are the only area suitable for cottonwood revegetation. Cottonwoods will be planted using dormant pole plantings acquired from the USDA Plant Material Center in Los Lunas, NM. These plantings will occur during the winter months immediately following salt cedar removal. SWEC will request that the CLC provide a utility truck and crew to auger approximately 50 12"-diameter holes, averaging 5-10 feet in depth, depending on the distance to groundwater, to facilitate cottonwood plantings on the alluvial fan.

Coyote Willow Thickets - The existing coyote willow community will be enhanced through the creation of seasonal inundation of the willow stand resulting from high-water flows in the Rio Grande backing up into the Wetland Project. The coyote willow community will be expanded through numerous plantings of whips collected on-site. These plantings will be focused on the littoral zones of both ponds. Plantings will occur during the winter months.

Saltgrass Meadow - The saltgrass meadow will largely be left in its current state. Monitoring will be conducted to measure the encroachment of seep willow shrubs on the open saltgrass meadows. If shrub encroachment increases, disturbance regimes such as disking or controlled burns will be evaluated and potentially implemented.

Emergent Marsh - Approximately 4 acres of emergent marsh habitats will be created following the excavation of the two wetland cells. The natural seed bank present in the exposed soil and the Picacho drain will provide the majority of re-vegetation in these ponds. Additionally, Yerba mansa and bulrush seed collected on-site will be sown following construction. However, certain desirable species that no longer occur on-site will be planted from rooted materials during the first spring following excavation of the ponds. Cattail monocultures will be thinned as necessary by cutting stalks off below the water level.

Cottonwood Forest – The first restoration priority for the cottonwood forest is to protect the few remaining mature trees from beaver predation. Fencing will be constructed of heavy steel mesh and t-posts. Over time, the flushing action of high flows backing up into the Wetland Project should gradually reduce salinity levels in the floodplain area of the site that currently prevent the wide spread establishment of cottonwoods.

As noted in the Saltcedar Monoculture section above, a substantial number of cottonwood trees will be pole planted in areas reclaimed from saltcedar monocultures.

Upland Grass and Shrub – A large portion of the upland grass and shrub community will be reclaimed following saltcedar removal efforts. The observation hill created from the excavated spoil will be planted with upland grasses and shrubs. Immediately following completion of the saltcedar removal process, numerous water bars constructed of saltcedar will be anchored into the soil. This will reduce the likelihood of large sediment flows into the floodplain area of the Wetland Project and create micro sites for seed establishment. Numerous rooted Honey mesquite saplings will be immediately planted in these areas. Prior to the on-set of the first monsoon season following the saltcedar removal, sand dropseed, alkali sacaton, Indian ricegrass and 4-wing saltbush seed will be sown in all of the reclaimed areas.

[Editor's Note: Salt cedar removal and planting of native trees, shrubs and grasses took place in the spring and summer, 2003].

Vector Control

SWEC will coordinate with NMDGF and the Dona Ana County vector control department to ensure that the Picacho Wetlands are regularly stocked with the native western mosquito fish (*Gambusia affinis*) in an effort to control mosquito borne disease. The Wetland Project has been designed to minimize stagnant water and restoration efforts will significantly improve the availability of habitat for other natural mosquito controls such as bats and insect-eating birds. Bat houses will be placed at the site to promote increased bat populations.

Interpretation

The word 'interpretation' has been adopted by managers of parks and preserves to cover the services and materials that explain the areas to visitors. SWEC will implement the interpretive program. The major parts of the interpretive program at the Wetland Project are as follows:

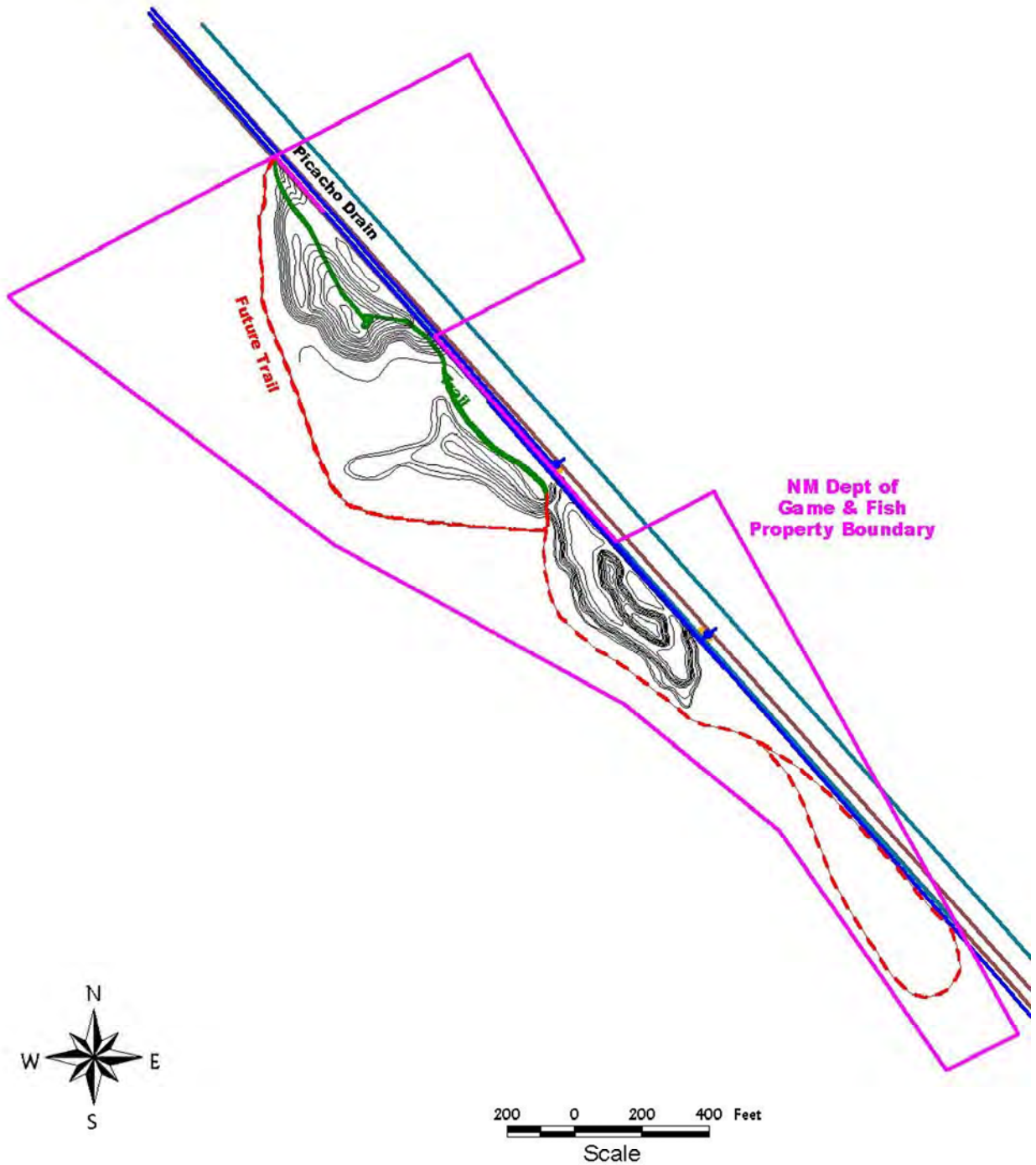
- Educational signs which indicate directions to points of interest and rules and regulations will be posted at the Mesilla Bridge levee gate, the entrance to the nature trail at the base of the observation hill, and at necessary trail junctions, to keep visitors from becoming disoriented in the Wetland Project area.
- The nature trail has been developed with the main purpose to interpret the 6 habitat types at the Wetland Project. Educational signs explaining a particular habitat or restoration process will be posted at intervals along the nature trail.
- Checklists of the plants and animals in the Wetland Project will be compiled and produced by SWEC. These lists will be made available to the public through a receptacle box at the entrance to the nature trail. A second box will be constructed for depositing

the checklists at the completion of each visit. SWEC staff or volunteers will routinely collect the completed checklists.

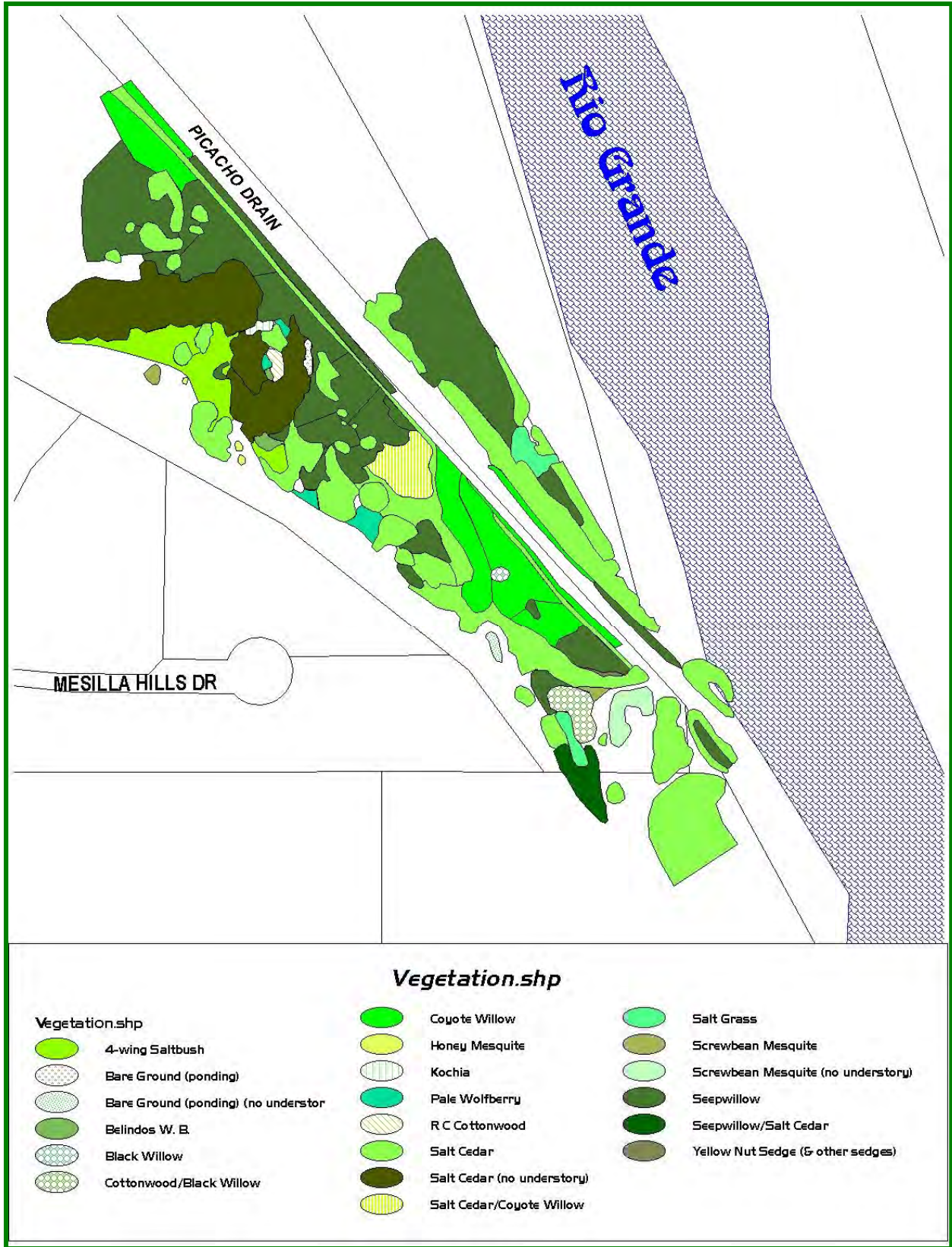
- Guided tours are some of the most important media for interpreting the natural history and ecological relationships in the Wetland Project. SWEC will coordinate 4 guided tours of the Wetland Project per year. These tours, requiring pre-registration, will be free and have a limit of 30 participants. Preference will be given to elderly or disabled persons who cannot readily travel the levee road in a non-motorized manner. Tour participants will meet at the Mesilla Bridge at which time participants will carpool in a carefully controlled caravan to the entrance to the Wetland Project. From this point, only non-motorized access to the Wetland Project will be allowed. All persons participating in the guided tours will be required to sign a no-fault document releasing SWEC, USIBWC, EBID, NMDGF of any and all liability and claims. SWEC will maintain necessary permits from USIBWC for such actions and general liability insurance coverage up to \$1,000,000.
- Educational outreach includes talks about the Wetland Project and group visits from schools and other organizations. SWEC staff or trained volunteers will provide interpretive talks about the Wetland Project and its natural history as requested, schedule permitting. As with the guided tours described above, all participants and/or their guardians will sign a no-fault waiver.
- There will be every effort made to make the wetland experience accessible to all segments of the population. Individuals who are able to travel in an accessible vehicle will be able to visit the wetland during the guided tours. For those who are unable to travel to the wetland, an interpretive display containing photos, maps, videos, and/or audio recordings will be developed and located at the Southwest Environmental Center, or other public place, and efforts will be taken to promote this amenity to the public. This work will commence on 06/30/03 and be completed to the greatest extent possible within one year. *[Editor's Note: Status unknown.]*

References

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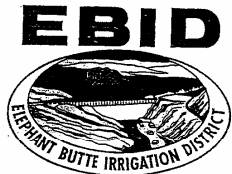


Project Area Overview



Appendix 10

**PARTICIPANT FEEDBACK: ELEPHANT BUTTE IRRIGATION DISTRICT AND UNITED STATES SECTION,
INTERNATIONAL BOUNDARY AND WATER COMMISSION.**



STAFF MEMBERS

GARY L. ESSLINGER, TREASURER/MANAGER
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Elephant Butte Irrigation District

Of New Mexico

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*reg. by
Dus*

1:41 pm

2/20/04

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February 20, 2004

Ms. Carol McCall
Rio Grande Corridor Project Manager
City of Las Cruces
575 S. Alameda, Room 149
Las Cruces, New Mexico 88005

Hand-Delivered

Re: Rio Grande Riparian Ecological Corridor Project;
Draft Rio Grande Corridor Comprehensive Plan

Dear Ms. McCall:

Several weeks ago, you requested from EBID comments on the Draft Rio Grande Corridor Comprehensive Plan. This letter contains EBID's comments and requests that the involvement and role of EBID in the Project be clearly stated in the final Plan. EBID represents the owners of almost all of the surface water rights and many of the groundwater rights in Southern New Mexico. EBID is directly involved in the day to day management of the Rio Grande and its water supply and all of the laterals, canals, drains and other water conveyance facilities from Caballo Dam to the Texas boundary. EBID works with federal, state, local, municipal and other organizations in the region on common issues of water supply, conservation, quality and related matters.

EBID was invited some time ago to cooperate in efforts to create and maintain the Rio Grande Corridor Project and specific projects within it, particularly the Wetland Pilot Project. EBID is receptive to the concept of working cooperatively with other agencies and entities to meet mutually agreeable goals. Its participation in the Wetland Pilot Project is on a trial basis and a short-term special use permit has been issued regarding the Picacho Drain. This permit allows about 700 feet of the Drain to be removed and the drain flow diverted into the adjacent constructed wetlands. The drain water then flows through the wetlands into the Rio Grande. The key condition in this EBID permit is that there be no net loss of drain water

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Rio Grande Corridor Project Manager
City of Las Cruces
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flow into the river. EBID and others are monitoring the wetlands/bosque area and if the effects are positive EBID will evaluate continuation of the special use permit before its expiration in 2006.

EBID has not taken an active role in any other aspect of this Project, but it continues to provide assistance and information and sends representatives to meetings relating to Project planning and activities. EBID is described a number of times in the Draft Plan as a "Project Partner" and it considers this somewhat of a misnomer. EBID would prefer to be referred to as a "Project Participant" instead. Being a "partner" connotes a much deeper level of involvement than EBID actually has and prefers to have. As stated, EBID's involvement in specific functions and in the overall Project is on a trial basis and much remains to be determined before a permanent decision will be made as to EBID's long-term involvement. For example, whether positive benefits to EBID's constituents result from the Wetlands Pilot Project is yet unknown. EBID's view of the success of that Pilot Project plays a large part in determining whether EBID will participate in other wetlands/bosque/riparian restoration projects or other facets of the overall Corridor Project.

Therefore, EBID is not appropriately referred to as a "partner" in the Rio Grande Corridor Project. Partners have mutual goals and aspirations, and share proportionally in the risks and benefits of a joint venture. If EBID was indeed a partner in this Project, it would be required by law to enter into one or more agreements under the New Mexico Joint Powers Act. EBID has not done this, so its role needs to be referred to as a "participant" or with a similar term.

The manner in which the draft Plan is written implies that all of the "partners" or participants are in complete agreement on the needs assessment, goals and objectives. Because of this impression given, EBID must state its objections to or concerns with several of these. The most significant are those which state goals of restoring and enhancing "native riparian and aquatic habitat diversity" and "native vegetation". The first Goal of the Plan states this, and EBID cannot embrace this as a goal.

Significant societal choices were made when the Rio Grande in Southern New Mexico was dammed and channelized and its waters regulated. The benefits of these actions were dramatic. The area was settled, farms flourished, other businesses grew from agriculture's success and the agriculture college (N.M.S.U.) expanded. These actions virtually insured

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Rio Grande Corridor Project Manager
City of Las Cruces
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year-round flows, with agricultural releases in the spring, summer and fall and agricultural return groundwater flows in the winter. Control of the river provides flood control as well, essentially eliminating the periodic deluges that destroyed lives (human and animal) and property. Control of river flows also allowed restoration of proper groundwater levels and the elimination of swamps and swales that fostered insects and diseases. Much of the riparian vegetation has been replaced with orchards and farms, which provide an aesthetically pleasing environment in which to live and work. Wildlife benefits from the forage and cover provided by almost 100,000 acres of irrigated farmland. In times of drought, the spreading of water for agriculture throughout the valleys has created a water bank on which all water users can rely until normal surface water flows return.

Society chose in earlier years to corral the natural resources of this area and devote them to its goals of promoting pervasive socioeconomic benefits. Idyllic natural conditions along the Rio Grande never existed in the past, as they do not now. The goals of those who forged their lives out of conditions we never face today have been met, and society as a whole has benefitted. The commitment of land and water resources, particularly on a large scale, for the return to or the restoration of pre-existing conditions requires difficult societal choices and alteration of priorities. These choices are never easy because they are scientifically, economically and socially complex.

EBID believes in working with other Project participants to see if pilot projects provide the anticipated water supply and quality, riparian vegetation, wildlife, recreation and aesthetic goals. Additional projects should be tiered in order to build on the successes of prior projects, and those which fail to meet goals should not be repeated nor expanded.

Additionally, EBID cannot be a participant or partner in any project which could bring the heavy hand of the Endangered Species Act down on the lands and waters of EBID's members. Many goals and projects under the Plan could draw threatened, endangered, sensitive or candidate species into the river area and create habitat favorable for such species. EBID questions its ability to participate on a long-term basis in any project that has such a potential unless, at a minimum, EBID is protected by Safe Harbor Agreements. EBID would request the assistance of other Project participants in securing these agreements. Recent experience of water users in the middle Rio Grande area has shown that the ESA will be used to remove water from productive uses and devoted to river flows for endangered species.

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EBID cannot afford to have this occur in the lower Rio Grande area.

Unless and until test projects prove substantial water savings from measures such as salt cedar removal, for example, it must be assumed by EBID that an acre of new, or "restored", riparian vegetation will require the commensurate removal of an acre of irrigated agriculture. EBID cannot concur in a goal of this Plan that could cause the systematic reduction of productive farmland. Moreover, one of the primary goals of the Plan is the preservation of farmland. Again, these measures call for difficult societal choices with much deeper repercussions than assessed in this Plan.

The existence of a process providing for the transfer of agricultural water rights to riparian uses called for in this Plan is problematic at best at the present time. EBID is working with others on methods to accomplish these types of transfers. They can only be allowed through methods that insure that all impacts of such a transfer are accounted for and compensation provided. Furthermore, EBID will never support any program that forces the transfer of agricultural water to any other use. Market-driven transfers should be encouraged.

EBID's concerns with specific statements or references in the Plan are as follows:

- 1) Acknowledgments, page 3:
EBID should not be referred to as a "Project Partner".
- 2) Executive Summary, page 4, 3rd paragraph:
EBID should not be referred to as being in "partnership" with other groups regarding the wetland project.
- 3) Executive Summary, page 5, 1st paragraph:
EBID's participation does not mean that EBID agrees with all of the Goals and Objectives of the Plan.
- 4) Executive Summary, Goals, page 5, Goal 1:
EBID does not concur in this Goal of the Plan.

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Ms. Carol McCall
Rio Grande Corridor Project Manager
City of Las Cruces
February 20, 2004
Page 5

- 5) Executive Summary, Conclusion, page 6:
EBID does not concur in the stated concept of sustainable development and the stated goal of balancing human uses with those of “other life forms”.
- 6) Executive Summary, Conclusion, page 6:
EBID does not concur that the focus of the Plan is, or should be, on protecting “native plant and animal species”.
- 7) Executive Summary, Conclusion, page 6:
EBID does not necessarily agree that a “Management District” would be appropriate.
- 8) Executive Summary, Conclusion, page 7:
EBID does not agree with development of a “multi-jurisdictional biological management plan” for the corridor.
- 9) Executive Summary, Conclusion, page 7:
EBID does not agree that it has integrated its mission to meet any “community need for habitat protection”.
- 10) Introduction, page 9:
EBID should not be referred to as a “partnering agenc[y]” and EBID is not part of a “common mission” that includes parts of the Plan EBID has stated its objection to.

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City of Las Cruces
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- 11) Introduction, page 10:
EBID does not concur in a model of sustainable development which equates “restoration of riparian habitat” and “conservation of biodiversity” with other societal and economic goals.
- 12) Planning Process, page 11:
EBID does not concur in the first goal.
- 13) Intergovernmental & Interagency Coordination, page 20, 2nd item:
The statement that “EBID has approved the use of irrigation drain waters for the Wetland Pilot Project” is too broad and inaccurate. It should read “EBID has issued a term permit allowing drain water to flow through constructed wetlands in the Wetland Pilot Project”.
- 14) Intergovernmental & Interagency Coordination, page 20, 4th item:
EBID considers the 1920 Act inapplicable to any transfers of any water rights within EBID.
- 15) Goals, Objectives and Recommendations, page 33:
EBID does not concur in Goal 1.
- 16) Goals, Objectives and Recommendations:
 - a) page 35, Goal 1:
EBID does not concur in the enhancement and restoration of native riparian and aquatic habitat diversity as a goal, except in limited project areas.

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Rio Grande Corridor Project Manager
City of Las Cruces
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b) page 35, Objective 1.1:
Same as above.

c) page 35, Objective 1.1,
Recommendation B:
EBID does not concur with habitat enhancement at sites
identified by the IBWC.

d) page 35, Objective 1.1,
Recommendation C:
EBID opposes restrictions on mowing within the
floodway.

e) page 35, Objective 1.2,
Recommendation C:
EBID opposes modification of flows to resemble a
"natural hydrograph", water pulse releases, and creation
of meanders in the river.

f) page 36, Objective 1.4:
EBID's participation in the creation of a new state park
at the Mesilla Valley Bosque site is questionable at this
time.

EBID wants the Plan to reflect its support and participation for many of the overall goals and certain individual projects. The draft Plan is presently written in a manner that implies that EBID concurs in each and every facet of the Project, which it does not. It is very important that EBID's specific objections and concerns be reflected in the final Plan. EBID

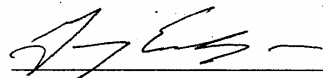
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Ms. Carol McCall
Rio Grande Corridor Project Manager
City of Las Cruces
February 20, 2004
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will continue to participate in the Wetlands Pilot Project and in the overall Corridor Project as noted, and continue to work with other Project participants.

Sincerely,

Elephant Butte Irrigation District



Gary Esslinger, Treasurer/Manager



OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

FEB 20 2004

Ms. Carol McCall
Rio Grande Corridor Project Manager
City of Las Cruces
Las Cruces, New Mexico 88004-9002

Dear Ms. McCall:

This responds to your January 26, 2004 letter providing a summary of the Rio Grande Corridor Comprehensive Plan draft for review and comment. The Rio Grande Corridor Project was created in 2000 through an Environmental Protection Agency Sustainable Development Challenge Grant, and the plan serves as a guide for potential regional quality of life development along the Rio Grande. The comments compiled herein are from the United States Section, International Boundary and Water Commission (USIBWC) staff review of the complete document available from the City of Las Cruces Web site.

General Comments

There is inconsistency throughout the plan in the use of our agency name and acronym. For the sake of clarification and to insure consistency in the document, we strongly recommend the use of "United States Section, International Boundary and Water Commission" and "USIBWC" throughout the plan. In many places our agency is referred to as, "International Boundary and Water Commission" or "IBWC" and ordinarily that designation is reserved for the international organization as defined in Executive Order 12467, March 2, 1984, the International Boundary and Water Commission, United States and Mexico. A global change is recommended throughout the document including the appendices to change any reference from "IBWC" or "International Boundary and Water Commission" to "**USIBWC**" or "**United States Section, International Boundary and Water Commission,**" respectively.

Wherever the plan discusses accessibility to trails on USIBWC rights of way it should be understood that it is limited for pedestrian access only.

Specific Comments by Page or Subsection

On pages 5 and 6 of the Executive Summary, six Goals are defined. The following are comments regarding each goal:

1. Preserve, enhance and restore native riparian and aquatic habitat diversity

USIBWC agrees that limited native vegetation within the floodway for the proposed 11-mile corridor can be restored. Hydraulic model studies will be required to determine the location and how big of an area can be designated; however, flood control cannot be compromised.

The Commons, Building C, Suite 310 • 4171 N. Mesa Street • El Paso, Texas 79902
(915) 832-4100 • (FAX) (915) 832-4190 • <http://www.ibwc.state.gov>

Our baseline obligation is to ensure that channel capacity can safely pass the design flood flows. We will support the development of the Mesilla Valley Bosque Park, if water sources can be secured.

2. Preserve open space adjacent to the Rio Grande

USIBWC supports various farmland and open space preservation efforts and discourages further development within our floodway.

3. Create a multi-use trail system for the 11-mile corridor

USIBWC will support a multi-use trail to be built for the 11-mile corridor, only if the USIBWC Directive – Criteria For Construction Activities Within the Limits of USIBWC Floodways is followed. The trail must be flush with the existing ground surface. No fill will be allowed in the floodways. The trail must be limited for pedestrian and emergency vehicles use only. Flood control and treaty water delivery are the USIBWC's major responsibilities; therefore, cannot be compromised. The USIBWC suggests that the City of Las Cruces provide detailed plans for any proposed trails. At such time as the USIBWC reviews and approves the plans an amendment to the current lease can be implemented. A Memorandum of Agreement should be prepared among City of Las Cruces and other agencies to distribute the Operation and Maintenance responsibilities for the 11-mile corridor. In addition, the New Mexico Game and Fish / New Mexico Parks Department should be assigned to make the corridor "safe, sound and sanitary." The USIBWC does not have security enforcement capability.

4. Promote ecotourism

USIBWC encourages that appropriate small businesses, such as bike rentals, facilities for family gatherings, etc. be developed near the river, but business stands should be located outside USIBWC floodways.

5. Expand recreational opportunities

USIBWC will support two additional parks to be built along the corridor, only if the USIBWC Directive – Criteria For Construction Activities Within the Limits of USIBWC Floodways is followed. The park facilities, such as picnic tables, benches, fences, etc. must be designed in such way that they are collapsible or can be removed prior to a flood event. In addition, we must review and approve additional parks, and we can either initiate a new lease for such parks or amend current leases.

6. Educate the public about the ecological, cultural and historical importance of the Rio Grande Corridor.

USIBWC fully supports this effort.

On page 8, there is an apparent figure that is not visible in the On-line PDF document. The caption under the apparent figure reads, "The Rio Grande Riparian Ecological Corridor Project encompasses an 11-mile section of the Rio Grande, and is intended for both the east and west sides of the river."

On pages 12 and 13, there are apparent figures that are not visible in the On-line PDF document. A caption on page 13 reads, "The Wetland Pilot Project is located on approximately 15 acres within the Picacho Bosque. This property is owned by the New Mexico Department of Game and Fish." Under that caption is another apparent figure with an orange arrow pointing in a southwesterly direction.

On page 16, first paragraph, third sentence, change to read, "...conveyance system for irrigation and municipal water use,..." in lieu of "...conveyance system for irrigation,...."

On page 20, fifth paragraph, replace the last sentence with the following: "The USIBWC ensures that water released from upstream reservoirs for delivery to Mexico is in compliance with the Convention between the United States and Mexico concluded May 21, 1906 and is conveyed effectively to American Diversion Dam; flood protection of lands along the project is also provided."

Subsection: United States Section, International Boundary and Water Commission - Rio Grande Canalization Project Environmental Impact Statement

On page 24, the USIBWC completed the Draft EIS for River Management Alternatives for the Rio Grande Canalization Project in December 2003. The paragraph should be recast to reflect the following:

"The USIBWC, in accordance with the National Environmental Policy Act (NEPA) of 1969, analyzed the effects of four alternatives for future operation and maintenance of the Rio Grande Canalization Project and implementation of environmental enhancements. The project covers 105 river miles from Percha Diversion Dam, New Mexico south to El Paso, Texas. The USIBWC operates and maintains the project to facilitate Rio Grande water deliveries to users in southern New Mexico, west Texas, and Mexico. The project also includes a levee system for flood control. As described in the DEIS, the Las Cruces River Management Unit (Shalem Colony Trail Bridge to Mesilla Diversion Dam) provides significant opportunities for managing the flood plain in a multiple-use manner. Despite urbanization constraints, considerable improvements in the form of recreation areas and selective habitat are possible. Local agency cooperation is required to fully realize potential. Emphasis is on enhancing and creating habitat associated with spillways and connecting sites within the current no-mow zone. Further mowing reduction and green zone management should include salt cedar control."

Additionally, Appendix 4 needs to be recast. A suggested revision based on the Draft EIS is attached for your consideration.

On page 26, in the section on laws and regulations affecting the study area, other laws that should be considered are the Act of August 27, 1935 and Act of August 29, 1935. The Act of August 27, 1935 authorized the Secretary of State to lease lands to citizens of the United States through the International Boundary Commission (now the USIBWC). Pursuant to a letter dated September 12, 1949, Secretary of State Dean Acheson, further delegated the authority to lease to the Commissioner. The Act of August 29, 1935 authorized the construction and operation of the Canalization Project. It is under these acts that the USIBWC grants permits for certain activities, including recreational use, within the project rights of way.

Page 34 is blank contrary to what is stated in the original Appendix 4. If this is intentional, the statement, “**This Page Intentionally Left Blank**” should be placed on the page.

Subsection: Goal 1, Objective 1.1, Recommendation B

On page 35, since the Alternatives Formulation Report (March 2001) has been superseded by the Reformulation of River Management Alternatives Report (August 2003) and by the DEIS, released December 2003, change Recommendation B to read, “Pursue implementation of habitat enhancement at sites identified in **USIBWC’s** Canalization Project Environmental Impact Statement and within other identified habitat sites along corridor. See Appendix 1, ‘Preferred Habitat Sites and Criteria for Selection’ and Appendix 4, ‘Canalization Project **Environmental Impact Statement.**”

Pages 37 and 41 have nothing on them but large blue lined rectangles in the PDF file.

Subsection: Goal 5, Objective 5.1, Recommendation C

On page 42, if picnic tables, park benches, gazebos, shelters, and playground equipment are to be constructed in the floodway, they must be constructed in such a way that they are removable in the event of a flood event.

Subsection: Community Food Projects

On page 53, a suggested change is offered, “Farmers Markets provide an opportunity for **consumers** to meet and talk directly with the people who grow their food. Farmers, too, can learn more about their customers.”

On page 57, Table 1, first row, change cell to read, “... limited controlled vehicle access (handicap, emergency, special events and maintenance) of levee road and floodway” in lieu of “... access of levee road.”

Subsection: Wetlands Pilot Component

On page 58, third paragraph, indicate that the City’s Wastewater Treatment Plant Treated Water Return and the Stormwater Outfall Channel are identified as restoration sites **for native vegetation planting** in Appendix 4 (See, attached suggested revision of Appendix 4). Additional information should be included to discuss how water rights were obtained for the wetland project, i.e. quantity, cost per year, acquisition process.

Page 63 has nothing on it but a large blue lined rectangle in the On-line PDF file.

Subsection: Design Process

On page 65 it is stated that the Pathway Design is found on page 64; however, it is not there.

Subsection: Construction

On page 65 there is reference to Pathway Cross-Section on page 65, but it is not there.

Subsection: Operation & Maintenance

At the top of page 66, the width of the No Mow Zone is 35 feet, not 40 feet as stated. Also, reference is made that the USIBWC No Mow Zone extends upstream from La Llorona Park to Caballo Dam. In fact, there are three No Mow Zones, and the one at this location extends from Picacho Bridge upstream to Shalem Colony Trail Bridge a distance of five river miles on each side of the channel. The width of the zone is 35 feet and areas 400 feet upstream and downstream from the bridges themselves continue to be maintained. At intervals no more frequent than every 800 feet, the USIBWC maintains an observation point of not more than 100 feet wide. Regular maintenance mowing and clearing is continued outside the 35-foot wide No Mow Zone. Page 67 is blank; if this is intentional, the statement, “**This Page Intentionally Left Blank**” should be placed on the page.

Muti-Purpose Pathway Ramp Drawing

On page 68, Structures of this nature must be fully evaluated on how they might affect the stability of the levee and what their affects may be on the hydraulic capacity of the floodway.

Section XI: Definitions and Acronyms

On page 69, use “**USIBWC - United States Section, International Boundary and Water Commission**” in the table and delete the entry used.

Appendix 1: Preferred Habitat Sites and Criteria for Site Selection

On page 71, it is unlikely, as stated in the DEIS for river management alternatives, that USIBWC will be doing anything more than native vegetation planting in the Mile 42 Clark Lateral point project site. On page 72, remaining site #3 indicates that USIBWC has suspended mowing at the site. The width of No Mow Zones is 35 feet, not 60 feet as stated. The spelling of “**levee**” needs to be corrected (levy means to impose or collect a tax) in the paragraph on State Parks Division Parcel.

Appendix 4: United States Section, International Boundary and Water Commission, Rio Grande Canalization Project

See, suggested revision attached.

Appendix 5: Southern New Mexico Outdoor Recreation Master Plan

Page 81, there is no entry in item #4 for Sage Property (Mesilla Bridge), Proposed Improvements. There is no acreage amount given for item #2 of Old Refuge (Picacho Bosque), Existing Conditions. Page 82, the owner of Mesilla Diversion Dam (item #8) is EBID, not USIBWC.

Appendix 6: Cultural and Historical Assets Along Corridor


Page 83, the bullet for Village of Old Picacho appears to be missing some text, "... settled in 1867-68 by ??? on the banks of the Rio Hondo at the foot of Picacho Peak." Page 85 is blank. If this is intentional, the statement, "**This Page Intentionally Left Blank**" should be placed on the page.

Appendix 8: Operation and Management Plan for Picacho Wetland Pilot Project

Several references are made to various maps, but only one map (Vegetation.shp on page 104) is visible in the On-line PDF file. Page 92, first full paragraph, last sentence, it should be stated that excavation work did break ground in January 2003, if that is the case. On page 93, Emergent Marsh, correct the spelling of "Torrey's rush." Page 103 is blank. If this is intentional, the statement, "**This Page Intentionally Left Blank**" should be placed on the page.

Thank you for the opportunity to review and comment on the draft comprehensive plan. If you have questions, please contact Environmental Protection Specialist Douglas Echlin at (915) 832-4741.

Sincerely,


Sylvia A. Waggoner
Division Engineer
Environmental Management Division

Attachment:

Appendix 4 revision