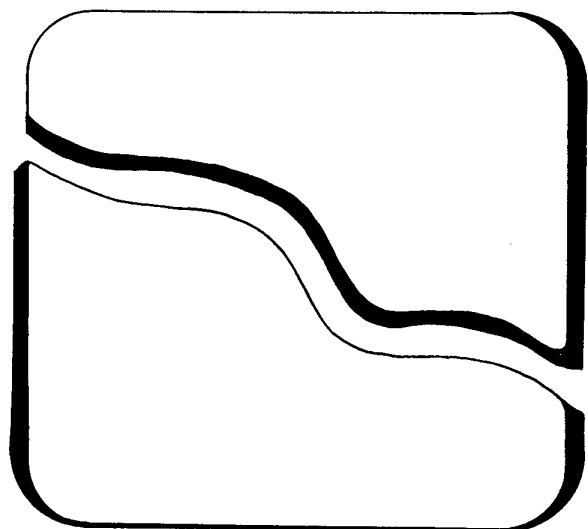




Facility Plan For Arroyos

Multiple Use Of Albuquerque's Arroyos And Their Floodplains

CITY OF ALBUQUERQUE, PLANNING DEPARTMENT,
PLANNING DIVISION

Facility Plan for Arroyos

Originally Adopted by the City Council on 02/03/86 and signed by the Mayor on 02/27/86

Amendments:

This Plan incorporates the City of Albuquerque amendments in the following referenced Resolutions, which are inserted in this Plan and are on file with the City Clerk's Office. Resolutions adopted from December 1999 to the present date are also available (search for No.) on City Council's Legistar webpage at <https://cabq.legistar.com/Legislation.aspx>.

<i>Date</i>	<i>Council Bill No.</i>	<i>City Enactment No.</i>	<i>Plan References</i>	<i>(see Note 1)</i>	<i>Description</i>
					<i>*No Amendments to date 08/29/18</i>

Notes:

1. The amendments in the Resolutions may or may not be reflected in the Plan text: "Yes" in this column indicates they are; "No" indicates they are not.
2. This Plan may include maps showing property zoning and/or platting, which may be dated as of the Plan's adoption. Refer to the Albuquerque Geographic Information System (AGIS) for up-to-date zoning and platting information at <http://www.cabq.gov/gis>.

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**FACILITY PLAN FOR ARROYOS:
MULTIPLE USE OF ALBUQUERQUE'S ARROYOS
AND THEIR FLOODPLAINS**

AS ADOPTED BY THE ALBUQUERQUE CITY COUNCIL
AND THE BOARD OF BERNALILLO COUNTY COMMISSIONERS
FEBRUARY 3, 1986

CITY OF ALBUQUERQUE, PLANNING DEPARTMENT,
PLANNING DIVISION



MAJOR ARROYOS WITHIN THE ALBUQUERQUE METROPOLITAN AREA.

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ADOPTING RESOLUTIONS

RESOLUTION

ADOPTING THE FACILITY PLAN: FACILITY PLAN FOR ARROYOS; COMMENDING THE FACILITY PLAN TO OTHER JURISDICTIONS; AND CALLING ON THE MAYOR TO DETAIL AND IMPLEMENT THE FACILITY PLAN."

WHEREAS, The Albuquerque/Bernalillo County Comprehensive Plan contains a number of policies encouraging recreational use of the land adjacent to drainage facilities and states that "The City and County shall create a multi-purpose network of recreational trails and open space along arroyos and appropriate irrigation ditches. Designated arroyo flood plains shall retain their flood control functions so as to minimize the cost to public works, and allow infiltration of stormwater"; and

WHEREAS, the Goals for Albuquerque 1983-1984 is the work of a citizen task force charged with reviewing the 1970 Goals Report and the Comprehensive Plan, and contains several policy statements supporting the multiple use of arroyos; and

WHEREAS, representatives from the City Parks and Recreation Department, Municipal Development Department: Planning and Engineering Divisions, the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) and a planning consultant hired by the City worked together as a study team to develop the Facility Plan for Arroyos to be consistent with City goals and facility planning for these departments; and

WHEREAS, the Environmental Planning Commission has held a public hearing on the Facility Plan for Arroyos and has recommended adoption of the plan; and

WHEREAS, the Board of County Commissioners has held a public hearing on the Facility Plan for Arroyos and has formally adopted the plan; and

WHEREAS, the Facility Plan for Arroyos constitutes a Rank Two Facility Plan implementing the Rank One Comprehensive Plan and specifies development standards, specific arroyo corridors for design and development, and a multi-year program of facility capital improvements; and

WHEREAS, Rank Three corridor plans containing detailed recommendations for specific arroyos will follow this Rank Two plan; and

WHEREAS, revisions to the "Comprehensive City Zoning Code" and the "Storm Drainage, Flood and Erosion Control Ordinance" necessary to bring these documents into conformance with the policies contained in the Facility Plan for Arroyos have been adopted by the City Council.

BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. In order to further detail and implement the concepts of the Albuquerque/Bernalillo County Comprehensive Plan, the Facility Plan for Arroyos attached as part of this resolution is adopted for the area within the planning jurisdiction of the City of Albuquerque.

Section 2. The Facility Plan for Arroyos attached as part of this resolution is commended to the City of Rio Rancho and the Paradise Hills Special Zoning District for their planning jurisdiction.

Section 3. The Mayor, in coordination with the Municipal Development Department, is requested to:

A. Begin the development of Rank Three Arroyos Corridor Plans implementing the Rank Two Facility Plan for Arroyos according to the policies, priorities and scheduling contained in the facility plan.

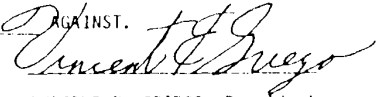
B. Adjust the Multi-Year Planning Program for Albuquerque and Bernalillo County, to reflect the priorities and scheduling of specific arroyo corridor plans as outlined in the Facility Plan for Arroyos.

C. Beginning in Fiscal Year 1987, to conduct an annual review of the Facility Plan for Arroyos to determine the effectiveness of the policies set forth in the plan and the efficiency of joint-maintenance programs, to review the safety record of existing joint-use facilities, to present new technological information regarding the design of drainage facilities, and to request and receive citizen input.

Section 4. The Mayor, in coordination with the Parks and Recreation Department, is requested to: Undertake revisions to the Park Dedication and Development Ordinance, "Article 7-18 R.O. 1974," which are necessary to bring this document into conformance with the policies contained in the Facility Plan for Arroyos.

PASSED AND ADOPTED THIS 3 rd DAY OF February, 1986.

BY A VOTE OF 9 FOR AND 0 AGAINST.



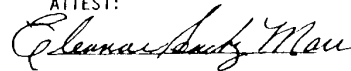
VINCENT E. GRIEGO, President
City Council

APPROVED THIS 27 th DAY OF February, 1986.



KEN SCHULTZ, Mayor
City of Albuquerque

ATTEST:



RESOLUTION

ADOPTING THE FACILITY PLAN: FACILITY PLAN FOR ARROYOS

WHEREAS, the Albuquerque/Bernalillo County Comprehensive Plan contains a number of policies encouraging recreational use of the land adjacent to drainage facilities and states that "The City and County shall create a multi-purpose network of recreational trails and open space along arroyos and appropriate irrigation ditches. Designated arroyo flood plains shall retain their flood control functions so as to minimize the cost to public works, and allow infiltration of stormwater"; and

WHEREAS, the Goals for Albuquerque 1983-1984 is the work of a citizen task force charged with revising the 1970 Goals Report and the Comprehensive Plan, and contains several policy statements supporting the multiple use of arroyos; and

WHEREAS, representatives from the City Parks and Recreation Department, Municipal Development Department: Planning and Engineering Divisions, the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) and a Planning Consultant hired by the City worked together as a study team to develop the Facility Plan for Arroyos to be consistent with City goals and facility planning for these departments; and

WHEREAS, the County Planning Commission has held a public hearing on the Facility Plan for Arroyos and has recommended adoption of the plan; and

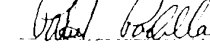
WHEREAS, the Facility Plan for Arroyos constitutes a Rank Two Facility Plan implementing the Rank One Comprehensive Plan and specifies development standards, specific arroyo corridors for design and development, and a multi-year program of facility capital improvements; and

WHEREAS, Rank Three corridor plans containing detailed recommendations for specific arroyos will follow this Rank Two plan.

BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS:

Section 1. In order to further detail and implement the concepts of the Albuquerque/Bernalillo County Comprehensive Plan, the Facility Plan for Arroyos attached as part of this resolution is adopted for the area within the planning jurisdiction of Bernalillo County.

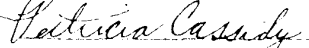
BOARD OF COUNTY COMMISSIONERS:



Patrick Padilla, Chairman



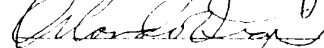
Marion Cottrell, Vice Chairman



Patricia H. Cassidy

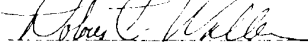


Lenton Mabry



Orlando Vigil

Attest:



Dolores C. Waller, County Clerk

EXECUTIVE SUMMARY

PURPOSE

The goal of the Facility Plan for Arroyos is to establish guidelines and procedures for implementing the goals of the Comprehensive Plan in order to create a multi-purpose network of recreational trails and open space along arroyos. This document is a Rank Two facility plan designating and scheduling a limited number of arroyos for further study and development as recreational corridors.

JURISDICTION

This document has been prepared by the City of Albuquerque for adoption by the appropriate City and County agencies, and for possible adoption or endorsement by AMAFCA. The word "City" when used in this document applies to all County and Municipal jurisdictions which adopt this facility plan.

SCOPE

Recognizing that the opportunities presented by arroyos should be realized and that existing financial resources for the development of arroyos as a recreational resource and an urban amenity are limited, the project study team, headed by the Planning Division of the Municipal Development Department, evaluated each major arroyo in the metropolitan area in terms of its potential to:

- serve as Major Open Space
- link Major Open Space areas
- form an urban trail system

ARROYO RANKING

As a result of this analysis, policies and planning priorities have been established for the following categories of arroyos. These priorities represent an evaluation of the recreational potential of the metropolitan area's major arroyos based upon existing conditions and the timing and intensity of anticipated development. As conditions change, these priorities will shift. This facility plan is programmed for annual review in order to adjust the scheduling of corridor plans and the construction of public amenities to changing development conditions.

I. MAJOR OPEN SPACE ARROYOS

Major Open Space Arroyos are to remain in a natural* or semi-natural* condition with native vegetation and channel stabilization consisting primarily of naturalistic treatments such as ungrouted riprap and gabions. Tinted concrete or soil cement may be used in limited applications such as in low-flow channels* or as needed to control erosion at points where developed runoff enters the arroyo. The existing open space characteristics of these arroyos will be preserved to the greatest extent feasible in order to provide visual and psychological relief from urbanization and to protect the natural drainage process. Acquisition and maintenance of the public right-of-way associated with Major Open Space Arroyos over-and-above that required for drainage will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks or the granting of recreational easements, where appropriate, are the preferred methods of acquisition.

In order of priority** for initiating arroyo corridor plans and the acquisition of rights-of-way and/or easements, the *Major Open Space Arroyos* are:

1. Calabacillas Arroyo
2. Portions of the Tijeras Arroyo
3. Segments of arroyos within Major Open Space areas
4. Segments of arroyos, adjacent to Major Open Space areas, which provide a direct extension of the Major Open Space area.

*See Definitions, Appendix A

**See Methodology, Appendix B

II. MAJOR OPEN SPACE LINKS

Major Open Space Links are scheduled for the development of arroyo corridor plans which will locate recreational trails forming continuous east/west linkages between peripheral Major Public Open Space. This Major Public Open Space includes the Sandia Foothills, the Manzano Foothills, the West Mesa Escarpment, the Rio Grande Bosque and, in the South Valley, former oxbows of the Rio Grande located west of Coors Boulevard. Barriers such as major streets, I-25, and the North and South Diversion channels may require crossing structures placed at strategic locations to provide continuity to the trail system. Acquisition and maintenance of the public right-of-way and/or easements associated with Major Open Space Links over-and-above that required for drainage purposes will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks or the granting of recreational easements, where appropriate, are the preferred methods of acquisition.

In order of priority** for arroyo corridor planning and the acquisition of easements and/or rights-of-way the *Major Open Space Links* are:

1. Piedras Marcadas Arroyo
2. Calabacillas Arroyo
3. South Pino Arroyo
4. Amole Arroyo and Amole Del Norte Diversion Channel
5. Pajarito Arroyo
6. La Cueva Arroyos

III. URBAN RECREATIONAL ARROYOS

Urban Recreational Arroyos are located either in highly urbanized or in developing areas. They have the potential to connect major activity areas such as schools, parks, employment or commercial centers, libraries, and churches with residential development by trails located along segments of the arroyos. These segments may take the form of self-contained linear parks or form continuous trail corridors several miles in length. When appropriate, acquisition will be accomplished through the City's Park Dedication Policy. Dedication and maintenance of linear parks developed adjacent to arroyos will be evaluated by the City on a case-by-case basis subject to conformance with City plans and policies.

In order of priority* for arroyo corridor planning and park development the *Urban Recreational Arroyos* are:

1. Bear Canyon Arroyo
2. San Antonio, Boca Negra, Mariposa Arroyos, and the Mariposa Diversion Channel
3. South Domingo Baca Arroyo
4. Ladera, Mirehaven, and Rinconada Arroyos
5. Segments of arroyos in highly developed or developing areas
6. Embudo Arroyo, including the Piedra Lisa, Glenwood Hills, and Embudito tributaries — recreational trails are currently in place and may be expanded subsequent to the completion of arroyo corridor plans. No additional right-of-way acquisition is anticipated.
7. The Hahn Arroyo — recreational trails are currently in place and may be expanded subsequent to the completion of arroyo corridor plans. No additional right-of-way acquisition is anticipated.

*See Methodology, Appendix B

IMPLEMENTATION

This Rank Two facility plan will be implemented through the development and adoption of Rank Three corridor plans outlining specific right-of-way, design requirements, and recommended treatment alternatives for individual arroyos. Multiple use corridor plans will be developed by a project team consisting of the Municipal Development Department (MDD) — Planning Division as the lead, with representatives from the Engineering Division, the Parks and Recreation and Transportation Departments, AMAFCA, and representatives from the public. The adoption of corridor plans for Major Open Space Arroyos and Major Open Space Links will further define the *Plan for Major Open Space* element of the *Comprehensive Plan*.

I. INTRODUCTION

A. BACKGROUND

The *Albuquerque-Bernalillo County Comprehensive Plan* delineates policies encouraging use of the metropolitan area's arroyos for recreational purposes. The idea of aligning open space and recreational trails along drainage facilities is discussed in the *Comprehensive Plan, Policies Plan* element and the *Plan for Major Open Space*. More recently, the concept was reinforced in *Goals for Albuquerque, 1983-1984*.

Although the City of Albuquerque has spent over \$20 million since 1973 to acquire open space, the arroyo element of the *Plan for Major Open Space* has not been programmed. Acquisition of open space has rarely included the urban arroyos even though they are the element which links the peripheral open space to the urban area. With the acquisition of the majority of the peripheral open space areas proposed by the *Comprehensive Plan* well underway, greater attention may now be given to establishing linkages between these major recreational areas.

The *Facility Plan for Arroyos* is a Rank Two facility plan. Rank Two plans are intended to provide detailed implementation programs for the more general planning policies contained in the Rank One *Comprehensive Plan*. Facility plans are specialized in subject matter, normally covering only one type of natural resource or public facility, such as water or parks. Such plans cover the entire metropolitan area, or at least a major portion thereof. These plans specify important development standards, general site locations, and multi-year programs of facility capital improvements.

Rank Three corridor plans containing detailed recommendations for specific arroyos will follow this Rank Two plan. Corridor plans are similar to sector development plans in that they cover a relatively large area having common characteristics. These plans create special zoning regulations for the area covered, and may also specify other fairly detailed development parameters. Like sector development plans, corridor plans are Rank Three plans and must follow the guidelines provided in all Rank Two and Rank One plans.

B. ARROYO SYSTEM

The metropolitan arroyos* generally constitute a single purpose utility system which operates seasonally and is rarely required to operate at its full capacity. Arroyos are primary elements in the natural drainage system, and since the establishment of the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) in 1963, they have been treated as primary elements in Albuquerque's flood control system.

Under natural conditions, arroyo channels meander within their floodplains, shifting the locations of the floodplains themselves in response to storm runoff. The width of the natural floodplain varies along its course, influenced by the soil type, slope and history of flow. An arroyo may have multiple intertwining channels, all of which are included in defining the floodplain to compensate for the unpredictable nature of stormwater runoff. Arroyos are dry for most of the year. Summer thundershowers produce intermittent streams in these channels which flow only long enough to carry away runoff from the basins they drain. Severe summer thunderstorms produce high flows which erode the channels, dramatically changing the slope and paths of the arroyos. When the existing channels cannot accommodate the flow by cutting a wider and deeper bed, the stream overflows its banks, flooding the surrounding area and sometimes cutting new channels.

The changes which urbanization produces in the natural drainage system can increase the likelihood of flooding. Where the rain once fell on soil and vegetation, it now falls on the impervious surfaces of rooftops, driveways, parking lots, sidewalks, and streets. These surfaces allow almost no infiltration of water into the ground and shed water faster than the soil and vegetation they have replaced. Runoff is more rapid and concentrated. Generally, arroyos in urban

areas are required to accommodate more water in a shorter time than would be the case under natural conditions. This rapid surge of discharge water increases the available energy in the stream, making it capable of doing more damage to its channel and to the surrounding land. In addition, runoff from an urbanized watershed may pick up only small amounts of sediment as it passes over hard surfaces.

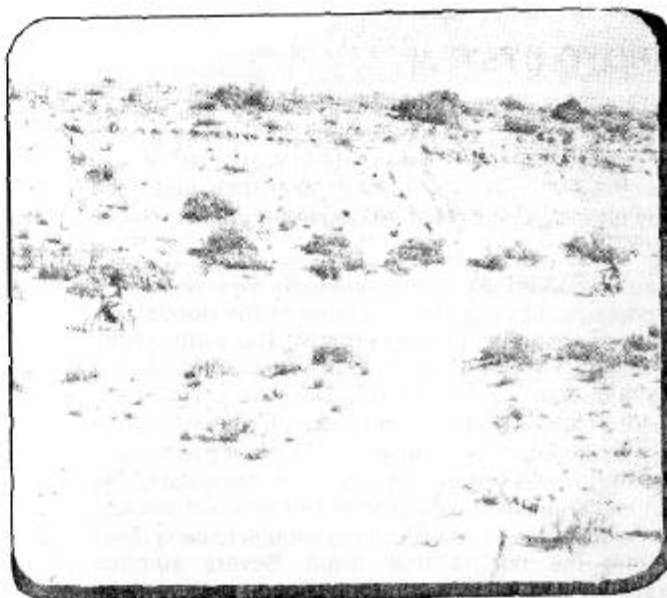
When this water reaches an unlined channel, it picks up sediment, thus eroding the channel. Protection from flooding in urban areas has involved stabilizing channels in a variety of ways. Typical channel treatments are described in Table 1 (page 9).

In Albuquerque, open channel drainage facilities are generally located within publicly controlled lands. Granted as easements or dedicated as rights-of-way, these narrow continuous strips of land thread through the city. They tend to be located out of public view, often between concrete walls separating one development from another. However, they are not inaccessible. City bike trails are located along them. Children play in them and use them as routes to school. People jog and walk along drainage channel maintenance roads, yet their lack of visibility puts the recreational users at risk. Because the arroyos are largely hidden from view, they are also unfortunately suited to antisocial behavior, including illegal trash dumping and other misuses of public land.

*See Definitions, Appendix A



TRASH DUMPING, GRAFFITI, BEAR CANYON ARROYO.



DIRT BIKING IN THE CALABACILLAS ARROYO — CAUSES EROSION AND IS AN INAPPROPRIATE USE OF AN ARROYO, EXCEPT WHERE SPECIFICALLY PERMITTED AND REGULATED BY THE CITY OR COUNTY.

C. POLICY FRAMEWORK

Flood Control

The importance of the arroyos as natural drainage systems has not always been recognized, and in some areas of the city, particularly the Southeast and near Northeast Heights, arroyos have been obliterated by development. Actions of this sort have taught us a very expensive lesson — that arroyos can be eradicated, but storm water runoff cannot. Millions of public dollars have been spent for underground storm sewers, open channels, and stormwater detention facilities in the areas where the arroyos were destroyed.

In 1963, the State Legislature established the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). The initial focus of AMAFCA was almost entirely on the development of the North and South Diversion Channels. These channels, completed in 1972, now intercept all arroyos on the city's east side and carry their flood waters to the Rio Grande. AMAFCA has since broadened its focus as a regulatory and planning body, issuing drainage policy, and commissioning and implementing area-wide drainage management plans.

In 1976, the City adopted the Flood Hazard Ordinance, with which AMAFCA concurred, controlling development of structures within the 100-year floodplain.

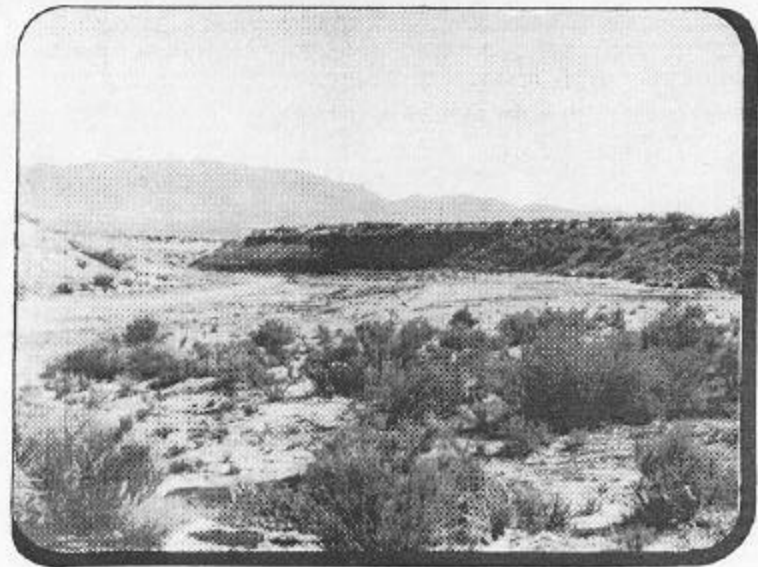
In 1980, AMAFCA adopted Resolution 1980-15, with which the City concurred, specifying that design runoff be based on the 100-year storm and that alterations to natural topography, drainage patterns, and perviousness of any parcel of land would be allowed only if: (Section 4)



THE LADERA DETENTION DAMS, PNM CORRIDOR

- "4A. The storm surface waters emanating from higher lands and draining through or along such lot, tract or parcel in a storm drainage facility will be able to pass through such property in such storm drainage facility at a rate of flow, velocity, quantity and location as does not exceed the capacity of storm drainage facilities on such property and downstream; or, in the alternative, will be able to pass through such property in such drainage facility at a rate of flow, velocity, and location of discharge reasonably similar to that which existed before such alteration.
- 4B. The storm water runoff from such lot, tract, or parcel will discharge from such property into, and in such manner as does not exceed the capacity of, storm drainage facilities downstream, or, in the alternative, will discharge from such property at a rate of flow, velocity and location reasonably similar to that which existed before such alteration.
- 4C. If Paragraphs 4 A and 4 B are otherwise complied with and if no hazard is created and no damage will ensue, storm water runoff may be concentrated and diverted so that it enters a storm drainage facility at a different location. Storm drainage facilities satisfactory to public authority shall be designed and built for such concentration or diversion. If diversion or concentration crosses private lands, an easement satisfactory to public authority shall be furnished."

In 1982, the City adopted the Storm Drainage, Flood and Erosion Control Ordinance (Enactment No. 63-1982) which, in addition to the above criteria, encourages multiple use of drainage right-of-way and drainage easements for utility corridors and recreational trails (Appendix G). In urbanized areas of the city, the amount of land devoted to drainage use is determined by these standards for flood protection. Flood protection can be provided by reservation of an adequate floodplain. It is common practice, however, to reduce the width and variability of the floodplain by engineering design, typically to a point where the 100-year storm waters can be fully accommodated in a single channel with no incursions onto adjoining land, in order to maximize the amount of land available for development.



CALABACILLAS ARROYO, EAST OF GOLF COURSE ROAD.

TABLE 1
TYPICAL CHANNEL TREATMENTS

TREATMENT		TREATMENT	
No treatment		Stabilization of side slopes with native vegetation implanted in stabilizing material such as paving blocks.	
Graded earth		Soft bottom with rip-rap side slopes	
Stabilization with rip-rap at points vulnerable to erosion		Dropstructures regrading the channel so that it steps downhill. Steps may be concrete or gabions (wire baskets filled with rip-rap).	

TREATMENT

Concrete low-flow
channel with
grass side slopes
(trickle channel)



Concrete lining



Replacing the
arroyos with un-
derground pipe



Comprehensive Plan

The *Comprehensive Plan*, *Policies Plan* contains a number of statements encouraging recreational use of land adjacent to drainage facilities. Generally, these policies encourage the preservation of arroyos as unique physical features of the urban area, the development of a network of recreational trails and open space along arroyos, and the design of drainage channels to infiltrate storm water. The *Plan for Major Open Space* (Appendix E) proposes public acquisition of land adjacent to drainage facilities for recreational purposes. These policies are detailed in Appendix D, and were supported and augmented in the recent *Goals for Albuquerque 1983-1984* report written by a task force comprised of private citizens charged with revising the *1970 Goals Report* and the *Comprehensive Plan*.

D. EXISTING MULTIPLE USE OF ARROYOS

Although arroyos have not become a major component of the City's open space network, some recreational trail development and right-of-way sharing has occurred. Public utilities often share arroyo corridors. Bicycle trails have been constructed within existing rights-of-way along the Hahn Arroyo and North Diversion Channel from Sandia High School to the University of New Mexico, the Embudo Arroyo from Pennsylvania to Morris, and the Piedra Lisa Channel from Morris to Tramway. Montessa Park, located in the floodplain of the Tijeras Arroyo, will contain ballfields and an off-the-road vehicle recreation area. In addition, low-flow concrete channels with landscaped sides which allow integration of recreational use with a drainage facility have been used in Lynwood Park, Academy Hills Park, Matheson Park, Odelia Pond, Heritage Hills Park, Glenwood Hills North, and Larchmont Park. Concrete channels with grass sides have also been used along the North Pino Arroyo through the Journal Center and the South La Cueva Arroyo by Signetics in the north Interstate 25 industrial area. The Journal Center has provided additional landscaping and an exercise trail adjacent to the arroyo. Portions of the Bear Canyon Arroyo floodplain between Juan Tabo and the

Cibola National Forest line have been protected through open space dedication.

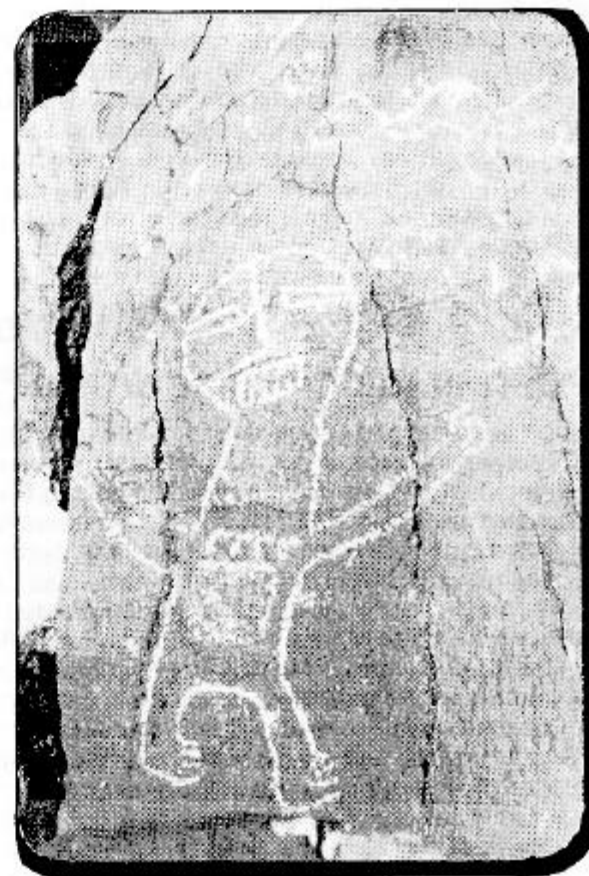
E. GOALS AND OBJECTIVES

The goal of the *Facility Plan for Arroyos* is to establish guidelines and procedures for implementing the policies of the *Comprehensive Plan* in order to create a multi-purpose network of recreational trails and open space along arroyos. The development of this recreational trail network will make open space areas increasingly accessible to a greater percentage of the metropolitan area's population by bringing trail corridors with open space characteristics within the urbanized area itself. This document is a Rank Two facility plan designating a limited number of arroyos for design and development as recreational corridors.

Recognizing that the opportunities presented by arroyos should be realized and that existing financial resources for development of arroyos as a recreational resource and an urban amenity are limited, the objectives of this plan are:

- To identify physical, social, and other constraints and opportunities presented by arroyos and the development adjacent to them
- To identify existing policies related to drainage, flood control, and development
- To evaluate in a systematic and consistent way the potential of each arroyo in the urban area to serve as Major Open Space, as a link connecting Major Open Space areas, or as an element of an urban trail system connecting activity centers
- To rank arroyos in priority order for each of the three categories in accordance with the results of the evaluation. The arroyos most suited to each of the arroyo categories will then be targeted for detailed study, design, and development

- To establish policies and guidelines for the design of arroyos and adjacent development according to the newly established arroyos categories
- To ensure the integrity of the proposed recreational network and to realize the full potential of the arroyos as a community asset
- To detail an implementation program, including scheduling of detailed planning for a limited number of arroyo corridors, identification of potential funding sources, safety measures and agency responsibilities. The implementation program will be the basis for scheduling arroyo recreational improvements



PETROGLYPH, PIEDRAS MARCADAS CANYON



THE CALABACILLAS ARROYO, WEST OF GOLF COURSE ROAD.

II. ARROYO CATEGORIES AND POLICIES

A. ARROYO CATEGORIES

Recognizing that the opportunities presented by arroyos should be realized and that existing financial resources for the development of arroyos as a recreational resource and an urban amenity are limited, the Planning Division evaluated each major arroyo in the metropolitan area in terms of its potential to:

- serve as Major Open Space
- link Major Open Space areas
- form an urban trail system

As a result of this analysis (Methodology, Appendix B) and subsequent meetings with the project study team (composed of representatives from the City Parks and Recreation Department, MDD-Planning and Engineering Divisions, AMAFCA, and a Planning Consultant), the Open Space Task Force, Open Space Advisory Board and the Greater Albuquerque Bicycling Advisory Committee, policies and planning priorities have been established for the following categories of arroyos:

1. Major Open Space Arroyos

Major Open Space Arroyos are to remain in a natural* or semi-natural* condition with native vegetation and channel stabilization consisting primarily of naturalistic treatments such as ungrouted riprap and gabions. Tinted concrete or soil cement may be used in limited applications such as in low-flow channels* or as needed to control erosion at points where developed runoff enters the arroyo. The existing open space characteristics of these arroyos will be preserved to the greatest extent feasible in order to provide visual and psychological relief from urbanization, and to protect the natural drainage process. Acquisition and maintenance

of the public right-of-way associated with Major Open Space Arroyos over-and-above that required for drainage will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks or the granting of recreational easements, where appropriate, are the preferred methods of acquisition.

2. Major Open Space Links

Major Open Space Links are scheduled for the development of corridor plans which will locate recreational trails forming continuous east/west linkages between peripheral Major Public Open Space. This Major Public Open Space includes the Sandia Foothills, the Manzano Foothills, the West Mesa Escarpment, the Rio Grande Bosque and, in the South Valley, former oxbows of the Rio Grande located west of Coors Boulevard. Barriers such as major streets, I-25, and the North and South Diversion channels may require crossing structures placed at strategic locations to provide continuity to the trail system.

*See Definitions, Appendix A

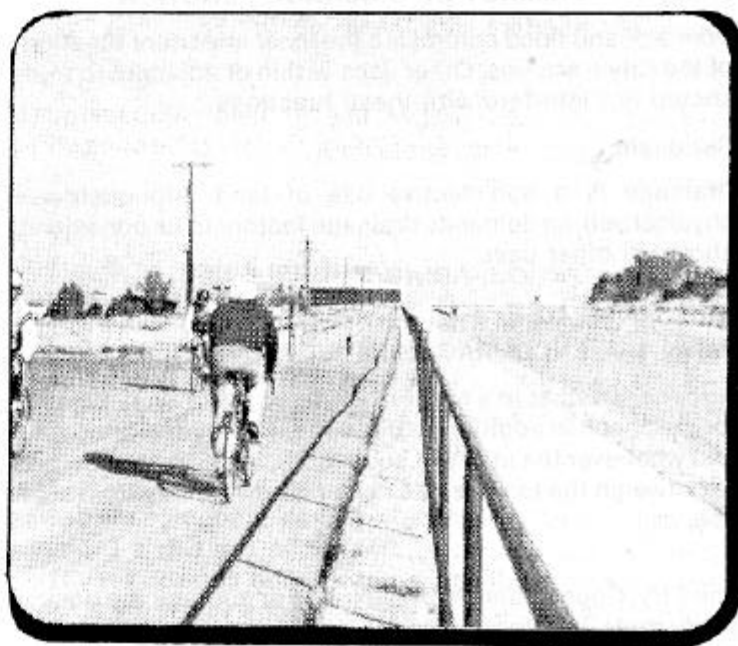
3. Urban Recreational Arroyos

Urban Recreational Arroyos are located either in highly urbanized or in developing areas. They have the potential to connect major activity areas such as schools, parks, employment or commercial centers, libraries, and churches with residential development by recreational trails located along segments of the arroyos. These segments may take the form of self-contained linear parks or form continuous trail corridors several miles in length.

The major distinctions between the three categories are:

- *Major Open Space Arroyos* — the only category to require specific channel treatment and drainage controls. Major Open Space designation may or may not be continuous; however, the design of channel improvements must be compatible along the entire arroyo corridor. Acquisition and maintenance of lands required for recreational purposes will be managed by the City*. Design guidelines regarding orientation, access, and landscaping are established for adjacent development.
- *Major Open Space Links* — form continuous east-west linkages between Major Open Space areas. No specific channel treatment is required. However, where appropriate, a range of suitable treatment types and landscaping requirements will be developed by subsequent arroyo corridor plans for each Major Open Space Link. The ability to develop an uninterrupted trail system is critical. A recommended minimum width for trail development outside of the floodway is proposed. Acquisition and maintenance of land required for recreational purposes will be managed by the City*. Design guidelines regarding orientation, access, and landscaping are established for adjacent development.

- *Urban Recreational Arroyos* — are considered either in their entirety, to be planned as corridors, or as discrete segments connecting parks and activity areas with residential development. Dedication, construction, and maintenance of park facilities will be managed by the City. No specific channel treatment is required, and no design criteria are established for adjacent development.



PASEO DEL NORDESTE BIKE TRAIL, ADJACENT TO THE NORTH DIVERSION CHANNEL.

*For responsible agencies, refer to Table 2, Implementation Summary

B. GENERAL POLICIES

The following general policies apply to Major Open Space Arroyos, Major Open Space Links, and Urban Recreational Arroyos which are designated as priorities by this facility plan. The general policies implement existing *Comprehensive Plan* policies regarding the multiple use of arroyos.

DRAINAGE

Policy 1 — PRIMACY OF DRAINAGE FUNCTION

Drainage and flood control are the most important functions of the City's arroyos. Other uses within or adjacent to them should not interfere with these functions.

Rationale:

Drainage is a non-elective use of land. Albuquerque's physical setting demands drainage factors to be considered above all other uses.

MULTIPLE USE

Policy 1 — ENCOURAGING MULTIPLE USE

Arroyos, whether in a natural or altered state, shall be used for purposes in addition to drainage whenever practicable, and whenever the utility of such multiple use is determined to outweigh the foreseeable risk of harm or injury from such use.

The City, County, and AMAFCA shall encourage the design of multiple use facilities, defined in the City's Drainage Ordinance as "drainage control, flood control, or erosion control facilities in which other secondary uses are planned or allowed, including but not limited to recreation, open space, transportation, and utility location."

Rationale:

Implementing this policy will make better use of a unique geographical feature of the urban area and reduce costs

associated with right-of-way acquisition by allowing joint-use of lands acquired for public purposes. Multiple use of arroyos for recreation and open space will create a public amenity in the form of open space corridors located within the urbanized area.

Although it is not always desirable to align utilities (water, sewer, gas, electricity, telephone, and cable TV) with drainage rights-of-way, right-of-way sharing is possible in cases where major transmission lines must be placed near the arroyo or when limited access to a street is desired. However, major transmission facilities should not be aligned with a designated Major Open Space Arroyo.

Advantages to right-of-way sharing include a reduction in the total amount of land which must be dedicated for public purposes, lower maintenance costs for utilities which are not buried under pavement, and preservation of a wider strip of land for recreational trails and landscaping.

Policy 2 — RIGHT-OF-WAY ACQUISITION

Future dedicated rights-of-way or recorded easements which allow for public uses other than drainage shall be publicly acquired, when appropriate, based upon an adopted arroyo corridor plan. Acquisition shall take place during the process of zone change request, subdivision plat approval, site plan approval, and sector development plan approval.

Legal documents pertaining to right-of-way dedication for drainage and flood control shall be coordinated with legal documents which allow other public purposes, where appropriate, and shall be arranged between the landowner, AMAFCA, the City Parks and Recreation Department, and the Municipal Development Department.

Rationale:

Arroyo corridor plans will address the development of detail necessary to specify right-of-way acquisition requirements.

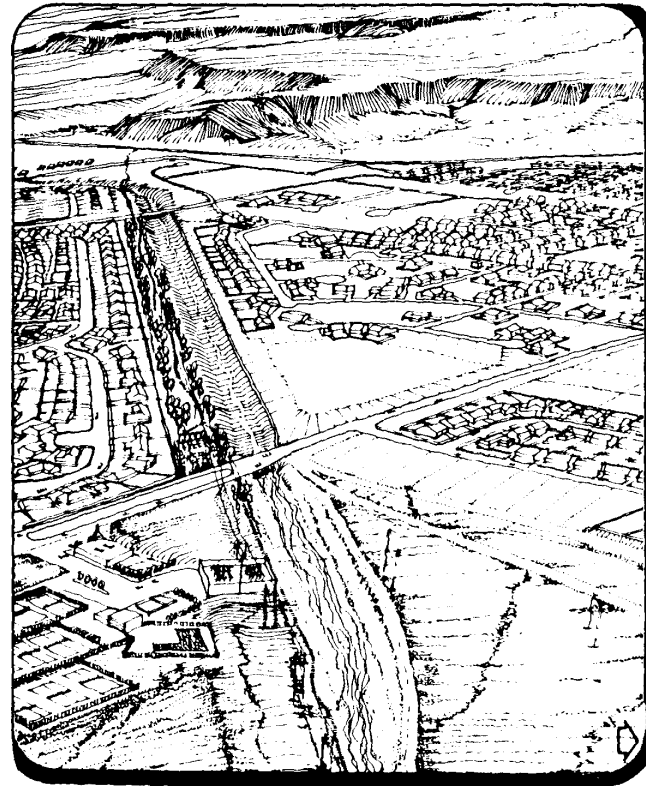
Legal documents must address multiple use in order to ensure public access.

Policy 3 — MULTIPLE USE CORRIDOR PLANS

Multiple use arroyo corridor plans, integrating land-use and public facilities planning, shall be prepared for the arroyos designated by this facility plan as Major Open Space Arroyos, Major Open Space Links, or Urban Recreational Arroyos. These will be Rank Three plans, and will vary in their complexity depending upon the extent of development and/or platting already in place adjacent to the arroyo.

Rationale:

Each arroyo presents a unique pattern of opportunities and constraints. Watersheds, development patterns and existing channel conditions vary. These unique features must be considered in the development of corridor plans for each arroyo. Additionally, the City's Plan Ranking system recognizes that Rank Two plans do not provide sufficient detail to plan the use, design, and actual right-of-way requirements for each individual arroyo. Rank Three plans will provide the necessary detail.



THE MARIPOSA CHANNEL SOUTH OF MONTANO ROAD IS ALIGNED WITH MARIPOSA LINEAR PARK AND PNM TRANSMISSION LINES

Policy 4 — INTERAGENCY COORDINATION

The City Departments of Transportation, Water Resources, Parks and Recreation and Municipal Development, the County Roads and Park Departments, AMAFCA, the Middle Rio Grande Conservancy District, the electric, gas and telephone utilities, cable TV enterprises, and the Albuquerque Public Schools should be the coordinative agencies involved in plans and decisions affecting the arroyo corridors. The Planning Division shall be the lead agency in developing multiple use arroyo corridor plans and will form a study team composed of representatives of the public and private agencies and departments listed above.

Rationale:

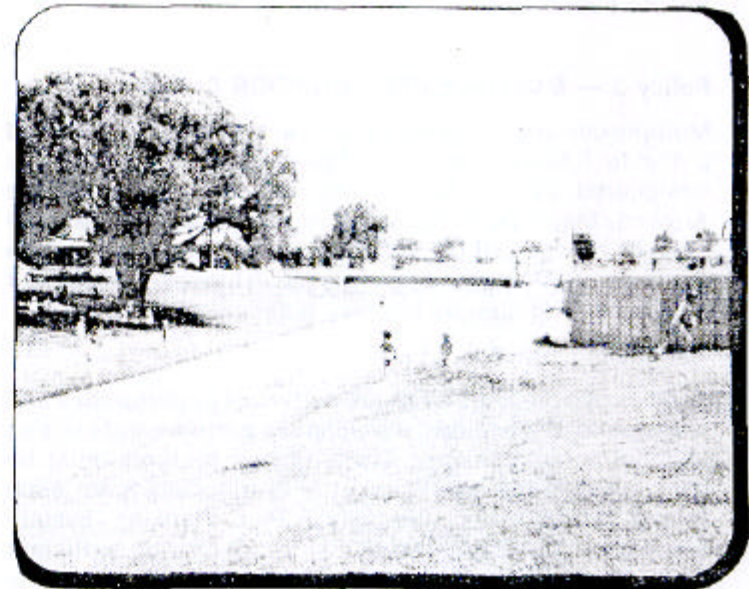
A consistent approach to development of the arroyo corridors is necessary for implementation of the multiple use concept. Coordination of all public decisions affecting the arroyo corridors will ensure consistency in planning and implementation.

Policy 5 — LAND-USE COMPATIBILITY

Public facilities such as parks, schools, libraries, community centers, etc. should be located adjacent to or within one quarter mile of arroyos to provide destinations for people using the trails. Commercial centers, employment centers, and high-density residential uses should also be located adjacent to or within one quarter mile of arroyos to maximize the usefulness of the trails.

Rationale:

In largely undeveloped watersheds, opportunities exist to integrate land-use planning around an arroyo. Intensively used public and private facilities can be located adjacent to the arroyo and related to one another across an arroyo, allowing arroyos to become strong organizing elements to the City's urban design.



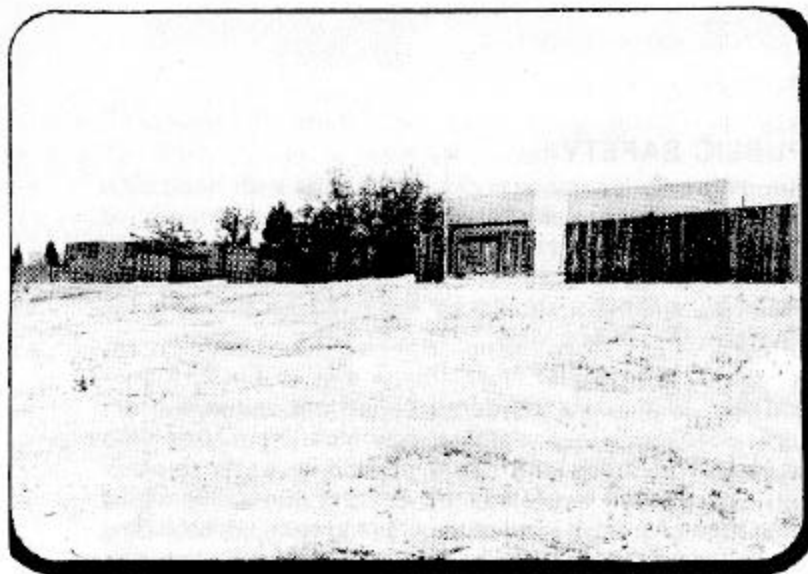
MATHESON PARK AND MATHESON PARK ELEMENTARY SCHOOL ARE LOCATED ADJACENT TO THE EMBUDITO ARROYO NEAR MORRIS AND MENAUL BOULEVARDS.

Policy 6 — APPROPRIATE ACCESS

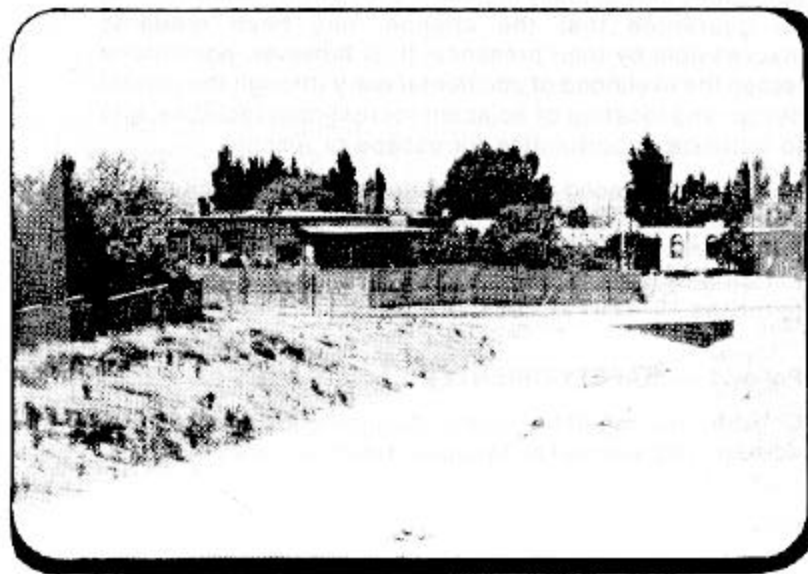
Where drainage rights-of-way contain trails, at least one pedestrian and bicycle access point should be provided per one quarter mile.

Rationale:

Access is a basic requirement for the use of a drainage right-of-way as a trail. Its utility as a trail is negligible if there is no way to get to it or no access from an arroyo to a destination point. The City has a responsibility to maintain these access points to guarantee security for and aesthetic compatibility with adjoining properties.



THESE TOWNHOUSES ADJACENT TO BEAR CANYON ARROYO PROVIDE REAR YARD AND ALLEY ACCESS TO THE ARROYO.



POOR ACCESS IS TYPICAL OF ARROYOS THROUGH RESIDENTIAL AREAS

PUBLIC SAFETY

Bringing more people into close proximity with floodways and encouraging multiple use will carry a certain degree of risk. However, it must be noted that the present risks posed by the location of open-yet-secluded and visually-isolated drainage channels should be lessened by bringing the facilities into public view.

Arroyos, whether in a channelized or a natural condition, are inherently dangerous. Flash floods may occur with little warning. The force and depth of moving water is often difficult to judge, especially for young children. The banks of natural or graded-earth channels tend to be unstable and easily weakened by erosion. No amount of engineering or park design, short of placing the entire system underground, can create a "safe" arroyo. It is impossible to completely prevent *intentional* entry into a channel. Fencing and other barricades may actually impede rescue efforts while offering no guarantee that the channel has been rendered inaccessible by their presence. It is, however, possible to lessen the likelihood of *accidental* entry through the careful design and location of adjacent recreational facilities, and to optimize opportunities for escape or rescue.

Safety is enhanced with an aggressive public education program. Public safety is an essential component of the total concept of integrating arroyos into development patterns and using them for recreational and other purposes.

Policy 1 — SAFETY-ORIENTED FACILITY DESIGN

Consideration shall be given to designing the drainage and adjacent recreational and transportation facilities to reduce user risk.

Rationale:

The design of drainage and recreational facilities must recognize public safety as a major objective. The joint use

of drainage rights-of-way for recreational purposes establishes a need to design drainage facilities to meet safety performance criteria in addition to satisfying hydrologic requirements.

Policy 2 — PROGRAMS PROMOTING PUBLIC SAFETY

City staff shall investigate potential safety measures including public information, user education, regulation of use of hazardous areas, safety-oriented design, emergency warning systems, and patrolling, as part of the initial planning and periodic project review process required by the arroyo corridor plans.

The "Water Witch" public safety education program is an excellent example of the type of educational program which shall be continued and emphasized in areas adjacent to arroyos. This program was developed by the Mayor's Office in conjunction with Albuquerque Public Schools, the Middle Rio Grande Conservancy District (MRGCD), AMAFCA, the U.S. Bureau of Reclamation, and the City Engineering Division to dramatize the risks presented by the arroyos, ditches, and drains within the metropolitan area.

Rationale:

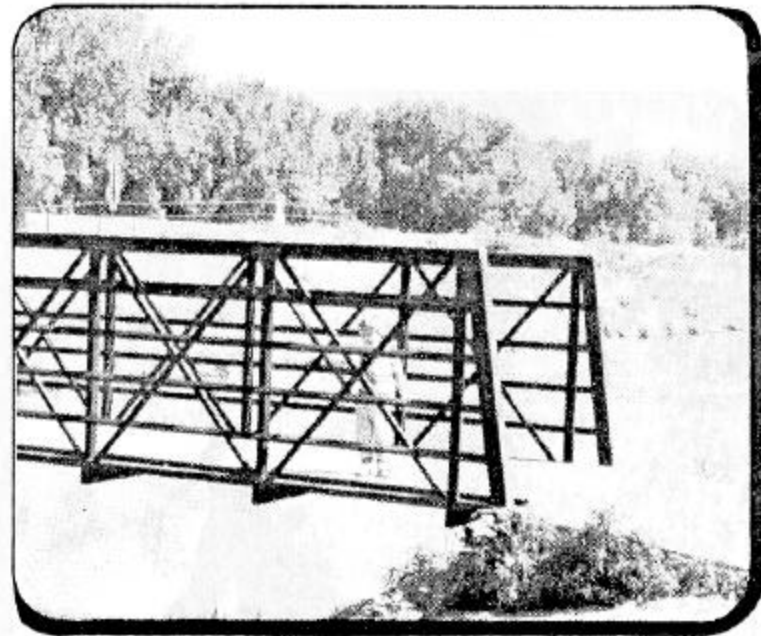
Public safety programs alert residents to potential dangers associated with drainage facilities, while promoting the proper use of the recreational system.

Policy 3 — JOINT MAINTENANCE

Maintenance shall be coordinated between AMAFCA, the City Parks and Recreation Department and the City Engineering Division. This facility plan recommends that the City Parks and Recreation Department maintain landscaping and trails located within the public right-of-way but outside of the drainage channel, and that the City Engineering Division or AMAFCA maintain the channel, except in cases when a specific channel treatment is required in concert with the recreational function of the drainageway. In such cases, the City Engineering Division and the Parks and Recreation Department shall negotiate a joint-maintenance agreement for the channel.

Rationale:

The maintenance of the drainage channel, adjacent trails, and landscaped areas must be managed jointly by those agencies or departments having the proper equipment, manpower, and expertise to handle specific requirements.



CROSSING STRUCTURE OVER THE RIVERSIDE DRAIN ADJACENT TO THE RIO GRANDE NATURE CENTER. RAILINGS REDUCE THE LIKELIHOOD OF ACCIDENTAL ENTRY.

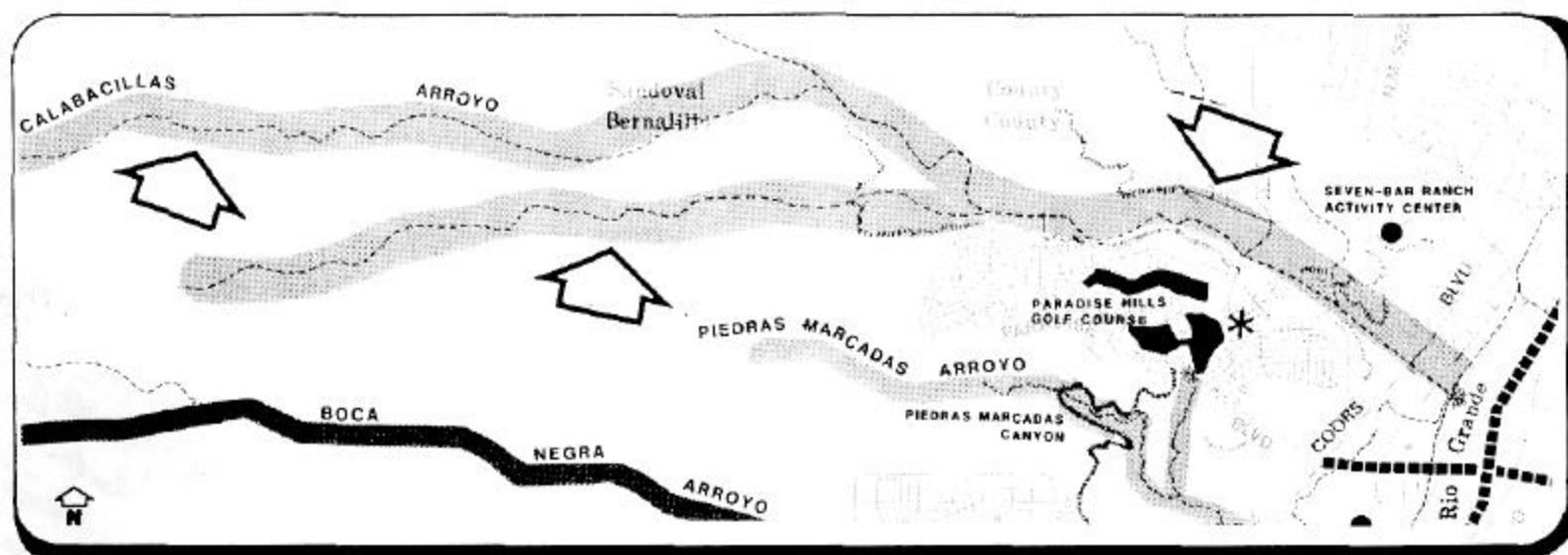


BANK OF THE CALABACILLAS ARROYO, WEST OF GOLF COURSE ROAD.

C. MAJOR OPEN SPACE ARROYOS

Major Open Space Arroyos* are to remain in a natural* or semi-natural* condition with native vegetation and channel stabilization consisting primarily of naturalistic treatments such as ungrouted riprap and gabions. Tinted concrete or soil cement may be used in limited applications such as in low-flow channels* or as needed to control erosion at points where developed runoff enters the arroyo. The existing open space characteristic of these arroyos will be preserved to the greatest extent feasible in order to provide visual and psychological relief from urbanization, and to protect the natural drainage process. Acquisition and maintenance of the public right-of-way associated with Major Open Space Arroyos over-and-above that required for drainage will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks or the granting of recreational easements, where appropriate, are the preferred methods of acquisition.

*See Definitions, Appendix A



SEE LEGEND ON FOLD OUT MAP, APPENDIX J.

1. THE CALABACILLAS ARROYO

The Calabacillas Arroyo lies west of the Rio Grande within a large, generally undeveloped watershed in an area designated Established Urban by the *Comprehensive Plan*. (The Established Urban designation is due to the platting and masterplanning already in place at the time the *Comprehensive Plan* was adopted). The upper reaches of the Calabacillas Arroyo (west of Paradise Hills and Rio Rancho) are designated as Developing Urban. The headwaters lie outside of Bernalillo County but within the City's extra-territorial planning and platting jurisdiction, with the exception of the incorporated areas of Rio Rancho. Planning (and/or zoning) for the area surrounding the Calabacillas within Bernalillo County is governed by the *Northwest Mesa Area Plan*, the *Comprehensive Plan*, the *Paradise Hills Special Zoning District*, and the *Coors Corridor Sector Development Plan*. Planning for the area outside of Bernalillo County is governed by the City of Rio Rancho.

The Calabacillas is a large arroyo with a wide, well-defined and deeply cut channel in its middle and lower reaches. The Calabacillas traverses varied terrain with sparsely vegetated rolling hills and sandy, highly erodible soils. The arroyo remains primarily in its natural state, except for a straightened, graded-earth channel section beginning east of Coors Boulevard and extending to the Rio Grande.

The Calabacillas is shown as a study corridor in the *Bikeways Master Plan* (Appendix F).

Existing platting within Bernalillo County has, for the most part, respected the floodplain boundaries of the Calabacillas. No major channel improvements are proposed by either AMAFCA or the City.

Development proposals within the watershed include a variety of residential densities, commercial, institutional and office uses. The Seven-Bar Ranch activity center is located along the lower reaches of the arroyo.

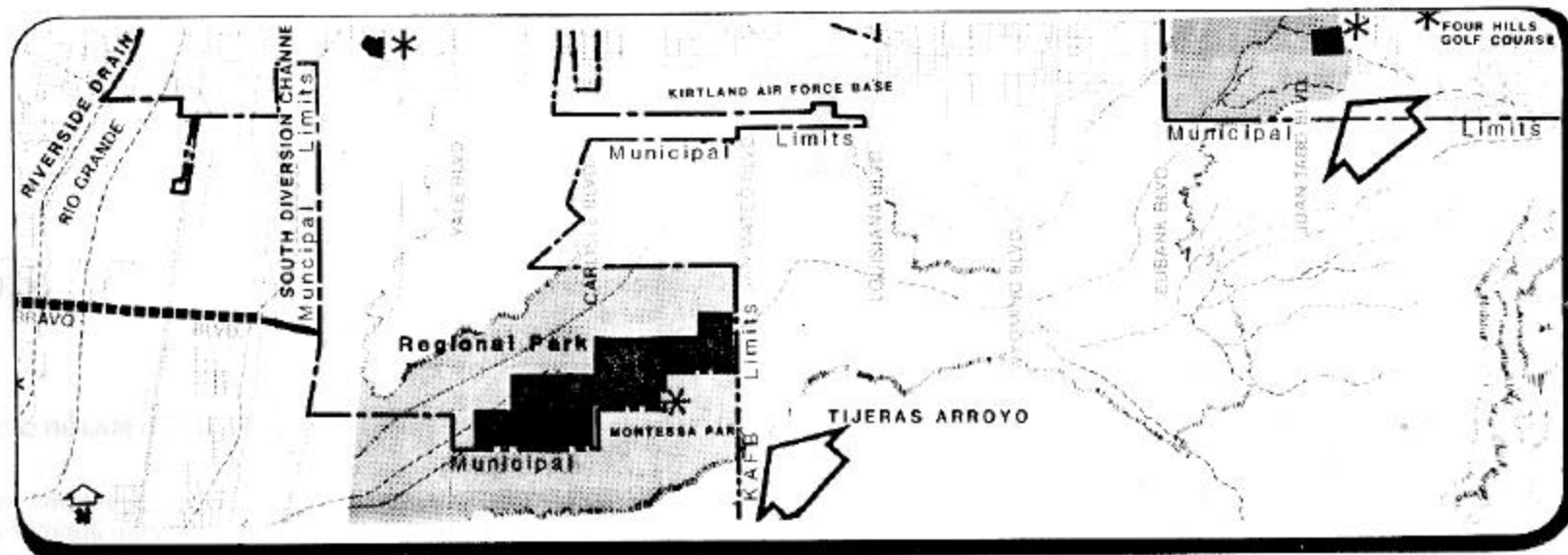
Current AMAFCA administrative policy regarding drainage into the Calabacillas is to allow uncontrolled flow and to request adherence to the offset tangent lines proposed by Simons, Li, and Associates in the 1983 engineering report entitled "Erosion Study to Determine Boundaries for Adjacent Development — Calabacillas Arroyo". This report identified an area outside of the floodplain that should remain free from construction due to the topography and high erosion potential of the soils.

Major Open Space Arroyo designation for the Calabacillas Arroyo will strengthen existing policies which request voluntary compliance with the offset tangent lines and ensure, through the acquisition of additional right-of-way and/or recreational easements, that the proposed erosion control boundaries will not be exceeded in the future.

The Calabacillas Arroyo is also designated by this facility plan as a Major Open Space Link due to its potential to link residential development with Major Public Open Space (the Rio Grande Bosque) and with major employment, institutional, and commercial activities in the *Seven-Bar Ranch Sector Development Plan* area.



THE CALABACILLAS ARROYO WEST OF GOLF COURSE ROAD



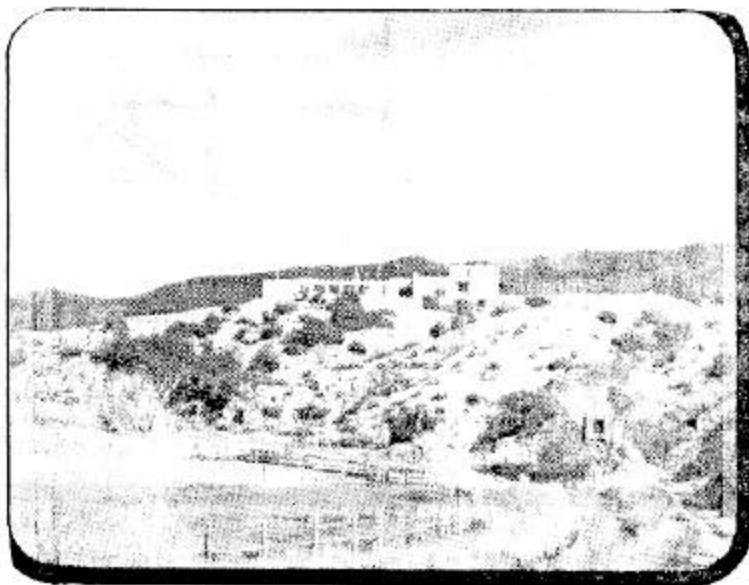
SEE LEGEND ON FOLD OUT MAP, APPENDIX J

2. PORTIONS OF THE TIJERAS ARROYO

The Tijeras Arroyo is located at the southeastern edge of the urbanized metropolitan area, lying mainly within lands designated Developing Urban and Existing or Proposed Major Open Space by the *Comprehensive Plan*. The Tijeras Arroyo is bordered on the south by Kirtland Air Force Base and the proposed *Mesa Del Sol Master Plan* area.

The Tijeras is Bernalillo County's largest arroyo, with a wide floodplain, deeply cut channel and steep side slopes composed of rock and sand. The watershed of the Tijeras Arroyo is a mountainous, 130-square-mile area lying generally east of Albuquerque.¹ The watershed is largely undeveloped, with existing development consisting primarily of low density residential land uses. No channel improvements for the Tijeras are proposed by either the City or AMAFCA at this time.

¹ "Tijeras Arroyo Drainage Management Plan", prepared for AMAFCA by Bovay Engineers, Inc., 1981.



THE TIJERAS ARROYO, EAST OF FOUR HILLS ROAD.



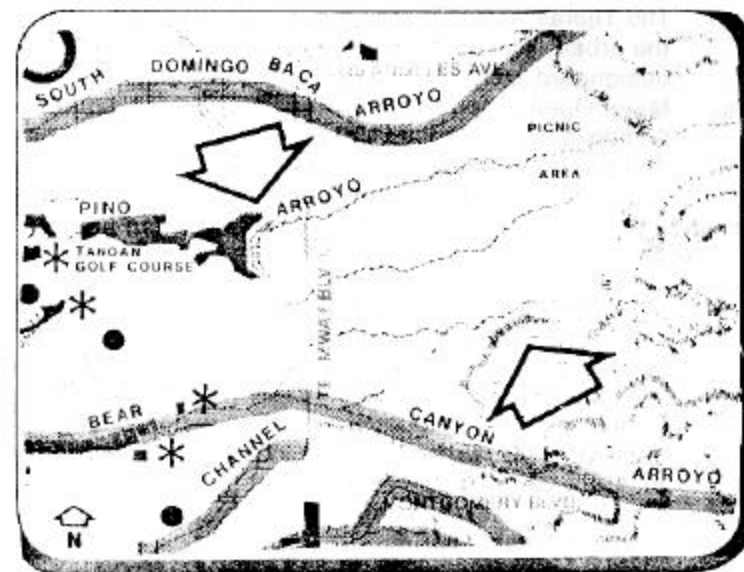
THE TIJERAS ARROYO, WEST OF FOUR HILLS ROAD.

3. ARROYOS WITHIN MAJOR OPEN SPACE AREAS

Major Open Space designation also applies to the portions of arroyos which reside within areas designated as Major Open Space by the *Comprehensive Plan* — such as the Sandia Foothills, the escarpment, the oxbows, and the bosque. Many of these areas are currently under public ownership.

4. SEGMENTS OF ARROYOS ADJACENT TO MAJOR OPEN SPACE AREAS

Segments of arroyos which may provide a direct link to or extension of Major Open Space areas are also appropriate for acquisition or dedication as open space.



SEGMENTS ADJACENT TO MAJOR OPEN SPACE AREA
SEE LEGEND ON FOLD OUT MAP, APPENDIX J

MAJOR OPEN SPACE ARROYOS: SPECIFIC POLICIES

In addition to the General Policies, which apply to all three categories of arroyos, the following also shall apply specifically to Major Open Space Arroyos:

Policy 1 — PRESERVATION OF THE EXISTING FLOODPLAIN

Where appropriate, as determined through specific arroyo corridor plans, the entire 100-year floodplain of the arroyo shall be dedicated to or purchased by the City as Major Public Open Space*. Right-of-way beyond the 100-year floodplain should be acquired when development would be imprudent because of potential bank erosion or other environmental factors, or when necessary to ensure continuous trail development. Acquisition of these lands shall be programmed by the City. Portions of the arroyo right-of-way will also be eligible for park dedication credit. The actual amount of land area to be credited as dedicated park land will be determined by the City on a case-by-case basis.

Rationale:

The natural drainage system, its topography and landscaping constitute a unique visual and natural resource worthy of preservation.

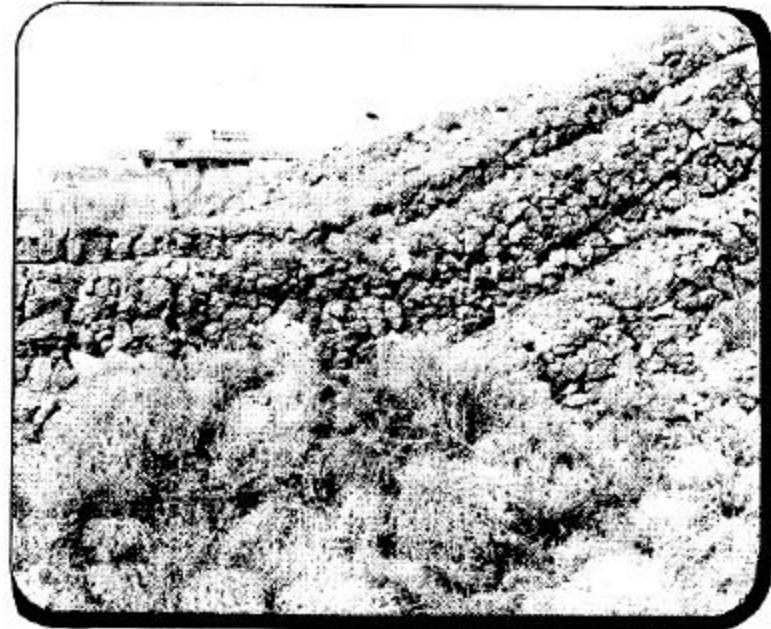
Policy 2 — DRAINAGE FACILITIES WITHIN DESIGNATED OPEN SPACE

Drainage facilities within designated Major Public Open Space, such as the Sandia and Manzano foothills, the Rio Grande Valley State Park, the volcanic escarpment, or within designated Major Open Space Arroyos should be designed

to blend visually with adjacent land. Channel stabilization treatments which allow the growth of vegetation are preferred, including but not limited to ungrouted riprap, gabions and gabion weirs. Tinted concrete or soil cement may be used in limited applications such as in low-flow channels* or as needed to control erosion at points where developed runoff enters the arroyo.

Rationale:

The City's Major Public Open Space is intended to provide a visual contrast to the developed areas of the city. Public facilities can be designed to harmonize with the city's open space so that the open space character is not adversely affected.



GABIONS, SAN ANTONIO ARROYO, WEST OF COORS BOULEVARD

*See Definitions, Appendix A

*See Definitions, Appendix A

Policy 3 — DRAINAGE CONTROLS FOR ADJACENT DEVELOPMENT

Necessary drainage controls for development adjacent to a Major Open Space Arroyo shall be developed jointly by AMAFCA and the City Engineering Division through master drainage studies as part of the arroyo corridor planning process. All site plans for development, other than R-1 sites, adjacent to a designated Major Open Space Arroyo shall be reviewed by the Development Review Board in order to evaluate the impact on the arroyo drainage system. R-1 subdivisions shall be reviewed by the Development Review Board during the platting and subdivision stage for compliance with the master drainage plan established for each Major Open Space Arroyo as part of the arroyo corridor planning process.

Rationale:

In order to preserve the existing floodplain in a natural or semi-natural condition, storm water runoff from developed areas cannot exceed the capacity of the natural drainage system when augmented by channel improvements compatible with the open space character of the arroyo.

The Major Open Space Arroyos were chosen in part because compatible channel improvements have been proposed for these arroyos in previous drainage studies.² The recommended controls consist primarily of directing storm water runoff to the arroyo in such a way that erosion does not occur at the point of entry. However, these recommended controls should be reviewed during the arroyo corridor planning process, in private development engineering proposals, and in upcoming major drainage studies for the northeast and northwest areas, in order to identify any additional improvements and/or controls on developed runoff that may be necessary.

Policy 4 — PRESERVING TOPSOIL AND EXISTING VEGETATION

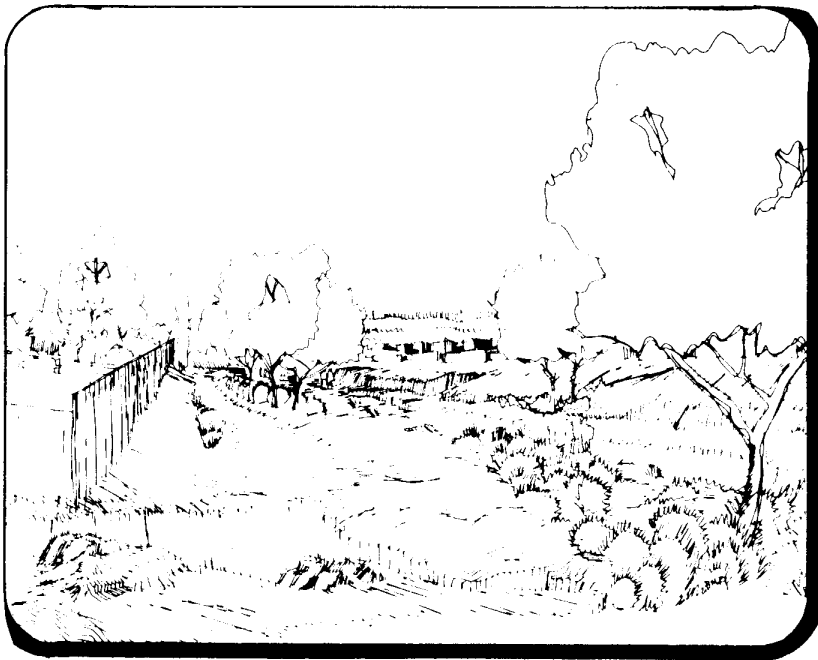
Measures should be taken during the construction of any public or private improvements within or adjacent to a designated Major Open Space Arroyo to minimize the disturbance of existing vegetation and topsoil. The right-of-way should be reseeded with native, and/or naturalized vegetation to replace vegetation lost during construction. Specific landscaping and/or reseeded requirements will be determined at the arroyo corridor plan level.

Rationale:

In order to help retain the open space character of the arroyo corridor and prevent erosion, the existing vegetation must be preserved or replaced.

² "Erosion Study to Determine Boundaries for Adjacent Development — Calabacillas Arroyo, Bernalillo County, New Mexico", prepared for AMAFCA, 1983, by Simons, Li & Associates, Inc.

"Tijeras Arroyo Drainage Management Plan," prepared for AMAFCA, 1981, by Bovay Engineers, Inc.



A MEDIUM LANDSCAPING APPROACH INCLUDES SOME TREES AS WELL AS RESEEDING.

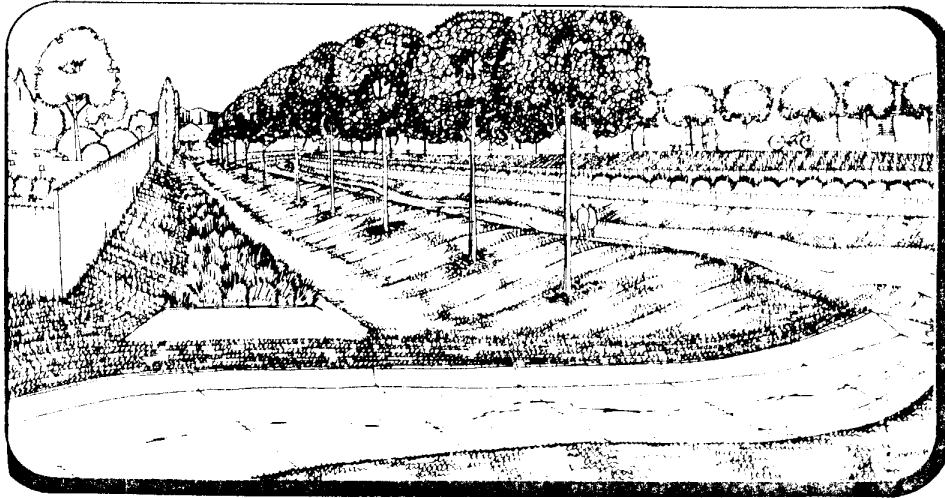
Policy 5 — LANDSCAPING WITHIN THE PUBLIC RIGHT-OF-WAY

Landscaping of drainage rights-of-way, including reseeding of disturbed land with low-maintenance native plant materials and native shrubs or trees and vegetative ground covers, shall be encouraged and shall be defined at the arroyo corridor plan level.

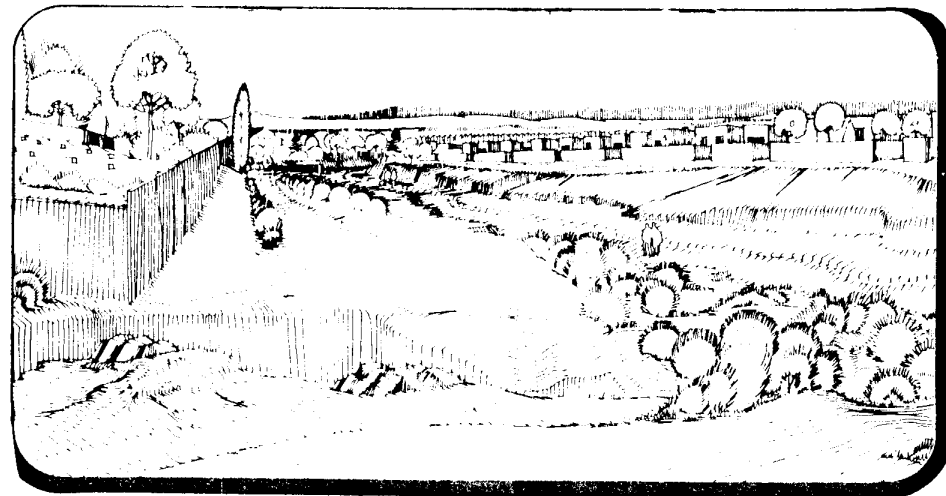
Landscaping to enhance elements of topography, scenic views, and areas containing public amenities, will be considered at the arroyo corridor plan level. In general, the construction and maintenance of landscaping associated with Major Open Space Arroyos will be the responsibility of the City, except as noted in "Policy 6: Open Space Dedication".

Rationale:

An attractive arroyo will allow a developer of adjoining land to utilize his site more fully and to increase his site-planning options. Landscaping will encourage developers of adjacent land to orient their projects toward arroyos. Landscaping efforts can cover a wide range of intensity, including the establishment of native vegetation through the use of temporary sprinkling systems and/or mulches. Trees could further complement the arroyo's visual character. Their location along the arroyo would allow the use of storm drainage (including nuisance flows) for irrigation.



IRRIGATED LANDSCAPING WITH SOD, SHRUBS AND TREES IS THE MOST INTENSE LANDSCAPING ALTERNATIVE, AND IS MOST APPROPRIATE IN PARK SECTIONS OR LOCATED ALONG URBAN RECREATIONAL ARROYOS.



MINIMUM LANDSCAPING INCLUDES RESEEDING AND NATIVE SHRUBS

Policy 6 — OPEN SPACE DEDICATION

In metropolitan areas designated Developing Urban, a portion of a development's open space requirement should be aligned with drainage facilities associated with arroyos designated by this facility plan as Major Open Space Arroyos.

The entire 100-year floodplain of a Major Open Space Arroyo, when left in a natural or semi-natural* condition, along with its associated right-of-way required by the City for trails, shall be credited as open space, less the amount of right-of-way that would be required for drainage control if a fully concrete-lined 100-year channel were constructed.**

The developer will be responsible for reseeding any disturbed land in the public right-of-way, outside of the floodway, with low-maintenance native plant materials, and for maintaining reseeded areas for a period of three years, at which time maintenance becomes the responsibility of the City.

Rationale:

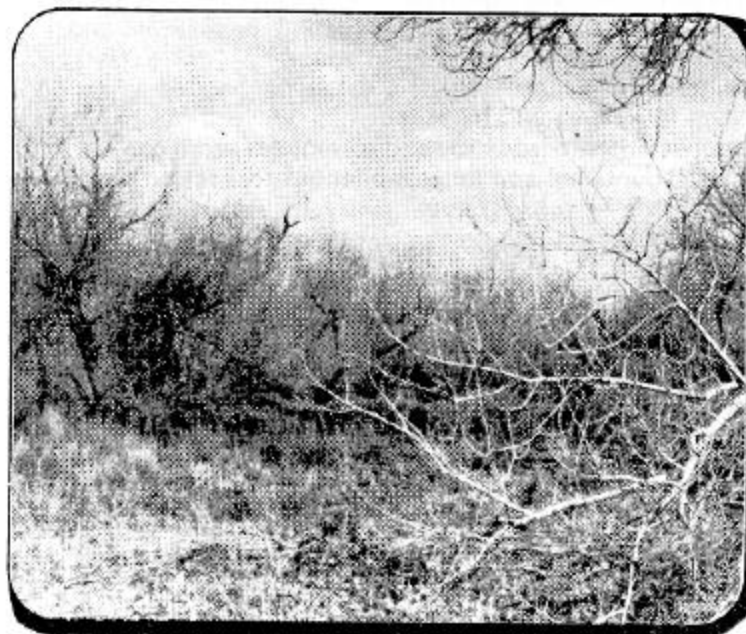
Drainage rights-of-way, such as natural or semi-natural channels or recreational trails, which legitimately serve an open space function by providing visual relief to urbanization and/or active recreational opportunities, are appropriately considered in their entirety as open space.

* stabilized with channel treatments described in "Policy 2: Drainage Facilities within Designated Open Space"

** Based upon standards set for the typical concrete channel section by the Development Process Manual (DPM), the amount of right-of-way required for drainage control assumes a trapezoidal concrete section with maximum 2:1 sidewall slopes and a 12-foot (top width) maintenance road along one side of the channel.



SAN ANTONIO ARROYO, EAST OF COORS BOULEVARD.



HUBBELL LAKE DETENTION AREA

Policy 7 — PROGRAMMING RECREATIONAL AMENITIES

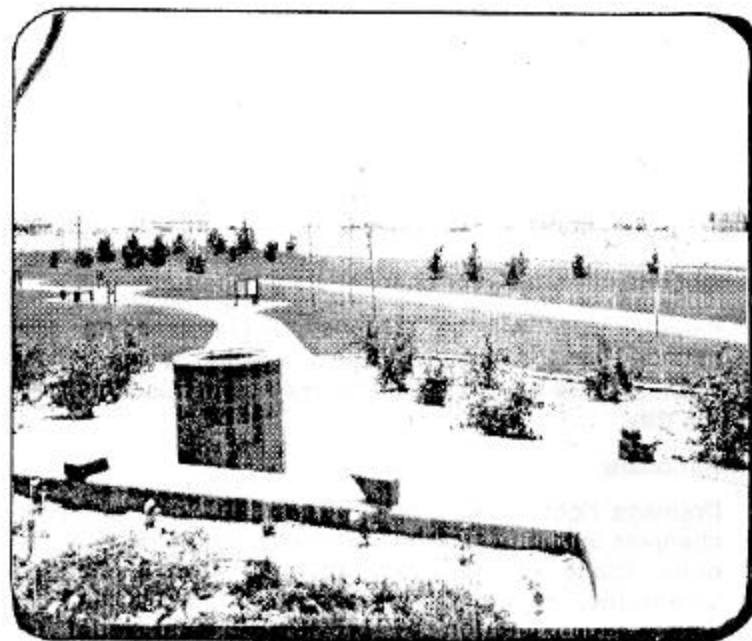
The design of public amenities shall be planned and programmed as part of the arroyo corridor planning process, according to the policies and design guidelines set forth in this document. At a minimum, recreational programming for Major Open Space Arroyos shall include the following:

- shaded picnic and rest areas incorporating benches, tables, drinking fountains and toilet facilities, where appropriate
- hiking and or bike trails, where appropriate, to access Major Open Space areas
- shaded parking lots and secure bicycle parking areas, where appropriate
- accessible areas designed so that motorized recreational vehicles are prohibited from entering pedestrian and bicycle-oriented trails and open space

Rationale:

Amenities such as trails, shaded rest stops, parking areas, drinking fountains, and toilet facilities, etc. provide basic user services. Motorized recreational vehicles are in conflict with the pedestrian and bicycle-oriented character of the system.

Trails, parks, and other recreational facilities require careful planning within the framework of public input; therefore, detailed arroyo corridor plans will be developed following adoption of this facility plan.



INTENSIVE LANDSCAPING AND AN EXERCISE TRAIL ADJACENT TO THE NORTH PINO ARROYO THROUGH JOURNAL CENTER

D. MAJOR OPEN SPACE LINKS

Major Open Space Links* are scheduled for the development of arroyo corridor plans which will locate recreational trails forming continuous east/west linkages between peripheral Major Public Open Space. This Major Public Open Space includes the Sandia Foothills, the Manzano Foothills, and the West Mesa Escarpment, the Rio Grande Bosque and, in the South Valley, former oxbows of the Rio Grande located west of Coors Boulevard. Barriers such as major streets, I-25, and the North and South Diversion channels may require crossing structures placed at strategic locations to provide continuity to the trail system. Acquisition and maintenance of the public right-of-way and/or easements associated with Major Open Space Links over-and-above that required for drainage purposes will be the responsibility of the City. Dedication of arroyo rights-of-way as open space or parks, or the granting of recreational easements where appropriate, are the preferred method of acquisition.

Channel treatments within Major Open Space Links may vary. The native landscaping of rights-of-way and/or easements associated with trails will comprise the unifying element along these arroyo corridors.



RIO GRANDE BEACH AREA LOCATED AT THE MOUTH OF THE CALABACILLAS ARROYO

*See Definitions, "Major Public Open Space", Appendix A

1. PIEDRAS MARCADAS ARROYO

The Piedras Marcadas Arroyo lies south of Paradise Hills and west of Coors Boulevard within a largely undeveloped watershed designated Established Urban by the *Comprehensive Plan*. The Established Urban designation is due to the platting and masterplanning already in place at the time the *Comprehensive Plan* was adopted. Planning for this area is governed by the *Northwest Mesa Area Plan*.

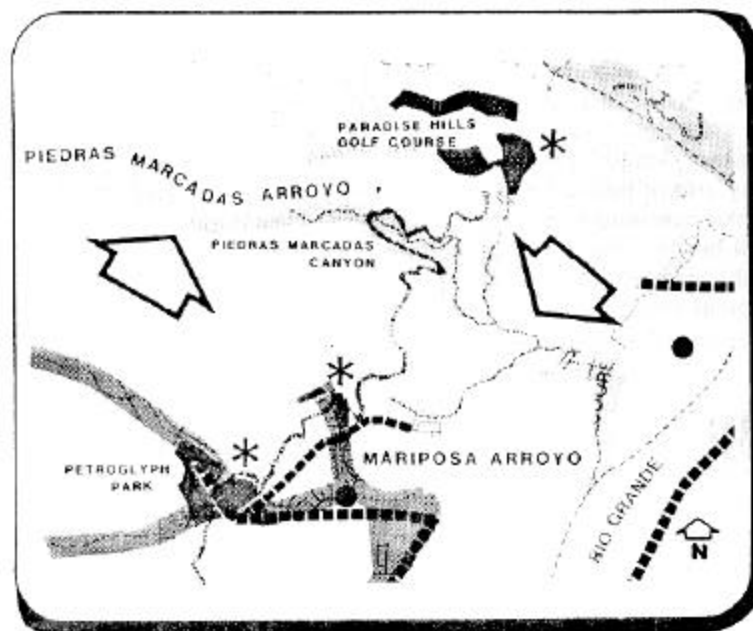
The Piedras Marcadas drains a comparatively small watershed originating above the ridge of the West Mesa Escarpment. Piedras Marcadas Canyon contains the most extensive collection of petroglyphs to be found in an urban area and represents an archeological resource of great significance. The topography, with the exception of the steep and rocky slopes of the Piedras Marcadas Canyon, consists primarily of gently rolling grasslands with a shallow, often poorly defined arroyo bed cutting through predominantly sandy soils.

The Piedras Marcadas Dam is located west of Coors Boulevard with outflow east of Coors Boulevard emptying into the Corrales Main Canal. Varying densities of residential office and industrial redevelopment are proposed immediately west of Coors Boulevard. A mix of medium-to-high density residential, institutional, and office uses are proposed or existing east of Coors Boulevard.

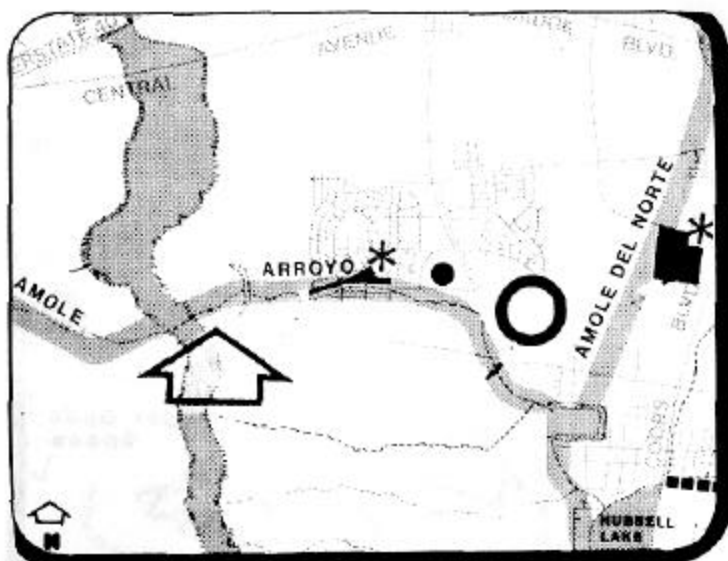
The Piedras Marcadas Arroyo has the potential to link two Major Open Space areas — the Piedras Marcadas Canyon and the Rio Grande Bosque with residential development. In addition, a large archeological site located in close proximity to the arroyo is currently under study and may ultimately be included in the recreational system.

2. CALABACILLAS ARROYO

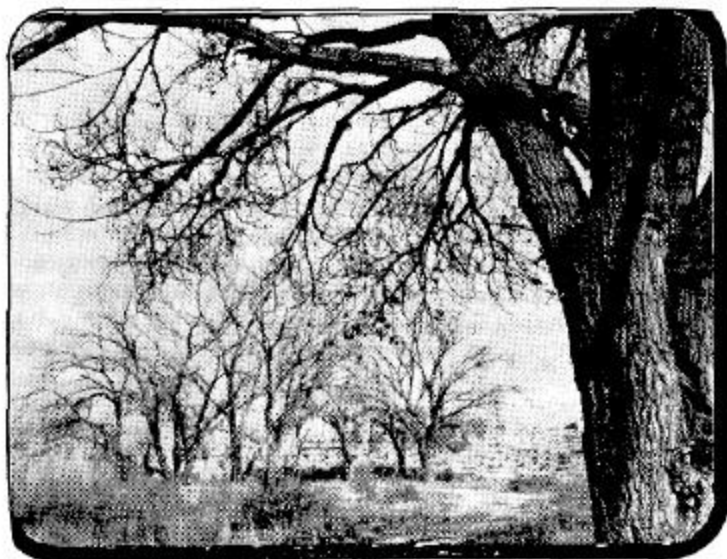
The Calabacillas Arroyo is designated by this facility plan as both a Major Open Space Arroyo and a Major Open Space Link. The Calabacillas Arroyo is described on Page 22.



PIEDRAS MARCADAS ARROYO
SEE LEGEND ON FOLD OUT MAP, APPENDIX J



AMOLE ARROYO AND AMOLE DEL NORTE DIVERSION CHANNEL.
SEE LEGEND ON FOLD OUT MAP, APPENDIX J.



HUBBELL LAKE DETENTION AREA.

3. AMOLE ARROYO AND AMOLE DEL NORTE DIVERSION CHANNEL

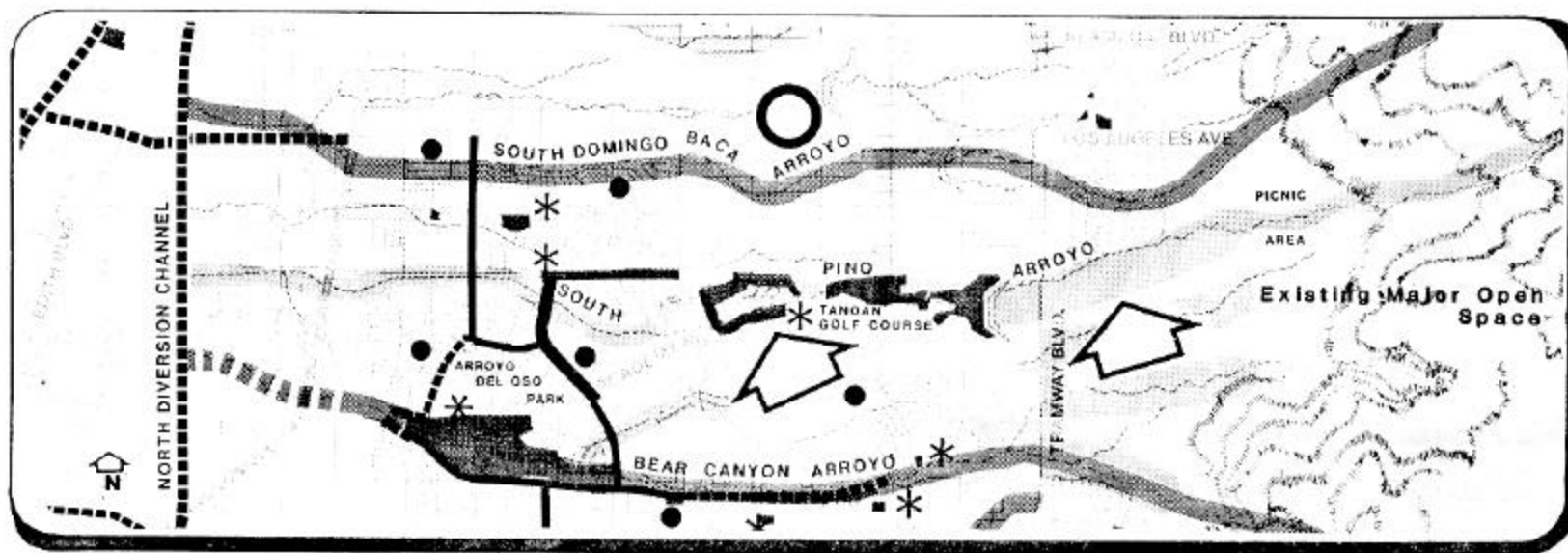
The Amole Arroyo is located south of Central Avenue and west of Coors Boulevard in an area designated primarily Developing Urban by the *Comprehensive Plan*.

The Amole System includes Westgate Dam, the Amole del Norte Diversion Channel, the Amole Detention Area and the Hubbell Lake Diversion Channel and Detention Area. The arroyo exists partially in its natural state with channelization in place south of Westgate Heights.

The arroyo bed is deeply incised, narrow and well-defined in some areas and fairly broad, shallow and difficult to discern in others. The Amole Arroyo traverses predominantly sandy, highly-erodible and sparsely vegetated soils.

Due to its channel characteristics and the level of proposed development — a potential Urban Center is shown north of the Amole and south of Westgate Heights on the *Comprehensive Plan* — it is unlikely that the Amole Arroyo will remain solely in its natural state. The Amole del Norte Diversion Channel will be concrete lined. (see next pg. para. 2 of #4)

The Amole System has the potential to link the southern reaches of the West Mesa Escarpment with Hubbell Lake, a former oxbow of the Rio Grande which is designated *Proposed Major Open Space in the Comprehensive Plan*. The Hubbell Lake Detention Area retains strong bosque characteristics, with thick stands of cottonwoods, shrubbery and tall grasses resulting from the ponding of storm water runoff. Possible future extension of the arroyo trail system along the ditches and drains located in the South Valley could provide a direct link to the Rio Grande Bosque.



SEE LEGEND ON FOLD OUT MAP, APPENDIX J

4. SOUTH PINO ARROYO

The South Pino Arroyo is located primarily within the Established Urban area of the far Northeast Heights, with its upper reaches located in an area designated Developing Urban and Semi-Urban by the *Comprehensive Plan*.

Channel treatments vary. Development plans are underway which specify concrete lining for portions of the middle reaches. The South Pino Arroyo originates in the canyons of the Sandia Foothills and has the potential to link a developed picnic area, Sims Park, with the Rio Grande Bosque by way of the North Diversion Channel. A portion of its length is shown as a study corridor in the *Bikeways Master Plan*.

The majority of the land surrounding the middle and upper reaches of the South Pino Arroyo is undeveloped at the present time. However, development proposals currently under consideration for the area between Wyoming and Ventura include medium-density residential, commercial and institutional uses. The Albuquerque Academy has proposed a linear park treatment for the channel in this area, including landscaped bicycle and recreational trails, with adjacent land uses oriented to the arroyo.

The South Pino Arroyo open space trail link should be located north of the Tanoan Golf Course, sharing right-of-way with the San Antonio Corridor.

5. PAJARITO ARROYO

The Pajarito Arroyo is located south of Central Avenue and west of Coors Boulevard. The upper reaches are located in Major Open Space designated Private Grazing areas, while the lower portion is designated Developing Urban by the *Comprehensive Plan*. Planning for the area will be governed by the *Southwest Area Plan*, which is currently underway.

The Pajarito Arroyo originates along the ridge of the southern extension of the West Mesa Escarpment, which is designated Proposed Major Open Space by the *Comprehensive Plan*. The arroyo consists of three main branches. The southern two branches have well-defined, narrow and relatively shallow channels in the upper reaches and wider, more poorly defined channels in the lower reaches. The northern branch has a deeply incised and well-defined channel in the lower reaches. Vegetation is sparse and the terrain is primarily gently rolling hills composed of predominantly sandy soils. The Pajarito Arroyo empties into the Don Felipe Detention Area, the northern portion of an historic oxbow of the Rio Grande. The detention area, designated Proposed Major Open Space in the *Comprehensive Plan*, is sparsely vegetated, with isolated concentrations of trees and shrubs. A single-family housing development is situated in the southern portion of the historic detention area. The *Drainage Management Plan for the West Mesa* has been amended to place the detention dam and basin immediately to the west of the historic detention area.

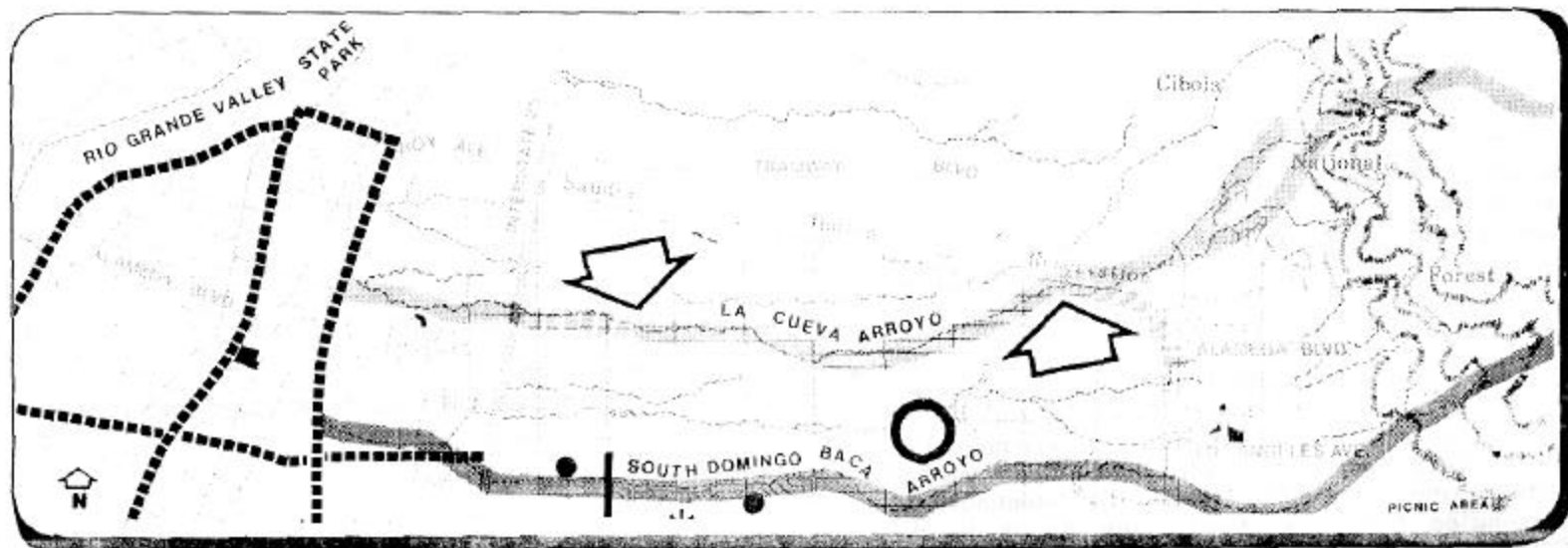
The Pajarito Arroyo has the potential to form a direct connection between Proposed Major Open Space areas — the escarpment and the former oxbow located west of Coors Boulevard. Possible future extension of the arroyo trail system along the ditches and drains located in the South Valley could provide a direct link to the Rio Grande Bosque. The arroyo corridor plan developed for the Pajarito Arroyo will look at all three branches and determine the optimum location for the Open Space Link.



PAJARITO ARROYO
SEE LEGEND ON FOLD OUT MAP, APPENDIX J.



HISTORIC DON FELIPE OXBOW



SEE LEGEND ON FOLD OUT MAP, APPENDIX J

6. LA CUEVA ARROYOS

The La Cueva Arroyos are located east of the Rio Grande in the far Northeast Heights in an area designated Developing Urban by the *Comprehensive Plan*.

The main branch of the La Cueva Arroyo originates in the canyons of the Sandia Foothills and crosses the Sandia Pueblo. The terrain is gently rolling, grass covered hills composed of predominantly gravelly soils. The arroyo bed is shallow and at times poorly defined, tending to meander widely within its floodplain. The middle reaches of the arroyo lie within North Albuquerque Acres, where the existing platting, dating from the early 1930s, disregards the location of drainageways. The arroyo remains primarily in its natural state east of I-25.

The La Cueva Arroyos have the potential to link existing Major Open Space in the Sandia Foothills with the Rio Grande Bosque by way of the North Diversion Channel, and also has the potential to link future residential development with employment centers in the *North I-25 Sector Development Plan* area, and a new high school.

MAJOR OPEN SPACE LINKS: SPECIFIC POLICIES

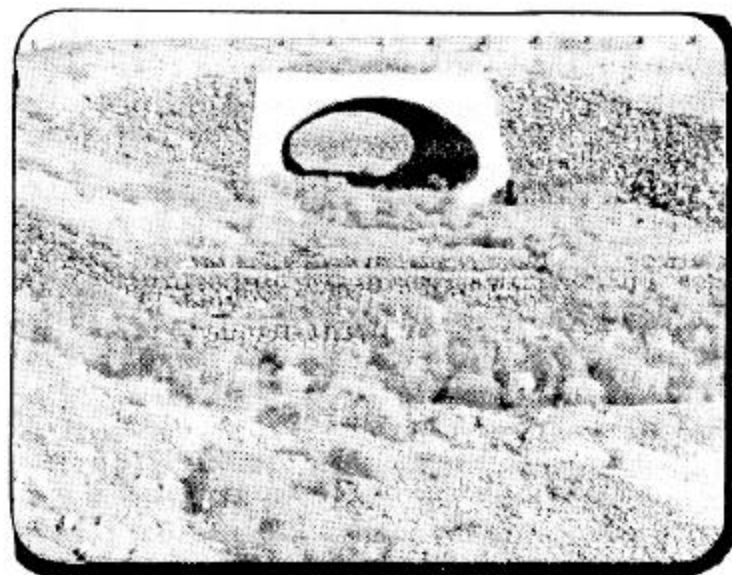
In addition to the General Policies, which apply to all three categories of arroyos, the following shall also apply specifically to Major Open Space Links:

Policy 1 — DRAINAGE FACILITIES WITHIN DESIGNATED MAJOR OPEN SPACE LINKS

Wherever feasible, the design of drainage facilities within Major Open Space Links shall be sensitive to their function as an open space recreational arroyo, incorporating naturalistic channel stabilization treatments such as gabions and ungrouted riprap. Tinted concrete or soil cement may be used in limited applications such as in low-flow channels* or as needed to control erosion at points where developed runoff enters the arroyo. Arroyo corridor plans developed for Major Open Space Links shall state a range of treatment types suitable for the individual arroyo which will complement the recreational function of the arroyo corridor, weighing the potential additional costs incurred against the potential benefit to be derived.

Rationale:

Arroyos having a variety of channel treatments will function well as open space linkages; however, soft channel treatments will enhance the open space character of the link.



THE SAN ANTONIO ARROYO, WEST OF COORS BOULEVARD. THE CONCRETE CULVERT OPENING DOMINATES THE SCENE. TINTING THE CONCRETE TO MATCH EITHER RIPRAP OR ADJACENT EARTH TONES WOULD LESSEN ITS IMPACT BY REDUCING THE VISUAL CONTRAST.

*See Definitions, Appendix A

Policy 2 — TRAIL DEVELOPMENT

Pedestrian and bicycle paths shall be provided along drainage channels of Major Open Space Links, where appropriate. Easements will be sought to allow the utilization of maintenance roads as bikeways where drainage rights-of-way can function as part of the City's bikeway network. Where maintenance roads intersect arterials at grade, safe midblock bikeway crossings should be created. Bicycle and pedestrian facilities should be separate wherever feasible; however, they may be combined if trail width is at least eight feet.

Rationale:

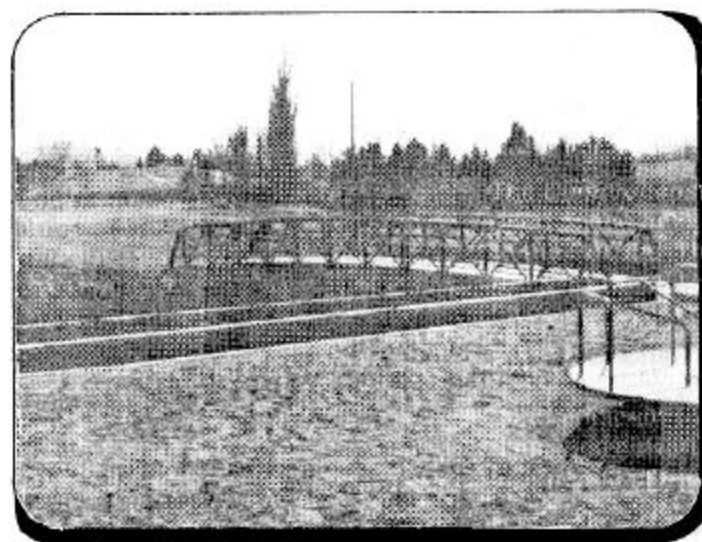
The *Comprehensive Plan* envisioned the use of arroyos as open space linkages from the Sandias and the volcanoes to the Bosque. The development of pedestrian and bicycle trails is critical to the function of drainage rights-of-way as linkages.

Policy 3 — CONTINUOUS TRAIL SYSTEM

Land adjacent to barriers across the right-of-way such as dams and culverts shall be platted to allow space for a trail around the barrier, providing for a continuous trail system.

Rationale:

Trails which are discontinuous are less functional and more difficult to manage and maintain than those which form a continuous east-west link. Planning prior to platting will allow for a continuous trail system.



PEDESTRIAN BRIDGES ALLOW CONNECTIONS ACROSS AN ARROYO.

Policy 4 — RIGHT-OF-WAY

A minimum twenty-foot easement is recommended for trail development and possible landscaping on at least one side of the channel, outside of the 100-year floodplain. If dedicated to the City, this twenty-foot area shall be eligible for either open space credit in the Developing Urban area or for park dedication credit. The actual amount of land area to be credited as dedicated park land will be determined by the City on a case-by-case basis. Specific right-of-way requirements for each Major Open Space Link will be determined through the arroyo corridor planning process.

Rationale:

The recommended minimum easement for trail development and landscaping will allow flexibility in providing continuous access along the length of the arroyo corridor.

The landscaped easement required for Major Open Space Links serves a significant open space function and should be so recognized.

Policy 5 — LANDSCAPING WITHIN THE PUBLIC RIGHT-OF-WAY

Landscaping of a portion of drainage rights-of-way including reseeded of disturbed land with low-maintenance native plant materials and native shrubs or trees and vegetative ground covers shall be encouraged.

Landscaping to enhance elements of topography, scenic views, and areas containing public amenities will be considered at the arroyo corridor plan level. In general, the construction and maintenance of landscaping associated with trails along Major Open Space Links will be the responsibility of the City, except as noted in "Policy 6: Open Space Dedication".

Rationale:

Landscaping within the public right-of-way is essential to

the development of an attractive public amenity. Native landscaping will integrate the character of the arroyo corridor with the open space it connects.

In order to recommend that adjacent development site plans orient buildings and public landscaped areas towards the arroyo, the arroyo right-of-way must be landscaped as well.

Policy 6 — OPEN SPACE DEDICATION

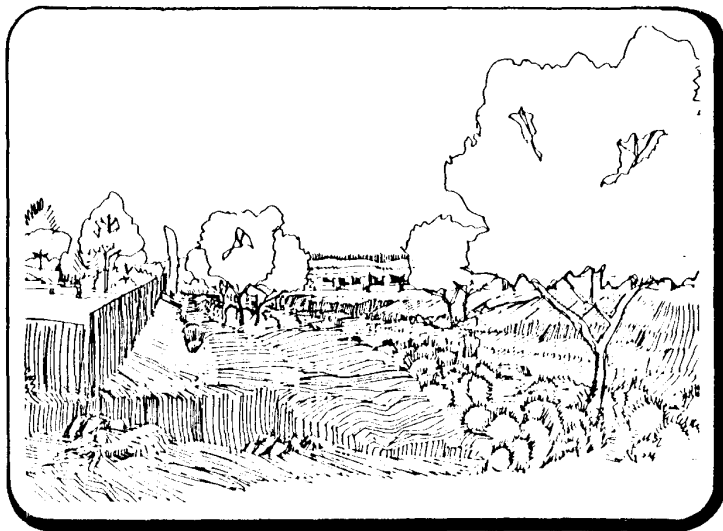
In metropolitan areas designated Developing Urban, a portion of a development's open space requirement should be aligned with drainage facilities associated with arroyos designated by this facility plan as Major Open Space Links.

The entire 100-year floodplain of a Major Open Space Link, when left in a natural or semi-natural* condition, shall be credited as open space, less the amount of right-of-way that would be required for drainage control if a fully concrete lined 100-year channel were constructed. The landscaped portion of the arroyo right-of-way outside of a concrete channel shall be credited as open space. The developer will be responsible for reseeding any disturbed land in the public right-of-way outside of the floodway with native and/or naturalized plant materials, and for maintaining the landscaping for a period of three years, after which time maintenance becomes the responsibility of the City.

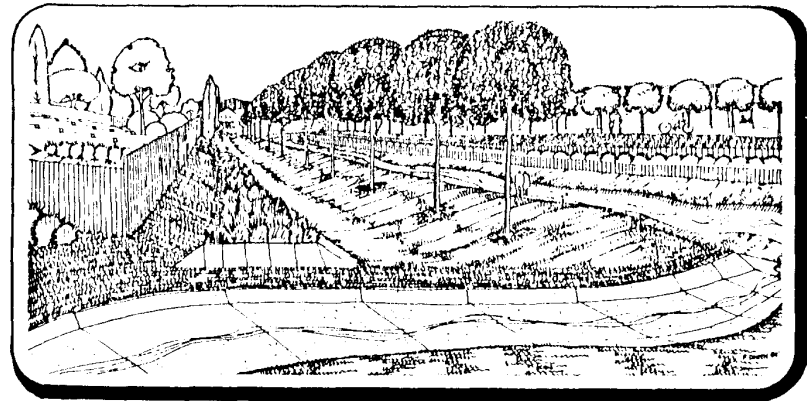
Rationale:

Drainage rights-of-way incorporating natural or semi-natural channels and recreational trails legitimately serve an open space function by providing visual relief to urbanization and/or active recreational opportunities.

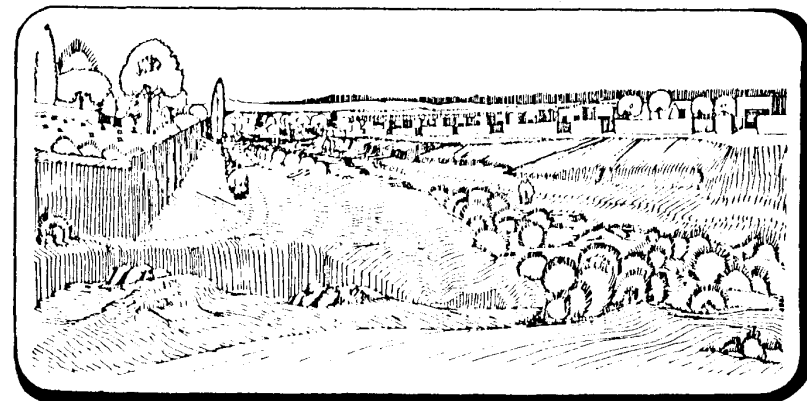
* stabilized with treatments described in "Policy 1: Drainage Facilities Within Designated Major Open Space Links"



A MEDIUM LANDSCAPING APPROACH INCLUDES SOME TREES AS WELL AS RESEEDING



IRRIGATED LANDSCAPING WITH SOD, SHRUBS, AND TREES IS THE MOST INTENSE LANDSCAPING ALTERNATIVE AND IS MOST APPROPRIATE IN PARK SECTIONS OR LOCATED ALONG URBAN RECREATIONAL ARROYOS



MINIMUM LANDSCAPING INCLUDES RESEEDING AND NATIVE SHRUBS

Policy 7 — PROGRAMMING FOR RECREATIONAL AMENITIES

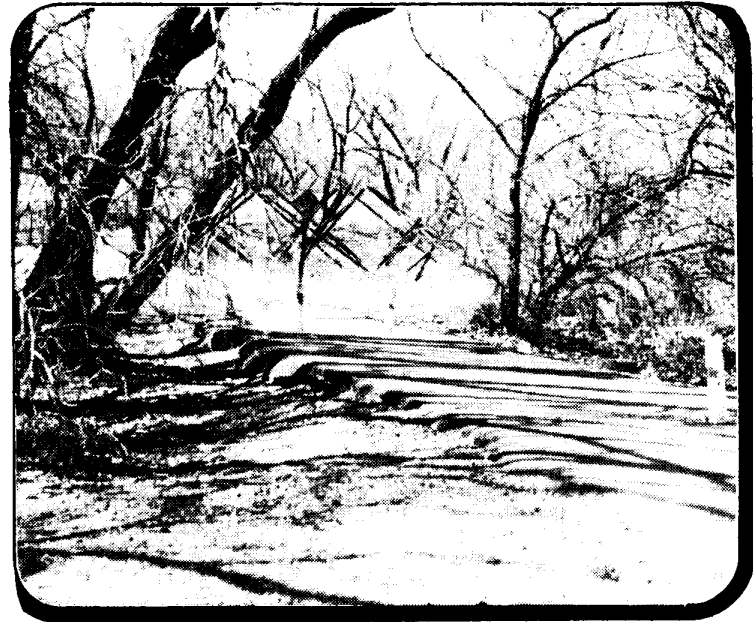
The decision of public amenities shall be planned and programmed as part of the arroyo corridor planning process, according to the policies and design guidelines set forth in this document. At a minimum, recreational programming for Major Open Space Links should include:

- recreational trails integrated with the existing Bikeways Master Plan
- pedestrian pathways connecting arroyo corridor trails with adjacent public facilities and major activity areas
- shaded parking lots and secure bicycle parking areas, where appropriate, including possible joint-use of existing parking areas
- occasional shaded rest stops with benches, drinking fountains, and toilet facilities, where appropriate (due to potential vandalism, toilet facilities may be located only within developed park areas).
- coordination with mass transit planning to locate bus stops adjacent to recreational amenities, where appropriate
- access control to prohibit motorized vehicles from entering pedestrian and bicycle-oriented trails and open space

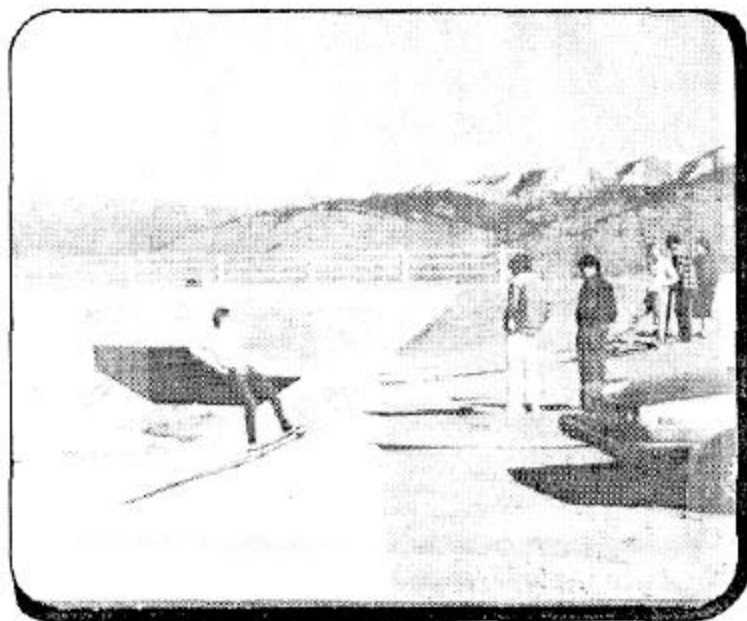
Rationale:

Amenities such as trails, shaded rest stops, parking areas, drinking fountains, and toilet facilities, etc., provide basic user services. Motorized recreational vehicles are in conflict with the pedestrian and bicycle-oriented character of the system.

Trails, parks, and other recreational facilities require careful planning within the framework of public input; therefore, detailed arroyo corridor plans will be developed following adoption of this facility plan.



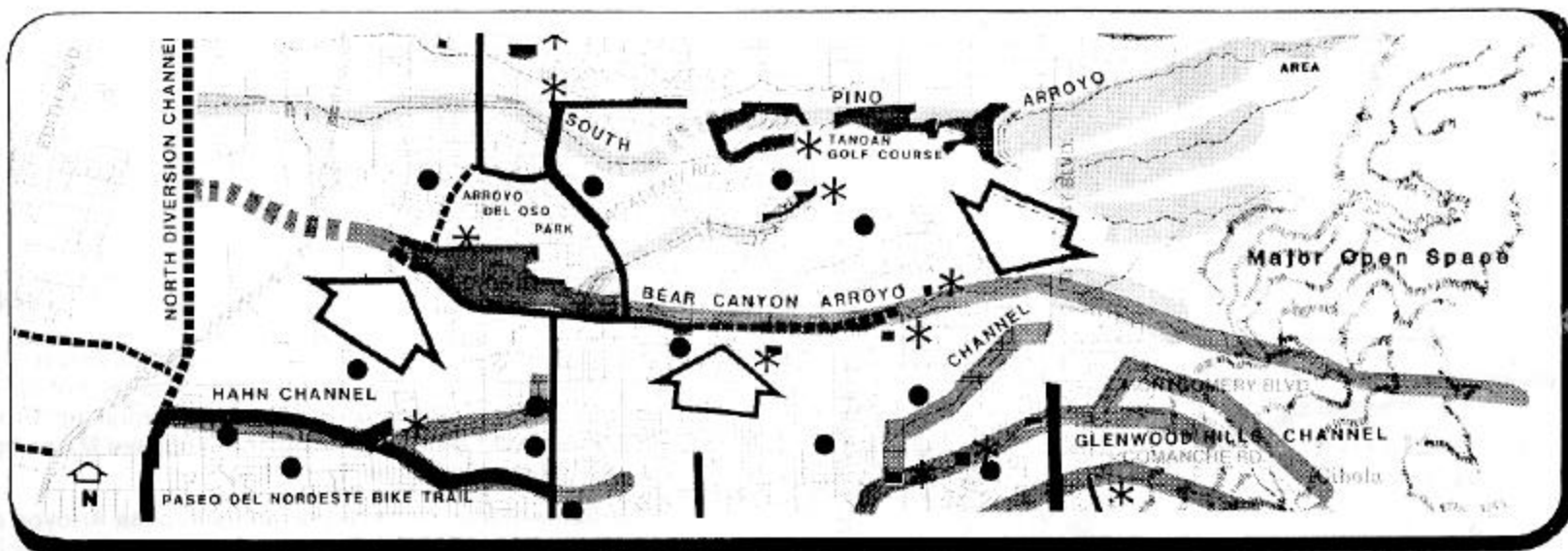
BOSQUE BIKE TRAIL, EXISTING TREES PROVIDE A WELL SHADED PATH.



SKATE BOARDING, BEAR CANYON ARROYO.

E. URBAN RECREATIONAL ARROYOS

Urban Recreational Arroyos are located in highly urbanized or developing areas. They have the potential to connect major activity areas, such as schools, parks, employment or commercial centers, libraries and churches with residential development by recreational trails located along segments of the arroyos. These segments may take the form of self-contained linear parks or form continuous trail corridors several miles in length. When appropriate, acquisition will be accomplished through the City's Park Dedication Policy. Dedication and maintenance of linear parks developed along arroyos will be evaluated by the City on a case-by-case basis.



SEE LEGEND ON FOLD OUT MAP, APPENDIX J

1. BEAR CANYON ARROYO

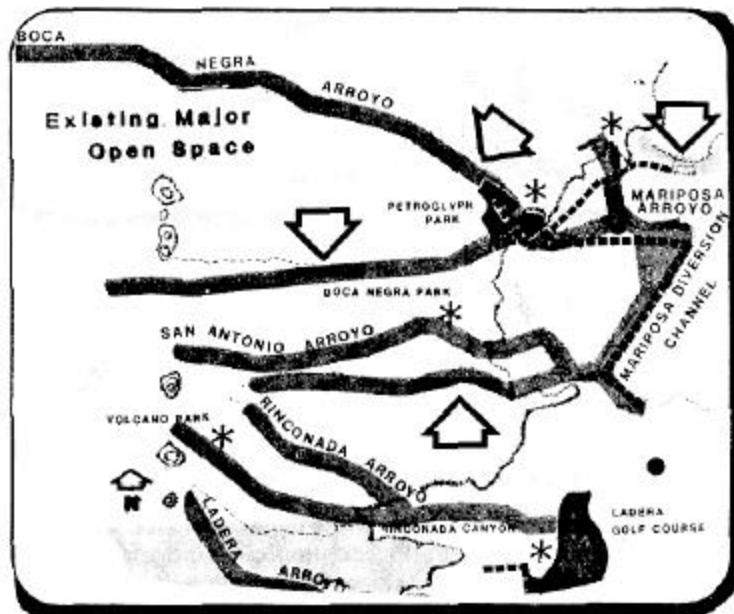
The Bear Canyon Arroyo resides within the Established Urban area of the Northeast Heights, except for a portion of the arroyo located east of Juan Tabo which is designated Developing Urban in the *Comprehensive Plan*.

The channel treatment is varied, ranging from semi-natural conditions east of Juan Tabo to an underground culvert east of San Mateo. The arroyo originates in the canyons of the Sandia Foothills, then passes through highly urbanized areas, the Arroyo del Oso Park and Golf Course, and under I-25, to link with the North Diversion Channel.

A bike lane is in place along a portion of Osuna, parallel to the arroyo, and a trail is programmed adjacent to the arroyo linking the existing lane with Tramway to the east. A bike trail is programmed for the North Diversion channel,

ultimately extending to the Rio Grande.

The Bear Canyon Arroyo links low-to-high density residential areas with schools, parks, commercial and employment centers, in addition to Major Open Space in the Sandia Foothills.



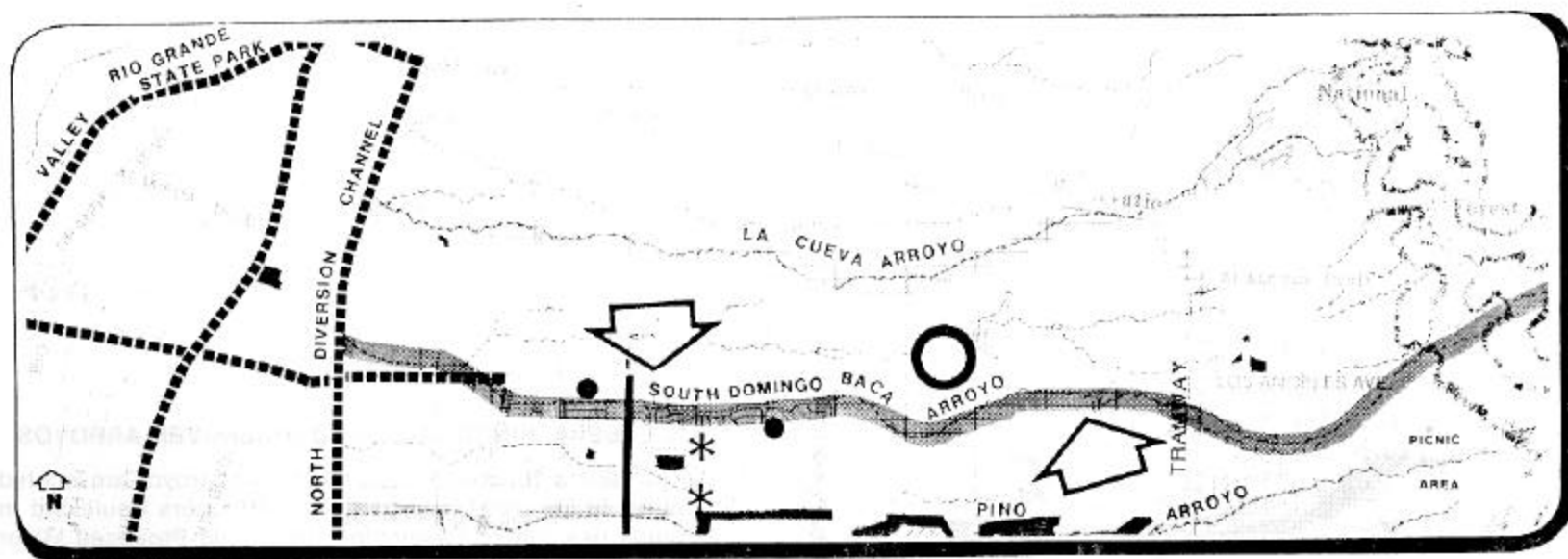
THE SAN ANTONIO, BOCA NEGRA, AND MARIPOSA ARROYOS, MARIPOSA DIVERSION CHANNEL.
SEE LEGEND ON FOLD OUT MAP, APPENDIX J.

2. THE SAN ANTONIO, BOCA NEGRA, AND MARIPOSA ARROYOS, MARIPOSA DIVERSION CHANNEL

The San Antonio, Boca Negra, and Mariposa Arroyos and the Mariposa Diversion Channel are located west of the Rio Grande within lands designated Established Urban, Developing Urban, and Existing and Proposed Major Open Space by the *Comprehensive Plan*.

The San Antonio, Boca Negra, and Mariposa Arroyos and Mariposa Diversion Channel are considered by this facility plan as a single system connecting Major Open Space areas, parks, and schools with residential development. The arroyos originate in Major Open Space lands located at the base of the volcanos. The arroyos traverse the West Mesa before descending through the volcanic escarpment, connecting (via the San Antonio Arroyo) with the Rio Grande Bosque. West of Coors Boulevard, channel improvements already in place consist primarily of graded-earth, riprap, and gabion weirs. The San Antonio arroyo remains unaltered east of Coors Boulevard. Neither the City nor AMAFCA control any right-of-way associated with the arroyo east of Coors Boulevard at the present time.

The San Antonio System, including the Mariposa Channel and the Boca Negra Arroyo, is shown as a study corridor and programmed for trail development in the *Bikeways Master Plan*. In planning the ultimate location of the bike trail, however, extreme care must be taken to protect the oxbow, which presently serves as a wildlife refuge, from human intrusion.



SEE LEGEND ON FOLD OUT MAP, APPENDIX J

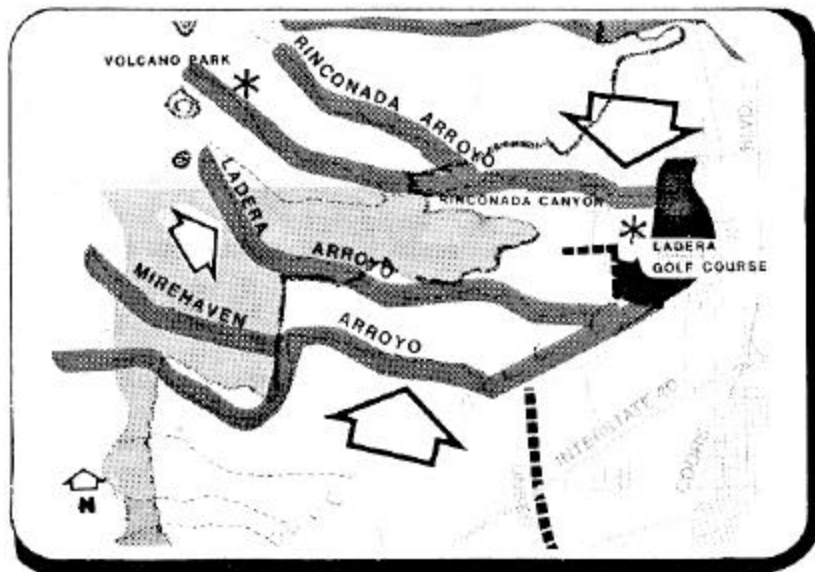
3. SOUTH DOMINGO BACA ARROYO

The north and south branches of the Domingo Baca Arroyo are located in the far Northeast Heights. The south branch lies within lands designated Developing Urban, Semi-Urban, Established Urban and Major Public Open Space by the *Comprehensive Plan*.

The South Domingo Baca originates in the canyons of the Sandia foothills and traverses gently rolling, grass-covered hills composed of predominately gravelly soils. The arroyo is shallow and in some areas poorly defined, tending to meander widely within its floodplain. The South Domingo Baca is concrete lined between Ventura and Barstow, NE. Given the limited right-of-way available and the development already in place, it is likely that the South Domingo Baca will eventually be concrete lined between Wyoming and I-25.

The middle and upper reaches of the arroyo lie within North Albuquerque Acres where the existing platting (dating from the 1930's) disregards the location of arroyos. A potential Urban Center is shown in the area between the middle reaches of the North and South Domingo Baca Arroyos on the *Metropolitan Areas and Urban Centers Plan*.

The entire length of the South Domingo Baca is shown as a study corridor in the *Bikeways Master Plan*. A trail easement is platted adjacent to the arroyo between Barstow and Ventura, NE.



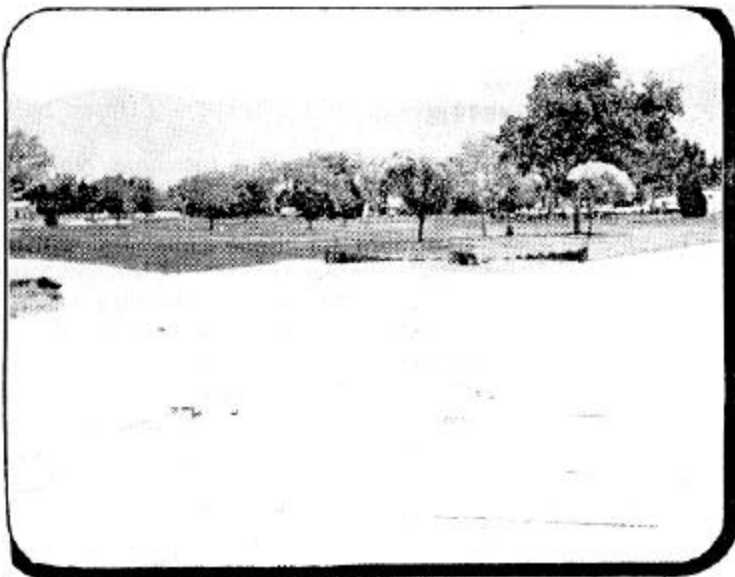
THE LADERA, RINCONADA, AND MIREHAVEN ARROYOS.
SEE LEGEND ON FOLD OUT MAP, APPENDIX J.

4. LADERA, RINCONADA, AND MIREHAVEN ARROYOS

The Ladera, Rinconada, and Mirehaven Arroyos are located north of Central Avenue and west of Coors Boulevard in lands designated Developing Urban and Proposed Major Open Space by the *Comprehensive Plan*.

The arroyos originate above the ridge of the West Mesa Escarpment and terminate at the Ladera Golf Course located west of Coors Boulevard. Development in the area is comprised of predominantly low-to-medium residential densities. Existing channel improvements consist primarily of graded-earth, riprap, and gabion drop-structures.

The arroyos have the potential to connect, by way of recreational trails, a large residential area with a public golf course and Major Public Open Space, Rinconada Canyon.

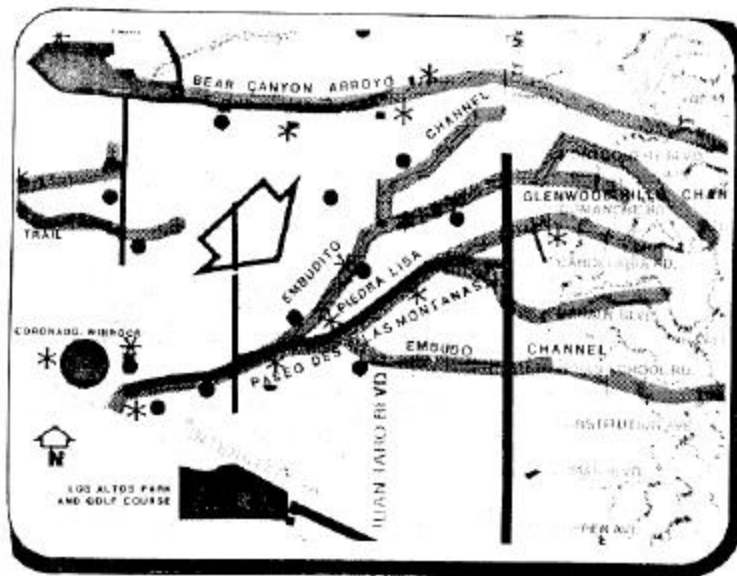


MONTGOMERY PARK, ADJACENT TO THE HAHN ARROYO.

5. SEGMENTS OF ARROYOS IN HIGHLY DEVELOPED OR DEVELOPING AREAS

Linear parks proposed adjacent to any arroyo in the metropolitan area will be evaluated by the City on a case-by-case basis. The criteria for acceptance as dedicated parks maintained by the City include:

- the potential to connect significant activity areas with residential development
- the orientation of adjacent land uses to the arroyo
- provision of recreational trails and related activities
- landscaping subject to approval by the City

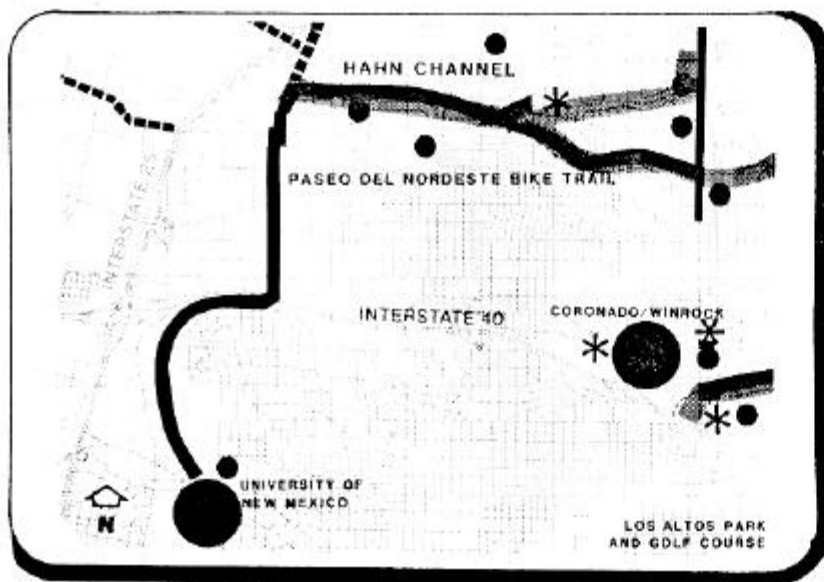


THE EMBUDO ARROYO SYSTEM
SEE LEGEND ON FOLD OUT MAP, APPENDIX J.

6. EMBUDO SYSTEM

The Embudo System is located in the near Northeast Heights in an area designated Established Urban by the *Comprehensive Plan*.

The Embudo System includes the Embudito, Glenwood Hills, and Piedra Lisa channels. Concrete lining is the most commonly used treatment for these channels, with the exception of the extreme upper reaches of the tributaries which reside in Major Open Space areas within the Sandia Foothills, and remain in a natural state. The Embudo System connects with the I-40 Diversion Channel at a point south of Winrock Shopping Center. An existing bike trail parallels the Embudo between Pennsylvania and Tramway, N.E., connecting a number of parks and schools with residential development.



THE HAHN ARROYO.
SEE LEGEND ON FOLD OUT MAP, APPENDIX J

7. HAHN ARROYO

The Hahn Arroyo lies east of the North Diversion Channel within the Established Urban area of the near Northeast Heights.

The Hahn Arroyo is a concrete lined channel connecting a number of parks and schools with residential development by way of an existing bike trail, the Paseo del Nordeste.

URBAN RECREATIONAL ARROYOS: SPECIFIC POLICIES

In addition to the General Policies, which apply to all three categories of arroyos, the following shall also apply specifically to Urban Recreational Arroyos:

Policy 1 — PARK AND TRAIL DEVELOPMENT, RECREATIONAL AMENITIES

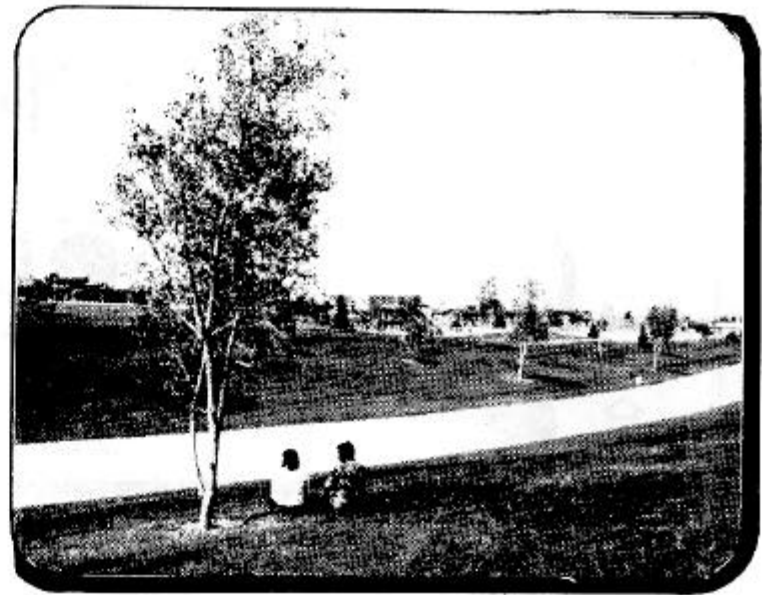
The City shall encourage the development of parks adjacent to the drainage channels of designated Urban Recreational Arroyos, and along segments of arroyos connecting significant activity areas. The actual amount of land area to be credited as dedicated park land will be determined by the City on a case-by-case basis. The City will accept dedication and maintenance of linear parks developed adjacent to arroyos on a case-by-case basis.

The design of public amenities shall be planned and programmed as part of the arroyo corridor planning process, according to the policies and design guidelines set forth in this document. At a minimum, recreational programming for Urban Recreational Arroyos should include the same amenities recommended for Major Open Space Links, Policy 7 (p. 43).

Rationale:

Trails, parks, and other recreational facilities require careful planning within the framework of public input. Arroyos designated by this facility plan as Urban Recreational Arroyos will receive priority for park and trail planning through the development of arroyo corridor plans.

Acceptance by the City of dedicated park land and/or maintenance of linear park segments must be evaluated according to the specific merits of each individual proposal and the needs of the community.



TRICKLE CHANNEL THROUGH LYNNWOOD PARK.

Policy 2 — RIGHT-OF-WAY

A minimum fifteen foot easement on one side of the drainage channel is recommended to allow for trail development. Typically, a service road may double as a recreational trail and would be suitable for bicycles if an eight foot wide, paved trail were provided.

Rationale:

In order to link parks and activity areas, enough right-of-way must be reserved to allow for continuous trail development.

Policy 3 — RECOMMENDED CHANNEL TREATMENTS WITHIN DEDICATED PARKS

The recommended channel treatment within dedicated parks calls for a clearly delineated low-flow channel that may be hard-lined if necessary, with shallow side slopes planted with turf or, where technically feasible, native grasses. Other recommended channel treatments include curving the channel in appropriate locations to reduce the linearity of the corridor, and using tinted (to approximate earth tones) or textured concrete to blend in with adjacent landscaping.

Rationale:

In order to blend visually with park facilities, the design of the drainage system should incorporate as much landscaping as possible.

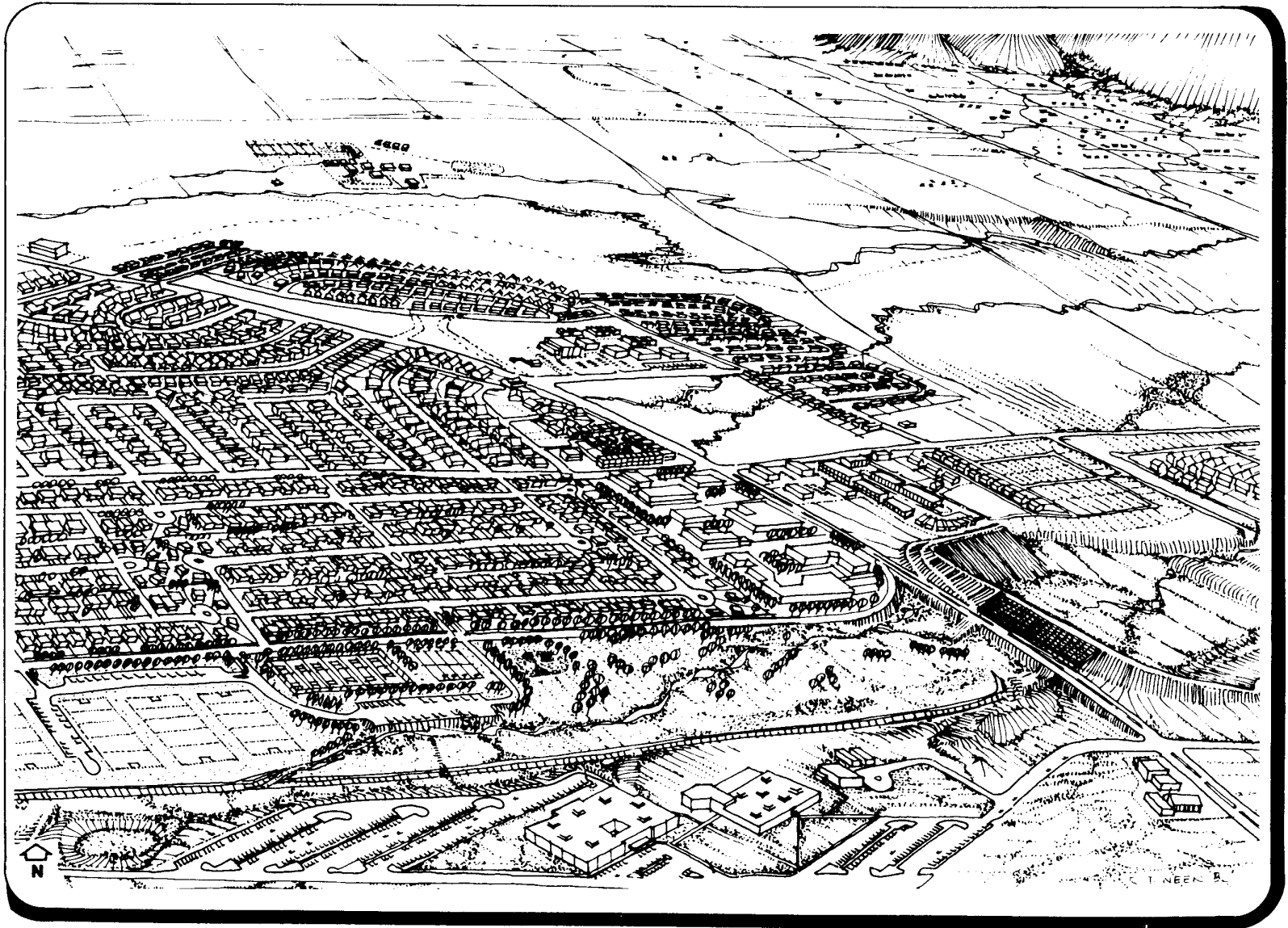
Policy 4 — LOCATION OF CROSSING STRUCTURES

The location of crossing structures shall be determined on a case-by-case basis according to the specific channel characteristics, the distance between access points crossing the channel, and the identification of potential pedestrian desire-lines* during the park design process.

Rationale:

With any park location adjacent to a drainage channel, park users will exhibit a strong inclination to cross the channel in order to reach the park facilities. Unless safe crossing structures are provided at convenient intervals, this constitutes a potentially hazardous situation.

*See Definitions, Appendix A



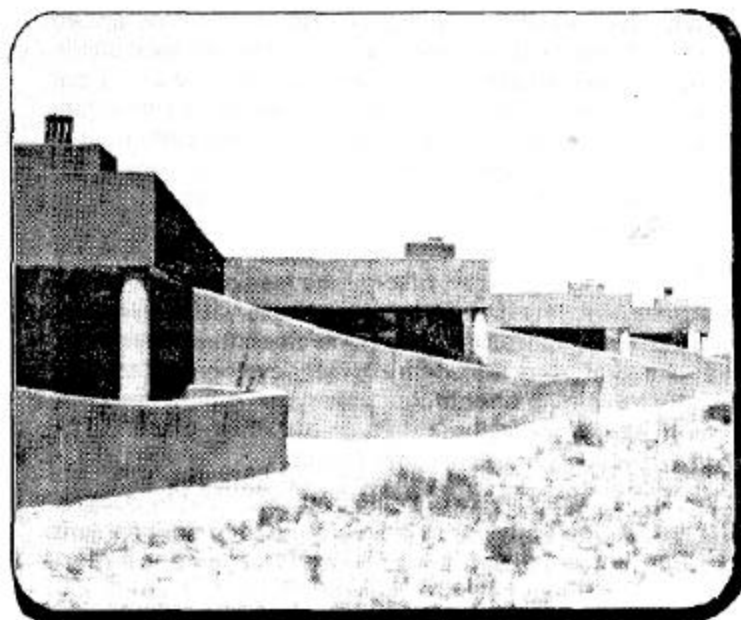
TVI AND OSO GRANDE PARK ARE ADJACENT TO THE BEAR CANYON ARROYO
WEST OF JOHN B ROBERT DAM

F. DESIGN GUIDELINES FOR DEVELOPMENT ADJACENT TO MAJOR OPEN SPACE ARROYOS AND MAJOR OPEN SPACE LINKS

Arroyo corridor plans developed for Major Open Space Arroyos and Major Open Space Links will establish a Design Overlay Zone for each individual arroyo corridor. The design guidelines and design regulations established in these arroyo corridor plans for individual arroyos will incorporate the design guidelines contained in this facility plan. The Overlay Zone shall apply to all sites which abut the 100-year floodplain or drainage right-of-way of each of these arroyos.

Advisory design guidelines for Major Open Space arroyos and Major Open Space Links are included in this facility plan. Their observance is suggested in order that development might achieve fully the design potential of the recreational resource.

The goal of the design guidelines is to promote a highly visible and extensively used network of recreational trails adjacent to arroyos. In order to do so, the presence of barriers such as walls and fences lining the arroyo corridor must be kept to a minimum. Landscaped open areas must be manipulated so that the extremely linear nature of the arroyo corridor is softened, and the public open space within the corridor is integrated with public open areas in adjacent developments.



STAGGERED PERIMETER WALLS, LA LUZ DEL SOL, ILLUSTRATE THE TYPE OF WALL DESIGN AND BUILDING ORIENTATION THAT WOULD BE APPROPRIATE ADJACENT TO A RECREATIONAL ARROYO CORRIDOR

ORIENTATION

Policy 1 — BUILDING ORIENTATION

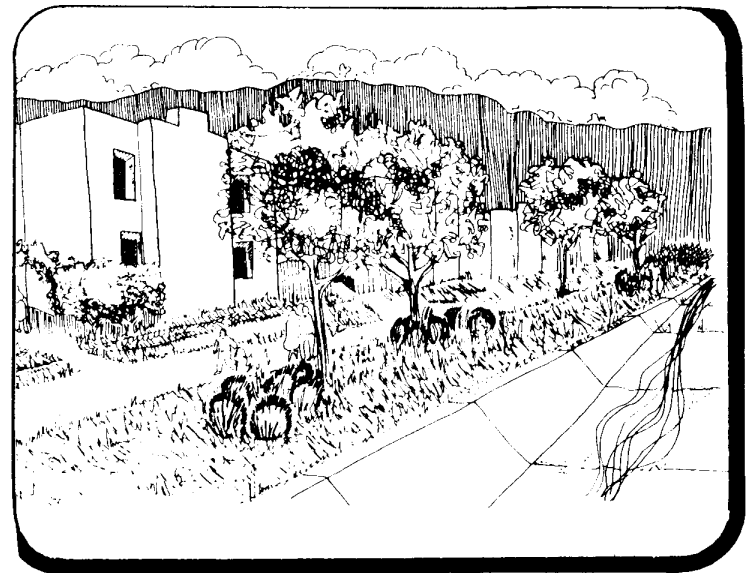
- a. Multi-storied residential, office, and commercial developments having windows facing onto the arroyo shall be encouraged.
- b. Wherever feasible, development adjacent to the arroyo should orient entries toward and place landscaped public open areas adjacent to the arroyo right-of-way. These entries may necessarily constitute minor or secondary entries with the main entry oriented to the parking area or the street. Where this is not feasible, pedestrian access from the arroyo corridor to a building entry shall be required.

Rationale:

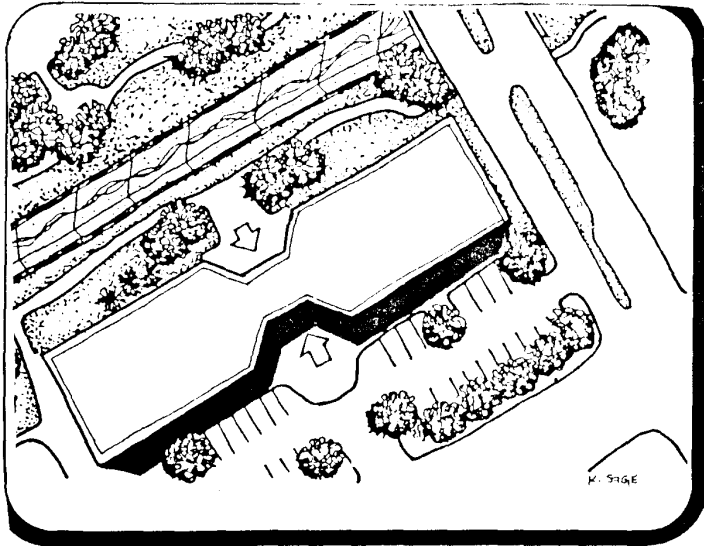
Bringing arroyos into public view will encourage positive use of drainage rights-of-way, discourage less desirable uses, and promote safety through increased observation. Whether or not arroyos work as neighborhood amenities depends to a large extent upon the orientation of development toward the arroyo. Such orientation provides visibility and an incentive for making the arroyo an attractive place.

Visibility is a key factor in promoting a safe environment. Children playing in parks or using trails adjacent to arroyos should be constantly under the watchful eye of adults who can stop behavior that is not safe or intercede when a child needs assistance. Visually isolated and barricaded drainageways are an invitation to children and present a tremendous hazard.

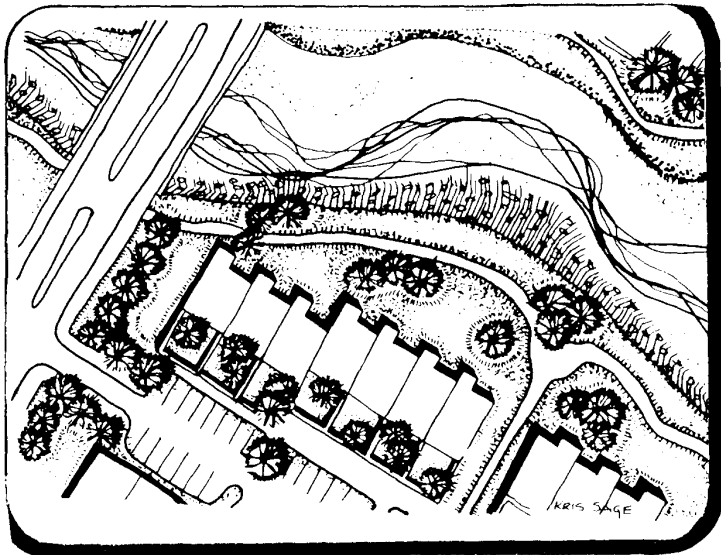
Locating more intense land uses adjacent to the arroyos and orienting building entries to the arroyo trail system will generate more activity within the drainage corridor, increasing both the visibility and safety of the recreational system.



(a.) MULTI-STORIED BUILDINGS ADJACENT TO AN ARROYO.



(b) PEDESTRIAN ENTRIES ORIENTED TO AN ARROYO AS WELL AS TO PARKING.



LANDSCAPED OPEN AREAS ADJACENT TO AN ARROYO

Policy 2 — OPEN AREAS

Site plans for multi-family residential developments adjacent to the arroyo should incorporate landscaped, open areas adjacent to the arroyo *right-of-way*.

Rationale:

By orienting landscaped, open areas toward the arroyo, new developments will provide a public visual amenity and an extension of the public open space system. At the same time, the orientation will provide an enhanced visual amenity for the development and encourage the placement of windows facing the arroyo, thereby adding to the visibility factor.

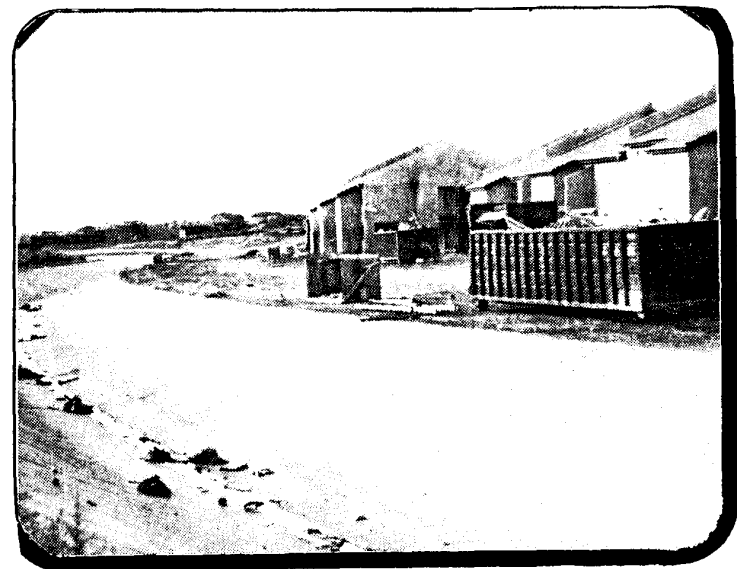
Policy 3 — PARKING AND SERVICE AREAS

When a parking or service area is located adjacent to the drainage right-of-way, pedestrian and bicycle access should be provided. A minimum 20 foot landscaped setback from the arroyo right-of-way* is recommended, with sufficient screening provided to conceal views from the arroyo to the parking area. Landscaping should consist of native or naturalized plant species and vegetative groundcovers. The screening element should consist of one or more of the following:

- low walls (4' high recommended)
- shrubs
- trees
- earth forms (berms)

Rationale:

Parking and service areas should be visually screened from the arroyo corridor to ensure that they do not detract from the open space character of the recreational trail system. Specific arrangements can be made for pedestrian and bicycle access to and from the arroyo in order to alleviate the potential hazard and inconvenience associated with crossing parking and service areas.



SERVICE AREAS LOCATED ADJACENT TO AN ARROYO SHOULD BE VISUALLY SCREENED WITH ATTRACTIVE FENCING AND/OR LANDSCAPING.

*See Definitions. Appendix A.

Policy 4 — WALLS

Continuous perimeter walls should not be located adjacent to the arroyo right-of-way. Where fencing is required for privacy or security reasons, the following guidelines will apply:

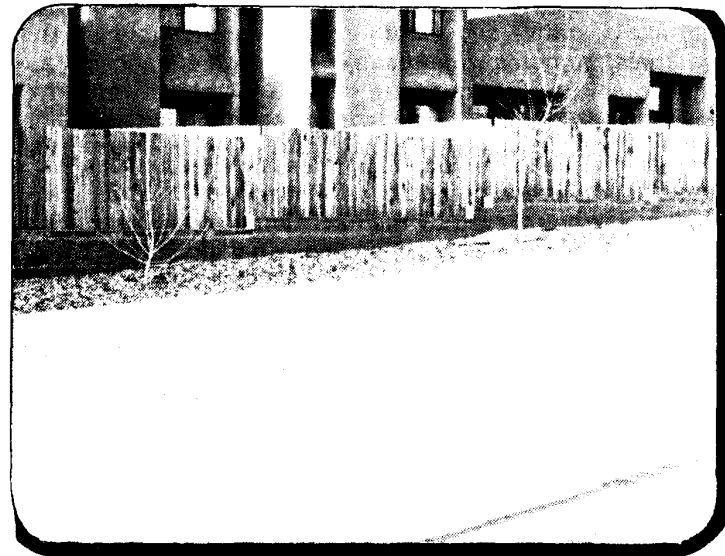
- fences and walls adjoining the arroyo corridor right-of-way should have staggered, landscaped setbacks, varied heights, or provide openings for visual access into public open areas within the development from the arroyo corridor.
- specific materials for solid fences and walls shall be determined by the individual arroyo corridor plan. Stucco over concrete block, brick, stone, or wood are recommended as suitable materials.

Rationale:

Continuous perimeter walls form a physical, visual, and psychological barrier between the arroyo and adjacent development. This condition is detrimental to both visibility and access, and fosters an unsafe and under-utilized public environment.



STAGGERED PERIMETER WALLS.



ATTRACTIVE FENCING MATERIALS AND LANDSCAPING ADJACENT TO THE BEAR CANYON ARROYO

LANDSCAPING

Policy 1 — LANDSCAPING ADJACENT TO THE ARROYO RIGHT-OF-WAY

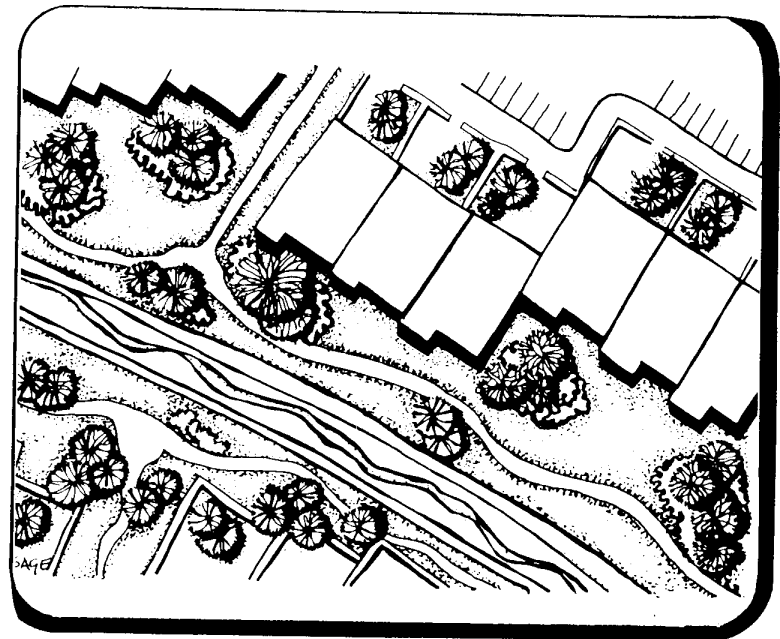
Except in park sections, the landscaping of public open areas on private development adjacent to the drainage right-of-way should consist primarily of native or naturalized vegetation with the predominate form being tree masses, preferably drought resistant shade trees located in clusters offset from the right-of-way.

Private landowners have a responsibility to maintain landscaping adjacent to the arroyo corridor, as a complementary action to the City's responsibility to maintain the public right-of-way.

Rationale:

The use of native and naturalized drought-tolerant plant materials promotes water conservation and enhances the character of Albuquerque's unique southwestern environment.

By massing trees in clusters in areas where public open areas adjoin arroyo corridors, the linearity of the drainage system will be relieved by the occasional widening of the corridor, thereby providing improved visual integration with adjacent development. Grouping trees and shrubs in groves replicates and amplifies natural patterns.



CLUSTERED LANDSCAPING ADJACENT TO THE ARROYO RIGHT-OF-WAY.

III. IMPLEMENTATION

The purpose of the implementation program is to identify specific public and private actions which must be accomplished to make the multiple use of arroyos concept work. The implementation steps vary depending upon the arroyo's status as Major Open Space, Open Space Link, Urban Recreational Arroyo, or arroyo segment within designated Major Open Space. The specific requirements for each of these arroyo categories is contained in Table 2 (page 66). Generally, implementation steps are as outlined below.

A. IMPLEMENTATION STEPS

1. DEVELOPMENT OF ARROYO CORRIDOR PLANS

Arroyo corridor plans are Rank Three plans which detail development standards for the specific arroyo channel and land adjacent to it. Corridor plans should be adopted jointly by AMAFCA, the City, and the County, when appropriate. Corridor plans will include at least the following elements:

- Planning context and rationale for channel treatment, including proposed and existing land uses within one half mile of the arroyo, existing and planned transportation and transit facilities (bikeways, transit stops) which could link to the arroyo trail, proposed and existing drainage facilities, and engineering design requirements. The planning context for corridor plans developed for Major Open Space Arroyos may be expanded to include land uses within the entire watershed of the arroyo.
- Channel treatment, both existing and proposed, incorporating drainage, flood control, aesthetic, and safety considerations. When drainage studies are in progress, they should be coordinated with and become the drainage element of the arroyo corridor plan.

- Status of land dedication for drainage and other public purposes, width of existing right-of-way.
- Required right-of-way or easements to accommodate drainage improvements, recreational facilities, and other facilities as appropriate (i.e. streets, utility easements).
- Recreational facilities, including trails, pedestrian or bicycle crossing structures, and adjacent parks or open space.
- Public amenities, including landscaping, signs, public parks, parking, rest stops.
- Design requirements, in the form of a Design Overlay Zone, which adapt the general objectives described in Chapter II, to the specific arroyo. The Design Overlay Zone will establish design regulations and guidelines for sector development plans, subdivisions, and site plans within an arroyo corridor.
- Rough cost estimates, potential funding sources, recommended scheduling of public improvements.
- Any other special requirements for ensuring access, continuity, and safety.
- Citizen participation will be an essential ingredient in the arroyo corridor planning process. Representatives from adjacent neighborhood associations, and owners and residents of affected properties will be asked to serve on a study team for each arroyo corridor to ensure that issues such as security for adjacent properties, safety, and the design and location of amenities are addressed.
- Coordination with major transportation studies, the Middle Rio Grande Council of Governments, and the Long Range Major Street Plan.

2. DESIGNATION OF AN ADEQUATE RIGHT-OF-WAY OR EASEMENT AS PART OF THE MAJOR PUBLIC OPEN SPACE SYSTEM, IF APPROPRIATE

Major Open Space Arroyos and Major Open Space Links should be designated formally as part of the Major Open Space system by inclusion on the Open Space Register. Specific right-of-way requirements shall be outlined in each arroyo corridor plan.

3. ACQUISITION OF LAND

Public acquisition or private dedication of suitable easements is necessary prior to extensive urban development to protect the ability of the entire length of designated arroyos to function as recreational amenities. The City may pursue several options to obtain an adequate right-of-way or easement. These include:

- Acceptance of an appropriate area as detached open space in Developing Urban areas. An appropriate area includes the entire width of the floodplain of a Major Open Space Arroyo or Major Open Space Link when left in a natural or semi-natural condition as defined in Chapter II, less the amount of right-of-way that would be required for drainage control if a fully concrete lined 100-year channel were constructed.* The landscaped area outside of a concrete channel of a Major Open Space Link is also appropriate for open space dedication.
- Acceptance of an appropriate area adjacent to a drainage channel as dedicated park land. An appropriate area includes the landscaped area outside of a lined channel. The City will evaluate park proposals on a case-by-case basis.
- Reservation of open space through site planning and open space easements, clustering development away from the arroyo with common open areas adjacent to it. Easements should be permanent and allow public access.

- Revision of existing easements or other agreements or development of supplementary agreements to allow permanent public recreational use.
- Purchase by the City of portions of land which cannot be obtained through dedication or easement. Potential sources of funds include the Open Space Acquisition Program and the Capital Improvements Program (CIP). However, the Open Space Trust Fund will not have additional funds available for the fee simple purchase of right-of-way until 1992. Right-of-way acquisition will be initiated upon adoption of an arroyo corridor plan, utilizing open space and park dedication procedures and/or the acquisition of recreational easements, until such time as funds are also available for the fee simple purchase of land.

* See Page 31.

4. IMPLEMENTATION OF DESIGN GUIDELINES

The design guidelines described in Chapter II will be implemented through specific design regulations established for individual arroyo corridor plans through Design Overlay Zones. Until arroyo corridor plans are adopted, the City Planning staff will review sector plans, subdivisions, and site plans against the design guidelines contained in this facility plan. Compliance with these guidelines is encouraged.

5. CONSTRUCTION OF DRAINAGE IMPROVEMENTS

On City-owned property, drainage improvements are the responsibility of the City. However, drainage improvements are typically constructed by the landowner in order to reclaim a portion of the floodplain for development prior to the construction of City improvements. Drainage improvements will be constructed in accordance with an adopted arroyo corridor plan, adopted drainage master plans, and City and AMAFCA policies on drainage improvements.

If the cost of the treatment selected by the arroyo corridor plan is significantly higher than a treatment type which would normally be allowed, the City will share in the cost of construction.

6. CONSTRUCTION OF RECREATIONAL FACILITIES AND OTHER PUBLIC IMPROVEMENTS

This facility plan recommends that the construction of recreational facilities as detailed in arroyo corridor plans shall be the responsibility of the Parks and Recreation Department. The Parks and Recreation Department will also oversee the installation of private improvements constructed in fulfillment of park dedication and development requirements.

If other public improvements such as streets or utility lines are required, a single, jointly-funded project shall be considered.

7. SAFETY PROGRAMS

Safety programs sponsored by the Mayor's Office should be continued and expanded with emphasis on reaching schools which serve neighborhoods adjacent to arroyos and neighborhood organizations. Safety programs should promote awareness of the potential danger associated with arroyos, and what to do if someone is caught in a flooded arroyo. Neighborhood patrols during potential flood periods (late afternoons in July, August, September), as well as increased visibility promoted by design standards, can also increase safety.

8. MAINTENANCE

Maintenance responsibilities will be shared by the MDD-Engineering Division, AMAFCA, and the City Parks and Recreation Department. This facility plan recommends that maintenance of recreational facilities, litter removal, and routine patrolling will be done by the Parks and Recreation Department, Open Space Division (Major Open Space Arroyos, Major Open Space Links, and arroyo segments within designated Open Space) or the Parks Management Division (Urban Recreational Arroyos). Drainage facilities should be maintained by the appropriate drainage authority — the Municipal Development Department or AMAFCA or in the case of drainage facilities specifically tailored to a park or open space design, the facility may be jointly maintained by the Municipal Development Department, AMAFCA, and the City Parks and Recreation Department according to a program which will be negotiated on a case-by-case basis.

9. MODIFICATIONS TO EXISTING ORDINANCES AND PROCEDURES

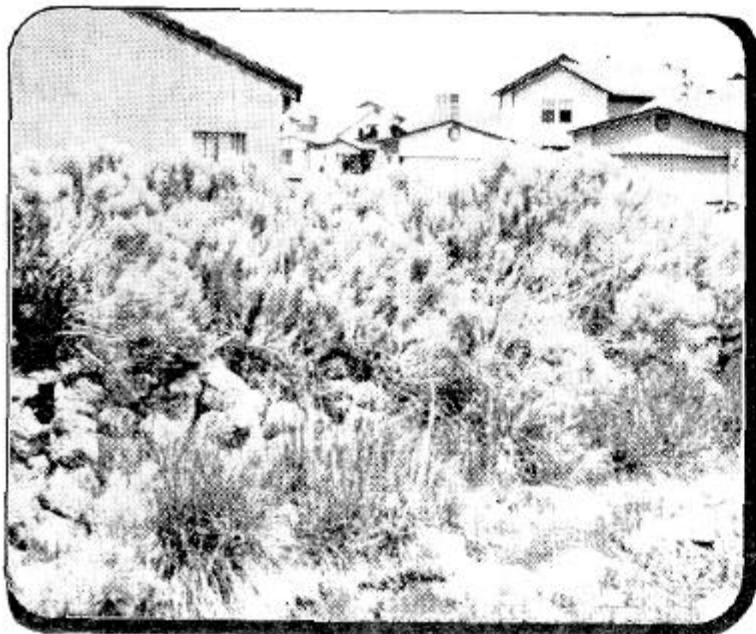
To ensure that design objectives will be incorporated into sector development plans, subdivisions, and site plans, existing ordinances and administrative procedures should be modified to require that the policies contained in this facility plan be considered in the review process. This facility plan recommends that these modifications be completed by the Planning Division within six months after adoption of the plan.



BICYCLE PATH ADJACENT TO THE HAHN ARROYO. SHOWS LANDSCAPED BUFFER BETWEEN CYCLISTS AND PARKING AREA.



SKATE BOARDING, HAHN ARROYO NEAR MONTGOMERY PARK



WELL LANDSCAPED DRAINAGEWAY WITH RIPRAP AND NATIVE PLANTS
BLENDS IN WITH RESIDENTIAL AREA



JOGGER, PASEO DEL BOSQUE BIKE TRAIL

TABLE 2

IMPLEMENTATION SUMMARY

MAJOR OPEN SPACE ARROYOS AND OPEN SPACE LINKS

IMPLEMENTATION STEP	RESPONSIBLE AGENCIES RECOMMENDATIONS	REQUIRED ACTIONS	POTENTIAL FUNDING SOURCES
1. Designate arroyo as Major Open Space or Open Space Link	•MDD Planning Division (Lead) •City Parks & Recreation, Open Space Division	a. Prepare resolution for endorsement of Open Space Task Force & adoption by EPC & City Council designating Open Space Arroyos as identified in this facility plan as part of the of the Open Space Register.	N/A
2. Modifications to Existing Ordinances & Procedures	MDD Planning Division	a. revise existing ordinances, documents; the Development Process Manual (DPM), Sub-division Ordinance, etc, to require adherence to the policies contained in this document and the design regulations developed by arroyo corridor plans.	MDD, Planning Division-Operating Budget

TABLE 2
IMPLEMENTATION SUMMARY
MAJOR OPEN SPACE ARROYOS AND OPEN SPACE LINKS

IMPLEMENTATION STEP	RESPONSIBLE AGENCIES RECOMMENDATIONS	REQUIRED ACTIONS	POTENTIAL FUNDING SOURCES
3. Prepare Arroyo Corridor Plans (coordinate with Drainage Master Plans)	MDD, Planning Division (Lead) • Parks & Recreation, Open Space Division • MDD, Engineering Division • AMAFCA • Transportation Department	a. include arroyos in Plan-to- Plan in priority order - a minimum of two plans per year. b. Contract or prepare corri- dor plans in house. Plans to include: • Planning context • Channel treatment • Required ROW • Recreational Facilities • Public amenities • Design Overlay Zone	MDD, Planning Divi- sion - Operating Budget, Joint projects with Parks & Recrea- tion, (City and County) MDD, Engi- neering Division, and AMAFCA

TABLE 2
(Continued)

MAJOR OPEN SPACE ARROYOS AND OPEN SPACE LINKS

IMPLEMENTATION STEP	RESPONSIBLE AGENCIES (RECOMMENDATIONS)	REQUIRED ACTIONS	POTENTIAL FUNDING SOURCES
4. Acquire Land	• Parks & Recreation, Open Space Division • MDD, Engineering Division • MDD, Planning Division • AMAFCA (coordinate with city agencies responsible for acquisition)	a. Incorporate arroyos into the Major Open Space acquisition program. b. Accept dedication of all usable open space as detached open space. c. Encourage clustering of development away from the arroyo. d. Secure additional easements as necessary on major open space arroyos to expand their purposes. e. Program multiple use projects into CIP - percent of total	- Detached open space dedication - Expansion of the purposes of existing and future drainage easements. - Reservation of open space through clustering in site design. - Direct purchase • CIP-specific project in G.O. Bond Issues. • Open Space Acquisition Fund

TABLE 2
(Continued)

MAJOR OPEN SPACE ARROYOS AND OPEN SPACE LINKS

IMPLEMENTATION STEP	RESPONSIBLE AGENCIES (RECOMMENDATIONS)	REQUIRED ACTIONS	POTENTIAL FUNDING SOURCES
5. Implement Design Regulations for adjacent development	•MDD, Planning Division	a. Establish Design Overlay Zone (arroyo corridor plan) b. Review sector development plans, subdivisions, and site plans for conformance with regulations and guidelines established in arroyo corridor plans.	General Fund
6. Construct drainage improvements	•AMAFCA •MDD, Engineering Division •Private Developer	a. Program multiple use projects into CIP. The cost of special channel treatments requested as part of a park or open space design will be met by the CIP budget. b. Initiate Special Assessment District for part of cost	CIP - specific project in G.O. Bond Issue •developer - responsible for construction of drainage improvements required as a result of proposed development Assessment District AMAFCA

TABLE 2
(Continued)

MAJOR OPEN SPACE ARROYOS AND OPEN SPACE LINKS

IMPLEMENTATION STEP	RESPONSIBLE AGENCIES (RECOMMENDATIONS)	REQUIRED ACTIONS	POTENTIAL FUNDING SOURCES
7. Construct recreational facilities, public improvements.	• Parks & Recreation, Open Space Division (Lead) • Parks Management	Program improvements into Parks and Recreation CIP budget.	• CIP-specific project in G.O. Bond Issue
8. Maintenance	• Parks & Recreation, Open Space Division (Lead) • Parks Management • MDD, Engineering Division • AMAFCA		• Urban Enhancement Program.
9. Safety Programs	• Mayor's Office (Lead) • MDD, Planning Division • AMAFCA • MDD, Engineering Division	a. Present ditch safety tapes at schools & neighborhood meetings b. Expand safety information to include rescue information. c. Establish neighborhood watch programs during peak flooding times.	General Fund

TABLE 2

(Continued)

URBAN RECREATIONAL ARROYOS

IMPLEMENTATION STEP	RESPONSIBLE AGENCY(IES) (RECOMMENDATIONS)	REQUIRED ACTION(S)	POTENTIAL FUNDING SOURCES
1. Prepare Arroyo Corridor Plan	MDD, Planning Division (Lead) MDD, Engineering Division • Parks & Recreation, Parks Management Division • AMAFCA	a. Include arroyos in Plan to Plan. b. Prepare corridor plans to include: • Planning context • Existing activities within and adjacent to corridor • Recreational facilities • Public amenities	MDD, Planning Division-Operating Budget, Joint project with Parks & Recreation, MDD, Engineering
2. Construct Recreational facilities	• Parks & Recreation, Parks Management (Lead)	Program improvement into Parks and Recreation Budget	CIP
3. Safety Programs	• Mayor's Office • MDD, Planning Division • AMAFCA • MDD, Engineering Division	a. Present ditch safety tapes at schools & neighborhood meetings b. Expand safety information to include rescue information c. Establish neighborhood watch programs during peak flood times	
4. Maintenance	• Parks & Recreation, Parks Management (Lead) • MDD, Engineering Division		

TABLE 3
IMPLEMENTATION STEPS/SCHEDULING

○ Begin
● Complete
◐ Ongoing

IMPLEMENTATION STEP	PREPARE CORRIDOR PLANS				LAND ACQUISITION*				IMPLEMENT DESIGN REGULATIONS				CONSTRUCT DRAINAGE IMPROVEMENTS				CONSTRUCT RECREATIONAL FACILITIES				BEGIN RECREATIONAL MAINTENANCE				IMPLEMENT SAFETY PROGRAM			
FISCAL YEAR	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88
I. MAJOR OPEN SPACE ARROYOS																												
1. Tijeras		○	●				○				●													◐	◐			
2. Calabacillas		●				○					●													◐		◐		
3. Segments within Major Open Space Areas		○							●																			
4. Segments adjacent to Major Open Space Areas				○																								
II. MAJOR OPEN SPACE LINKS																												
1. Piedras Marcadas		●				○					●													◐		◐		
2. South Pino		●				○					●													◐		◐		
3. Anole			●				○				●			○											◐			
4. Pajarito				●																							◐	
5. La Cueva				●																							◐	

*The Open Space Trust Fund will not have funds available for the fee simple purchase of rights-of-way associated with arroyos corridors until 1992. Until that time, acquisition will be dependent upon dedication of rights-of-way or easements or the passage of a specific bond issue targeting such a purchase.

TABLE 3
(CONTINUED)
IMPLEMENTATION STEPS/SCHEDULING

○ Begin
● Complete
◐ Ongoing

IMPLEMENTATION STEP	PREPARE CORRIDOR PLANS				LAND ACQUISITION*				IMPLEMENT DESIGN REGULATIONS				CONSTRUCT DRAINAGE IMPROVEMENTS				CONSTRUCT RECREATIONAL FACILITIES				BEGIN RECREATIONAL MAINTENANCE				IMPLEMENT SAFETY PROGRAM			
FISCAL YEAR	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88	85	86	87	88
III. URBAN RECREATIONAL ARROYOS																												
1. Bear Canyon		○	●														◐				◐				◐			
2. San Antonio/Boca Negra/Mariposa			●																						◐			
3. S. Domingo Baca				●																					◐			
4. Ladera System				●																					◐			
5. Linear Park Segments	◐																								◐			
6. Embudo System				●																	◐				◐			
7. Hahn				●																	◐				◐			

B. FACILITY PLAN REVIEW AND UPDATE

The *Facility Plan for Arroyos* will be subject to an annual review process beginning in Fiscal Year 1987, by a study team headed by the Planning Division together with the City Engineering Division, Parks and Recreation and Transportation Departments, AMAFCA, and representatives from the public.

The purpose of this review will be to determine the effectiveness of the policies set forth in this document, the efficiency of joint maintenance programs, to review the safety record of existing joint-use facilities, to present new technological information regarding the design of drainage facilities, and to request and review citizen input through public meetings and user surveys concerning such issues as security, the design and location of public amenities, and the need for additional recreational facilities.

In addition, the review will include an update on areas within the City or County that are experiencing sudden and rapid growth, which may indicate a need to shift the funding and scheduling priorities established in the original document.

The review and update should result in a revised Recreational Trail Network Map showing existing bicycle, pedestrian, and equestrian trails as they relate to major park facilities, schools, and Major Open Space areas.

C. FACILITY PLAN AMENDMENT

Amendments to the *Facility Plan for Arroyos* which constitute a change in policy or funding priority shall be subject to review by the Environmental Planning Commission and approval by the City Council. Review and approval will also be required by the County Planning Commission and the Board of County Commissioners, when appropriate.



PASEO DEL BOSQUE BIKE TRAIL

APPENDIX A: DEFINITIONS

Arroyo — a small steep-sided watercourse or gulch with a nearly flat floor: usually dry except after heavy rains (chiefly found in the southwest United States), also referred to as a “wash” or “gulch”.

Arroyo Corridor — is used in this document to indicate the entire 100-year floodplain, channelized or unchannelized, its associated public rights-of-way and/or easements, and adjacent land uses, including the first tier of lots abutting the drainage right-of-way.

Arroyo Right-of-Way — is used in this document to indicate the boundary line separating adjacent land uses from lands under public ownership or use associated with a drainageway.

Desire line — refers to the location of circulation routes connecting destination points. In the case of parks, these destination points may include playing fields, play grounds, parking lots, seating areas, etc.

Drainageway — is used in this document to indicate the entire 100-year floodplain, channelized or unchannelized, and its associated public rights-of-way and easements, such as those required for landscaping or trails outside of the floodplain.

Floodplain — the area within the 100-year flood boundary as described by Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency.

Floodway — the channel of an arroyo and adjacent land areas that must be reserved in order to safely discharge the 100-year design storm runoff.

Low-flow channel — a drainage channel designed to carry less than the 100-year storm flows at full capacity.

Major Public Open Space — the following statements are taken from a document prepared by the Open Space Task Force as a supplement to the *Major Open Space Element of the Comprehensive Plan* to define and specify the criteria for Major Public Open Space:

“Major Public Open Space is an integrated system of lands and waters that have been designated as such in the Major Open Space element of the Comprehensive Plan, the Major Public Open Space Register, and the City or County Comprehensive Zoning Code. The lands and waters or interests therein have been or shall be acquired, developed, used, and managed to retain their natural character to benefit people throughout the Metropolitan Area by conserving resources related to the natural environment, providing opportunities for outdoor education and recreation, or defining the boundaries of the urban environment.

Major Public Open Space includes portions of the Elena Gallegos Grant and the Sandia Foothills; the Rio Grande, the Valley, and the Bosque; the Volcanoes, the Basaltic Flow, and the West Mesa Escarpment. It also includes some Arroyos, Ponding Areas, and Drainage Ways. Major Public Open Space does not include golf courses, urban parks, and other areas that are not part of an integrated system of lands and waters and are not specifically acquired, developed, used, and managed to retain their natural character. Major Public Open Space shall also be distinguished by definition from grazing lands, school campuses, and other areas that

are not part of an integrated system and are not specifically acquired, etc., to benefit people throughout the Metropolitan Area. Furthermore, Major Public Open Space shall be differentiated from highway rights-of-way, undeveloped lots, and other areas that are not part of an integrated system and are not specifically acquired, etc., for conservation, education, recreation, or urban definition purposes."

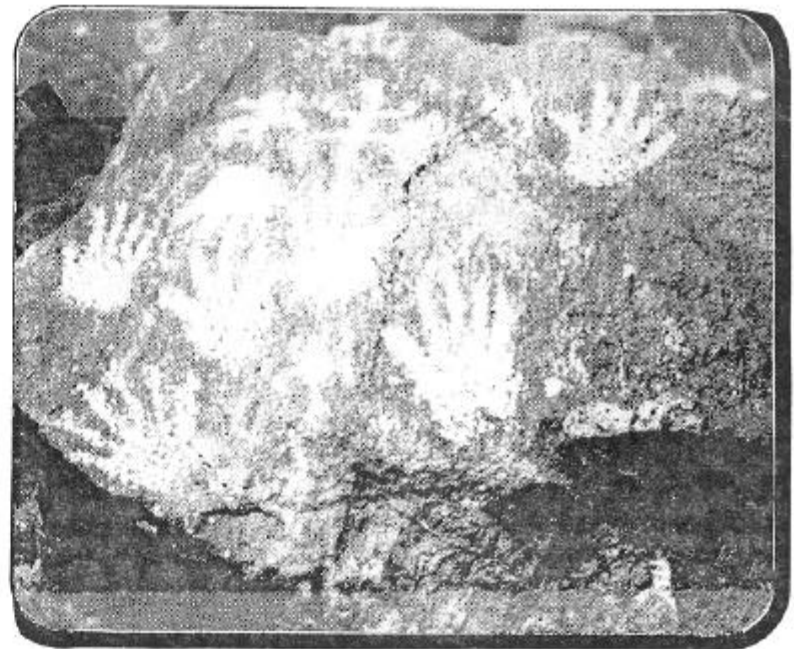
Purposes of Major Public Open Space, with regard to drainageways, include the following:

- "1. Conservation of geologic formations, biologic communities, or other natural resources
2. Conservation of ground water recharge, air purification, or other natural processes
3. Conservation of significant landforms, scenic views, or other visual resources that are related to the natural environment
4. Provision of opportunities for hiking, picnicking, or other recreational activities that are enhanced by the natural environment
5. Conservation of corridors that are used for hiking, equestrian, or other trails that link Major Public Open Space areas
6. Conservation of areas with high flood potential, steep slopes, or other physical characteristics that limit their use for safe, economic, urban development"

Natural Arroyo — an arroyo that exists solely in its natural state, without regrading or channelization, and which does not receive flows from developed areas.

Naturalized Vegetation — plant species which have been introduced into the Southwest region and require little or no irrigation to establish and require minimal maintenance.

Semi-Natural Arroyo — an arroyo that has been stabilized with naturalistic channel treatments described in "Policy 2: Drainage Facilities Within Designated Open Space", p. 27, designed to blend visually with adjacent open space lands. Appropriate channel stabilization treatments include: ungrouted riprap, gabions, gabion weirs, tinted concrete and soil cement.



PETROGLYPH, PIEDRAS MARCADAS CANYON.

APPENDIX B: METHODOLOGY

A. RANKING ARROYOS FOR RECREATIONAL POTENTIAL

Because funding for the development of arroyos as open space or recreational areas is limited, all major arroyos within the urban area of Bernalillo County were ranked by the study team according to their potential to function as Major Open Space, Major Open Space Links, or Urban Recreational Arroyos. These rankings were established as a means of identifying arroyos for the expenditure of public funds for open space and recreation.

Two categories of open space arroyos were established based upon the criteria for Major Public Open Space funding proposed by the City Parks and Recreation Department Open Space Division. Areas of arroyos which may be considered Major Open Space areas, thus eligible for the Open Space Trust Fund are those that:

1. retain the existing floodplain and drainage channel, with native landscaping and/or
2. have the potential to provide linkage between other Major Open Space areas, such as the Sandia Foothills, Rio Grande Bosque, and the volcanic escarpment.

The third category, Urban Recreational Arroyo, was established by the project planners for those arroyos in highly developed areas that have the potential to connect significant activity areas or parks with residential development by way of trails located along segments of the arroyos.

1. MAJOR OPEN SPACE ARROYOS

Major Open Space Arroyos are those arroyos or portions of arroyos in developing areas that retain the natural floodplain and drainage channel, with native landscaping, or contain channel improvements, such as ungrouted riprap, gabion, gabion weirs, etc., which allow the growth of vegetation and are compatible with the open space character of the arroyo.

In order to assess its relative potential to serve as a Major Public Open Space Arroyo, each major arroyo in the metropolitan area was evaluated by the Study Team, the Open Space Advisory Board and the Open Space Task Force, according to the following set of conditions:

- 1) *The Natural Floodplain* — intact with dramatic topography, concentrations of native vegetation, and sufficient right-of-way reserved in existing platting to allow for its preservation.
- 2) *Potential to Remain in Natural Condition* — the characteristics of the arroyo channel, its watershed, and the level of existing and proposed development must allow for minimal disruption of the natural drainage system. Basis for evaluation: AMAFCA's existing administrative policy concerning required channel treatments — which is in turn based upon drainage studies completed for each major arroyo. These studies rely primarily upon *Comprehensive Plan* designation (i.e., Developing Urban, Established Urban, etc.) for projecting future densities. In cases where development proposals for higher densities are known to be imminent, they are

taken into account. For the purpose of this evaluation, low-density residential development (i.e., 1-2 dwelling units per acre) is assumed to cause minimal increase in storm water runoff.

The size of the watershed and its location affects the amount of stormwater runoff — the larger the watershed, the more runoff will be accumulated. The amount of rainfall impacting a watershed varies with its location.

- 3) *Existing Treatment* — to complement the open space character, some channel treatments are more appropriate than others, with the ideal condition being the preservation of the natural channel conditions. A range of naturalistic channel stabilization techniques, such as riprap (ungrouted), gabion, gabion weirs, and geotextile mats which allow or encourage the growth of vegetation and infiltration of water also constitute appropriate treatment for open space areas.
- 4) *Right-of-way* — adequate right-of-way must be present or obtainable, both to preserve the existing floodplain and allow for trail development.
- 5) *Access* — minimal restrictions on access to allow future development to occur in a manner which ensures the open space corridor is truly a public amenity.
- 6) *Level of Development* — to preserve the open space character and to minimize the need to construct extensive channel improvements, a number of design controls must be placed on adjacent development with regard to controlling how storm water runoff enters the arroyo, erosion, and ensuring proper access and orientation. In order to do so, there must be limited established development already in place.
- 7) *Ownership* — imposing design controls and acquiring sufficient right-of-way is a less complicated process when arroyos traverse large tracts of land under single ownership. Ownership pattern must be fairly consolidated.

B. MAJOR OPEN SPACE LINKS

Major Open Space Links are those arroyos that have the potential to provide linkage between Major Open Space areas such as the Sandia Foothills, Rio Grande Bosque, and the volcanic escarpment.

As linkages between designated Major Open Space areas, these arroyos traverse both urban and rural areas. In addition, they have the potential to serve as an alternative pedestrian or cyclist-oriented circulation system internal to the urban area.

Arroyos in the metropolitan area were evaluated by the Study Team, the Open Space Advisory Board, and the Open Space Task Force for their relative potential to serve as Major Open Space Links according to the following set of conditions:

- 1) *Continuity* — the number of physical barriers within the arroyo corridor are calculated to arrive at a final score. Barriers typically are man-made and include dams, major streets, highways, and the North and South Diversion Channels. Barriers are physical elements which require a range of crossing treatments from simple trail detours to expensive crossing structures.
- 2) *Potential to connect Major Open Space areas* — potential to connect two or more Major Open Space areas by way of trails located within the arroyo corridor.
- 3) *Adjacent Land Use* — Highly intense and varied development adjacent to the arroyo corridor ensures more active use of the trail system than in less intensely developed areas. Both the *type* and *orientation* of existing (as well as proposed) development are taken into account.
- 4) *Existing or Programmed Trail System (Bikeways Master Plan)* — part of a trail system or programmed to receive trail improvements.

- 5) *Open Space Bonus* — the potential to link *more* than two *existing* Major Open Space areas, or areas of particular significance.

C. URBAN RECREATIONAL ARROYOS

The Urban Recreational Arroyo category applies to arroyos in highly developed or developing areas. Urban Recreational Arroyos have the potential to connect activity areas or parks, providing recreational opportunities within the more densely built urban area. Arroyos within the metropolitan area were evaluated by the Study Team to assess their relative potential to serve as Urban Recreational Arroyos according to the following set of conditions:

- 1) *Linking Activity Areas* — existing and proposed land uses include a mix of medium-to-high density residential, commercial, institutional, industrial, or office uses adjacent to arroyos. These constitute “significant activity areas” when clustered along continuous segments of an arroyo.
- 2) *Active Recreation* — segments of arroyos having the potential to function as linear parks containing active recreation facilities providing additional linkages between existing parks and the surrounding residential area.
- 3) *Existing or Programmed Trail System (Bikeways Master Plan)* — part of a trail system or programmed for trail improvements.

RANKING

Arroyos were rated for each of the above conditions on a scale of 0 to 5, with 0 representing no potential and 5 high potential (refer to Sample Score Sheets, Table 5). Scores from each criterion were then added together to obtain the composite scores for each category by arroyo, as listed below. A summary of the rankings in all categories for all arroyos is shown on Table 5.

The scores in each category are:

Major Open Space Arroyos

1. Tijeras	32.0
2. Calabacillas	31.0
3. Piedras Marcadas	28.5
4. Pajarito	27.0
5. Amole	23.5
6. La Cueva	22.0
North & South El Camino	22.0
7. San Antonio/Boca Negra/Mariposa	20.5
8. N. Domingo Baca	19.0
9. Ladera, Mirehaven, & Rinconada	19.0
10. S. Pino	15.0
11. N. Pino	9.5
S. Domingo Baca	9.5
12. Bear Canyon	9.0
13. Embudo	4.0
14. Hahn	3.5

Major Open Space Links

1. San Antonio/Boca Negra/Mariposa	21.5
2. Calabacillas	21.0
3. Piedras Marcadas	20.5
4. Amole	19.5
5. Bear Canyon	19.0
6. S. Pino	18.5
7. Pajarito	18.0
8. La Cueva	17.5
North & South El Camino	17.5
9. Embudo System	15.5
10. S. Domingo Baca	15.0
N. Domingo Baca	15.0
Ladera System	15.0
11. Hahn	14.5
12. N. Pino	10.5
13. Tijeras	7.0

Urban Recreational Arroyos

1. Embudo System	14.0
Bear Canyon	14.0
2. Hahn	12.0
S. Pino	12.0
Calabacillas	12.0
3. San Antonio/Boca Negra/Mariposa	11.0
4. S. Domingo Baca	10.0
Ladera System	10.0
Amole	10.0
5. Piedras Marcadas	8.5
6. N. Pino	8.0
N. Domingo Baca	8.0
La Cueva	8.0
North & South El Camino	8.0
Pajarito	8.0
7. Tijeras	5.0

MAJOR OPEN SPACE ARROYOS

CRITERIA	RANGE	1 2 3 4	5	SCORE
1) Open space character	concrete lined channel little or no vegetation	soft-lined treat- ments, some vegetation - 3 varied hard/soft - 1	floodplain intact dramatic topography, concentrations of native vegetation	
2) Potential for Remaining in Natural Condition	none	compromise, soft-lined solution possible - 2.5	high - minimal devel- oped flows, well- defined channel	
3) Existing treatment	concrete channel	graded earth - 3.5 soft-lined - 2.5 varied - 2.0	natural channel and floodplain intact	
4) Right-of-way	severely restricted	adequate for trails - 2.5	ample, or undedicated	
5) Access	extremely limited	partially developed with limited access-2.5	open	
6) Level of Development	highly developed area	partially developed-2.5	undeveloped	
7) Ownership	multiple		single, large ownership	
			TOTAL	

TABLE 4
SAMPLE SCORE SHEETS

MAJOR OPEN SPACE LINKS

CRITERIA	RANGE	1 2 3 4	5	SCORE
1) Connectivity to Major Space Areas	none	one-way connection-2.5 potential two-way-4	direct two-way connection	
2) Continuity	insurmountable barriers	#Barriers Score 1 4 2 3 3 2 4 1	no barriers	
3) Adjacent Land Use a) type	R-1 only	R-2(residential only)-2.5 R-1 plus mix-3.0 R-2 plus mix-3.5	R-3 plus mix of commercial, office, etc.	
b) orientation	poor	semi-developed-2.5	good or undedicated	
4) Existing or Programmed Trail System	none	study corridor - 2 programmed - 3 existing, no link-4	in place with good linkages to open space	
5) Bonus for open space character or potential to link more than 2 significant Open Space Areas	n.a.	multiple connections or connections between two highly significant open space areas - 2.5 or soft-lining techniques with vegetation-2.5	multiple connections between particularly significant open space areas	
TOTAL				

TABLE 4
SAMPLE SCORE SHEETS
(continued)

URBAN RECREATIONAL ARROYOS

CRITERIA	RANGE				SCORE		
	0	1	2	3	4	5	
1) Connectivity between activity centers	low density development, no significant activity areas, little diversity of activities	R-2 (residential only)-2.5 R-1 plus mix-3.0 R-2 plus mix-3.5				R-3 plus mix of commercial, office, institutional, or Potential to connect residential area with employment center	
2) Recreational Potential	isolated, with poor neighborhood orientation and access					linkages or extensions of existing or proposed parks, strong potential for neighborhood identification	
3) Existing or Programmed trails		study corridor - 2 programmed - 3 existing, no link - 4				in place with good linkages to open space	
						TOTAL	

TABLE 4
SAMPLE SCORE SHEETS
(continued)

TABLE 5
RANKING SUMMARY

MAJOR OPEN SPACE ARROYOS

	Tijeras	Embudo System	Bear Canyon	Hahn	Pino	N. Pino	S. Domingo Baca	N. Domingo Baca	La Cueva	S. El Camino	N. El Camino	Calabacillas	Piedras Marcadas	Boca Negra/San Antonio/ Mariposa System	Ladera System	Amole System	Pajarito
Open Space Character	5	0	1	0	1	1	1	4	4	4	4	5	4	3	3	4	4
Potential to Remain Natural	5	0	0	0	0	0	0	0	0	0	0	4	2.5	2.5	0	0	0
Existing Treatment	5	0	1	0	1	1	1	3	5	5	5	5	4	3	3	3.5	5
Right-of-Way	5	2	3	2.5	3	2.5	2.5	4	3	3	3	4	5	3	4	4	5
Access	3	2	3	1	4	2.5	2.5	4	5	5	5	5	5	3	4	5	5
Level of Development	4	0	1	0	3	2.5	2.5	4	5	5	5	4	4	3	2	4	5
Ownership	5	0	0	0	3	0	0	0	0	0	0	4	4	3	3	3	3
TOTAL	32	4	9	3.5	15	9.5	9.5	19	22	22	22	31	28.5	20.5	19	23.5	27

MAJOR OPEN SPACE LINKS

Connectivity to Major Open Space	0	2.5	4	2.5	4	2.5	4	4	4	4	4	2.5	4	5	2.5	5	5
Continuity	0	4	2	3	1	3	1	1	3	3	3	4	3	3	5	4	5
Adjacent Land Use																	
a) Type	1	5	5	3	5	3	3	3.5	3	3	3	5	3.5	3	2.5	4	3
b) Orientation	4	0	4	2	4	2	2.5	4	5	5	5	5	5	2.5	5	4	5
Existing or Programmed Trail	0	4	4	4	2	0	2	0	0	0	0	2	0	3	0	0	0
Bonus	0	0	0	0	2.5	0	2.5	2.5	2.5	2.5	2.5	2.5	5	5	0	2.5	0
TOTAL	5	15.5	19	14.5	18.5	10.5	15.0	15.0	17.5	17.5	17.5	21.0	20.5	21.5	15	19.5	18

URBAN ARROYOS

Connectivity between Activity Centers	0	5	5	3	5	3	5	3	3	3	3	5	3.5	3	5	5	3
Recreational Potential	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Existing or Programmed Trail	0	4	4	4	2	0	2	0	0	0	0	2	0	3	0	0	0
TOTAL	5	10	10	12	12	8	10	8	8	8	8	12	8.5	11	10	10	8

* Scores represent both existing and proposed development conditions.

APPENDIX C: SUMMARY OF FACILITY PLAN POLICIES

TABLE 6
FACILITY PLAN POLICIES
GENERAL

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT*	AFFECTED PARTY	IMPACT*
A. Drainage 1. primacy of drainage function	flood control	AMAFCA, City Engineering	•administrative	general public	•health, safety, and welfare
B. Multiple Use 1. encouraging multiple use	implement <u>Comprehensive Plan</u>	AMAFCA, MDD, EPC, CC, DRB, ZHE, BCC, CPC, Public Utilities	•administrative	general public	•more efficient use of public lands, new recreational opportunities
2. right-of-way acquisition	legal basis for recreational use easements	MDD, Parks & Recreation, DFM (Property Management) Legal Department	•administrative	general public	•sufficient space for multiple use planning
		•private developer	•(additional siting constraint)		•(increased housing costs)
3. multiple use arroyo corridor plans	implement <u>Facility Plan for Arroyos</u>	MDD-Planning Division, Engineering, Parks & Recreation, Transportation, & AMAFCA, Public Utilities	•staff time, design and programming	general public	•public input in early stages of corridor planning process
4. interagency co-ordination	establish study team for corridor plans	MDD-Planning Division, Engineering, Parks & Recreation, Transportation, & AMAFCA, Public Utilities	•staff time, design and programming		
5. land use compatibility	promote use and visibility of arroyo trail corridors	MDD-Planning, EPC, CC, DRB, ZHE, BCC, CPC	•administrative	general public	•increased safety & security of public facility
6. access acquisition	promote use and visibility of arroyo trail corridors	•MDD-Planning, EPC, CC, DRB, ZHE, BCC, CPC	•administrative	general public	•essential to guarantee accessibility, visibility and use of public facility
		•private developer	•(additional siting constraint)		•(increased housing costs)
				adjacent homeowners	•(less privacy for adjacent homeowners)

*(parentheses denote a time or cost impact)
without parentheses denotes a positive or neutral impact

TABLE 6
(CONTINUED)
FACILITY PLAN POLICIES
GENERAL

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT*	AFFECTED PARTY	IMPACT*
C. Public Safety					
1. promote public safety programs	notify all ages of public as to hazards associated with drainageways, and safe and proper use of park and trail facilities	Mayor's Office, MDD Planning & Engineering, AMAFCA	-administrative	general public	-increased awareness of environment, personal safety
2. safety-oriented facility design	to optimize safety as a major criteria in the design of drainage and related park facilities	AMAFCA, MDD Planning, Engineering, Parks & Recreation, Legal	-administrative	general public	-greater chance of rescue or escape in case of accidental entry, reduced likelihood of accidental entry due to design & placement of recreational components
3. maintenance	establish joint-maintenance programs	AMAFCA, City Engineering, Parks & Recreation	-administrative/ (maintenance budget increase may be required)	general public	-clean, attractive, properly functioning public facilities

*(parentheses denote a time or cost impact)
without parentheses denotes a positive or neutral impact

TABLE 6A
FACILITY PLAN POLICIES
SPECIFIC
MAJOR OPEN SPACE ARROYOS

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT.*	AFFECTED PARTY	IMPACT.*
1. preservation of existing 100-year floodplain	preserve topography, vegetation, views, natural drainage process, implement Comprehensive Plan open space policies	City Parks & Recreation, DRB	·(cost of acquisition and maintenance of open space lands) ·administrative-staff time	private development	·reduction in channel improvement costs
		·private development	·(increased costs due to design time, hydrology & reduction in developable land area ·open space credit ·potential park dedication credit	general public	·environmental sensitive protection of developed areas from flood hazard ·educational opportunity to observe natural processes, flora & fauna, visual & psychological relief from urbanization, protection of wildlife habitats
				·adjacent homeowners	·potential increase in property values adjacent to public amenity
2. design of drainage facilities	blend visually with open space characteristics, protect and enhance existing vegetation, wildlife	City Engineering, Parks & Recreation, private development	·(increase in relative costs of channel treatment types due to design time, materials construction and maintenance) ·(reduction in developable land area due to increased right-of-way requirements)	·general public	·access to open space corridors having native vegetation, wildlife habitats within urbanized area, views ·(higher housing costs)
				·adjacent homeowners	·potentially higher property values

*(parentheses denote a time or cost impact)
without parentheses denotes a positive or neutral impact

TABLE 6A
(Continued)
FACILITY PLAN POLICIES
SPECIFIC
MAJOR OPEN SPACE ARROYOS

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT*	AFFECTED PARTY	IMPACT*
3. drainage controls on adjacent development	protection of natural drainage system, existing topography, and vegetation	private development, MDD-Planning & Engineering, AMAFCA	·(increased costs due to design time, reduction in developable land area) ·administrative	general public adjacent home-owners	·access to open space corridors having native topography, vegetation, wildlife habitat, within urbanized area-views ·(increased housing costs due to increased development costs) ·potential increase in property values
4. preservation of existing topsoil and vegetation in r.o.w. associated with trails	prevent erosion, preserve unique natural features	AMAFCA, City Engineering, private development	·(slower construction)	general public	·open space corridors with native landscaping and topography, a visual amenity
5. landscaping within the public r.o.w., outside of the floodplain	preserve and enhance open space characteristics	private developer, Parks & Recreation	·(increased costs due to reseeding)	general public adjacent home-owners	·visual amenity ·(increased housing costs due to development costs) ·potential increase in property values
6. open space dedication	establish park and/or open space credit in Developing Urban areas for naturalistic channel treatments	private development City Parks & Recreation, MDD-Planning	greater flexibility in meeting open space requirements ·administrative	private development general public	·greater flexibility in meeting open space requirements ·expansion of Major Public Open Space lands
7. programming recreational amenities	set standards for arroyo corridor plans, recommend scheduling	MDD-Planning	·administrative	N/A	N/A

*(parentheses denote a time or cost impact)
without parentheses denotes a positive or neutral impact

TABLE 6B
FACILITY PLAN POLICIES
SPECIFIC
MAJOR OPEN SPACE LINKS

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT*	AFFECTED PARTY	IMPACT*
1. design of drainage facilities	encourage semi-natural treatment - stabilization techniques which allow growth of vegetation where appropriate, and promote safety-oriented recreational and drainage facility design	private development, City Engineering, Parks & Recreation	·(increased costs due to design time, materials, construction, and r.o.w.)	general public	·open space corridors with native landscaping and topography, a visual amenity
		private development	·(loss of developable area)		·(increased housing costs due to increased development costs)
		private development		adjacent homeowners	·potential increase in property values
2. trail development	establish standards for trail location and development	MDD-Planning & Engineering, City Parks and Recreation, T.I.P., AAFAFCA, Legal	·administrative	general public	·open space areas accessible by bike or on foot
			·(construction and maintenance costs)	adjacent homeowner	·(less privacy)
3. continuous trail system	control platting adjacent to drainage r.o.w. to ensure continuity of trails	MDD-Planning, DRB	·administrative	general public	·open space areas accessible by bike or foot
		private development	·(increased costs associated with siting constraints)		·(increased housing costs due to increased development costs)

*(parentheses denote a time or cost impact)
without parentheses denotes a positive or neutral impact

TABLE 6B
(CONTINUED)
FACILITY PLAN POLICIES
SPECIFIC
MAJOR OPEN SPACE LINKS

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT*	AFFECTED PARTY	IMPACT*
4. right-of-way acquisition	establish recommended minimum r.o.w. standards for trail development	City Parks & Recreation	·(costs associated with r.o.w. acquisition and maintenance)	private development	·clarifies development standards, possible financial compensation for lands formerly associated only with drainage ·open space credit ·potential park dedication credit
		private development	·(increased costs associated with siting constraints)	·general public	·open space areas accessible by bike or foot ·(increased housing costs due to increased development costs)
5. landscaping within the public r.o.w., outside of the floodplain	promote native landscaping; establish minimum landscaping standards	private developer, Parks & Recreation Department	·(costs associated with reseeding)	general public	·visual amenity, contribution to Albuquerque's "sense of place" ·(increased housing costs)
				adjacent homeowner	·potential increase in property values
6. open space dedication	establish park and/or open space credit for naturalistic channel treatments in Developing urban areas	MDD-Planning	·administrative	private developer	·greater flexibility in meeting open space requirements
		private developer	·open space credit for incorporating semi-natural treatment	general public	·enhanced open space characteristics
7. programming recreational amenities	establish standards for arroyo corridor plans, recommend scheduling of construction	MDD-Planning, Parks & Recreation Department	·higher on-site densities ·administrative	N/A	N/A
		·private developer	·clarifies park development criteria		

* (parentheses denote a time or cost impact)
without parenthesis denotes a positive or neutral impact

TABLE 6C
FACILITY PLAN POLICIES
SPECIFIC
URBAN RECREATIONAL ARROYOS

POLICY	PURPOSE	RESPONSIBLE PARTY	IMPACT*	AFFECTED PARTY	IMPACT*
1. park and trail development	encourage park development by accepting park dedication and/or maintenance adjacent to arroyos	City Parks & Recreation	-administrative	private developer	-potential park dedication credit for special arroyo treatments incorporating park facilities
				general public	-recreational opportunities and visual amenities
				adjacent homeowner	-potential increase in property value
2. right-of-way acquisition	establish recommended minimum r.o.w. for trail development adjacent to arroyos	City Parks & Recreation	-administrative	private developer	-clarifies development standards, possible financial compensation for lands formerly associated only with drainage
			-(costs associated with right-of-way acquisition, maintenance)		-encourages special channel treatments
3. sensitive channel treatment within dedicated parks	well-landscaped, channel to blend visually with park facilities	private development	-consider special channel treatments when proposing park dedication, (associated costs)	general public	-recreational opportunities, visual amenity
					-(increased housing costs)
		City Parks & Recreation	-additional costs associated with maintenance, reduction in park land available for some forms of active recreation due to increased r.o.w. of drainage	adjacent property owner	-potential increase in property values
4. location of crossing structures	optimize safe and convenient use of park facilities	private development	-(costs associated with crossing structures)	recreational user	-convenient crossing structures, increase in safety factor
		City Parks & Recreation			

*(parentheses denote a time or cost impact)
without parentheses denotes a positive or neutral impact

APPENDIX D: POLICY FRAMEWORK

ALBUQUERQUE/BERNALILLO COUNTY COMPREHENSIVE PLAN AND OTHER DOCUMENTS

The *Comprehensive Plan* contains a number of statements encouraging recreational use of the land adjacent to drainage facilities. These statements are extracted in part from the *Comprehensive Plan*:³

Policies Plan

"A. Land Use

1. *Urban and Rural Form*

The goal is to preserve the unique natural features of the metropolitan area by achieving a pattern of development and open space respecting the river lands, mesas, mountains, volcanoes, and arroyos."

"g. The City and County shall create a multi-purpose network of recreational trails and open space along arroyos and appropriate irrigation ditches. Designated arroyo flood plains shall retain their flood control functions so as to minimize flood damage, minimize the cost to public works, and allow infiltration of storm water." (Page 1)

"2. *Urban Areas*

The goal is a quality urban environment which perpetuates the tradition of identifiable, individualistic communities within the metropolitan area and offers maximum choice in housing, work areas and lifestyles, while creating visually

pleasing architecture, landscaping and vistas to enhance the appearance of the community."

"n. Landscaping with native or naturalized vegetation where appropriate shall be encouraged within public and private rights of way to control water erosion and dust, absorb atmospheric pollutants, and create a pleasing visual environment." (Page 7)

"4. *Open Areas*

The goal is to enhance recreational opportunities and provide visual relief to urbanization by setting aside accessible and usable open spaces within each neighborhood."

"c. The design of parks and open space shall incorporate the following criteria:

1. Multi-functional use of resources and compatible facilities.
2. Maintenance requirements and landscaping appropriate to the location function, public expectations and intensity of use.

³ The *Albuquerque/Bernalillo County Comprehensive Plan* is made available in its entirety by the City of Albuquerque Municipal Development Department-Planning Division.

3. Integration into residential design for easy accessibility and orientation to encourage use.
 4. Lighting or other methods to minimize vandalism.
- d. Open space design at the neighborhood level should tie into major community open space where appropriate to create an open space network." (Page 13)

"B. Environmental Protection and Community Service

2. Water

The goal is to maintain an adequate supply and quality of water for all desirable uses and needs in the urbanized area.

- c. Maximum absorption of rainfall should be encouraged through the use of:
 1. arroyo channels designed to infiltrate water wherever possible
 2. conservation devices in all new development" (Page 21)

PLAN FOR MAJOR OPEN SPACE

"1. Areas Proposed for Public Ownership

f. AMAFCA facilities and drainage ways

Those areas which drainage studies indicated would be flooded approximately once every 10 years will be acquired by AMAFCA for flood control purposes. In certain cases, the city or county may wish to acquire adjacent land between the 10 and 100 year storm floodways for public recreation. The mapping of these areas on the [Comprehensive Plan] map is intended to

designate areas which are potentially appropriate for the open space network. Implementation of this portion of the Plan for Major Open Space would be through various techniques, including dedication during the development process, outright purchase, or shared purchase with other public agencies for multiple uses." (Page 6)

"2. Areas proposed for Public Easement or Rights

c. Playa lakes

Playa lakes are low areas without a natural drainage outlet and which are intermittently flooded. Rather than constructing expensive drainage works for such areas, these areas could serve open space uses such as parkland or agriculture compensated by higher density development allowable in adjacent or other locations. Consisting of 800 to 1000 acres, these areas are now largely in private or state ownership." (Page 7)

"d. Areas adjacent to AMAFCA drainage facilities

In addition to the possibility of severe flooding approximately once every 100 years the areas adjacent to but not including the 10 year design storm floodway would be appropriate for private or public recreation by their proximity to water, and for linear rights-of-way for trails. Acquisition of these areas would be largely by negotiation within the existing park dedication policy or by land banking or cash payment under the detached open space provision of the revised zoning ordinance. Designation of these areas indicates suitability for negotiation for an access easement (trails) or dedication as appropriate." (Page 8)

In the *Plan for Major Open Space*, major open space is defined as “any large area of land (or water) which is left primarily undeveloped. It can serve one or more of four major functions:

1. Conservation of natural resources
2. Protection of the public from flooding or other hazards
3. Provision of recreational services
4. Satisfaction of psychological needs for space”

Statements pertaining to Open Space policy from other City documents.

*GOALS FOR ALBUQUERQUE 1983-83, VOLUME I.
ENVIRONMENT AND CITY BEAUTIFICATION*

“Establish a policy for multiple use of arroyos as scenic and recreation trail corridors linking major open spaces and parks.” (Page 11)

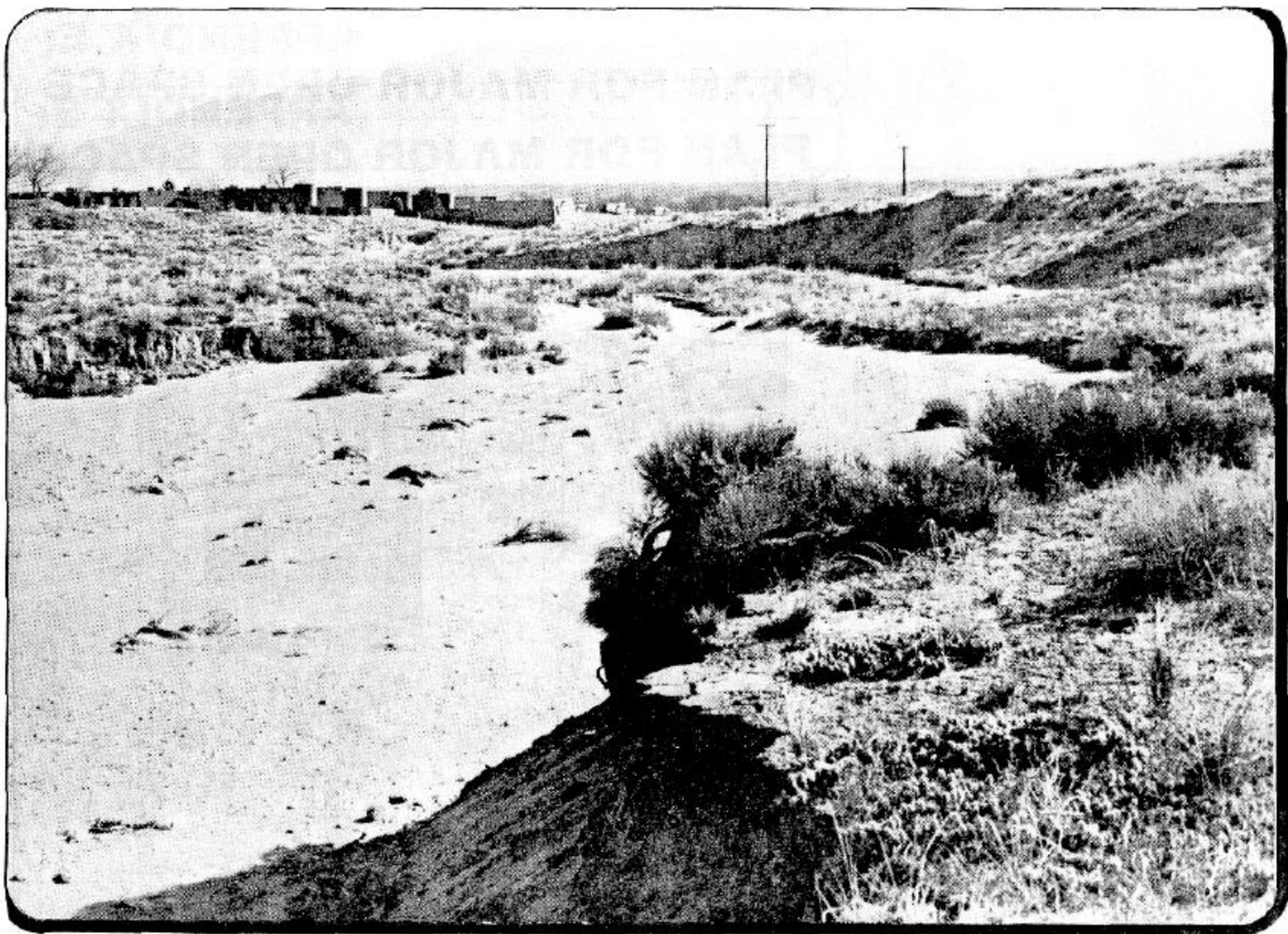
*GOALS FOR ALBUQUERQUE 1983-84 VOLUME II.
RECOMMEND CHANGES IN POLICIES PLAN DOCUMENT*

4. *Neighborhood and Community Public Open Areas: New Goal:* The goal is to provide visual relief to urbanization and to offer opportunities for education, recreation, cultural activities and conservation of natural resources by setting aside accessible and usable open spaces within all metropolitan areas and urban centers.

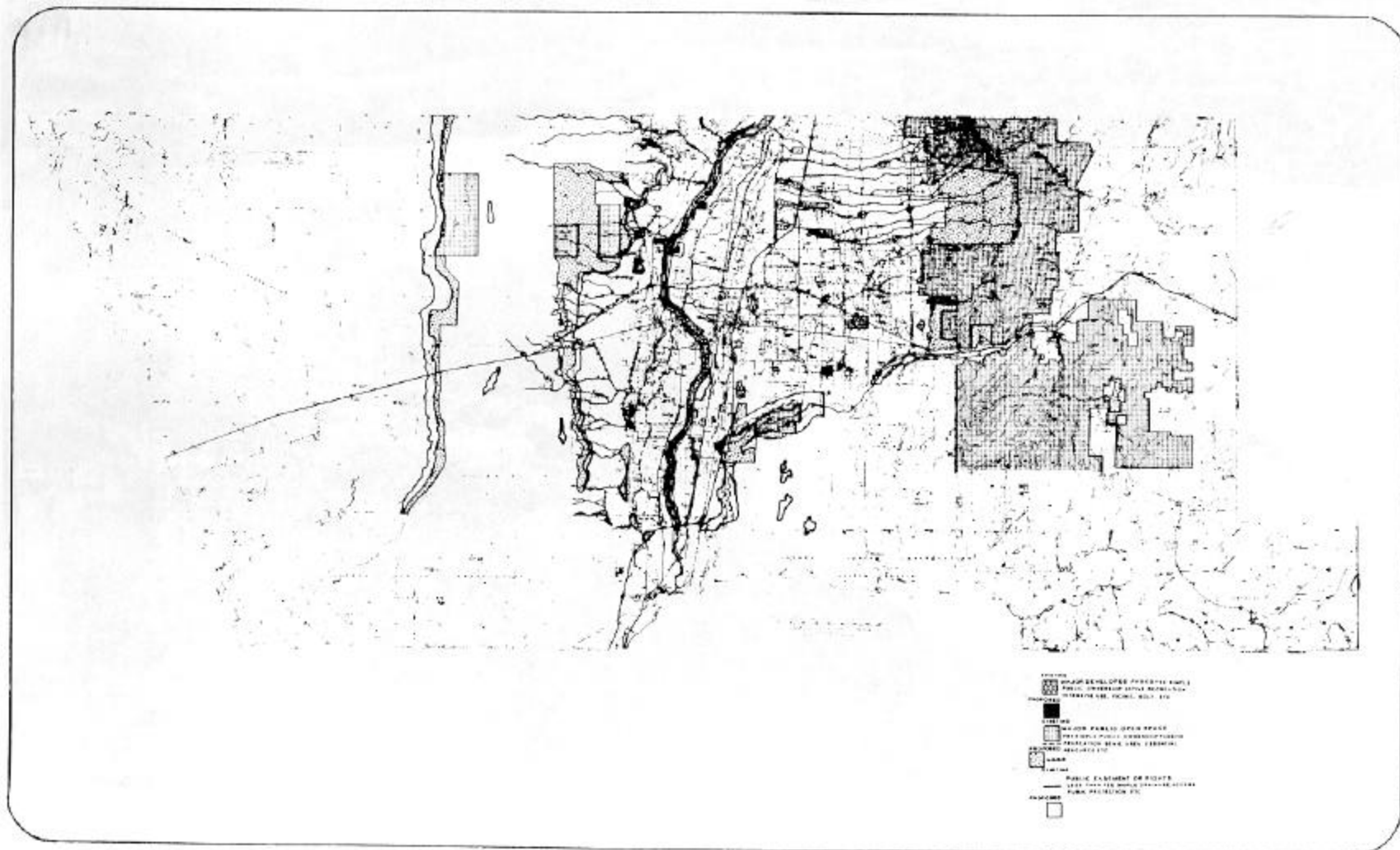
Specific recommendations regarding the multiple use of arroyos:

- create a trail system by requiring dedication of land around major arroyos.

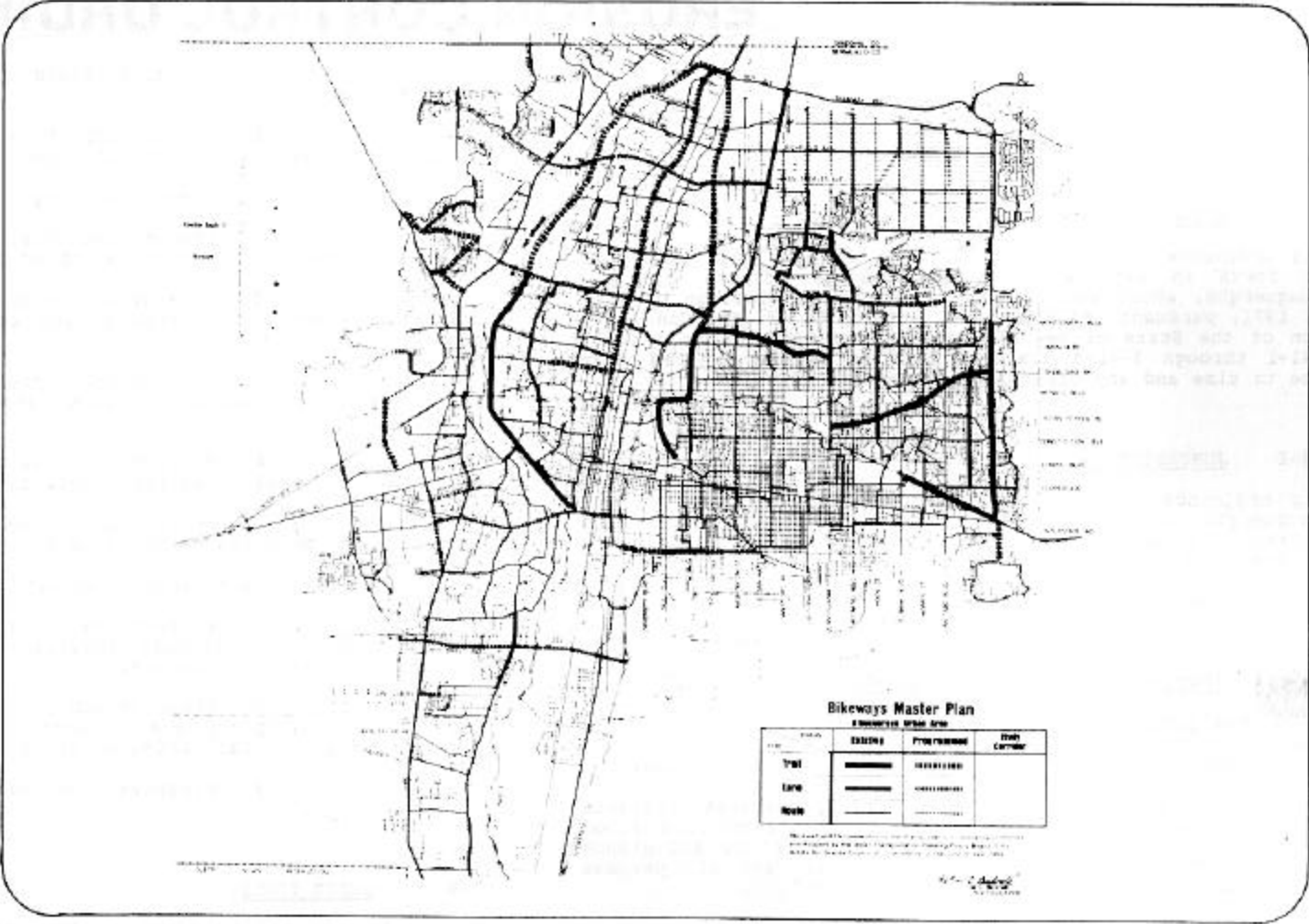
- design of open areas at the neighborhood level should tie into major open space at the regional scale where appropriate to create an open space network.



APPENDIX E: PLAN FOR MAJOR OPEN SPACE



APPENDIX F: BIKEWAYS MASTER PLAN



APPENDIX G: STORM DRAINAGE, FLOOD AND EROSION CONTROL ORDINANCE

ARTICLE IX

STORM DRAINAGE, FLOOD AND EROSION CONTROL

7-9-1 AUTHORITY.

This ordinance is adopted pursuant to the Home Rule authority set forth in Article 1 of the Charter of the City of Albuquerque, which was adopted at a special election on June 29, 1971, pursuant to Article X, Section 6, of the Constitution of the State of New Mexico and also pursuant to 3-13-7, 3-41-1 through 3-41-5 N.M.S.A. 1978 as may be amended from time to time and any other applicable statutory authority.

(63-1982)

7-9-2 JURISDICTION.

This ordinance shall apply to all lands within the City of Albuquerque and, with respect to planning and platting matters, it shall also apply to all lands within its extrajurisdictional planning and platting jurisdiction. This jurisdiction is not exclusive; in particular, AMAFCA shares jurisdiction in matters of flood control.

(63-1982)

7-9-3 STATEMENT OF PURPOSE AND INTENT.

It is the purpose of this ordinance to promote the public health, safety and general welfare, and to minimize public and private losses due to flooding by provisions designed:

A. To establish policies, procedures, criteria and requirements to complement and to supplement the Flood Hazards Ordinance, Article 7-3 R.O. 1974, for the assistance and guidance of City officials, City staff and all persons and entities within the jurisdiction of the City.

B. As to flood control, to:

1. Prevent the loss of or injury to human life.

2. Minimize flood damages to public and private property.

3. Provide for timely and effective construction and maintenance of flood control facilities.

C. As to storm drainage, to:

1. Prevent the creation of public safety hazards and seek to eliminate existing problems.

2. Prevent to the extent feasible, the discharge of storm runoff from public facilities onto private property.

3. Prevent the increased risk of damage to private property caused by storm runoff from other private property.

4. Provide a reasonable level of public health and convenience at reasonable cost.

5. Provide for timely and effective construction and maintenance of storm drainage facilities.

D. As to erosion control, to:

1. Protect the hydraulic capacity of flood control and storm drainage facilities from losses due to sedimentation and degradation.

2. Preserve public health, safety and convenience from jeopardy due to erosion and sedimentation in private and public facilities of all types.

3. Preserve the quality of the surface runoff.

(63-1982)

7-9-4 SHORT TITLE.

This ordinance may be cited as "The Drainage Ordinance" and is referred to elsewhere herein as "this ordinance".

(63-1982)

7-9-5 DEFINITIONS.

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

A. "AMAFCA" means the Albuquerque Metropolitan Arroyo Flood Control Authority.

B. "Channel" means any arroyo, stream, swale, ditch, diversion, or water course that conveys storm runoff, including man made facilities.

C. "Channel Stability" means a condition in which a channel neither degrades to the degree that structures, utilities or private property are endangered, nor aggrades to the degree that flow capacity is significantly diminished as a result of one or more storm runoff events or moves laterally to the degree that adjacent property is endangered.

D. "Channel Treatment Measure" means a physical alteration of a channel for any purpose.

E. "CIP" means the City of Albuquerque's Capital Improvement Program.

F. "City Attorney" means the chief legal counsel for the City of Albuquerque or his designee.

G. "City Engineer" means the chief administrative engineer of the Engineering Division of the Municipal Development Department of the City or his designee.

H. "City Hydrologist" means a staff professional Engineer designated by the City Engineer to exercise primary responsibility for drainage control, flood control and erosion control matters assigned to the office of the City Engineer.

I. "Comprehensive Plan" means the Albuquerque/Bernalillo County Comprehensive Plan and amendments thereto.

J. "Conceptual Grading and Drainage Plan" means a plan prepared in graphical format showing existing and proposed grading, drainage control, flood control and erosion

control information in sufficient detail to determine project feasibility.

K. "Design Storm" means a storm which deposits a stated amount of precipitation within a stated period over a defined area and which is used in calculating storm runoff and in designing drainage control, flood control and erosion control measures.

L. "Developed Land" means any lot or parcel of land occupied by any structure intended for human occupation, including structures intended for commercial enterprise.

M. "Developer" means any individual, estate, trust, receiver, cooperative association, club, corporation, company, firm, partnership, joint venture, syndicate or other entity engaging in the platting, subdivision, filling, grading, excavating, or construction of structures.

N. "Downstream Capacity" means the ability of downstream major facilities to accept and safely convey runoff generated upstream from the 100-year design storm.

O. "Drainage" means storm drainage.

P. "Drainage Control" means the treatment and/or management of surface runoff from all storms up to and including a 10-year Design Storm.

Q. "Drainage Plan" means a short detailed plan prepared in graphical format with or on a detailed grading plan addressing on-site and off-site drainage control, flood control and erosion control issues for lots or parcel of less than five (5) acres.

R. "Drainage Report" means a comprehensive analysis of the drainage, flood control and erosion control constraints on and impacts resulting from a proposed platting, development or construction project.

S. "Erosion Control" means treatment measures for the prevention of damages due to soil movement and to deposition from the 10-year design storm runoff.

T. "Erosion Control Plan" means a plan for the mitigation of damages due to soil erosion and to deposition from the 10-year design storm runoff.

U. "Flood Control" means the treatment measures necessary to protect life and property from the 100-year design storm runoff.

V. "Flood Hazard Area" means an area subject to inundation from the 100-year design storm runoff.

W. "Floodway" means the channel of a river, arroyo or other water course and adjacent land areas that must be reserved in order to safely discharge the 100-year design storm runoff.

X. "Fully Developed Watershed" means a hydrologic condition in which all areas upstream and downstream of a point in question are assumed completely developed, including any undeveloped areas which are assumed to be developed in accordance with mid-range development densities as established by the Comprehensive Plan, appropriate area plans or sector plans, adopted facilities master plans and the hydraulic and hydrologic standards established by this ordinance.

Y. "Grading Plan" means a plan describing the existing topography and proposed grading, including retaining wall locations and details, interfaces with adjacent properties, streets, alleys and channels, referenced to mean sea level based on a City Bench Mark, and showing sufficient contours, spot elevations and cross-sections to allow a clear understanding by reviewers, contractors and inspectors.

Z. "Maintenance" means the cleaning, shaping, grading, repair and minor replacement of drainage, flood control and erosion control facilities, but not including the cost of power consumed in the normal operation of pump stations.

AA. "Major Arroyo" means any channel whose watershed exceeds 320 acres in a 100-year design storm whether such watershed is in its natural or unaltered state or has been altered by development, runoff diversions, or detention facilities.

BB. "Major Facility" means any facility, including a street or alley, which would collect, divert or convey a peak discharge of more than fifty (50) cubic feet per second (50 cfs) or store more than 2.0 acre-feet of runoff in the event of a 100-year design storm.

CC. "Master Planned Facility" means any drainage control, flood control or erosion control facility recommended in the adopted "Albuquerque Master Drainage Plan" (1981), amendments thereto, or any voter approved general obligation bond financed drainage control, flood control or erosion control facility.

DD. "Minor Facility" means any facility which would collect, divert or convey a peak discharge of 50 cubic feet per second (50 cfs) or less in the event of the 100-year design storm.

EE. "Multiple Use Facility" means a drainage control, flood control or erosion control facility in which other secondary uses are planned or allowed, including but not limited to recreation, open space, transportation and utility location.

FF. "Nuisance Waters" means those waters leaving a site and entering a public street which do not result from precipitation, such as landscape over-watering or car washing.

GG. "One Hundred Year Design Storm," also referred to as a "100-Year Design Storm," means that storm whose precipitation within a six (6) hour period and resulting runoff has a one percent chance of being equaled or exceeded in any given year.

HH. "Temporary Drainage Facility" means a non-permanent drainage control, flood control or erosion control facility constructed as part of a phased project or to serve until such time that a permanent facility is in place, including but not limited to desilting ponds, berms, diversions, channels, detention ponds, bank protection and channel stabilization measures.

II. "Ten Year Design Storm," also referred to as a "10-Year Design Storm," means that storm whose precipitation within a six (6) hour period and resulting runoff has a ten (10) percent chance of being equaled or exceeded in any given year.

JJ. "Traffic Engineer" means the chief administrative engineer of the City's Traffic Engineering Division or his authorized representative.

(63-1982)

7-9-6 GENERAL PROVISIONS.

A. The City of Albuquerque is and shall remain an active participant in the National Flood Insurance Program. The City endorses the program goal of flood damage reduction through the regulation of development within flood hazard areas and the preservation of floodways. This ordinance is intended to complement and supplement the Flood Hazard Ordinance, and shall be administered in concert therewith.

B. All developed land within the City of Albuquerque shall be provided with adequate drainage, flood control and erosion control facilities. The protection of life and property shall be considered the primary function in the planning, design, construction and maintenance of drainage control, flood control and erosion control facilities, but other concerns, not limited to the following, shall be addressed: channel capacity, watershed characteristics, channel stability, maintenance, transitions between treatment types, multiple use goals, appearance. The needs of the community in transportation, utility services, recreation, and open space shall be considered in planning, design, construction, and maintenance (especially in the selection of channel treatment measures). These needs shall always be considered subsidiary to the primary function of the drainage control, flood control and/or erosion control facility.

C. The design, construction and maintenance of dams, levees and diversions that fall within the jurisdiction of the State Engineer of the State of New Mexico shall meet or exceed standards established by the State Engineer.

D. The design, construction and maintenance of flood control facilities shall be coordinated with AMAFCA.

E. All major facilities shall be constructed within dedicated rights-of-way or recorded drainage easements granted to and accepted by the proper public authority.

F. All detention ponds defined as minor facilities shall be constructed on private property unless otherwise authorized by the City Engineer. Except as is necessary for the treatment of nuisance water, all ponds shall be designed and constructed to be emptied in twenty-four (24) hours or less. The use of individual lot ponding shall be governed by the standards established by the City Engineer.

G. Wherever flood control, drainage or erosion control improvements are necessary within dedicated public open space, such improvements shall be designed and constructed in a manner reasonably consistent with the natural surroundings. All construction and maintenance activities in dedicated open space shall be performed so as to minimize the disruption and destruction of vegetation and adjacent land forms. Where such disturbance or destruction is unavoidable, revegetation shall be performed at the earliest practical time by those responsible for such disturbance and/or destruction.

H. The City Engineer is responsible for establishing criteria, procedures and standards for design and construction of flood control, drainage control and erosion control improvements within the City of Albuquerque. The City Engineer shall provide for variance from normal criteria and standards; when a variance is required or requested, the City Engineer shall document the justification for his decision and retain as public records such actions and justifications; appeals of the City Engineer's variance decisions is as provided in Section 15 of this ordinance. The City Engineer is also the designated flood control official for the City in accordance with the requirements of the Federal Insurance Administration.

(63-1982)

7-9-7 SURFACE USE OF STREETS FOR DRAINAGE AND FLOOD CONTROL PURPOSES.

A. The surface of streets may be used for drainage and flood control purposes, to the extent such use does not interfere with the safe transportation of people and vehicles.

B. The 100-year design storm runoff shall not exceed a depth of 0.87 feet at any point within the street right-of-way, or 0.2 feet above top of curb, in any street nor enter private property from a street, except in recorded drainage or flood control easements or rights-of-way (or historic channels and watercourses where easements or rights-of-way cannot be obtained).

C. The 10-year design storm runoff shall not exceed a depth of 0.5 feet in any arterial street and shall flow such that one twelve (12.0) foot driving lane in each direction is free of flowing or standing water. The 10-year

design storm runoff shall not exceed a depth of 0.5 feet in any collector street. Arterial and collector streets that are in the State Highway system may require more stringent drainage criteria.

D. The product of depth times velocity shall not exceed 6.5 at any location in any street in the event of a 10-year design storm (with velocity calculated as the average velocity measured in feet per second and depth measured at the gutter flowline in feet).

E. The discharge of nuisance waters to public streets shall be discouraged. Arterial and collector streets shall be protected from damages to the pavement surface and from the safety hazards created by surface flow of nuisance waters across them.

F. All developed land within the City of Albuquerque shall be served by at least one paved access that shall be an all-weather facility during a 100-year design storm, with all channel-crossing structures beneath the roadway being able to pass a 100-year design storm runoff event.
(63-1982)

7-9-8 CROSSINGS.

A. Channel crossing structures shall be provided on all arterial and collector streets to safely pass the 100-year design storm runoff from major arroyos assuming a fully developed watershed.

B. Streets other than arterial, collector and sole access may cross major arroyos and other watercourses by means of a "dip section" or "overflow section" provided depth times velocity (with velocity calculated as the average velocity measured in feet per second and depth measured in feet at the upstream edge of the roadway including sidewalk) does not exceed 6.5 for that portion of the 10-year storm runoff crossing on the street.

C. Where feasible, temporary crossings shall be designed so they may be incorporated into the future permanent crossing structure and so that they meet street design standards established by the Traffic Engineer.

D. Crossings of major arroyos by arterial and collector streets shall be at public expense. Crossings of arroyos by streets other than arterials and collectors shall be constructed at developer expense and shall meet street design standards established by the Traffic Engineer.

E. Temporary crossings required for access, including those on arterials and collectors, shall be constructed at developer expense.

(63-1982)

7-9-9 FINANCIAL RESPONSIBILITY.

A. The City of Albuquerque may participate in the construction of permanent flood control facilities to the extent that public benefits are derived from such construction and consistent with Capital Improvements Program (CIP) priorities. Reimbursement for private funding of such projects may also be available under these conditions.

B. The City of Albuquerque may participate in the costs of channel crossing structures on arterial and collector streets which are required for sole access to a development. The developer's share shall not exceed the cost required to meet the minimum street width standards established by the Traffic Engineer.

C. The City of Albuquerque shall not participate in the funding of flood control facilities whose sole intent is the reclamation of undeveloped land located within a flood hazard area for private development purposes.

D. All drainage control and flood control facilities which directly result from a proposed land use change are the responsibility of the developer. Developer financed facilities include all those within the boundaries of the development, those required for development adjacent to a major arroyo or within a flood hazard area and all temporary and permanent off-site drainage facilities. Master planned facilities shall be the responsibility of the City and in some instances AMAFCA. However, if such facilities are not programmed and funded at the time of development, the developer shall construct the master planned facilities or provide for temporary facilities, constructed to City Engineer standards within a temporary or permanent drainage easement until such time that

present to 7-9-10 B on Pg. 103

(1) The amount of drainage right-of-way required exclusively for drainage control is defined, as the width that would be necessary to contain a trapezoidal concrete-lined channel designed to convey the full 100-year design storm, including all necessary freeboard and also the outer limits of a 12 foot maintenance road on one side of the channel. In order to receive detached open space credit for a portion of the drainage right-of-way, the developer shall be responsible for reseeding any disturbed land within the drainage right-of-way except roads, trails, and the channel which is designed or retained to carry the 100-year design storm runoff; reseeding shall be with native and naturalized plant materials in the species, amounts, and proportions of plants associated with undisturbed soils in a specific area, to the satisfaction of the Director of the city's Park and General Services Department and Recreation Department and the City Engineer. Upon completion of said reseeding, the developer shall also be responsible for maintaining reseeded areas until whichever comes first, the end of three years or when the city gives notice of termination of the developer's responsibility caused by governmental undertaking of significant additional development or treatment in a given area; such maintenance shall be to the satisfaction of the Director of the City Parks and Recreation Department. ~~Subsequently, maintenance becomes the responsibility of the city.~~

(2) Alternatively, a more intensive landscaping scheme proposed by the developer may be approved for open space credit by the Director of the City Parks and Recreation Department and the City Engineer; the developer shall then be responsible in perpetuity, for the maintenance of the landscaping.

(3) Any developer maintenance obligation specified by divisions (1) and (2) above shall be detailed by a binding legal agreement between the developer and the city specifying the type and schedule of maintenance required by the developer. Such agreement shall be satisfactory to the Director of the City Parks and Recreation Department and the City Attorney. Such agreement shall be executed before any benefits of open space designation accrue to the developer. The city's remedies for a developer's failing to meet the obligations of the maintenance agreement include but are not limited to terminating the developer's credit for detached open space. Where appropriate, a developer's obligations may run with the land. Further detailing of these provisions may be adopted as regulations in the city's *Development Process Manual*. See the Zoning Code, § 14-16-3-8(C). ('74 Code, § 7-9-10) (Ord. 63-1982; Am. Ord. 9-1986)

the City or AMAFCA constructed facilities are in place. If the construction of such facilities is a condition of plat approval or building permit issuance, then financial guarantees of such construction satisfactory to the City Engineer shall also be provided as a prerequisite. The City Engineer shall coordinate the construction and location of temporary facilities with AMAFCA and other City Departments. If the ultimate on-site drainage control, flood control and/or erosion control facilities require permanent rights-of-way or easements, such rights-of-way or easements shall be dedicated at the time of platting or building permit issuance whichever occurs first.

E. Except as allowed by AMAFCA Resolution 81-8 and amendments thereto, the dedication of land for public purposes does not relieve a developer of responsibilities for the construction of drainage control, flood control and erosion control facilities that would otherwise be necessary. The dedication of rights-of-way or easements for drainage control, flood control or erosion control facilities does not relieve a developer of responsibilities that would otherwise exist for the construction of other public infrastructure.

(63-1982)

7-9-10 MULTIPLE USE OF RIGHTS-OF-WAY AND EASEMENTS.

A. Multiple use is encouraged for drainage rights-of-way and drainage easements, e.g., for utility corridors and for recreation trails. Where multiple use is planned by the City, another public agency, or a public utility, the City may require that dedication statements include language which permits said use(s) in addition to the primary drainage function. However, land required to be dedicated for drainage rights-of-way and easements shall be limited to those land areas necessary for drainage control, flood control, erosion control and necessary appurtenances.

B. Drainage rights-of-way and easements may be credited for open space, except for any area which is exclusively used for the drainage control or flood control function.

(63-1982)

7-9-11 MAINTENANCE RESPONSIBILITY.

A. Except as otherwise noted herein, all permanent major facilities shall be maintained by the City or other

public body. The maintenance of multiple use facilities to which the general public is denied access shall be the responsibility of the owners and shall be performed to City Engineer standards. The City Engineer may allow private maintenance within public right-of-way or easement provided that adequate guarantees and indemnifications are supplied.

B. Minor facilities shall be maintained by their owners to City Engineer standards.

C. The maintenance of temporary facilities constructed at private expense (except crossing structures) is the responsibility of the developer until permanent facilities are in place.

D. The developer shall be responsible for maintaining or replacing temporary crossing structures for a period of six (6) years or until a permanent structure is built, whichever comes first. The City shall maintain temporary crossings which are designed and built such that they may be directly incorporated into the ultimate facilities.

(63-1982)

7-9-12 GENERAL ADMINISTRATION.

A. The design, construction and maintenance of all drainage control, flood control and erosion control facilities within the City of Albuquerque shall be performed in accordance with procedures, criteria and standards formulated by the City Engineer and in accordance with the policies established in this ordinance.

B. All construction activities within the jurisdiction of the City of Albuquerque shall conform to the requirements of the City Engineer with respect to drainage control, flood control and erosion control. Original construction and modifications and/or additions to existing structures constituting less than 500 square feet, in plan view, are excluded.

1. Construction, grading or paving on any lot within the jurisdiction of the City of Albuquerque shall not increase the damage potential to upstream, downstream or adjacent properties or public facilities. Damages shall be defined as those caused by flooding from the 100-year design storm and all smaller storms and from erosion and sedimentation resulting from the 10-year design storm and all smaller storms.

2. During the months of July, August or September, any grading within or adjacent to a watercourse defined as a major facility shall provide for erosion control and the safe passage of the 10-year design storm runoff during the construction phase.

3. Grading, cut, fill or importation of material in excess of 500 cubic yards or grading of any area of one (1.0) acre or more shall conform to drainage control, flood control and erosion control policies and to standards, criteria and procedures established by the City Engineer with respect to drainage, flood control and erosion control. A grading permit, issued by the City Engineer, shall be required for projects involving more than 500 cubic yards of material or one (1.0) acre or more in area. Applications for development of areas known to have been sanitary landfills shall be accompanied by a report which discusses potential health and soil mechanics problems and their solutions. Such reports shall be prepared by a New Mexico Professional Engineer competent in soil mechanics.

4. Paving an area larger than 1000 square feet shall require a paving permit. Applications for paving permit shall be accompanied by a drainage plan if deemed necessary by City Engineer. Repaving of existing paved areas in which no grading is planned is excluded.

5. The City Engineer shall not issue a grading or paving permit unless the proposed grading or paving is in compliance with the policies of this ordinance and the standards and criteria of the City Engineer as provided for by Section 13 of this ordinance.

C. The City may participate with the private sector, other public bodies and agencies operating within the jurisdiction of this policy in order to accomplish the goals and implement the policies adopted in this ordinance. This includes, but shall not be limited to, the development and adoption of masterplans, participation in the construction of projects and exercising control through the planning, platting, zoning, and permitting processes. Projects involving City funding shall be prioritized, funded and scheduled within the guidelines of the CIP and with CIP Projects.

D. It shall be the responsibility of the City Engineer to produce, approve, make and retain records of all drainage plans, drainage reports, design analyses, design

drawings, as-built drawings, and maintenance schedules related to all drainage control, flood control and erosion control facilities constructed within City rights-of-way or easements.

E. Applications for all land use changes shall address drainage control, flood control and erosion control in terms of the interactions of these parameters with other requirements and needs produced by the proposed land use changes.

F. Requests for the platting of land for the purpose of subdivision or development shall be accompanied by appropriate drainage control, flood control and erosion control information.

G. The City Engineer shall not approve any plan or report pertaining to proposed construction, platting or other development where the proposed activity or change in the land affected would result in downstream capacity being exceeded.

Downstream capacity is determined based on the assumption of fully developed watersheds. This assumption prevents "the first come, first served" approach where downstream development unduly constrains upstream development. Parameters used in the determination of downstream capacity include, but are not limited to:

1. Channel stability
2. Crossing structure hydraulic capacity
3. Reservoir capacity
4. Hydraulic capacity of street, storm sewer, or channel
5. Public safety
6. Maintenance constraints

Planned public storm drainage facilities are assumed as in place in determining downstream capacity, provided that construction funds are available and design has progressed to the point where capacity can be ascertained.

H. Temporary facilities are only allowed and/or required on a case-by-case basis as determined by the City

Engineer. The level of protection to be provided by temporary facilities shall be determined by considering:

1. The likelihood and consequences of a failure.
2. Length of time until permanent facilities will be in place.
3. The acceptance of maintenance responsibilities and legal liabilities.

I. Requests for approvals of development and/or platting proposals to the City Engineer shall be accompanied by drainage control, flood control and erosion control information and/or commitments. The particular nature, location and scope of the proposed development defines the degree of detail. One or more of the following levels of submittal may be required based on the following:

1. Conceptual Grading and Drainage Plan: A graphic representation of existing and proposed grading, drainage, flood control and erosion control information. The information should be of sufficient detail to determine project feasibility. The purposes of this plan are to check the compatibility of the proposed development within grading, drainage, flood hazard and erosion control constraints as dictated by on-site physical features as well as adjacent properties, streets, alleys and channels. Modifications to the Comprehensive Plan and the development of area plans, sector plans, site development plans and landscaping plans on tracts of five (5) acres or more are appropriate applications of conceptual grading and drainage plans.

2. Drainage Plan: A short detailed presentation required for approval of small, simple development approvals. Drainage plans are prepared with or on the detailed grading plan and address both on-site and off-site drainage control, flood control and erosion control issues. Drainage plans are required for building permits, site development plans and landscaping plans for developments involving less than five (5) acres.

3. Drainage Report: A drainage report is a comprehensive analysis of the drainage control, flood control and erosion control constraints on and impacts resulting from a proposed platting, development or construction project.

Drainage reports are required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more, platting or construction within a designated flood hazard area and for any platting or development adjacent to a major arroyo.

4. Erosion Control Plan: An erosion control plan is usually incorporated into the drainage plan or drainage report. Erosion control plans address all phases of each project from initial grading through and including final occupancy. Phased projects require special attention. All construction projects, both public and private, within the jurisdiction of this ordinance unless specifically excluded require an approved erosion control plan prior to start of construction.

J. Drainage control considerations specifically address safety, convenience and economics for both private property and public facilities.

K. The Albuquerque 100-year design storm is the 100-year 6-hour storm as defined by the National Oceanic Atmospheric Administration (NOAA) and by the storm distributions for time and areas as developed by the City Engineer. The 100-year storm has a 1% probability of occurring in any year. Watersheds with times of concentration greater than six (6) hours will require the use of the 100-year 24-hour storm volumes and distributions. Detention basins with longer than six (6) hour evacuation times shall use a twenty-four (24) hour or longer storm volume and distribution.

Design circumstances may require larger or smaller storm volumes; Examples are emergency spillways for dams and erosion control plans respectively. The sources for rainfall data are current NOAA publications and the City Engineer. When the need for other design storms is apparent, the City Engineer will provide requirements concerning appropriate storms, frequencies and durations.

L. The City Engineer shall, within 14 to 30 calendar days after the submission to him of a request in writing for the approval of a plat, development plan, drainage submittal or exemption, approve or deny the request and mail a copy of his decision to the applicant. If the request is denied, the reasons for such denial shall be stated in writing. Appeal of such decisions is as provided in Section 15 of this ordinance.

(63-1982)

7-9-13 ADMINISTRATIVE PROCEDURES, CRITERIA AND STANDARDS.

A. Rules concerning procedures, criteria and standards shall be adopted, amended or abolished in compliance with the policies of this ordinance and as provided by the procedures of this section.

B. Proposed rule changes relating to procedures, criteria and standards pursuant to this ordinance are initiated by the City Engineer or any person may submit such proposed rule changes to the City Engineer. If a person other than an official of the City of Albuquerque submits such a proposal, there may be a processing fee of up to fifty dollars (\$50.00) set by a rule of the City Engineer.

C. Prior to the adoption, amendment or repeal of any rule pursuant to this ordinance (hereafter, rule change), the City Engineer shall:

1. Publish summary notice of the proposed rule change and solicit comments in a daily newspaper of general circulation in the City of Albuquerque and also where appropriate in trade, industrial, or professional publications as will reasonably give public notice to interested persons; and

2. Send the proposed rule change to all City departments and AMAFCA and solicit written comments; and

3. Send the proposed rule change to any person or group filing written request for notice of all such rule changes. A fee may be charged those requesting notices to cover reasonable City costs.

4. Solicit written comment on proposed rule changes for a period of 30 days from the date of their distribution and consider all comments before ruling on proposed rule changes.

5. Upon adoption of a contested rule change, issue a concise statement of his principal reasons for the rule change and statement of positions rejected in adopting the rule change together with the reasons for the rejection. All persons who submit any writing to be considered in connection with the proposed rule change shall promptly be given a copy of the decision, by mail or otherwise.

D. If a proposed rule change is approved by the City Engineer after receiving comments, notice shall be posted in a conspicuous place in City Hall and a reasonable effort shall be made to notify all interested parties. Proposed rule changes shall not take effect sooner than 30 days from posting of notice or sooner than 90 days from original distribution for comment.

E. In the event of an emergency, the Mayor may direct that rules concerning procedures, criteria or standards take effect immediately upon their posting and distribution. The Mayor's finding of an emergency and brief statement of the reasons for this finding shall be incorporated in the emergency rule change. Upon adoption of an emergency rule change which change shall remain in effect for longer than 60 days, notice to the public shall be given within seven days and opportunity for public comment shall be given in the manner required in this section for proposed rules.

F. Appeal of the City Engineer's rulemaking decisions is as provided in Section 15 of this ordinance. Regular rules, adopted under D of this section, do not take effect until an appeal is decided if they are appealed prior to taking effect. Emergency rules adopted under E of this section and regular rules which have taken effect prior to appeal are in effect until such time as they may be reversed by appeal action.

(63-1982)

7-9-14 ENFORCEMENT.

A. Whenever necessary to make an inspection to enforce any of the provisions of this ordinance, the City Engineer or his authorized representative may enter such premises at all reasonable times to inspect the same or to perform any duty imposed upon him by this ordinance; provided that if such premises be occupied, he shall first present proper credentials and demand entry; and if such premises be unoccupied, he shall first make a reasonable effort to locate the owner or other persons having charge or control of the premises and demand entry. If entry is refused or if the owner or other responsible person is not found, the City Engineer or his authorized representative shall proceed to obtain a search warrant by filing a complaint made in the Metropolitan Court or District Court upon oath or affirmation. The complaint shall (1) set forth the particular premises, or

portion thereof sought to be inspected, (2) state that the owner or occupant of the premises, or portion thereof, has refused entry, (3) state that inspection of the premises, or portion thereof is necessary to determine whether it complies with the requirements of this ordinance, (4) set forth the particular provisions of this ordinance sought to be enforced, (5) set forth any other reason necessitating the inspection, including knowledge or belief that a particular condition exists in the premises, or portion thereof which constitutes a violation of this ordinance, (6) state that the complainant is authorized by the City to make the inspection. Each inspector shall be furnished with an identification card signed by the City Engineer and by the Mayor indicating his authority and must present same to the Metropolitan Court or District Court for the purpose of this subsection and to other persons, when requested to do so during the performance of his duty. No owner or occupant or any other person having charge, care or control of any premises shall fail or neglect, after proper demand is made as herein provided, to promptly permit entry therein by the authorized inspector for the purpose of inspection and examination pursuant to this ordinance.

B. Where, after investigation, an order has been issued by the City Engineer to the owner of the property on which a violation has occurred and the order is not complied with, within such reasonable time as may be prescribed by the City Engineer, or if the responsible party or violator cannot be found or determined, the City Engineer may cause such remedies as are necessary to be made. The reasonable cost of such remedies shall constitute a lien against the property on which the violation occurred and was remedied. The lien shall be imposed and foreclosed in the manner provided in 3-36-1 through 3-36-6 New Mexico Statutes Annotated, 1978 Compilation.

C. A person who violates any provisions of this ordinance shall be subject to punishment by a fine not to exceed \$300 or imprisonment for a period not to exceed ninety (90) days or both. Each day of violation is considered a separate offense.

(63-1982)

7-9-15 APPEALS; TECHNICAL STANDARDS COMMITTEE.

A. Any applicant aggrieved by a decision as to actions provided for in Sections 6, 12 and 13 of this ordinance of the City Engineer or absence of such decision, may appeal

such decision to the Technical Standards Committee of the City. Such appeal shall be made by notice of appeal in writing addressed to the Chairman of the Technical Standards Committee and delivered to the office of the City Engineer within thirty (30) days after the date the decision was mailed to the applicant. The Chairman of the Technical Standards Committee shall notify the applicant and the City Engineer of the date, time, and place of the appeal hearing at least five days prior to the hearing date. Such hearing shall be conducted not earlier than ten (10) days nor later than thirty (30) days after the filing of the notice of appeal. At the hearing, the Technical Standards Committee may consider such facts, exhibits, and engineering principles as may be presented by the appellant or the City Engineer or his Designee, or of which the members may have knowledge or experience, and may affirm, reverse or modify the decision appealed from, and attach as conditions to their decision such requirements as in their opinion may be necessary or appropriate in compliance with the policies of this ordinance to safeguard persons and property from storm water runoff. Each decision of the Technical Standards Committee shall be in writing and shall state reasons therefor. A copy of the decision shall be promptly mailed to the applicant and to the City Engineer.

B. The City Engineer or applicant aggrieved by any decision of the Technical Standards Committee may appeal such decision to the City Council. Such appeal shall be requested by notice of appeal in writing addressed to the President of the City Council and delivered to the office of the City Council within thirty (30) days after the date a copy of the decision was mailed to the applicant. Such appeal shall be heard after notice at the first available meeting of the City Council. The City Council may affirm, reverse, or modify the decision of the Technical Standards Committee.

C. There is hereby created a Technical Standards Committee, consisting of five (5) members who shall be appointed by the Mayor with the advice and consent of the City Council, and who shall serve without pay. Two (2) members shall serve for a term ending August 1, 1983, one (1) member shall serve for a term ending August 1, 1984, and two (2) members shall serve for terms ending August 1, 1985. Subsequent terms shall be for three (3) years. Four (4) of such members shall be registered in this State as professional engineers, be competent in the science of surface water hydrology, and have experience in solving surface drainage problems. The members shall select one (1) member to serve as Chairman, and

their decisions shall be by majority vote of the members attending a hearing. A quorum shall consist of three (3) members. The Technical Standards Committee shall hear and determine all appeals as provided by this section. The Committee may from time to time recommend modifications of this Ordinance to the Mayor. The City Engineer shall provide such facilities, supplies, and services, including postage, stationery and secretarial assistance, as may be required by the Committee.

(63-1982)

7-9-16 WARNING AND DISCLAIMER OF LIABILITY.

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This ordinance does not imply that land outside flood hazard areas or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the City or on any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

(63-1982)

7-9-17 INTERPRETATION.

In the interpretation and application of this ordinance, all provisions shall be:

1. Considered as minimum requirements;
2. Liberally construed in favor of the City of Albuquerque;
3. Deemed neither to limit nor repeal any other powers granted under State statutes;
4. Not deemed to repeal or limit any other ordinance adopted by the City Council unless expressly so stated herein.

(63-1982)

APPENDIX H: AMENDMENT TO THE STORM DRAINAGE FLOOD & EROSION CONTROL ORDINANCE

ORDINANCE

AMENDING SECTIONS 7-9-5 and 7-9-10 R.O. 1974; THE STORM DRAINAGE FLOOD AND EROSION CONTROL ORDINANCE; CONCERNING REGULATION OF AREAS ALLOWED AS BOTH DRAINAGE RIGHTS-OF-WAY AND AS DETACHED OPEN SPACE UNDER THE ZONING CODE.

BE IT ORDAINED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. Section 7-9-5 R.O. 1974 is hereby amended by inserting the following two definitions in appropriate alphabetical order and relettering the following subsections accordingly:

"Drainage Right-of-Way" means a public right-of-way acquired, whether in fee or in easement, by the City, County, AMAFCA, or the State of New Mexico for the primary purpose of handling storm drainage."

"Freeboard" means that part of a drainage channel that is designed to contain the wave action of the 100-year design storm.

Section 2. Section 7-9-10 R.O. 1974 is hereby amended as follows:

"10. MULTIPLE USE RIGHTS-OF-WAY AND EASEMENTS.

A. Multiple use is encouraged for drainage rights-of-way and drainage easements including, but not limited to, utility corridors and recreation trails. Where multiple use is planned by the City, another public agency, or a public utility, the City may require that dedication statements include language which permits said specified multiple uses in addition to the primary drainage function. However, land required to be dedicated for drainage rights-of-way shall be limited to those land areas necessary for drainage control, flood control, erosion control and necessary appurtenances.

B. Certain drainage rights-of-way in Sector Development Plans may be credited for Zoning Code detached open space, except for any area which is exclusively used for the drainage control or flood control function.

1. The amount of drainage right-of-way required exclusively for drainage control is defined as the width that would be necessary to contain a trapezoidal concrete-lined channel designed to convey the full 100-year design storm, including all

necessary freeboard and also the outer limits of a 12 foot maintenance road on one side of the channel. In order to receive detached open space credit for a portion of the drainage right-of-way, the developer shall be responsible for reseeding any disturbed land within the drainage right-of-way except roads, trails, and the channel which is designed or retained to carry the 100-year design storm runoff; reseeding shall be with native and naturalized plant materials in the species, amounts, and proportions of plants associated with undisturbed soils in a specific area, to the satisfaction of the Director of the City Parks and Recreation Department and the City Engineer. Upon completion of said reseeding, the developer shall also be responsible for maintaining reseeded areas until whichever comes first, the end of three years or when the City gives notice of termination of the developer's responsibility caused by governmental undertaking of significant additional development or treatment in a given area; such maintenance shall be to the satisfaction of the Director of the City Parks and Recreation Department. Subsequently, maintenance becomes the responsibility of the City.

2. Alternatively, a more intensive landscaping scheme proposed by the developer may be approved for open space credit by the Director of the City Parks and Recreation Department and the City Engineer; the developer shall then be responsible in perpetuity, for the maintenance of said landscaping.

3. Any developer maintenance obligation specified by 1 and 2 of this subsection shall be detailed by a binding legal agreement between the developer and the City specifying the type and schedule

of maintenance required by the developer. Such agreement shall be satisfactory to the Director of the City Parks and Recreation Department and the City Attorney. Such agreement shall be executed before any benefits of open space designation accrue to the developer. The City's remedies for a developer's failing to meet the obligations of the maintenance agreement include but are not limited to terminating the developer's credit for detached open space. Where appropriate, a developer's obligations may run with the land. Further detailing of these provisions may be adopted as regulations in the City's Development Process Manual. See the Zoning Code, esp. Sec. 7-14-40.H.3 R.O. 1974.

Section 3. Severability Clause. If any section, paragraph, clause or provision of this ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause or provision shall not affect the remaining provisions of this ordinance.

Section 4. Compiling Clause. This ordinance shall be incorporated in and compiled as part of the Revised Ordinances of Albuquerque, New Mexico, 1974.

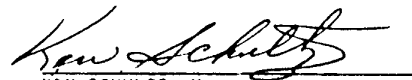
Section 5. Effective Date and Publication. This ordinance shall be effective five days after publication in full.

PASSED AND ADOPTED THIS 3rd DAY OF FEBRUARY, 1986.

BY A VOIE OF 9 FOR AND 0 AGAINST.


VINCENT E. GRILGO, President
City Council

APPROVED THIS 27th DAY OF February, 1986.


KEN SCHULTZ, Mayor
City of Albuquerque

ATTEST:


City Clerk

ZONING CODE AMENDMENTS

ORDINANCE

AMENDING SECTION 7-14-40.H.3. R.O. 1974, THE ZONING CODE, RELATING TO DETACHED OPEN SPACE IN DRAINAGE CONTROL AREAS.

BE IT ORDAINED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. Section 7-14-40.H.3. R.O. 1974 is hereby amended as follows:

"3. Detached open space offered to meet open space requirements shall be in a location designated by a Sector Development Plan either as open space or as a use listed in 5 of this subsection, unless otherwise provided in a Sector Development Plan adopted prior to December 1, 1984. The City will refuse to accept the offered property interest as detached open space if, according to other plans, policies, and regulations, it must be dedicated for public right-of-way, drainage control, or neighborhood park. Notwithstanding the previous requirement, certain portions of drainage control areas may be accepted as detached open space as provided in the Storm Drainage, Flood and Erosion Control Ordinance, Section 7-9-10.B. R.O. 1974"

Section 2. Severability Clause. If any section, paragraph, clause or provision of this ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section,

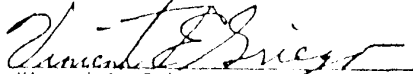
paragraph, clause or provision shall not affect the remaining provisions of this ordinance.

Section 3. Compiling Clause. This ordinance shall be incorporated in and compiled as part of the Revised Ordinances of Albuquerque, New Mexico, 1974.

Section 4. Effective Date and Publication. This ordinance shall become effective five days after publication in full.

PASSED AND ADOPTED THIS 9th DAY OF FEBRUARY, 1986.

BY A VOTE OF 9 FOR AND 0 AGAINST.


Vincent E. Griego, President
City Council

APPROVED THIS 27th DAY OF February, 1986.


Ken Schultz, Mayor
City of Albuquerque

Attest:


City Clerk

APPENDIX H: ADOPTED AMENDMENTS TO THE STORM DRAINAGE ORDINANCE AND ZONING CODE

Channelization — The City Environmental Health Department recommends that gabions not be used in arroyos in the vicinity of the foothills of the Sandias. This type of structure would provide additional harborage for the rock squirrel, which has been implicated in many bubonic plague outbreaks in the wild rodent population. The rock squirrel is the principal rodent involved in human plague cases. This squirrel is commonly found in the far northeast heights in the foothills. Providing further harborage in residential areas is not in the best interest of the citizen's of Albuquerque.

Vegetation — Preferably, the arroyo courses should be left to the natural encroachment of local species. If that is not desirable, the following shrub and grass species could be encouraged without adversely impacting the City's plague control efforts.

Shrub species:

- | | |
|-----------------|---------------------------|
| 1. Rabbitbrush | (<i>Chrysothamnus</i>) |
| 2. Snakeweed | (<i>Gutierrezia</i> sp.) |
| 3. Indigobush | (<i>Dalea</i>) |
| 4. Desertwillow | (<i>Chilopsis</i>) |
| 5. Brickellia | (<i>Brickellia</i>) |

Grass species:

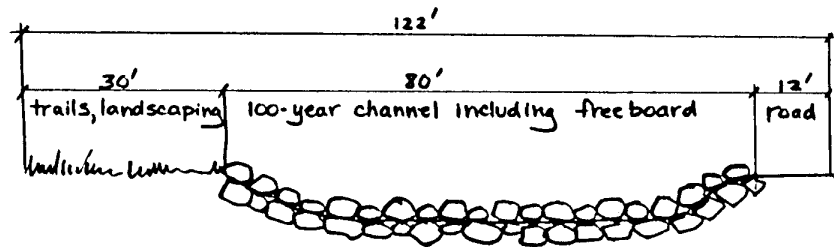
- | | |
|------------------------------|------------------------------------|
| 1. <i>Little Blue Stem</i> * | (<i>Andropogon scoparius</i>) |
| 2. Poverty Threeawn | (<i>Aristida divaricata</i>) |
| 3. Red Threeawn | (<i>Aristida longiseta</i>) |
| 4. Sixweeks Grama | (<i>Bouteloua barbata</i>) |
| 5. Burrow Grass | (<i>Scleropogon brevifolius</i>) |

* Other species of this grass are more palatable and should not be encouraged. Less expensive pasture grasses should be discouraged.

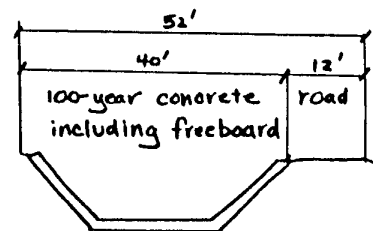
OPEN SPACE DEDICATION FORMULAS

I. MAJOR OPEN SPACE ARROYO OR LINK - "semi-natural"

A. Riprap

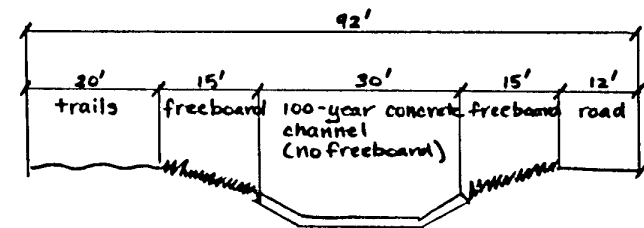


Subtract:

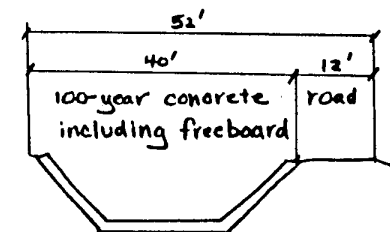


Allow: $(122 \text{ feet} - 52 \text{ feet}) = 70 \text{ feet}$
Open Space Credit
(per linear foot)

B. "Low Flow" - Freeboard in turf



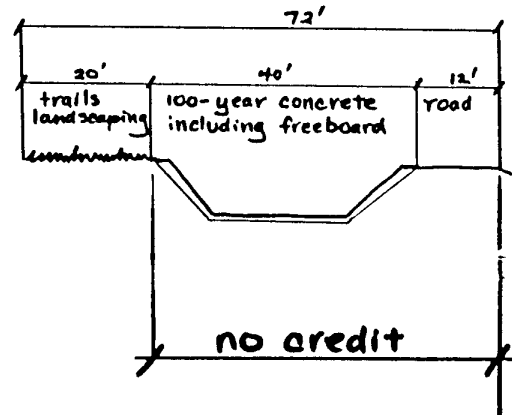
Subtract:



Allow: $(92 \text{ feet} - 52 \text{ feet}) = 40 \text{ feet}$
Open Space Credit
(per linear foot)

II: MAJOR OPEN SPACE LINK

Full 100 Year Concrete Channel Including Freeboard



Allow: 20 feet Open Space Credit
(per linear foot)

**FACILITY PLAN FOR ARROYOS
ACKNOWLEDGEMENTS**

Carl P. Rodolph, Director, Municipal Development Departments
Jack E. Leaman, City Planner
Cynthia S. Bruce, Section Chief, Advance Planning

Anne McLaughlin, Associate Planner, PROJECT PLANNER/COORDINATOR

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FACILITY PLAN FOR ARROYOS, 1985 DRAFT**

Planning Consultant
Phyllis Taylor

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Parks and Recreation Department
Open Space Division
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Parks and Recreation Department

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Open Space Division
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AMAFCA

Jim Fink
Engineering Division, M.D.D.

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Letter Perfect, Inc.

SPECIAL THANKS TO THE FOLLOWING INDIVIDUALS FOR THEIR REVIEW AND COMMENTS:

BEAUTIFICATION COMMITTEE

**GREATER ALBUQUERQUE
BICYCLING ADVISORY COMMITTEE**

OPEN SPACE ADVISORY BOARD

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Transportation Planner

OPEN SPACE TASK FORCE

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Jim Lewis
Perry Wilkes, Jr.

Lawrence S. Kline, A.I.C.P.
Herbert M. Denish and Associates
Richard E. Leonard
Executive Engineer, AMAFCA

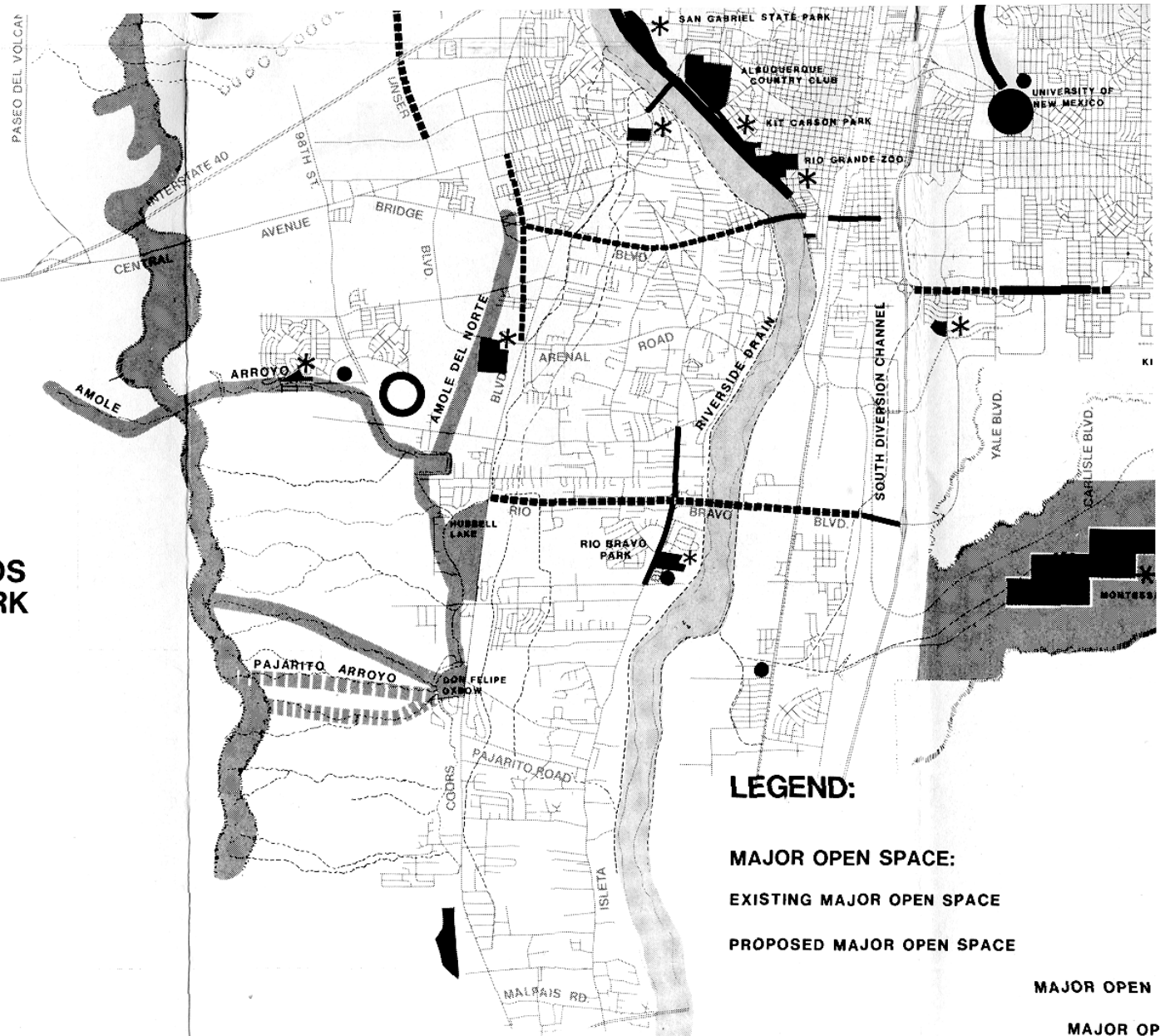
Michael Emergy, P.E.
Bohannon Huston, Inc.
Dwayne Sheppard
City Engineer, MDD

FACILITY PLAN FOR ARROYOS RECREATIONAL NETWORK FEBRUARY 1986

CITY OF ALBUQUERQUE
CITY PLANNING DEPARTMENT,
PLANNING DIVISION



BASE MAP PROVIDED BY:



LEGEND:

MAJOR OPEN SPACE:

EXISTING MAJOR OPEN SPACE

PROPOSED MAJOR OPEN SPACE

MAJOR OPEN

MAJOR OP

PARKS:

EXISTING PARKS ASSOCIATED WITH DRAINAGE

PROPOSED PARKS ASSOCIATED WITH DRAINAGE

URBAN RECREAT

