

April 26, 2005



# East Mountain Trails & Bikeways Master Plan



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**BERNALILLO COUNTY**

**BOARD OF COUNTY COMMISSIONERS**

**RESOLUTION NO. 30-2005**

1 **ADOPTING THE 2005 BERNALILLO COUNTY EAST MOUNTAIN TRAILS AND**  
2 **BIKEWAYS MASTER PLAN**

3 **WHEREAS**, the County Commission has the authority to adopt plans within Bernalillo  
4 County as authorized by New Mexico State Statute; and

5 **WHEREAS**, the Commission recognizes the need for plans to guide capital development  
6 to improve, expand and enhance levels of service, County facilities and to provide recreational  
7 opportunities; and

8 **WHEREAS**, the East Mountain Trails and Bikeways Master Plan addresses many goals  
9 of the East Mountain Area Plan (1992) that call for the establishment of trails, bikeways, an open  
10 space network, and preservation of the rural character of the area; and

11 **WHEREAS**, the East Mountain Trails and Bikeways Master Plan proposes future trail  
12 and bikeway development in the East Mountains that could link neighborhoods, commercial  
13 areas, County and City-owned open space properties, and federal lands; and

14 **WHEREAS**, the East Mountain Trails and Bikeways Master Plan will assist the County  
15 Planning Commission, County staff, neighborhoods, and developers in future subdivision design  
16 and review; and

17 **WHEREAS**, the East Mountain Trails and Bikeways Master Plan is a necessary tool for  
18 obtaining and programming future federal, state, and local funding for plan implementation; and

19 **WHEREAS**, desired trail corridors on private properties shall be secured through  
20 subdivision review and approval process, fee simple acquisition, or through easements obtained  
21 from private property owner(s); and

22 **WHEREAS**, the East Mountain Trails and Bikeways Master Plan will help coordinate  
23 the efforts of the Bernalillo County Parks and Recreation Department, Public Works Division  
24 Development Review and Road Maintenance Sections, and the County Development Review  
25 Authority regarding the establishment and maintenance of trails and bikeways in the East  
26 Mountain Area; and

1 WHEREAS, adoption and long-term implementation of the East Mountain Trails and  
2 Bikeways Master Plan is consistent with the health, safety, and welfare of the residents of the  
3 County.

4 THEREFORE, BE IT RESOLVED by the Board of County Commissioners, the  
5 governing body of Bernalillo County that:

- 6 1. The East Mountain Trails and Bikeways Master Plan attached hereto and made  
7 part hereof, is hereby adopted.

8  
9 DONE this 26 day of April, 2005.

10 BOARD OF COUNTY COMMISSIONERS

11 Alan B. Armijo  
12 Alan B. Armijo, Chair

13 E. Tim Cummins  
14 E. Tim Cummins, Vice Chair

15 Teresa L. Cordova  
16 Teresa L. Cordova, Member

17 Deanna Archuleta-Loesser  
18 Deanna Archuleta-Loesser, Member

19 Michael Brasher  
20 Michael Brasher, Member

21  
22  
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25  
26  
27 Legal Department

28 Date: 4/15/05

29  
30 ATTEST:

31 Mary Herrera

32 Mary Herrera, Clerk

33 Date: 4-26-05



# Acknowledgements



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Jackie Bouker	Pam Gravagne
Don Carnicom	Patty Jones
Kristin Clayton	Elaine Morrell
Seth Coulombe	John H. O'Malia
Charlie Ervin	Eric Russell

Finally, the Planning Team would like to thank the past, present and future community of the East Mountains area of Bernalillo County, whose input forms the bedrock of this Master Plan and for whom this Master Plan is dedicated..



# Executive Summary



Bernalillo County Parks and Recreation Department (BCPR) and Public Works Division (BCPWD) are pleased to submit the **East Mountain Trails and Bikeways Master Plan** for review and approval by the County Planning Commission and the Board of County Commissioners. Through the diligent work of lead consultant Sites-Southwest, this Master Plan has been developed to guide trail and bikeway siting, funding, design, and development in the 120,000-acre plan area of the East Mountains. Trails are intended to be multi-use for walking, hiking, bicycling, or riding horses. The plan map identifies a total of 290 linear miles of trails and bikeways that could be developed at plan build-out, which is expected to take over 10 years depending on funding. Bernalillo County trail planners, the State of New Mexico Department of Transportation (NMDOT) Bicycle, Pedestrian, and Equestrian Trail Coordinator, the East Mountain Coalition of Neighborhoods and Landowners, East Mountain residents, East Mountain developers, and elected officials are the intended plan users and beneficiaries.

The Master Plan was developed during 2004 and contains the cumulative input and analysis from:

- 300+ individuals contributing their time and opinions at public meetings, community events, and citizen steering committee meetings;
- Representatives from twelve public agencies, departments, and land grants contributing their time and expertise on a technical advisory committee;
- Numerous stakeholders contributing their time and knowledge and sharing their concerns and ideas with project planners;
- Dozens of volunteer hours conducting field surveys to locate viable trail corridors;
- Coordination with Bernalillo County staff updating the East Mountain Area Plan and

County and City staff preparing Open Space Resource Management Plans for eight Open Space properties in the East Mountains; and

- Existing plans, policies, and ordinances that provide the context and rationale for preparing the East Mountain Trails and Bikeways Master Plan.

**Proposed trail corridors** (see fold-out map in rear pocket) are identified that could physically link most neighborhoods, commercial areas, County and City-owned Open Space properties, and federal lands managed by the Sandia Ranger District through non-vehicular routes on hard-surfaces or soft-surfaces. Most trail corridors are identified on public rights-of-way controlled by NMDOT or BCPWD. Some desired trail corridors are on private properties whose owners were contacted in Fall 2004. Bernalillo County hopes to work with many of these owners by obtaining trail easements through subdivision dedication, fee-simple acquisition, or voluntary arrangements using landowner protection afforded by the New Mexico Recreational Use Statute.

When and where possible, constructing specific trail facilities as part of road improvements by BCPWD, NMDOT, or private developers will be pursued. All proposed trail and bikeway facilities are categorized as one of the following types (as described starting on page 44):

- 1) **Shared Rural Roads**
- 2) **Bike Routes with Paved Shoulders**
- 3) **Multi-Use Trails within Road Right-of-Way (*hard or soft surface*)**
- 4) **Multi-Use Soft Surface Trails in Separate Rights-of-Way or Easements**

Additional facilities identified in the plan as means to support the trail types include a) staging areas (*5-10 parking spaces + trailers*), b)

trailheads (2-5 parking spaces), c) neighborhood access points (no parking spaces), and d) major recreation use areas. The major recreation use areas are the locations where a dedicated trail use, in conjunction with an organized trail user group and a willing landowner, could occur after detailed planning and responsibilities are formally outlined in an agreement.

The major recreation use areas are proposed as a concept **in response to motorized recreational users** who enjoy ATV, motorbike, and off-road jeep use. Some of these users participated in the steering committee and public meetings. Motorized recreational uses are allowed within the Cedro Peak Recreational Area managed by the Sandia Ranger District and within the Master Plan area. Almost all proposed trail corridors are within ¼ mile of a residence, school or within NMDOT or Bernalillo County rights-of-way and are therefore currently off-limits to motorized users. Bernalillo County and NMDOT do not allow recreational motorized uses within their respective rights-of-way. County Ordinance 58-105, prohibits operation of motorized recreational vehicles within ¼ mile of any residence or school, except on private property. Development of major recreation use areas for motorized users will be facilitated by Bernalillo County only if and when such users have an established organization, commit to stewardship of the land, and are willing to enter into binding agreements with underlying landowners. The New Mexico State Legislature adopted ATV legislation in 2005 that could affect future development of motorized parks and trails.

**Future trail funding** is expected to come from federal, state, local, and possibly grant sources listed below. Adoption of this Master Plan by the Board of County Commissioners and inclusion of identified NMDOT and BCPWD maintained roads in the MRCOG's Transportation Improvement Program are necessary requirements for funding by federal and state sources.

- **Federal** – Transportation Equity Act for the 21<sup>st</sup> Century and its successor (*subject to Congressional approval in 2005*), Surface Transportation Program Enhancements, Congestion Mitigation and Air Quality, National Highway System, and Recreational Trails Federal Grant Program
- **State** – New Mexico Legislative Capital Outlay or Memorial appropriation bills, Land and Water Conservation Fund
- **Local** – Bernalillo County's "Five Percent Trail Set Aside" Ordinance (Chapter 2, Article 4), East Mountain Park Impact Fees (Chapter 46)

**Trail corridor projects are prioritized** in the Master Plan, but priorities are intended to be flexible in order to respond to segment-specific funding or road rehabilitation opportunities, private sector development timing or growth pressures, and public demand. The top three area segments for implementation are Frost Road, Gutierrez Canyon Road, and Juan Tomas Road.

**Future trail development implementation** will be an on-going process. BCPR has received not only formal support for the Master Plan from the East Mountain Coalition of Neighborhoods and Landowner Associations, but has also secured their commitment to serve as a Trails Advocacy Committee. It is envisioned that over the long-term, the Trails Advisory Committee will work with BCPR and BCPWD on designing trail segments, pursuing trail development funds, serving as "eyes and ears" on trail maintenance and enforcement issues, serving as a liaison to neighborhood associations, and developing a trail steward program. The National Park Service Rivers, Trails and Conservation Assistance Program has agreed to work with BCPR and the East Mountain Coalition in 2005 to facilitate their involvement in plan implementation.



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# Chapter I. Introduction



Bernalillo County Parks & Recreation Department and Public Works Division initiated the preparation of the East Mountain Trails and Bikeways Master Plan in 2003. The plan is in response to residential growth in the area, a recommendation in the East Mountain Area Plan, and a request by the Greater Albuquerque Recreational Trails Committee (GARTC), which has representatives from unincorporated Bernalillo County.

The intent of the Master Plan is to identify major trail and bikeway corridors and pivotal links between those corridors and major public Open Space areas and civic destinations for walking, hiking, bicycling, and riding horses. Over the long term, implementation of the plan will result in a network of connections between residential areas, commercial nodes, and public lands managed by the United States Forest Service, City of Albuquerque and Bernalillo County. The plan attempts to accommodate all user groups within the proposed system, although not on every trail.

Rights-of-way for County-maintained roads, state-maintained routes, or utility easements are expected to be locations for some trail corridors. Drainage easements and some private roads may offer other possibilities. Finally, in some instances, private lands may be the only route for key links. Potential links were analyzed to determine the viability of securing public access through land purchase, easement acquisition, or other creative means.

Adoption of the East Mountain Trails and Bikeways Master Plan will assist Bernalillo County staff, developers, and neighborhoods in the subdivision design, review, and approval processes. The Master Plan will also be helpful in securing future state and federal funds for trail development and construction, and in prioritizing "Five Percent Set-Aside" funds dedicated to

County trail and bikeway development per Bernalillo County Code 2-241.

## Section A. Background and Context

The East Mountain Area is a predominantly rural collection of communities on the eastern side of the Sandia and Manzanita Mountains in eastern Bernalillo County. The mountains form the western boundary of the area's 316 square miles of piñon-juniper foothills and grasslands, except for a wide swath that cuts through Tijeras Canyon along I-40 until it reaches the Albuquerque City limits on the west. The area is also bounded on the west by Kirtland Air Force Base. To the east, the area extends to the Santa Fe County and Tarrant County lines just east of NM 217 (Mountain Valley Road). Its border to the north is Sandoval County and to the south is the Chilili Land Grant and Isleta Pueblo.

Historically, Native Americans and Spanish settlers traveled through Tijeras Canyon to reach timber forests and hunting and trading areas. Their historic villages were San Antonio, the early population and religious center of the Cañon de Carnuel Land Grant, Carnuel, Tijeras, Cañoncito, San Antonito, Sedillo, Chilili, Escabosa, and Juan Tomas. Water for some of the communities was developed from the springs at San Antonio (now the site of Ojito Open Space), Cole Springs (near Cañoncito), and La Cienega (near San Antonito). Other communities engaged in dryland farming. (EMAP 1992.)

The area later developed with seasonal homes and cabins for city residents seeking relief from the seasonal heat and for tuberculosis patients seeking cures in the cold, dry climate. Over time, the East Mountain Area has primarily grown into an expanding bedroom community for people who work in Albuquerque and even Santa Fe, with average lot sizes of two acres or more.

The area also is a destination for tourists and recreational users. The Sandia and Manzanita Mountains attract picnickers, hikers, runners, road cyclists, mountain bikers, motorcyclists, equestrians, and jeep and all-terrain vehicles drivers during the warm months. The Sandia Ski Area and Cibola National Forest offer trails and runs for downhill and cross country skiing, as well as sledding and snowshoeing in the winter months. Bicyclists and roller skiers tour and race along NM 14, Frost Road, NM 333 and other major corridors. The paved path along NM 14 offers leisure opportunities for dog walkers, joggers, and casual cyclists.

Two major roadways intersect in the Village of Tijeras (the Spanish name for scissors), roughly dividing the East Mountain Area into four quadrants. Interstate 40, which replaced Old Route 66 (renamed NM 333 or the “I-40 frontage road”) bisects the area from east to west. NM 14/NM 337 form the major north-south spine (and is still referred to as North and South 14). Most of the commercial activities and public institutions such as the schools, post offices, and library are located along NM 14/337, with a few establishments dotting the frontage road on NM 333.

With no public transportation available, residents depend upon personal vehicles, private van services, or their own foot power to go places. A rudimentary spine of a trail and bikeways system is in place. There are wide shoulders along NM 333 from Albuquerque to Tijeras and along parts of other roads. There are shoulders and asphalt path along NM 14 from Tijeras to Frost Road. Recently Bernalillo County constructed an asphalt path along NM 14 from San Antonito Elementary School to Vista Grande Community Center. Sidewalks are non-existent in rural parts of the Project Area and many unpaved rural roads also serve as trail facilities for many users.

Residents travel on informal dirt paths on both sides of Frost Road and through various parcels of public and private land in the area. The Cibola

National Forest also maintains a network of trails on their land both north and south of I-40. There remains, however, a lack of formal trail and bikeway connections to schools and other public facilities and open space properties, sufficient shoulders on many roads, trail access, and safe crossings that would create a truly inter-connective trails and bikeways system.

## Section B. Project History

East Mountain residents have long desired to preserve what they consider a rural lifestyle and atmosphere. This is broadly defined as large-lot development, privacy and independence, open spaces and dark skies. It also embraces room for farm animals and agriculture, conservation of water and wildlife habitat, and small-scale commercial development. To this end, a steering committee of area citizens worked with Bernalillo County to develop the East Mountain Area Plan, (EMAP 1992) which was adopted in 1992. Area plans cover diverse, major geographic parts of the metropolitan area, typically 15 or more square miles, and specify important development standards, key land use, utility and public facility development. The EMAP is currently in the process of being updated by the Bernalillo County Zoning, Building and Planning Department and is scheduled for completion and adoption in 2005. EMAP Planners prepared a Quality of Life Survey in early 2004 for East Mountain residents as part of the EMAP update. Over 75% of respondents said their families use Cibola National Forest trails. Many respondents also noted their desire for more trails and cited trails and Open Space as reasons why they live in the East Mountains.

The EMAP called for creating a multi-use network of open spaces and trail corridors. It advocated developing pedestrian and bicycle trails separated from traffic lanes on roadways. It also recommended a few general places for trails to be completed—for example, multi-use trails on the graded gravel pit and recreational use on

Sections 15 and 16 south of I-40. The plan did not specifically identify where this multi-use network of trails should be located, however, or how it should be designed or funded. The Albuquerque Trails and Bikeways Facility Plan (1993), moreover, stopped short of planning for trail corridors in the East Mountains, deferring to the EMAP. This East Mountain Trails and Bikeways Master Plan fulfills the EMAP recommendations and completes trail planning for the populated areas of Bernalillo County.

Since the EMAP adoption in 1992, several road shoulders were widened by the NM Department of Transportation. The paved trail segment was completed from San Antonito Elementary to Vista Grande Community Center. County government officials and staff, however, felt that further expansion would benefit from a more comprehensive process that involved citizens in creating a master plan for a proposed trails network. The master plan process would work with citizens to document existing trails, locate new trails, and prioritize and program trail segments for funding and construction. It would also complement the 2004 revision of the EMAP as well as the development of site-specific Open Space resource management plans for nine County and City-owned properties, which were also prepared in 2003 – 04.

Due to the popularity and increased use by motorized users (ATV's and motorbikes) in recent years, and because these uses are allowed on many national forest lands, this Master Plan attempts to acknowledge and incorporate existing and potential motorized use. Motorized uses generate significant positive and negative opinions. The Planning Team has attempted to address this issue in a way that is sensitive to existing land management and neighborhood concerns and meaningful for motorized enthusiasts.

Bernalillo County wrote and received a technical assistance grant from the National Park Service Rivers, Trails, and Conservation Assistance

Program, to help develop a planning process and resource management plans for four County-owned East Mountain Open Space properties (Carlito Springs, Ojito de San Antonio, Sedillo Ridge and Sabino Canyon) and five City-owned East Mountain Open Space properties (San Antonito, Gutierrez Canyon, Juan Tomas, Golden, Tres Pistolas).

In part to complement the open space effort, and in response to recommendations in the EMAP, the preparation of the East Mountain Trails and Bikeways Master Plan began in late 2003. Through a competitive process in 2003, the County selected the Albuquerque design firm of Sites Southwest to prepare the Master Plan. Karen Aspelin from Parsons Brinckerhoff and trails consultant Diane Scena were also on the team.

## Section C. Planning Area

The planning area for the project is approximately 120,000 acres located in the eastern part of Bernalillo County (see Figure 1) (the "Master Plan Area") approximately half of which are in the National Forest. The boundaries of the Project Area are defined in the north by Santa Fe County, in the east by Santa Fe County and Torrance County, in the south by the old Chilili Land Grant boundary, and in the west by the City of Albuquerque, Sandia National Laboratories, Kirtland Air Force Base, Department of Energy (including the Department of Defense Withdrawal Areas in National Forest lands in the Manzanitas Mountains), and Isleta Pueblo. Lands managed by the U. S. Forest Service, the New Mexico State Land Office, Bernalillo County Open Space, City of Albuquerque Open Space Division, and Albuquerque Public Schools are included in the Master Plan Area. Most of these agencies have management plans for the lands under their stewardship that the Master Plan integrates as appropriate.

Figure 1. Vicinity Map



## Section D. List of Terms and Acronyms

A list of terms and acronyms for the project is contained in Appendix A and Appendix B.

## Section E. Plan Organization

The East Mountain Trails and Bikeways Master Plan (EMTBP) contains six chapters. After this introductory chapter, Chapter 2 outlines the policy context of relevant and adopted plans and ordinances that affect this Master Plan. Public involvement in the planning process is also described. Chapter 3 describes the existing physical conditions and context of the East Mountains. Specific plan proposals and actions are contained in the heart of the Master Plan in Chapter 4. Finally, Chapter 5 contains phasing and implementation steps. A large format plan map may be found in the pocket at the end of the document. Technical appendices are packaged separately and contain all technical and background information used to prepare the plan.

## Chapter II. Policy Context & Public Involvement



### Section A. Applicable Policies and Plans

Many adopted plans govern or guide the development of the East Mountain Trails and Bikeways Master Plan. Most of these documents call for the creation of a system of open space, parks and trails, with inter-connected bicycle and trail networks joining origins and destinations, both for recreation and transportation. They support improved safety, efficiency and choice for non-motorized transportation alternatives. They encourage opportunities for joint management and funding.

#### 1. Plans adopted by Bernalillo County

**Albuquerque/Bernalillo County Comprehensive Plan (1988, amendments through 2002)** This Rank I plan provides guidelines for land use, environmental and resource management. It emphasizes the need to link parks, open space and trails throughout the County.

**East Mountain Area Plan (1992)** An update of this Plan is underway in 2005. The plan was "developed to guide future development by addressing resource preservation, commercial development in designated areas, maintenance of the area's rural character, wastewater regulation requirements and environmental protection." It contains policy and specific recommendations. The goals and objectives make numerous references to the development of a bicycle and trail network. The East Mountain Trails and Bikeways Master Plan fulfills a recommendation of the EMAP.

#### **Bernalillo County Parks and Recreation Parks, Open Space and Trails (POST)**

**Masterplan 2003 -2010** This Plan was adopted October 14, 2003. The plan will guide the County over the next seven years in developing new facilities, improving existing facilities and securing project funding. The plan envisions "an interconnected system of parks, open space and trails that facilitates active and passive recreation opportunities," as well as "encouraging bicycling and walking as transportation modes and as a means of fitness." It also contains an excellent and extensive overview of existing plans and policies, including the Albuquerque/Bernalillo County Comprehensive Plan, Major Public Open Space Facility Plan, East Mountain Area Plan and the Trails and Bikeways Facility Plan (City of Albuquerque), relevant portions of which were incorporated into this review. The East Mountain Trail and Bikeways Master Plan is a key part of implementing the POST.

#### **Trails and Bikeways Facility Plan (1993, 1996)**

The City of Albuquerque and Bernalillo County adopted this plan in 1993 and updated the map in 1996. This plan addresses policy, standards and trail locations. It calls for development of a metropolitan area-wide bicycle and multi-use trail system and outlines policy for future trail and bikeway development and usage. Design standards and objectives for various types of users and locations are included. Proposed revisions to design standards are currently being reviewed. The TBFP did not address trails in the East Mountain Area, stating "Policies for trail development in the East Mountain Area are contained in the East Mountain Area Plan."

#### **East Mountain Open Space Resource Management Plans (2004)**

Separate site-specific plans are currently being developed for each County and City open space property in the East Mountains. The plans will

propose appropriate uses and management strategies, including resource-based recreation, trails and trail access, for each of the nine City and County Open Space properties in the East Mountain Area. To date, plans are underway and site specific trails and access points are incorporated into the East Mountain Trails and Bikeways Master Plan.

#### **Major Public Open Space Facility Plan (1999)**

The Albuquerque City Council and the Bernalillo County Commission adopted this plan in January 1999. The plan establishes policy for planning, land use decisions and management of the Major Public Open Space (MPOS) System and includes a section on Major Public Open Space in the East Mountains. Page 66, Policy B.1.b. states: "Provide opportunities for outdoor education and recreation including picnicking, trails for multiple users and forest-based environmental education." Page 68, Policy D.5. states: "The city shall investigate opportunities for trail linkages, joint management and/or funding of East Mountain MPOS facilities with the National Forest, Bernalillo County, and other agencies which provide environmental education."

#### **2025 Metropolitan Transportation Plan (MTP) for the Albuquerque Metropolitan Planning Area**

The Mid-Region Council of Governments (MRCOG) approved this plan in May 2003 and updates it every three years. This 20-year plan is developed based on input from its member agencies and includes policy and funding designations for transportation projects within the Albuquerque Metropolitan Planning Area. The Planning Area includes the East Mountains, but has few specific recommendations affecting it. The goals of the plan support the development of an integrated multi-modal transportation system. It includes the 2004-2009 Transportation Improvement Program (TIP), which details federal funding for the first six years of the MTP. Adoption of the EMTBP and integration into the MTP could result in future funding for trails.

**Long-Range Bikeway System Map (2004)** This map is developed by MRCOG to reflect long-range policy for bicycle facilities in the Albuquerque Metropolitan Planning Area and to provide a framework for developing the long-range Metropolitan Transportation Plan and short-range Transportation Improvement Programs. It currently is being revised and expanded to a broader regional system perspective to provide greater regional connectivity. It will incorporate trails identified in the final adopted East Mountain Trails and Bikeways Master Plan.

#### **Bernalillo County Ordinance 58-105 Operation of Motorized Vehicle in Certain Areas**

This ordinance prohibits the use of motorized recreational vehicles on County lands within a quarter of a mile from a residence, school, hospital or convalescent home.

#### **New Mexico Public Recreation Statute**

This statute eliminates the liability of private landowners for public recreation use of private land. See Technical Appendix for the full statute.

## **2. Other Relevant Planning Documents**

These documents provide relevant information regarding development of facilities, including alignment, destinations, design standards and management, within and adjacent to the East Mountain Trails and Bikeways Master Plan area.

#### **Cibola National Forest Land and Resource Management Plan (Forest Plan) as amended 1990 & 1996**

This plan defines the long-term direction for managing the Cibola National Forest. As such, it prescribes types and degrees of development for recreational use on the Cibola National Forest. A significant portion of the Forest within the East Mountains is federally designated Wilderness, which precludes mechanized and motorized use. Environmental Analyses and Decision Notices which were completed after the initial publication of the



Forest Plan have been incorporated as amendments (e.g. the *Ecosystem Management Plan for Lands in and Adjacent to the Military Withdrawal*).

**Santa Fe County Open Land and Trails Plan for the Wildlife, Mountains, Trails, and Historic Places Program (2000)** This plan establishes “long-range strategies for open land and trails conservation in Santa Fe County, and guidance “to evaluate, acquire, develop and manage parks, open lands and trails.” Goals for the trail system include building and enhancing a county-wide network of trails and protecting historic trails. The map of proposed trail corridors shows mile-wide trail corridors. The first major north-south trail link proposed is from Pojoaque to Edgewood, but the alignment shown is distant from the Bernalillo County line. More recently, the Town of Edgewood has been developing a trails plan to which the East Mountain Trails and Bikeways Master Plan could connect.

**Turquoise Trail Corridor Management Plan (1999, Version 1)** calls for a pedestrian trail, bike trail and cross country ski trail master plan and parking areas for biking trailheads along NM 14. These trailheads could connect to facilities proposed in the East Mountain Trails and Bikeways Master Plan.

**Campbell Ranch Master Plan (2000)** As originally submitted to Bernalillo County, this plan called for the creation of a multi-purpose trail network, including regional, village and neighborhood trails which would provide recreational and leisure opportunities and common space. Two regional trails were proposed: an east-west trail located in the southern part of the development across NM 14, linking the Cibola National Forest land with open space and two proposed villages, and a north-south trail along the east side of NM 14. The area subsequently was annexed by the Town of Edgewood. Campbell Corporation is now

preparing public improvements districts for the provision of water, sewer, law enforcement, etc.

**NM Bicycle - Pedestrian - Equestrian Advisory Plan (2003)** Developed by the Bicycle-Pedestrian-Equestrian (BPE) Advisory Committee of the New Mexico Department of Transportation (NMDOT), this plan provides guidelines for use by the NMDOT and county and municipal governments in the design and implementation of non-motorized transportation facilities. “NMDOT, FHWA and the BPE are committed to integrating bicycle, pedestrian and equestrian accommodations as a routine part of planning, designing and constructing...NM’s transportation system.” There are no specific commitments to facility locations in the East Mountains.

## Section B. Community Process and Public Involvement

The planning process for the East Mountain Trails and Bikeways Master Plan was designed to gather specific public input from East Mountain residents and individuals and groups mostly likely to use the future trail system. The team developed a multi-prong approach to informing and involving the public in the planning process. The initial strategy was to draw people into the planning process early to obtain information about what trails and bikeways they currently use, what starting places and destinations they would like to be linked in the future, and other issues and concerns they might have. The project team could then concentrate on exploring the feasibility and design of the trail system based on this information.

To accomplish this, the project team did the following:

- Established a volunteer Citizen’s Steering Committee comprising representatives from various use groups (hikers, motor bikers, mountain and road bicyclists, runners, cross-

country skiers, equestrians, and off-highway vehicle enthusiasts) to help guide the process, verify potential trail corridors in the field, and spread the word. The majority of committee members were residents of the East Mountain Area.

- Established a Technical Team of project stakeholders, such as the NM Department of Transportation, the U S Forest Service and Public Service Company of New Mexico to guide decisions and enhance cooperation in trail selection and design.
- Developed a mailing list of stakeholders, neighborhood association representatives in County Commission District Five, and other interested persons to notify about meetings and other opportunities for involvement.
- Developed a list of media contacts, including school newsletters
- Posted a web page on the County website to explain the project and present updates, maps and surveys used in the planning process.
- Discussed the project with over 20 stakeholder groups (listed in Section 3. below).

The Technical contains the agendas, sign-in sheets and summaries for each meeting held as part of the public process. The Technical Appendix contains a print-out of the web pages for the project.

## 1. Steering and Technical Committee Meetings

The Steering and Technical Committees met early in the process to define issues and concerns that the project should address as well as to map their knowledge about existing conditions and future plans. In a guided exercise, the Steering Committee expressed their opinions on trail design, the outline of the future trail system, management issues, user conflicts, and limits to access. The Technical Team addressed these issues as well as potential resources, easement opportunities, planning coordination,

safety issues, and the potential for teaching and interpretation. The plan's goals and objectives as well as the initial map of existing potential trails grew out of these discussions.

Both groups continued to meet several more times throughout the process—two in joint meetings—to provide guidance and information. During the subsequent meetings, Steering Committee and Technical Team members helped further define important trail corridors and nodes as they reported on small group meetings held with such stakeholders as the Greater Albuquerque Recreational Trails Committee (GARTC), the National Forest, and the Village of Tijeras. They also helped develop and further refine the User Matrix (see Table 2 and Table 3), which attempts to capture information on various dimensions essential to specific uses and trail compatibility, such as hiking, mountain biking or off-road vehicle use. Finally, both groups assisted in the fieldwork necessary to determine the proposed corridors, links and other facilities in the Master Plan.

Both groups have given valuable information and advice regarding opportunities and constraints of various trail corridors and access points. Members also were active in identifying trails along key corridors to public open space in order to complete the network envisioned by the plan.

## 2. Public Meetings

Three public meetings were held in the East Mountain Area to elicit proposals for and selection of trails and bikeways for the Master Plan network. In addition, the project team staffed a booth at East Mountain Pride Day on April 25, 2004, to provide more opportunity for residents to view and comment on proposed trail corridors and access points.

- January 29, 2004 Public Meeting For the first public meeting, a project description and invitation from Bernalillo County Commissioner Michael Brasher were mailed

to persons on the stakeholder and neighborhood association mailing lists. The team distributed 1,000 flyers to the three local APS schools to place in the student backpacks and delivered them to local businesses for posting. Flyers were also placed at Los Vecinos and Vista Grande Community Centers and emailed to the East Mountain High School, which emails information to parents. In addition contacts were made and press releases sent to the two local newspapers *The Independent* and *Mountainview Telegraph*. The effort drew more than 100 people to the first public meeting—a quarter from Albuquerque—on January 29, 2004. Attendees who signed in at the meeting were added to the mailing list for future communications.



January 29 Public Meeting

At the meeting, participants identified existing trails and obstacles on a map and indicated where obstacles existed. They also indicated starting points and destinations they would like to see linked by trails and suggested locations for potential future trails and bikeways both on the maps and a survey form.

For subsequent meetings, the team distributed notices to the mailing list, school newsletters, and the media. Fliers were also posted at businesses in the East Mountain Area.

- April 6, 2004 Public Meeting The second public meeting attracted approximately 60 members of the public—20 percent from Albuquerque. Participants split into three smaller, mixed-user groups to discuss what characteristics of the landscape and general environment were of key importance to their particular use. They also examined potential negative impacts of their use and prioritized proposed trail corridors. Their comments were compiled and further verified to create the User Matrix on page 37. In addition, many attendees filled out a survey indicating whether they agreed or disagreed with the proposed goals and objectives for the Master Plan, which were derived from earlier public input. The goals and objectives presented on page 10 reflect their input.

- October 27, 2004 Public Meeting. The final public meeting drew approximately 100 members of the community -- 30 percent from Albuquerque. In an open house format, the planning team presented the draft Master Plan in conjunction with the draft Open Space Resource Management Plans. The public was asked to comment on the plan and identify priority areas for implementation.

Many Open House attendees were property owners who were contacted in writing about the draft trail plan because potential trail corridors were identified on their properties. Responses ranged from support to indifference to anger. The project team evaluated each situation independently, but within the context of the overall proposed trail network, and revised the plan map accordingly.

In addition to commenting at the October 27 Open House, the public had the opportunity to view the draft plan at the East Mountain Library, Los Vecinos and Vista Grande Community Centers, or on-line at the projects web site housed at [www.bernco.gov](http://www.bernco.gov).

Comments on this draft were accepted until November 24, 2004 at which time the project team started making revisions to be incorporated into the final draft that was submitted for formal Bernalillo County approval by the County Planning Commission and the Board of County Commissioners.



October 27 Public Meeting

### 3. Stakeholder Involvement

The project team met individually with various stakeholders to develop a collaborative working relationship and understanding of management concerns and to work out specific details of the trail system. Team members also made presentations to various interest groups such as the Greater Albuquerque Recreational Trails Committee and City and County open space advisory bodies, to keep them informed of the process and solicit any comments.

The project Team met with the following stakeholders

- Cibola National Forest
- National Park Service RTCA
- NM Department of Transportation
- NM State Land Office
- NM Department of Mining and Natural Resources/Game and Fish Division
- Greater Albuquerque Recreational Trails Committee (GARTC)
- Acequia Madre de San Antonio Community Ditch Association
- Bernalillo County Open Space Advisory Committee
- Bernalillo County Fire Department
- Village of Tijeras
- City of Albuquerque Open Space Division
- Albuquerque Public Schools
- Town of Edgewood
- Campbell Corporation
- Roger Cox and Associates (Paa-Ko Subdivision)
- Sandia Mountain Natural History Center
- Museum of Archaeology and Material Culture
- Carnuel Land Grant
- Private Property Owners (as requested)
- Public Service Company of New Mexico

## Section C. Goals and Objectives

The following goals and objectives were identified from the public process and interactions with various stakeholders.

### 1. Create an interconnected system of multi-use trails and bikeways.

- Provide local trail/bikeway connections between residential communities and civic and commercial activity centers such as schools, post offices, stores and restaurants.
- Link public open spaces and parks by trails/bikeways.
- Provide trail/bikeway connections to trail systems maintained by other government or private entities.
- Develop loop trails or bikeways that provide a north-south corridor across the area and that connect Albuquerque to the East Mountain Area.
- Identify regional trail and bikeway connections (i.e., to Golden, Madrid and Santa Fe).
- Use a range of options such as bike lanes, ASHTO shoulders, paved and

soft-surface off-road trails to complete trail connections.

- Remove obstacles or improve difficult crossings in currently used trails/bikeways.
- Make use of rights-of-way where possible, such as arroyos, utility easements, abandoned railways and roadways, to create the trail system.
- Use existing infrastructure and trails whenever feasible.
- Provide trailhead parking and staging areas for the trails and bikeways system.
- Explore opportunities for trail development on private properties using the New Mexico Recreational Use Statute concerning easement for fee-simple land acquisition.
- Educate private property owners about New Mexico Recreational Use Statute.
- Consider trail connections that can double as fire breaks or emergency exits.

## **2. Where feasible: accommodate the full range of users within the trail and roadway system.**

- Investigate and balance the needs and desires of current and future users in working to maximize the safe use and enjoyment of the trails and bikeways system.
- Address user conflicts, particularly motorized and non-motorized uses, through trail design, appropriate user designation, and other strategies.
- Incorporate research on projected trends in trail use.
- Make trails handicap-accessible where feasible and develop criteria for identifying which trails will accommodate the physically challenged.
- Have trails serve as secondary access routes for fire protection.
- Serve local residents, metro-area recreational users and tourist/visitors.

## **3. Identify appropriate trail design standards for the trail and bikeway system.**

- Design trails to ensure safety of users. Separate trails for use by children and equestrians from the roadway as much as feasible.
- Make provisions for wildlife crossings and conservation of wildlife habitat when locating trail routes.
- Minimize the trails and bikeways system's impact on the environment.
- Ensure that the trail and bikeway uses are compatible with adjacent neighborhoods.
- Minimize trail and bikeway maintenance requirements.
- Provide for handicap accessibility to the trails and bikeways system.
- Recommend strategies to encourage respect and courtesy among various users, such as driver/bicyclist awareness that includes "Share the Road" signs.
- Address issues of utility line clearance in locating and designing trails.
- Address line-of-sight and visibility issues in locating and designing trails.
- Clearly designate trail crossings of roads and make improvements to enhance safety.
- Work with Bernalillo County Public Works to incorporate trail or bikeway sections on roads that have to be paved to comply with fugitive dust control requirements.
- Incorporate natural elements for paved multi-use trails.

## **4. Develop an implementation strategy for the trails and bikeways.**

- Assign primary responsibility for plan implementation to Bernalillo County Parks and Recreation Department.
- Acquire land or easements that will be needed for parking and staging areas.

- Contact identified public and private entities to secure permission to use staging areas or trailheads.
- Provide appropriate signage along routes and at trailheads.
- Work with other governmental agencies—local, state, and federal—to coordinate planning efforts in the development and signage of new trail facilities.
- Set priorities for which trail segments are to be developed first.
- Consider potential opportunities for private development to contribute needed rights-of-way and assist in trail development.
- Identify a variety of possible funding sources for trails and bikeways.
- Form partnerships with appropriate organizations and agencies, such as Talking Talons Youth Leadership and the East Mountain Historical Society, to help create trails and provide interpretive and educational information.

## **5. Maintain and manage trail and bikeway facilities to keep them in good working order.**

- Assign responsibilities for maintaining trails during the design process and after construction occurs.
- Identify potential sources and seek funding for maintenance.
- Recommend strategies to prevent damage to or loss of trails and bikeways.
- Implement a trails stewardship program to help maintain trails and bikeways.
- Form partnerships with other organizations that may be interested in helping maintain trails, such as user groups.
- Identify opportunities for cooperation and shared resources among agencies.

## **6. Publicize the trail system to potential users and as a regional attraction.**

- Develop brochure map of the trail and bikeway system.
- Distribute brochure through placement at Open Space areas, trail access points and public destination points (e.g., post offices, schools, etc.)
- Coordinate with all economic development and tourism agencies to distribute information regarding the trail system.
- Develop appropriate signage for trails, bikeways and trail access facilities.
- Work with user groups to publicize the trail and bikeway system and promote responsible use.
- Develop and distribute information about safe and courteous use and protection of all resources.

## **7. Create an advisory board that includes representatives of formal user group associations that represent various user groups of East Mountain Area trails and bikeways to facilitate long-term plan implementation.**

- Encourage all trail user groups, including motorized users, to organize into formal user associations that can work with federal, state and local government departments.
- Work with user associations to develop and manage segments of the trail system which are targeted for particular user groups, including potential joint ownership and management of recreational use lands and trail easements.
- Establish a process for board and user associations to assist managers in resolving potential user conflicts and developing trail use education programs and signage.
- Encourage self-policing by user associations.

## **8. Work with private landowners and/or agencies whose land lies within potential trail corridors.**

- Notify affected private landowners and keep them informed of status of trail corridors.
- Inform private landowners of County's commitment not to seek land or trail easements through condemnation process.
- Secure trail easements from relevant private-land owners over the long term through negotiation or development review processes.
- Educate private landowners about the New Mexico Public Recreation Statute.

## **9. Preserve Rural Character and Quality of Life.**

- Respect privacy and interest of rural residents by limiting trail corridors over private land to areas necessary to gain access to public open space areas or reduce fire hazard.
- Respect the privacy and solitude of residents, many of whom moved to the East Mountains area to be away from traffic, people and urban influences.
- Preserve historic function of dirt and gravel roads as trails connecting residents to various open spaces and other resources within the community.
- Maintain public access to open space resources.





## Chapter III. Existing Conditions & Analysis



The East Mountain Area is one of the last remaining predominantly rural areas in Bernalillo County. Nearly half the acreage in the Project Area is public open space land, and typical rural extractive land uses do occur. Much of the area remains wooded and is used for grazing. The Project Area has a long history of agrarian settlement dating back to Native American Pueblo and Hispano communities in the Tijeras Canyon, San Antonio Arroyo, and San Pedro Creek.

Today, however, the Project Area is undergoing rapid change in the form of residential development. The Sandia, Manzanita, and Manzano Mountain chains have traditionally separated communities on the east side of the mountains from Albuquerque and other communities in the Rio Grande Valley, and thereby fostered an independent and rural lifestyle in the area. Increasing scarcity of developable land on the east side of Albuquerque, dependency on automobiles and accompanying modern road networks, and recent trends in residential development that value proximity to open space areas have brought considerable change. A landscape of rural living is in the process of being changed by urban commuters and second homes.

Trails have long functioned in the East Mountains as important connections in the rural landscape for transportation, communication and recreation. As the population has increased, many of these trails have been converted into roads or private access easements.

### Section A. Natural Environment

The geology, topography, soils and natural

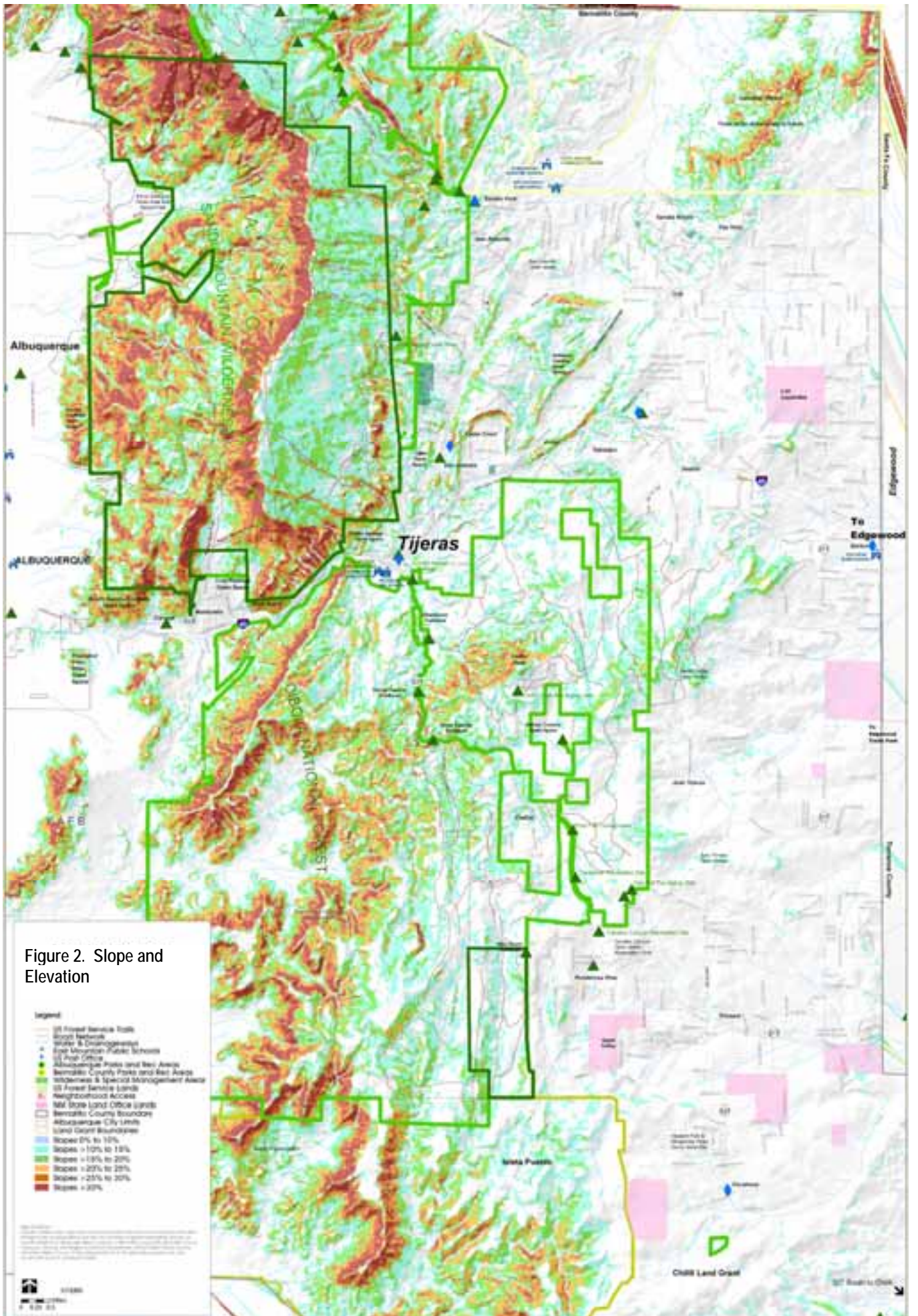
systems are typical of the east side of the Rio Grande rift. The creation of the rift resulted in formation of both the Sandia and Manzano Mountains. The abrupt change in elevation has benefited the Project Area with higher rates of precipitation than nearby Albuquerque.

#### 1. Topography

There is considerable topographical variation in the Project Area, with the elevation and slopes of the Sandia, Manzanita and Manzano Mountains on the western edge, the flatness of the high plains on the eastern edge, and the smaller chains of mountains and foothills, including Cedro Peak, San Antonio and Monte Largo areas. Canyons and arroyos cut by seasonal runoff and perennial streams have added even more variation to the land forms. Elevation ranges from over 10,500 feet above sea level along Sandia Crest to approximately 6,500 feet at the eastern County boundary. Topographic diversity provides the potential for different trail experiences and interpretive opportunities, but presents a challenge to functional trail construction.

#### 2. Slopes

Although the eastern slopes of the Sandias are much gentler than the western face, there are still a number of areas with steep slopes, especially along canyons. Slopes greater than 30 percent are problematic for trail construction for any use because of the potential for trail erosion and deterioration. Areas with 15 percent or greater slopes are problematic for trails for motorized use. Areas with problematic slopes are shown in Figure 2.



### 3. Soils

The soils in the area fall into approximately two categories:

1. Rock outcrops and rocky soils such as those in the Borolls, Escabosa, Kolob, La Porte, Pino, and Rock Outcrop series, which are typically found in the mountainous areas.
2. Alluvial soils such as those in the Bluepoint, Brazito, Burnac, Carlito, Embudo, Gila, Kolob, La Fonda, Salas, Sandia, Scholle, Seis, Silver, Tesajo, Tijeras and Wink series, which are typically found on the mesa, high plains and riparian areas. High clay content soils such as those in the Bluepoint series and rock content soils such as those in the Borolls, La Porte, Kolob, and Rock Outcrop series present challenges to trail construction for most users. Rock outcrop areas with little or no vegetation are preferable for off-road vehicle (Jeep) users.

Figure 4 shows areas with soils that will not readily support trails in red, Category 1, and areas with moderate challenges to trail construction in orange, Category 2, and areas with no limitation for trails in blue, Category 3.

### 4. Hydrology

The Project Area has a number of arroyos, which have cut beautiful canyons. The most notable of these are the Tijeras Arroyo, the San Antonio Arroyo, San Pedro Creek, and the Otero Canyon Arroyo. Some of the arroyos have sources in springs such as Carlito Springs, Ojito and Tres Pistolas. These hydrologic features are perennial during an average year. The arroyos are wettest during the spring runoff and summer monsoon months, when they are deluged by flash flooding in the aftermath of powerful thunderstorms. The arroyos are rich habitat areas and function as key wildlife corridors from the mountain and upland areas to the

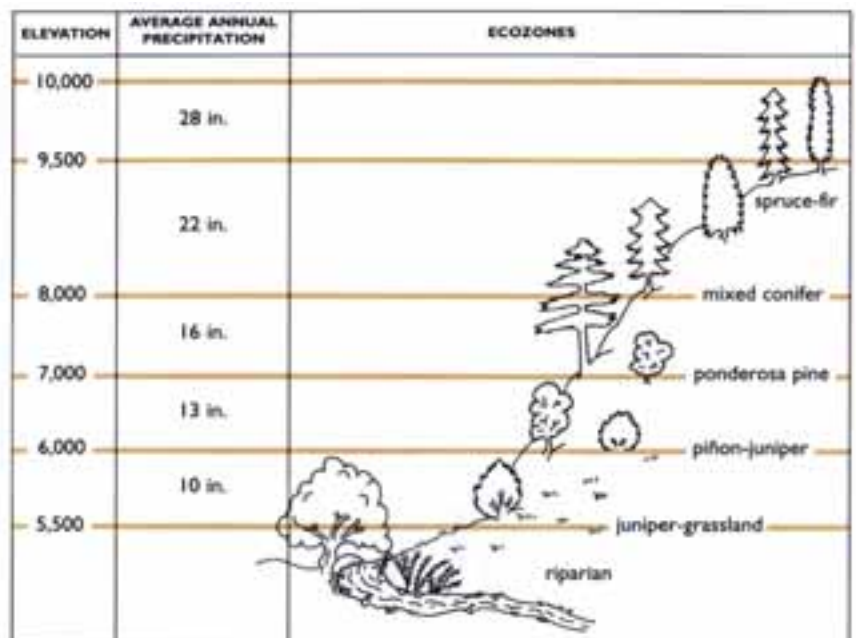
riparian and bottomland areas. The arroyos also often provided the route for early trails and cart paths. Because of the hydrologic and ecological functions of the arroyos, trails in arroyo bottom areas should be moved to outside the riparian zone. Springs and views of arroyos are important potential destination points and interpretive areas for a trail system. The map in Figure 5 identifies important arroyos and creeks. Figure 5 also shows major vegetation communities.

### 5. Vegetation

The vegetation is typical of mountainous regions in New Mexico. There is a gradient of vegetation communities that correspond to elevation and proximity to arroyos (Figure 3). Mountain top areas have the greatest precipitation and can support spruce-fir communities. The dry mesa and high plains areas support junipers and grasses. In between there is a range of evergreen communities from Ponderosa Pine to Piñon-Juniper. Riparian areas support hydrophytic plants of the willow-cottonwood community. Some washes support conifer populations at lower elevations.

**Figure 3. New Mexico Vegetation Zones**

(from W. Dunmire and G. Tierney 1995. *Wild Plants of the Pueblo Province*. Santa Fe: Museum of New Mexico Press)



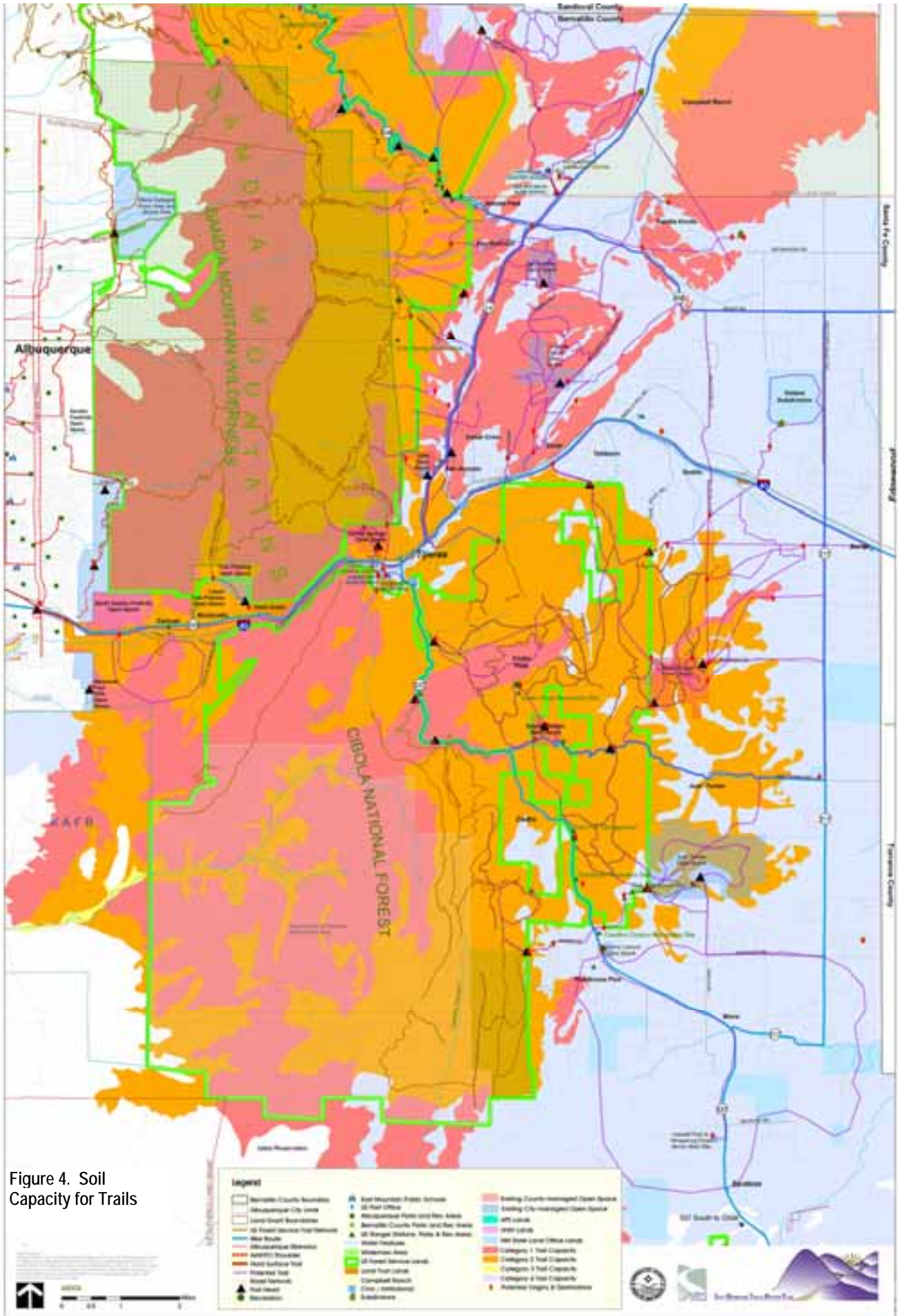
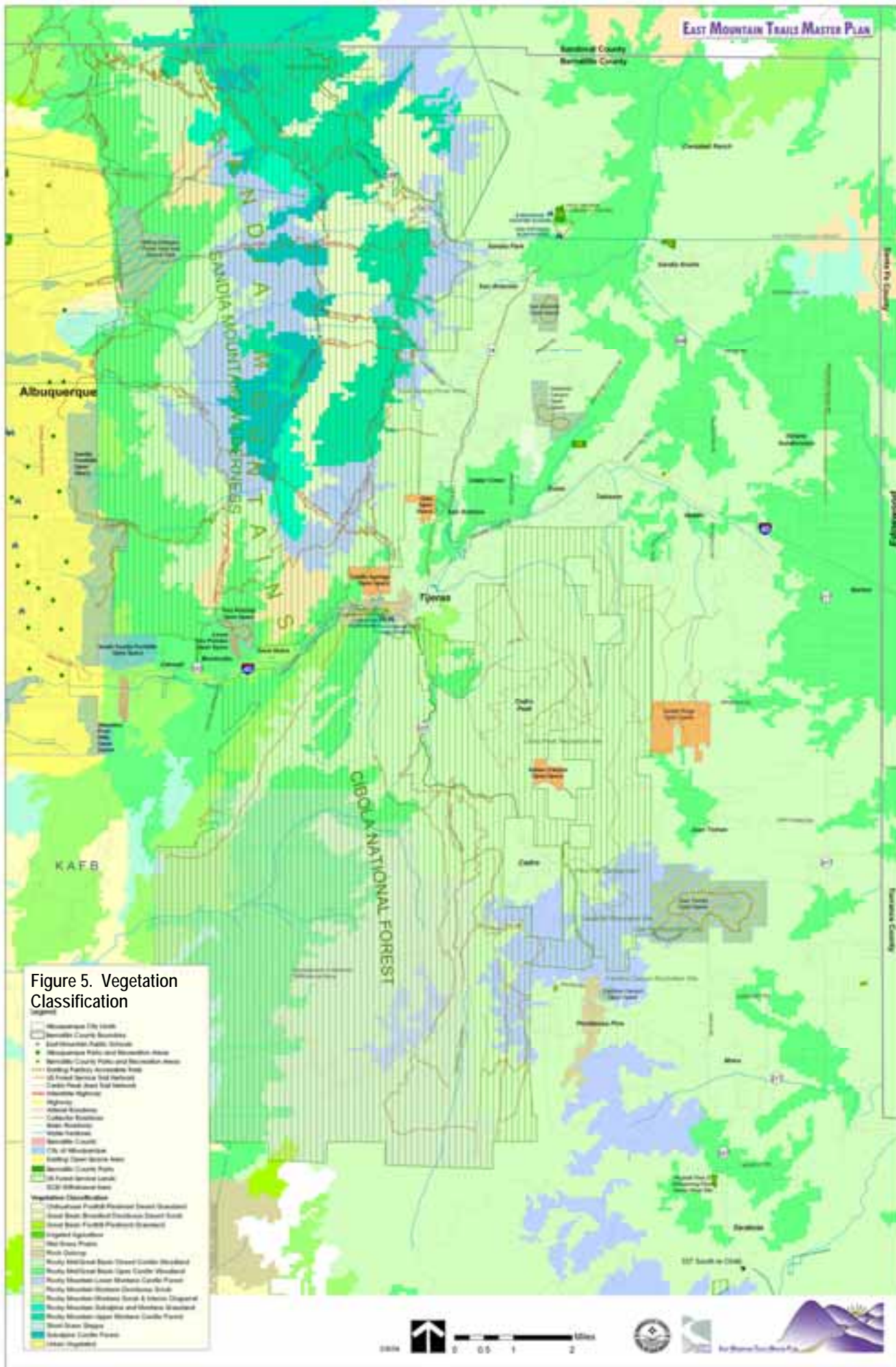


Figure 4. Soil Capacity for Trails



Much of the area appears to have been logged according to a 30 to 40-year cycle and has been heavily grazed for over a century. Logging has taken most of the older trees. Grazing has inhibited grass regeneration and encouraged growth of woody shrubs and trees. In addition, fire, the most important regenerator of the original woodland and grassland communities, has been suppressed since the middle of the century. As a result, there are considerable thick shrubby areas of similarly aged stands of junipers, piñon pines and ponderosa pines. This situation has resulted in a high fire hazard for much of the Project Area. This hazard has only increased during the recent drought cycle and the bark beetle infestation of piñon pine populations.

The existing vegetation has several implications for the proposed trail system. The trail system will enable users to experience the gradient of vegetation from the top of the Sandia Mountains to the bottomlands of the Tijeras Arroyo and flatlands of the high plains at the edge of the County. Well-placed trails can also function as important fire breaks, and as critical emergency access in the event of a wildfire.

## 6. Wildlife Habitat

The Project Area is situated along one of the major flyways in the Americas, affording important temporary shelter and forage for migratory species as well as the opportunity for potential trail users to view them.

Wildlife in the Project Area is similar to that found in other New Mexico upland and mountainous areas. The following is a bird species list from a bird survey done for the Campbell Ranch area, but which is typical for the Project Area:

- 
- Mountain chickadee (*parus gambeli*)
  - Common bushtit (*Psaltriparus minimus*)
  - Pinyon jay (*Gymnorhinus cyanocephalu*)
  - Western scrub jay (*Aphelocoma coerulescens*)
  - Steller's jay (*Cyanocitta stelleri*)
  - American goldfinch (*Carduelis tristis*)
  - Common raven (*Corvus corax*)
  - American crow (*Corvus brachyrhynchos*)
  - White-breasted nuthatch (*Sitta carolinensis*)
  - Pygmy nuthatch (*Sitta pygmaea*)
  - Plain titmouse (*Parus inorantus*)
  - Hairy woodpecker (*Picoides villosus*)
  - Red-naped sapsucker (*Sphyrapicus (nuchalis)*)
  - Western bluebird (*Sialia mexicana*)
  - Mountain bluebird (*Sialia currucoides*)
  - Bewick's wren (*Thryomanes bewickii*)
  - Mallard (*Anus platrhynchos*)
  - European starling (*Starnus vulgaris*)
  - Kildeer (*Charadrius vociferous*)
  - Pine Siskin (*Carduelis pinus*)
  - House finch (*Carpodacus mexicanus*)
  - American kestrel (*Falco sparverius*)
  - American robin (*Tardus migratorius*)
  - Townsend's solitaire (*Myadestes townsendi*)
  - Brown creeper (*Certhis Americana*)

In addition, coyotes, prairie dogs, rattle snakes, and other mammals, reptiles, and amphibians common to upland New Mexico areas are found in the Project Area.

According to State Game and Fish personnel, there are no listed species in the East Mountains that a trail system would negatively impact. There have been surveys done in the Campbell Ranch area for the Northern Goshawk and Mexico Spotted Owl, but none have been found. The USFS views La Madera Road as potential habitat for the Northern Goshawk. Trails should be placed outside the riparian zone so as not to impact nesting and forage areas critical to wildlife diversity. The trail system could provide access to important vantage points and blinds for viewing wildlife. Wildlife concerns were addressed in a previous environmental assessment for Tecolote Trail determined

appropriate level of location of trail development in the area between Madera and Tejano Canyons.

The US Forest Service has undertaken a number of measures in the David Canyon area to improve wildlife habitat and restore native species, including thinning of forested areas and construction of wildlife drinkers. Trails and points of access to National Forest lands will need to avoid these areas.

## Section B. Socio-Cultural Landscape

The Sandia Man Cave, which is on the western edge of the Project Area in the Sandia Mountains holds clues to the earliest known inhabitants of this landscape several thousand years ago. In more recent times, pueblos had settlements along the Tijeras Arroyo, San Pedro Creek and San Antonio Arroyo. Hispanic settlers arrived in the 18<sup>th</sup> century and Anglo settlers began to arrive in the latter part of the 19<sup>th</sup> century. Over time, hunter-gatherer and subsistence farming systems were replaced by large-scale extractive industries, such as mining and cattle ranching, and these in turn are being displaced by residential communities populated largely by commuters and second homeowners. In the process, the cultural landscape is being reconstructed by new ways of working and living on the land. These recent additions coexist simultaneously with vestiges of earlier eras. Important elements of the socio-cultural landscape are shown in Figure 6.

### 1. Cultural Sites & Resources

As in many upland areas in New Mexico, there could be numerous cultural sites in the Project Area. Cultural resource surveys may have to be done as part of designing any segment of the Master Plan. The Campbell Ranch development had a survey done that catalogued over 500 sites on its land alone. Sites tend to be clustered near riparian areas because of the need for water.

Three important pueblo sites are in the Project Area, including Tijeras Pueblo, the San Antonio Pueblo and the Paa-Ko pueblo along the San Pedro Creek. Other cultural sites include early Hispano settlements and plazas, such as those found at San Antonio and along the Tijeras Arroyo. Decisions whether or not to make the sites destination points will be made on a case-by-case basis with the affected community. Cultural sites will generally need to be avoided by the trail system to avoid damaging the resource.

### 2. Land Grants & Traditional Land Uses

Four land grants dating back to the early Hispanic settlement have at least a portion of their boundaries in the Project Area: Elena Gallegos Land Grant, San Pedro Land Grant, Carnuel Land Grant and the Chilili Land Grant. The first two no longer exist as organized land grant associations. In the north end of the Project Area, the owner previous to the Campbell Farming Corporation bought the San Pedro Land Grant. The last of the Elena Gallegos Land Grant was bought by the High Desert Corporation and was subdivided into new residential areas, an Albuquerque Open Space and the Sandia Wilderness. Chilili and Carnuel are still functioning as land grants, although the land grants do not hold title to all of their former holdings. Carnuel Land Grant has several functioning acequia systems today. Ownership of land grant lands is shared among members of the original land grant families.

Land grants were anchored by historic Hispanic towns, which were often built on top of older pueblo settlements with a small plaza area and church. Traditionally, the land grants provided for a range of land uses to support the populations of these small rural communities. Riparian areas and mountain springs were diverted to provide irrigation water for crops and orchards. Mountainous woodland areas provided fuel, pasture and game. Trails and cart paths were integral to the livelihood of these communities.

Paths connected one rural community to another, as well as resident farmers to the gathering centers of their community and to the more remote areas integral to their livelihood. Current land grants, traditional village areas, and major subdivisions are shown in Figure 6.

Carnuel Land Grant indicated that no public trails should be proposed for their lands at this time. Chilili Land Grant did not respond to invitations to participate on the project. However, there is an opportunity to remember the traditional function of trails in connecting parts of a rural landscape. In the case of unpaved roads such as Gutierrez Canyon Road, Vallecitos Road and Juan Tomas, traditional routes in the form of trails as part of the proposed trail system can be preserved.

### **3. Community Form, Centers, Neighborhoods & Subdivisions**

As in many rural places, the landscape of the East Mountains traditionally contained large, open, rural extractive use areas such as crop farming, orchards, pasturage, and timber, or small community hubs at key junctions. These small nodes live on in a variety of ways. Places such as Cedro, Ponderosa, Sedillo and Tablazon have been largely displaced by recent developments, leaving only a name, a few buildings or a ruin, as in the case of the Village of Juan Tomas. Other places, such as Cedar Crest, San Antonito, Carnuel, Monticello, Tijeras, Yrissara and Escabosa, have preserved some of their place qualities but changed with the times. Both Carnuel and San Antonio operate and maintain functioning acequia associations as political subdivision in the State of New Mexico. The Village of Tijeras is incorporated as a municipality. Many of these latter areas contain important civic structures and gathering places, such as post offices, community centers, schools, shopping areas, parks, bars, restaurants and churches, and represent important destinations for the trails system. The map in Figure 6 also shows many of these destination points.

More recent development in the East Mountains has taken a different form. Residential development has replaced other rural uses of the land. Subdivisions and neighborhood associations have increasingly replaced the small community crossroads and family and land grant lands. A shared rural community landscape is being replaced by a fenced, more private landscape. In the process, many older trails and connections have been lost or replaced by roads. But the need for trails remains. Many of these newer residents moved to the area seeking a rural quality of life that would permit equestrian, ATV, or other types of off-road recreational use. In addition, the arrival of new residents has given rise to other needs for alternative transportation and recreation. Children living in these communities need safe walking routes to school. Resident equestrians and motorized recreation enthusiasts need routes away from high traffic corridors. Many of the private subdivisions also have a need for new access routes for egress and ingress during a fire, which could also serve as trails. Figure 6 also shows neighborhood associations and major subdivisions.

## **Section C. Demographics & Ongoing Development**

The East Mountain Area is one of the fastest growing areas in Bernalillo County outside the Albuquerque City Limits. The trail system envisioned by the Master Plan will serve the various needs of the population. As a result, the Master Plan needs to provide for the facilities that will meet both the current and future needs of the area. The maps provided in this section used data from the Mid Region Council of Governments. The unit of analysis is the Data Analysis Sub Zone (DASZ).



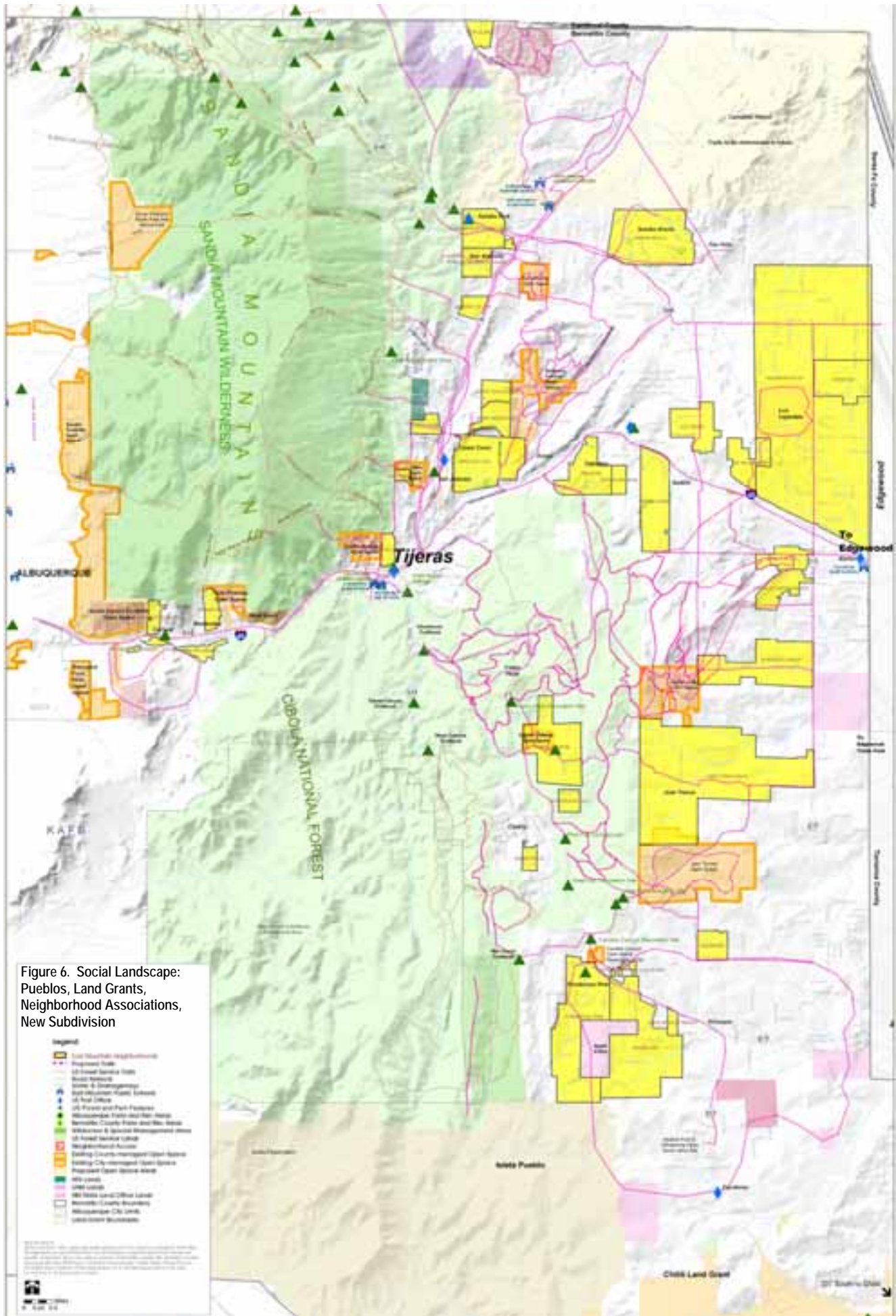


Figure 6. Social Landscape: Pueblos, Land Grants, Neighborhood Associations, New Subdivision

## 1. Existing Population

The U.S. Census counted 18,162 persons living in the East Mountains in 2000. Fifty-eight percent lived north of I-40 and 42 percent south of I-40.

shows the relative number and density of people living in the East Mountain Area as well as relative numbers of different age groups. The map also shows points that correspond to residential populations. The most populous and dense areas are the Sandia Knolls area, the Cedar Crest area and the Ponderosa Pine area south along NM 337. The Sedillo area, Tablazon area, County-line area and the NM 14 areas neighboring the National Forest also have high populations and densities. Higher populations in these areas suggest a higher priority for certain facilities. The relative numbers of school-age children also suggest higher priority for the development of facilities. School-age children in the Cedar Crest, Sandia Knolls, Sedillo, Tijeras and Ponderosa areas are a relatively large proportion of the entire East Mountain population.

## 2. Population Projections (2025)

The population in the East Mountain Area is projected to increase by 6,503 persons by 2025 to reach a total of 24,665 persons. More (61%) will live north of I-40 than south (39%). Figure 8 shows the future projected population. Much of the Project Area will grow more than 100 people per DASZ, but the Paa-Ko and Campbell Ranch subdivision areas are projecting the greatest growth rates.

## 3. Land Use and Future Land Use (2025)

Figure 9 shows existing land use and future land use for the projected growth shown in Figure 8. Land use in the Project Area is currently still largely rangeland. By 2025, however, a majority of the acreage in the East Mountain Area is projected to be residential. Many of the remaining usable undesignated trails are on private land.

## Section D. Public Roads and Rights-of-Way

The map in Figure 10 shows all roads and rights-of-way (ROW) in the Project Area. A number of the roads are currently unpaved or privately owned. In contrast to these local roads, I-40, which bisects the project area, is part of the interstate highway system crossing New Mexico. The Project Area also includes US 333, a segment of former U.S. 66, once known as the "Mother Road." The roads in Figure 10 are classified by surface type and ownership as follows:

- Paved highway
- Paved roadway
- Unpaved public roadway
- Paved private roadway
- Unpaved private roadway.

Again due to the rural quality of the East Mountains, only the state highways and certain dedicated roads in the County and Village of Tijeras actually have formal rights-of-way that were dedicated or acquired in the process of construction. Those roads outlined in gray in Figure 10 have the standard County right-of-way, and those in pink have the right-of-way associated with state roads. Typically, these range from 80 to 200 feet for the State Highways (see Table 1) in the Study Area.

For dedicated County roads, the ROW varies from 40 to 80 feet depending on whether they are collector or arterial roads. Arterial roads are limited to the State highways, Frost Road and Mountain Valley Road. Other public roads that are maintained by the County were developed via prescriptive easement as a result of public use and necessity over time. These roads have a variable right-of-way associated with them that is limited to the maintained area of the road from v-ditch edge to v-ditch edge, and can vary from approximately 12 to 40 feet. As discussed below, some of these roads function as trails, and it is the goal of this plan to preserve that function. However, there may be segments of such roads

Table 1. Rights-of-Way on East Mountain Highways

Highway	Segment	Rights-of-Way Width
NM 14	I-40 to Frost Road	Varies throughout, but usually 130' to 160'. One narrow spot of about 80' approximately 300' south of Rossiter Estate Road.
NM 14	Middle of the triangle (at intersection with Crest Highway)	200'
NM 14	San Pedro Grant Line to 3000' south	80'
NM 14	South of Sandoval County Line to San Pedro Grant Line	200'
NM 536 (Crest Highway)	NM 14 to Sandoval County Line	132' with 400' "Reserve Strip". Near NM 14 it narrows to 80'.
NM 337	I-40 to 4 miles south	132' or 200' through Forest Land (with 200' "Reserve Strip") and 100' through private lands.
NM 337	South boundary of Cibola National Forest to 5 miles north	Generally 150' or 200'. Never < 150'. Sometimes > 200'
NM 337	Torrance County Line to 9 miles north	Varies: 80', 100', or 120'
NM 217	All	80'
NM 333 (Old US 66)	Albuquerque to Santa Fe County Line	Historic US 66 had 200' of ROW. When I-40 came in the ROW was widened throughout. There is one narrow spot of 94' just west of NM 337 where NM 333 does not follow alignment of old US 66.
Frost Road	Right at NM 14 (only info available)	150'

where additional ROW will have to be secured for dedicated trails or lanes. Fugitive dust control requirements and trail development funds represent opportunities to enhance these roads and traffic functions as trails.

Bernalillo County will have to work with the N.M. Department of Transportation to identify future funding sources for ROW acquisition, as well as to explore County funding through General Obligation bonds or legislative requests.

## Section E. Public Lands & Open Space

A key component of the plan is to identify destination open space areas for the trails system in order to create and maintain an open space network in the area over the long term. The East Mountain Area is flanked on the west by public land owned and managed by the National Forest. The State Land Office also owns several sections in the area. Other land owners include University of New Mexico and Albuquerque Public Schools, Bernalillo County and the City of Albuquerque Parks and Recreation Open Space Division. Figure 11 is a map of public land ownership in the Project Area.

Descriptions of each of the major open space areas along with existing and planned trail facilities are below:

### 1. The United States Department of Agriculture, Forest Service (USFS)

The majority of recreation opportunities in the East Mountain Area are located on National Forest lands managed by the Sandia Ranger District of the Cibola National Forest. Facilities along the Sandia Crest Highway, which is a State, National and Forest Service Scenic Byway, are the most developed and include individual and group picnicking facilities, restrooms, interpretive trails and trailhead parking. Many of the trails on the east side of the Sandias access the Sandia Mountain Wilderness, where mechanized and motorized use is prohibited. Most trails outside of designated Wilderness are open to a variety of uses. Handicap accessible trails are located on National Forest lands in the form of short interpretive loop trails at the Tijeras Pueblo site behind the Sandia Ranger Station, and at Doc Long and Cienega Picnic Grounds, along the Sandia Crest Highway.

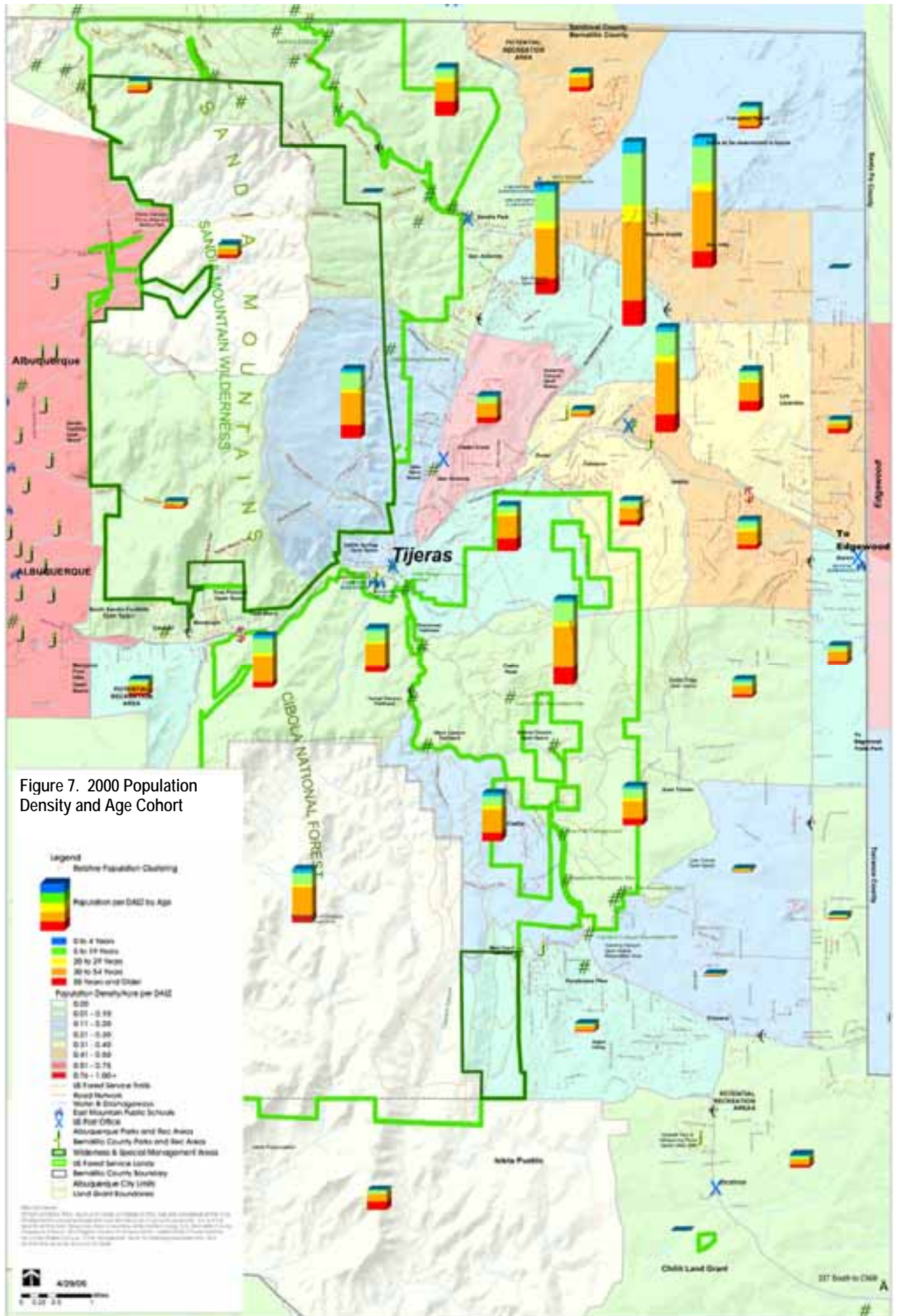


Figure 7. 2000 Population Density and Age Cohort



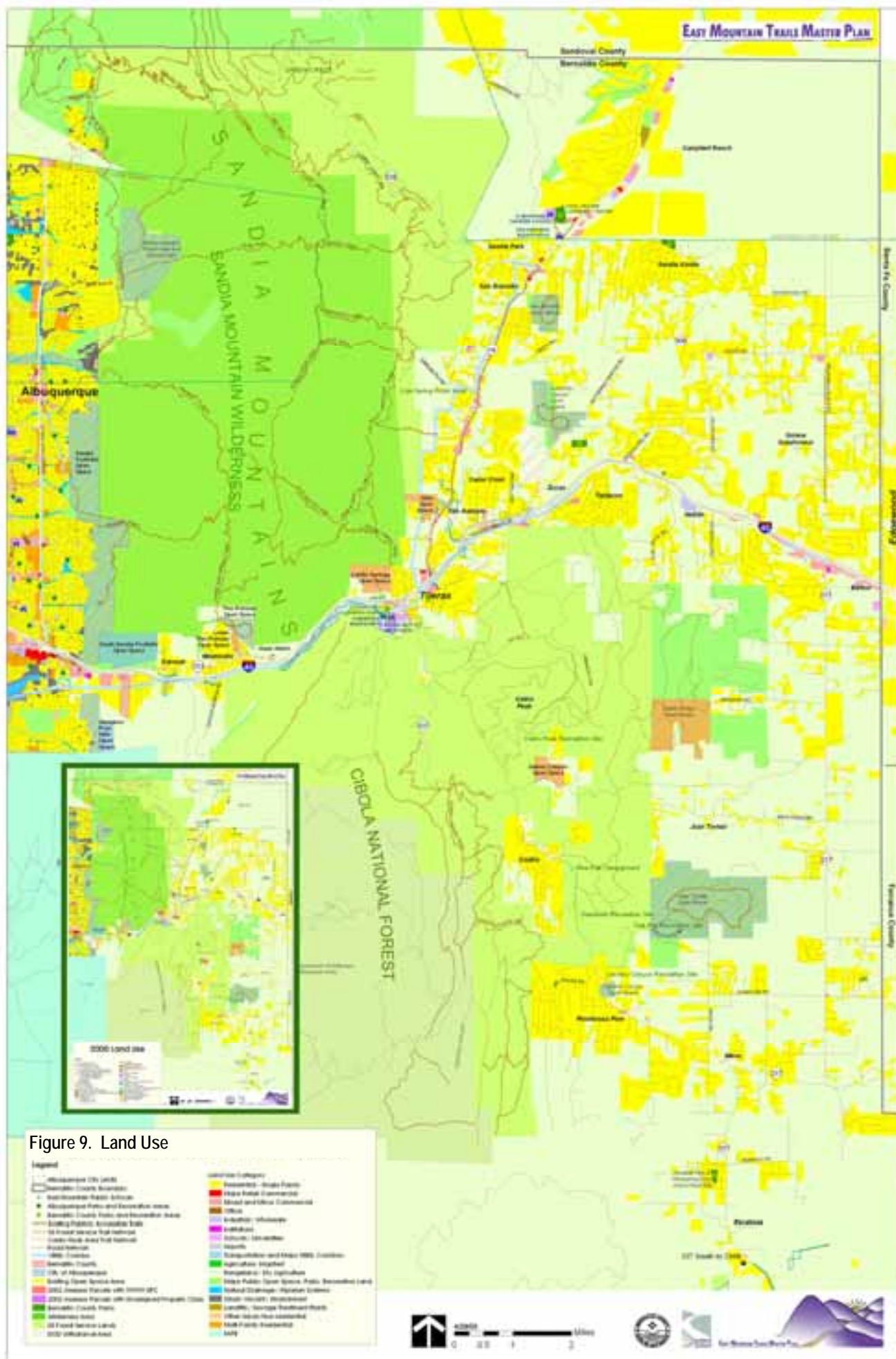
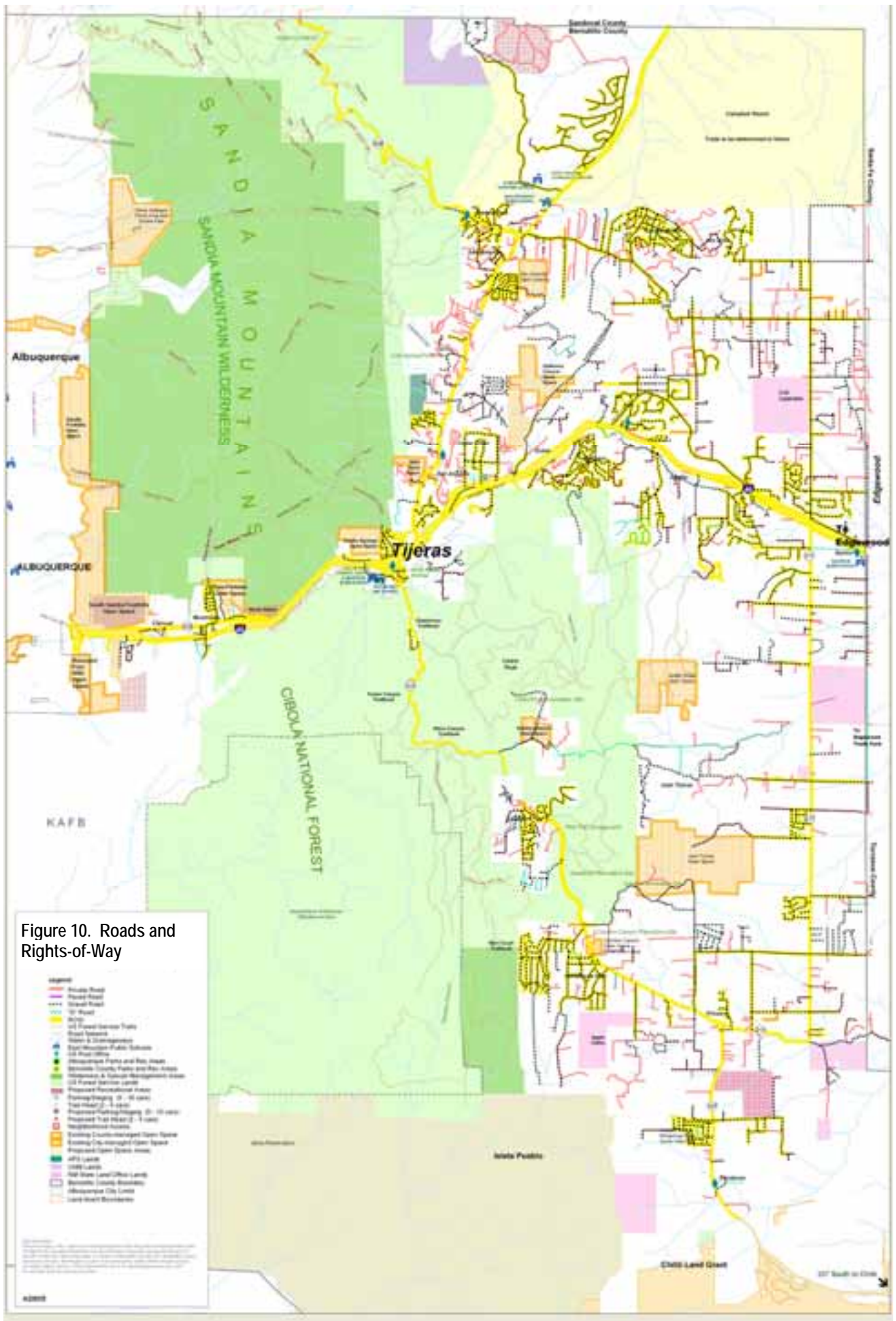


Figure 9. Land Use



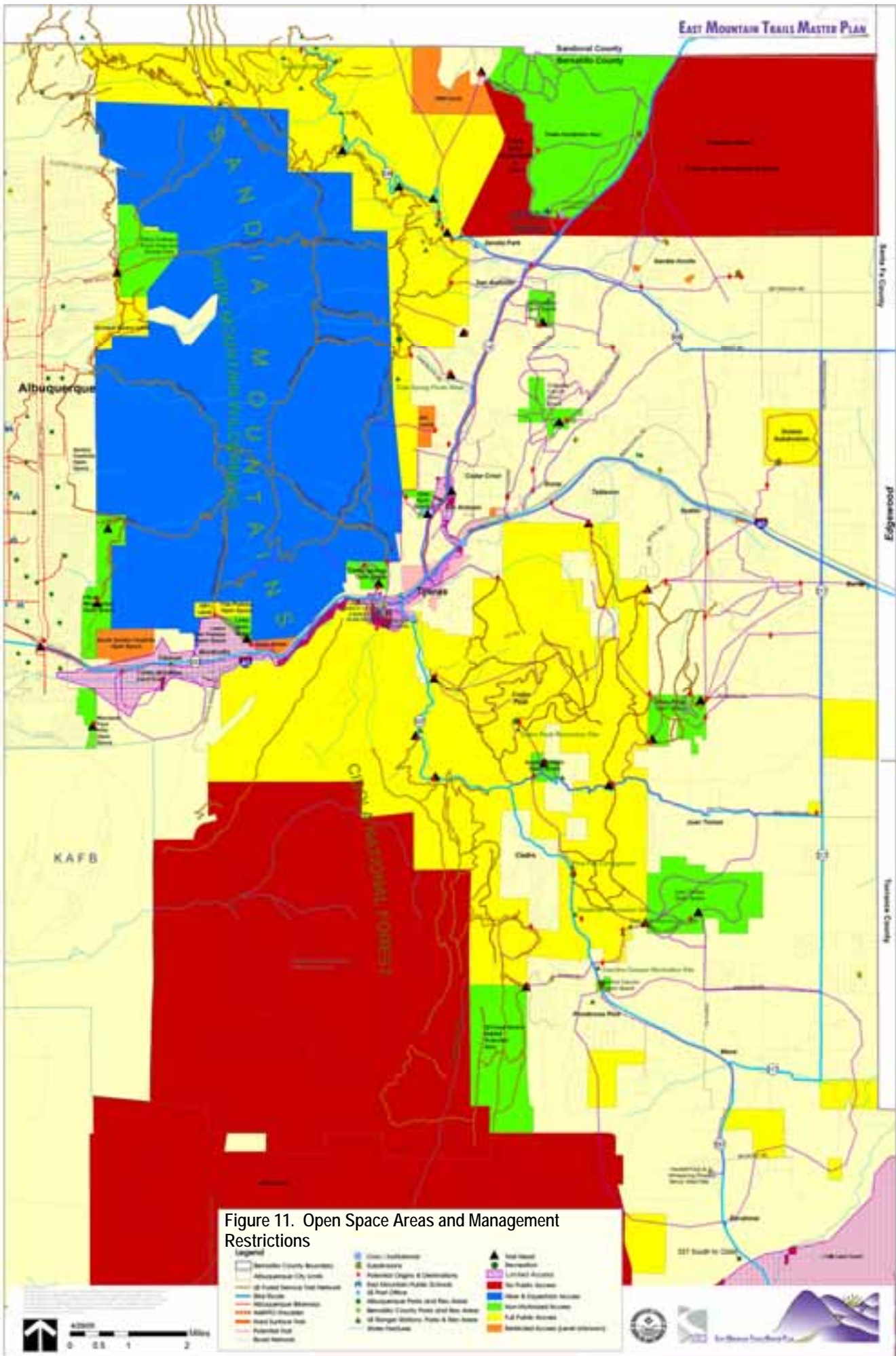


Figure 11. Open Space Areas and Management Restrictions



Official National Forest maps for the Sandia Ranger District and the Sandia Mountain Wilderness are available. In recent years, the private road which accesses Cole Springs Picnic Ground on National Forest lands has been closed and gated by the private property owners.

The Cedro Peak area, south of I-40 is used by hikers, mountain bikers, equestrians and off-highway vehicle (OHV) enthusiasts. There are far fewer developed recreation facilities in this area of the Sandia Ranger District, and a comprehensive trail plan has yet to be developed for this area. Recreation facilities at Oak Flat Picnic Ground, Deadman Campground and Cedro Peak Campground were designed primarily for group activities, and most require reservations and fees for use. Pine Flat Picnic Ground has a group use site, as well as individual picnic sites.

Most National Forest lands west of Highway 337 (South 14) are within or adjacent to the Military Withdrawal (lands administratively withdrawn for use by the Department of Defense and the Department of Energy). Management of these lands, including trail and road management, is described in the *Ecosystem Management Plan for National Forest Lands in and Adjacent to the Military Withdrawal* Environmental Analysis and Decision Notice completed in 1996 by the National Forest in cooperation with the Department of Energy, Kirtland Area Office and the Department of Defense, Kirtland Air Force Base. In 2003, Kirtland Air Force Base initiated a proposal to construct a \$2.2 million dollar fence on Withdrawal lands in the vicinity of Otero Canyon because of security and safety concerns. This proposal generated interest and in some cases, consternation, among trail users, many of who have used trails and volunteered time to maintain trails for years. Kirtland Air Force Base prepared the required Environmental Assessment and released a Finding of No Significant Impact (FONSI) in July 2004. This clears the way for fence construction to begin in accordance with their proposal. In September 2004, however, Kirtland's proposal for fencing

Otero Canyon area is under a supplemental review by the government office in charge of environmental oversight, pursuant to a request by Congresswoman Heather Wilson. This is not the normal process for proposals like the Otero Canyon fence and should be seen as a small victory for recreational users who continue to seek compromise with KAFB. As of December 2004, the supplemental review and final outcome of the fence proposal are still undetermined

## 2. New Mexico State Land Office (SLO)

The New Mexico State Land Office (SLO) owns and manages seven parcels, totaling several thousand acres in the Project Area. All but one of the parcels are located south of I-40. These parcels are currently managed and leased for grazing. One parcel – the only State Land Office land north of I-40 – is currently proposed for development as a residential subdivision. All of the SLO lands have trails that appear to be used informally for recreational purposes by hikers, equestrians and other users. The Apple Valley parcel had an especially large number of trails with recent tracks. A limited recreational use permit is supposed to be purchased by trail users from the State Land Office. Currently, all motorized use is forbidden. Public and private organizations may be considered to lease SLO lands for more formalized recreational uses, such as permanent multi-use trails and parks but detailed discussions with the SLO and leaseholders are required.

## 3. University of New Mexico (UNM)

The University of New Mexico (UNM) currently owns and manages two parcels of land near the west gateway of the Tijeras Canyon and at the upper end of La Madera Road. Both areas have informal trails on them, but the lands are not managed for recreational use. Traditionally, as with other state lands, UNM has managed and leased the lands for grazing. The parcel near

Tijeras Canyon is slated for acquisition by City of Albuquerque Open Space, while the parcel on La Madera Rd. is intended for acquisition by National Forest Service.

#### **4. Albuquerque Public Schools (APS) / Charter Schools**

Albuquerque Public Schools owns several properties in the Project Area. Some of these have become schools, while others, such as those located in the Sandia Knolls subdivision, remain vacant. Properties with schools located on them include the East Mountain Charter High School and the San Antonito Elementary School just off of North 14, and Montoya Elementary School and Roosevelt Middle School in Tijeras. The largest APS parcel is located on the edge of the National Forest and contains the Sandia Mountain Natural History Museum. Route 66 Elementary School (Edgewood – Moriarty Schools) is also within the Plan Area.

#### **5. Bernalillo County and City of Albuquerque Open Space (BCOS and AOS)**

In addition, the City of Albuquerque and Bernalillo County own and manage nine Open Space properties in the area, six to the north and three to the south of I-40. The County open space properties — Carlito Springs, Ojito de San Antonio, Sedillo Ridge, and Sabino Canyon — were purchased since 1999 through two county mill levy initiatives that were approved by voters. The City open space properties — San Antonito, Gutierrez Canyon, Juan Tomas, and Golden — have been under its jurisdiction since the late 1960s, mostly through Bureau of Land Management lease agreements. Tres Pistolas was a joint purchase by the National Forest, City of Albuquerque, and Bernalillo County. All of these Open Space areas are characterized by striking topography and unique natural or cultural landscape resources. For a description of each open space area see the Technical Appendix.

All of the Open Space properties have trails and other interpretive resources that are used by members of the community. In February 2002, the Bernalillo County Parks and Recreation Department (BCPR) initiated a joint effort with the City of Albuquerque Open Space Division to develop resource-based management plans for all County and City open space properties in the East Mountain Area. The project received a technical assistance grant from the National Park Service, which donated a staff facilitator to lead the effort. The project created a citizen's steering committee to guide the process and has drawn on a broad range of community groups and organizations to work on documenting existing conditions, analyzing issues and opportunities, and developing management plans. The management plans are in various stages of completion, summarized in the Technical Appendix under the individual open space properties.

Another goal of the project is to develop local stewards that will watch over the properties and assist in caretaking. The East Mountain Trails and Bikeways team has monitored the management plans as they were formulated and incorporated their recommendations for trail facilities into this Master Plan.

Bernalillo County Parks and Recreation also owns and maintains two community centers and three parks in the Project Area. Los Vecinos in Tijeras and Vista Grande on North 14 are community centers that provide a broad range of facilities and programs to the area. In addition to a gym and classrooms, Los Vecinos has a skate park and large turf area for sports and other uses. Vista Grande Community Center is the home of the Performing Arts Center, the Natural Resources Camp and the East Mountain Little League. El Refugio Archery Center in Gutierrez Canyon, Sunflower Meadow Park and Hocket Park and Whispering Pines Senior Meal Center in Escabosa are BCPR-owned facilities in the East Mountain Area. Undeveloped park parcels can be found in Sandia Knolls, the Sedillo Hill

area and the Estancia Vista area on the eastern edge of the County.

## Section F. Existing East Mountain Trails & Bikeways Facilities

There is no single map that accurately shows all existing trails, nor is there a comprehensive inventory other than the trail map developed by Charlie Ervin of Two Wheel Drive. The following assessment was prepared by project team members with input from the community, the Steering Committee, the Technical Team and stakeholders. Except where trails have been formally designated, the aggregate of this input is referred to as **Undesignated Potential Trails**. Some existing dirt and gravel roads that function as trails are being designated and adopted formally as trails as part of this plan.

### 1. Bikeways within Roadway Rights-of-Way

Roadways identified by the public as existing or potential on-street bicycle routes were reviewed by members of the project team on Saturday morning, February 21, 2004, as more bike riders were expected to be out riding on a Saturday than a weekday. Cold and snowy weather, however, resulted in only one bike rider and three walkers being observed on the roads. Typically, however, fair weather weekends see a number of road bicyclists pedaling from Albuquerque along NM 333 through Tijeras Canyon, north on NM 14 to the Crest Highway or Frost Road or continuing along the NM 333 shoulder parallel to I-40.

Observations of the team members are summarized below. Where available, two-way average weekday traffic volume (AWDT) for 2002, collected by the Mid-Region Council of Governments is shown.

The following roads have fairly wide shoulders (four to six feet plus):

- NM 337 ("South 14") between I-40 and NM 217 ( Mountain Valley Road), AWDT 1,900-5,400 vehicles)
- NM 333 ("Old Route 66") from Albuquerque to NM 217 (AWDT 3,500-7,100 vehicles)
- NM 536 (the "Crest Highway," AWDT 400-1,600 vehicles)

The problem with shoulder use—quite noticeable during the field visit—is maintenance; in particular, keeping the shoulders free of debris. At the time of the field visit, the shoulders were covered with de-icing material moved by snowplows, making the shoulders impassable for a road bike. During the public process, users also complained of rocks, trash, and shoulder damage during and after sewer line construction.

NM 14 from I-40 to Frost Road (AWDT 8,700-12,400 vehicles) has less than three-foot shoulders and two-foot gutter pans. The uneven pavement joint between the two makes it difficult for a bicyclist to ride between the outside driving lane and the curb. Debris on the NM 14 shoulders was also apparent.



NM 14 Shoulder

The shoulder width along Frost Road from NM 14 to the County line (AWDT 1,400-3,800) varies greatly, but in most areas is only zero to one foot. Driving lane widths, however, seem to be greater than the standard 12 feet. On this road and on other roads with wide driving lanes and narrow shoulders, re-striping might reduce the amount of

added pavement width needed to create a shoulder that road cyclists could use.

Mountain Valley Road (NM 217) from I-40 to Frost Road (AWDT 900-3,500 vehicles) has newly-constructed six-foot shoulders for the section north of Wildlife Trail and south of Revelation Place. The shoulders have been constructed to be level with the driving lanes—in other words, no pavement joint between the driving lane and the shoulder. Unfortunately, the shoulders were covered with debris. The remainder of Mountain Valley Road has no paved shoulders. The County has plans to finish the construction of paved shoulders south to I-40 and north to Frost Road.



New Paved Shoulders on Mountain Valley Road

NM 333 (“Old Route 66) from NM 217 to the County line (AWDT 6,000) is another instance of a road with wide driving lanes and narrow paved shoulders where re-striping might be able to reduce the amount of added pavement width needed to create a shoulder usable by bicyclists.

The other County roads driven during the field visit were Meadow Drive, Oak Flats Road, Anaya Road north of Gonzales Road, Gonzales Road, Juan Tomas Road, Sedillo Hill Road (AWDT 400-1,700 vehicles), and Vallecitos Road (AWDT 1,500-1,800 vehicles). The daily traffic volume carried by each of these roads is probably low enough that the driving lanes themselves could be used safely by bicyclists. Because of existing adjacent features – drop-offs, culverts, guard rails, driveways, and fences – adding paved

shoulders to these roads would be expensive. With the amount of debris that tends to build up on shoulders, it is likely that bicyclists would use the driving lanes anyway. This statement also applies to State-maintained NM 217 (AWDT 500-2,600 vehicles).

## 2. Existing Formal Off-Road Pedestrian, Equestrian and Bicycle Facilities

There are few sidewalks in the plan area. Equestrians, bicyclists and pedestrians use many road rights-of-way, even without accommodations. A significant number of informal trails also cross private land throughout the plan area. The following paths exist formally or informally off the highways but within the public rights-of-way.

- NM 14 from I-40 to Frost Road has an asphalt-paved recreational trail on the east side and a signed “horse route” on the west side which is unpaved and too narrow in places. This path provides pedestrian access to the majority of the area’s commercial businesses, which are located along NM 14. Multiple driveways on both sides characterize this path.



NM 14 Paved Recreational Trail on East Side of Road



NM 14 "Horse Route" on West Side of Road

- Frost Road from NM 14 to Vallecitos Drive (AWDT 3,200-3,800 vehicles) has *de facto* unpaved trails on both the north and south sides of the road. The trails were observable because they were signed "Motorcycles Prohibited". A member of the public had mentioned that an abandoned railbed is located on the north side of Frost Road just east of NM 14; however, no evidence of this railbed could be seen during the field visit.



*De Facto* Recreational Trail on Frost Road

- Bernalillo County recently completed a paved connector trail between San Antonito Elementary School and Vista Grande Community Center, which is approximately 0.5 miles long.



Connector trail between Vista Grande Community Center San Antonito Elementary School

In addition, there are two other trails that are in the process of being constructed by other entities;

- Partly paved connector trail from Roosevelt Middle School to Los Vecinos Community Center, which will be constructed by APS.
- Proposed trail along San Pedro Creek from San Pedro Creek Estates to Paa-ko, which will be constructed by Talking Talons Youth Leadership. This is a sensitive biological corridor, and according to the Campbell Corporation, this trail is likely to be open to public use only for guided educational tours.

### 3. Existing Dirt and Gravel Roads that are Currently Used as Trails

Traditionally, many roads in the East Mountain Area originated as horse or walking trails and cart paths. Many of these trails have been successively enlarged, re-engineered and paved to become the roadways they are today. Many such roads, however, remain unpaved.

According to members of the community, they continue to function as trails for equestrians, off-road vehicles and walkers. An outcome of this plan is to recognize these roads as trail facilities, which are shared with licensed motorized users. Based on input received from the public, the following dirt and gravel roads are currently used by the equestrians, off-road vehicles and walkers as shared facilities:

- Gutierrez Canyon Road

- Juan Tomas Road
- Vallecitos Road (Tablazon Road)
- Sedillo Road
- Five Hills Road
- Via Sedillo Road
- Longview Road
- Upper Juan Tomas Road
- Carlito Springs Road
- Casa Loma Road
- Cedro Peak Road (Forest Road 252)
- Forest Road 462
- Pine Ridge Road
- Pinon Trail Road
- El Refugio Road
- Herrera Road
- Plant Road
- Bearcat Road
- Skyland Road
- Armin Road
- Buckboard Road
- San Isdoro Road
- Charlotte Drive
- Ojito Road
- Luna Road

#### 4. Unrecognized Trails

Based on input from members of the community, a number of informal or unrecognized trails were mapped. These trails are not paved and are used by a variety of users. Many are a legacy of the early rural path network that connected rural communities. These trails are on private land or public land with varying levels of permission for various users. These unrecognized trails represent key opportunities for future links because they are already functioning as trails. Some dirt roads, however, may have explicit prohibitions for public use by landowners and/or utility companies.

#### 5. Utility Corridors

There are a series of utility corridors that exist in the Project Area which function as informal trails

for some users. Some of these corridors are preferred routes for off-road vehicles (jeep) users, because of the variation in topography, but their use in most locations may be unauthorized. Two major PNM utility corridors run east-west and north-south from the Tijeras Canyon along the National Forest and Old Route 66 respectively. Another set of pipeline corridors runs diagonally northwest from just south of the Campbell Ranch lands on the County boundary to the National Forest and beyond. These corridors also represent opportunities for future links. Coordination with the utility company on safety and encroachment agreements will be required.

#### 6. Ditch & Arroyo Trails

A number of informal trails exist along the irrigation system and lands of the Carnuel Land Grant. Many of these trails, which run along the Tijeras Arroyo, its tributaries, and inter-woven acequias and drains, have been used for centuries by community members, connecting family to family, and field and orchard to home. This informal trail system is an important cultural landscape element for which there is no current map. Because of the sensitive nature of the lands and the wishes of the Carnuel Land Grant, the Master Plan does not identify these or propose any future development or enhancements.

#### 7. Trail Users

Many different types of recreation use trails and roadways within the East Mountains. The Planning Team developed a matrix of their preferences based on input from members of the community and the Steering Committee. These users break down into two general categories – 1) users of the road/paved surfaces and 2) users of unpaved surfaces. Table 2 shows on-road users and Table 3 shows off-road users.

Table 2. User Characteristics and Preferences (Unpaved Surfaces)

	Hikers (snow shoers)	Runners	Equestrians	Mountain Bikers	Cross-country skiers	Motorcyclist/Dirt Bikers	ATVs	Off-Highway Vehicles
<b>Typical Duration</b>	2 hours to half day	0.5 to 2 Hours	2.5 hrs. to half day	half day	Half to full day	Half day (4 hours)	Half day ( 4 hours)	5-8 hours/ full day
<b>Typical Distance</b>	3-10 miles	2-10 miles	5-20 miles	Loop trails: 5-20 miles	2-20 miles	Loops at least 50 miles, can cross other roads	10 to 30 miles	5 to 10 miles
<b>Terrain</b>	Diverse topography, views, higher elevation, trees, ridges, variety, flatter for kids and people with mobility impairments	Diverse, but not too severe	Meadows, gentle slope, variety, open climbs, wide easements/shoulders on-road, challenging, woods	Variety, challenging trails, some easier/flatter trails for beginners	Prefer undulating or flat rather than straight up and down.	Challenging, variety, less environmentally sensitive areas, cross-slope trails	Diverse	Mining roads, rocky screen, ledges, large trees for winching, large riverbeds, arroyos
<b>Surface</b>	Defined and well-maintained trails, shoulders, single tread, natural surface, no ruts	Soft surface, often near or adjacent to road	Dirt roads; loose, loamy soil; surface like racetrack, unpaved	Unpaved dirt, rock, wood chips	Snow	Unpaved stable compact surface	Unpaved	Unpaved, rugged, steep, rocky remote; difficulty, isolated, boulders,
<b>Slope</b>	Under 30% desirable	Under 20% desirable	Relatively flat up to 30% slopes	8%-10%,	< 15% desirable	8 to 10% "Not many slopes are too steep in EMA"	Cross-slopes 15% or less	Steep slopes, desirable, shallow slopes not challenging
<b>Clearance</b>	8 feet	8 feet	10 feet	10 feet	8 feet	10 feet	10 feet	10 feet
<b>Track</b>	Single track	Single Track	Single track, some side-by-side trails: 4'-10', adequate sight distance	Single track, 24" tread	Double-track	Single track, can use narrow 8-10 feet, directional trail, need 3' for handlebars, some used by OHVs	Double track	None
<b>Facilities</b>	Trailmaps and markers, parking, dog area, restrooms	Access/Parking for Off Road	Available water, trailer parking, turnaround space, trailheads, more trailhead parking	Area to park	Parking	Area to park trailers, trucks	Area to park trailers and access roads/special park	None, designated area

Table 2. User Characteristics and Preferences (Unpaved Surfaces)

	Hikers (snow shoers)	Runners	Equestrians	Mountain Bikers	Cross-country skiers	Motorcyclist/Dirt Bikers	ATVs	Off-Highway Vehicles
<b>Key to experience</b>	Isolation, quiet, view wildlife, dogs free to be off-leash, destinations eg. springs	Quiet, few cars (good air!)	Tranquility, quiet, birds, deer, peacefulness, remoteness, nature, trees, wildlife-viewing, safety, ability to ride from house	Good runs-- undulating terrain, loops; some flatter areas for kids and beginners	Quiet, wildlife viewing	Remoteness, away from horses, undulating terrain with long loops	Area to explore, views,	Isolation, difficult and challenging, mountains, technical challenge
<b>Obstacles/Issues</b>	Mud, fences, no signs, motorized vehicles, equestrians	Traffic, ATVs, garbage & debris	Uncontrolled dogs, motorized vehicles, blind corners, loose rocks, logs, fences, low branches, litter, unaware cyclists and bikers	Sand, wet clay, ATVs, horses, down branches	Snowmobiles, ATVs, large rocks, fallen trees	Down branches, ATVs, horses, pedestrians	Steep side slopes, boulders, pedestrians, equestrians, hikers	Lots of other users of any kind; soft soils
<b>Negative Impacts</b>	Disturb animal habitat, disturb vegetation if go off trail	Disturb habitat	Erosion, horse manure, habitat disturbance	Erosion, habitat disturbance, frighten wildlife	Disturb habitat; scare hikers/snow shoers	Noise, erosion, can spook horses on blind turns, habitat disturbance	Noise, dual-track users destroy single tracks for cycles, erosion, habitat disturbance	Noise, dual-track users destroy single tracks for cycles, erosion, wide vehicles damage narrow roads, hillside damage, habitat disturbance
<b>Recommendations</b>	Signage, dog off-leash areas, shorter and flatter loops for kids and people with mobility impairments	Soft surface trail off, but along major roads that connects to hiking trails	Educate users re: trail signs and ROW, trailhead signs to turn off motors near horses	Trail park	Signed trails	Multi-use trails need to stay multi-use; enjoy helping maintain trails; trail ratings based on slope, terrain.	Dedicated park with signage, signage for dedicated & shared trails	Own space for different user types



**Table 3. User Characteristic and Preferences (paved surfaces)**

	Pedestrians	Rollerbladers	Road Bicycles
<b>Typical Duration</b>	1 hour to half day	Half day	half day
<b>Typical Distance</b>	0.5 to 5 miles or more	2 to 10 miles	30-100 miles
<b>Terrain</b>	Paved paths, preferably off-road	Paved paths, Generally flat or undulating, off-road	Hard surface, paved trail or bike lane, especially on Frost Road and N. 14 to schools
<b>Surface</b>	Paved paths, unpaved paths	Paved and cleared of ALL debris (sand, stones)	Paved, signed & striped shoulder, cleared of debris and surface impediments
<b>Slope</b>	Less than 5 percent generally	Flat with small undulations	Greater than 5% generally; may exceed for short distances
<b>Clearance</b>	8 feet	8 feet	10 feet
<b>Track</b>	Single track	Six-foot wide	Paved trails, bike lanes, road shoulders
<b>Facilities</b>	Parking, benches	Occasional bars to hold onto to stop, benches along the way	Parking
<b>Key to experience</b>	Connections to desired destinations, safety from cars, safety in street crossings	Long routes without obstacles and steep slopes	Long, fast routes with terrain variability
<b>Obstacles/Issues</b>	Cars, road bikes, poor pavement, unsafe road crossings	Stones, sand, rocks, debris, steep slopes	Garbage & debris, bad pavement, poor drivers, pedestrians
<b>Negative Impacts</b>	Disturb wildlife	Frighten pedestrians, equestrians, joggers, wildlife; impede traffic when on roads	Impede cars, frighten pedestrians
<b>Recommendations</b>	Sidewalks or trails near roads that connect important civic destinations	Complete paved trail from Vista Grande north on 14 to County Line	Dedicated lanes or signed and striped shoulders



## Chapter IV. Master Plan



The final Master Plan was generated by the Planning Team during the summer and fall of 2004. It represents the cumulative input of members of the East Mountain community, the Steering Committee Members, Technical Team Members, and key stakeholders. Based on this input, the planning team initially delineated important trail and bikeway corridors along with links from these corridors to Major Open Space areas and other logical destinations.

The second step was to assess these links and corridors by segment in the field. Major corridors and segments are shown in **Figure 12**. The planning team, Steering Committee members, and interested members of the public went out in the field in teams. These teams identified potential bikeways and trails by type and their approximate alignment, as well as potential locations for staging areas, trailheads, and neighborhood access points.

The proposed facilities were then reviewed and refined during meetings with Steering Committee and Technical Team members. BCPR then contacted land owners in writing whose property could potentially be directly impacted by implementation of the Master Plan. A final plan was developed, which was presented to the public in October 2004 and the County Planning Commission in early 2005. After revising the plan based on this feedback, the Master Plan was presented for adoption by the County Commission in Spring 2005.

The Master Plan comprises 1) a series of general recommendations found in Section A and 2) the Trails and Bikeways Master Plan in Section B, with recommendations for specific facilities, segments and links.

### Section A. General Recommendations

#### 1. Create the East Mountain Trails Advocacy Committee

The County should explore the creation of an East Mountains Trails Advocacy Committee. It is envisioned that the Trail Advocacy Committee would be composed of East Mountain residents and relevant technical agencies, and would function like the Greater Albuquerque Recreational Trails Committee (GARTC) and the Greater Albuquerque Bicycle Advisory Committee (GABAC) in Albuquerque. These advisory committees are composed of trail and bikeway advocates whose members are appointed by the City Council and County Commission. Their purposes are to involve the public in multi-use trail and bikeway development issues and to serve as an extension of staff's eyes and ears regarding trail and bikeway development and maintenance.

BCPR has discussed with the East Mountain Coalition of Neighborhoods and Landowners regarding their interest in serving as the Trails Advocacy Committee. Their Executive Board is quite interested in serving as this role and is considering the establishment of a trail sub-committee that could evolve into an active partner with BCPR for plan implementation. Potential tasks for the Coalition to undertake over the long-term include:

1. Designing trails in conjunction with County staff on a segment-by-segment basis as funds become available
2. Advocating for trail development funds from New Mexico Capital Outlay appropriations and other sources
3. Securing grant funds for trail development when a local government is ineligible to receive such funds

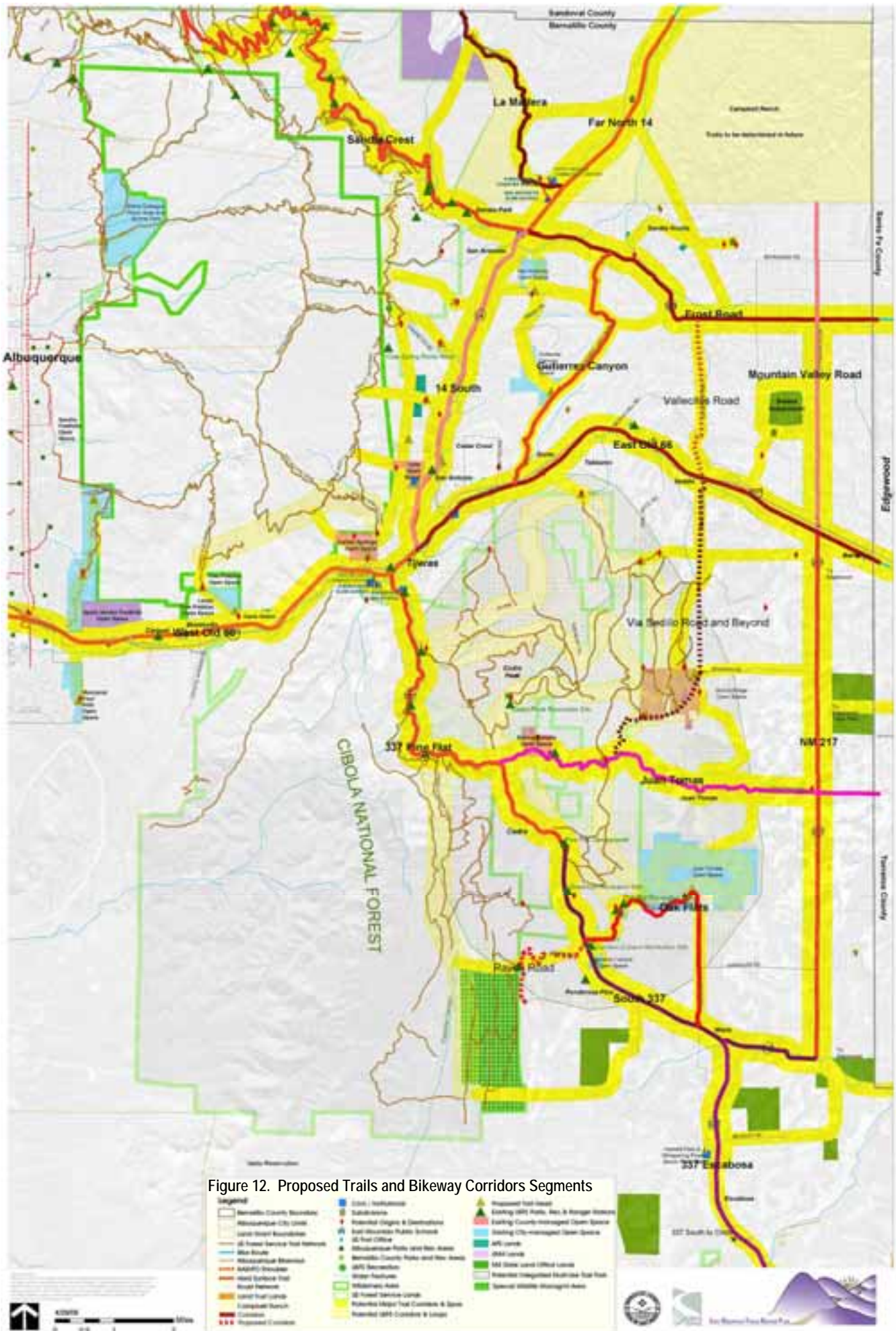


Figure 12. Proposed Trails and Bikeway Corridors Segments

4. Helping secure, and in some cases possibly being the holder of, public trail easements obtained from private property owners
5. Serving as the County's "eyes and ears" regarding trail maintenance and enforcement issues that will be County or NM Department of Transportation responsibilities
6. Serving as a liaison to neighborhood associations about East Mountain trails
7. Developing a trails steward and awareness program

The Coalition is a revived organization from the late 1990s with engaged leadership that seeks to be proactively involved in community land use and zoning issues. They formally expressed support of the adoption and implementation of the Master Plan at their November 17, 2004 general membership meeting. It is envisioned that they would be joined by other interested individuals and agency representatives, as appropriate, to work with BCPR toward the seven tasks noted above over the long-term. Other non-profit organizational partners could also emerge, particularly suitable non-profit organizations that might be interested in holding and maintaining trail easements under the New Mexico Land Conservation Incentives Act. Non-profit organizations, however, cannot directly receive state funding because that would violate the anti-donation clause.

BCPR and the Coalition will continue to communicate and refine this idea as the Master Plan nears adoption. The National Park Service Rivers, Trails and Conservation Assistance Program has agreed to work with BCPR and the coalition to facilitate their involvement in plan implementation. BCPR is grateful for Coalition and RTCA support and is excited about the prospects of collaborating on plan implementation. The value of neighborhood and agency support and assistance in plan implementation is tremendous.

## 2. Maintain an Outreach Effort to Private Land Owners, Land Grants, and Acequia Associations Whose Property May be Impacted by the Master Plan

The County contacted more than 100 property owners in October 2004 whose properties are within desired trail corridors. Property owners were given an opportunity to review and comment on the plan. Actual alignments should occur as applicants submit subdivision applications or as funds become available for trail projects within existing public rights-of-way. Trail easements from private property owners could possibly be combined with trail development opportunities in the public right-of-way so that segments and links can extend as far as possible as shown in the final adopted Master Plan.

The County should maintain contact with affected private property owners, acequia associations, and land grants through the assistance of the East Mountain Coalition of Neighborhoods and Landowners. Direct mailings to private property owners and/or other forms of communication need to be designed so that East Mountain residents have a way of getting updates on the progress of plan implementation.

## 3. Develop a Trail Easement Program

The County should undertake the development of an overall strategy and marketing package for a Trail easement program. Several facilities in the trails plan are on or along private lands, and will require a formal easement in order to construct and use the facility. The County on its own, or in tandem with a private entity (land trust, foundation, etc.) needs to develop the capacity and process for negotiating, implementing and enforcing trail easements over the long term. The County should also develop a marketing package with the East Mountain Coalition of Neighborhood and Landowner Associations to provide prospects with information about the merits and benefits (tax, etc.) of conveying an easement to the County for a trail.

#### **4. Develop a Trails and Facilities Stewards Program**

The County, in conjunction with the East Mountain Coalition and NPS RTCA should develop its own trail stewards program. This program would engage formal user groups (Horseways NM, etc.) and community groups (neighborhood associations, churches, etc.) to undertake the management of trails, trail access facilities and recreation areas. The development of this program would engage the community directly in the maintenance of the trails system, increasing the level of care and use by members of the community, and decreasing costs to the County.

#### **5. Develop Formal Memorandums of Understanding (MOUs) with the National Forest and other Land Management Agencies**

The County should undertake the negotiation and execution of formal MOUs with the National Forest and other open space organizations in the area, such as City of Albuquerque Open Space, State Land Office, Albuquerque Public Schools, Isleta Pueblo and East Mountain Coalition. This will enable the County to jointly implement some of the projects under the Master Plan, and thereby perhaps shift some of the cost and accelerate the implementation schedule. The MOUs will also enable the County to leverage additional funding for trails facilities, and to share management responsibilities. The MOUs would also increase the level of cooperation between the County and these other agencies.

#### **6. Develop a Trails Map for the East Mountain Area**

The County in tandem with the East Mountain Coalition, the US Forest Service, State Land Office, City of Albuquerque Open Space and stakeholders should undertake to develop a full color trails map for the area. This map would build on the Otero Canyon

Trails map, US Forest Service data and input received during the current Master Plan process. The map would provide invaluable information about existing trails and potential destinations in the trail system. The map would be updated every couple years to account for new additions to the plan.

#### **7. Collaborate Actively with US Forest Service and other Open Space Agencies**

The County should collaborate with the US Forest Service in its future effort management plans affecting the East Mountains. As part of this effort, the County should also continue to collaborate with the City of Albuquerque Parks and Recreation Department and the State Land Office in the development of their management plans.

#### **8. Develop Capacity for Long Term Management of Trails and Bikeways System**

The County should undertake the capacity-building necessary to manage the growing trail system. This would include increased staffing for both the Parks and Recreation Department and the Public Works Department, as well as needed equipment, such as sweepers for paved trails.

#### **9. Modify Ordinances to be Consistent with Long-Term Goals of the Master Plan**

The County should undertake modifications to County Ordinances, such as the Off-Road Motorized Vehicle use and zoning overlays to conform to current goals and future practices pursuant to this plan.

#### **10. Designate Shared Rural Roads As Trail Facilities**

It is recommended that Bernalillo County adopt roads indicated in the Trails and Bikeways Master Plan as Shared Rural Road Trail Facilities. Where these facilities are currently unpaved and are fully functional as unpaved trails, they are to be considered existing

trail facilities. Where those facilities are currently paved or do not function as trail facilities for other reasons, additional right-of-way and unpaved facilities (see Chapter IV-B) will need to be developed before they may be considered trail facilities. In the event of future paving, provision for the existing trail facility will have to be made according to one of the alternative cross sections in Section IV-B or other alternative approved by both County Public Works and County Parks and Recreation. Future paving to accommodate trails may require the purchase of additional right-of-way and the construction of a new soft surface trail adjacent to the roadway.

### **11. Obtain Soft Surface Multi-use Trail Corridor Easements**

It is recommended that soft surface multi-use trails be developed by the County on private lands only when a valid easement for the trail has been granted by the private landowner to the County or another private association with legal status (for example, a conservation land trust or user group association) working in cooperation with the County. Trail easements may be purchased or conveyed to the County as a part of another transaction, but the County shall not use its power of condemnation to obtain a trail easement. The final alignment of the easement, construction of the trail and landscaping, and rules for usage will be developed in cooperation with the private landowner. The private landowner will be protected from liability for any public use according to the New Mexico Recreational Liability Statute (See Technical Appendix).

### **12. Designate Bike Routes and Paved Shoulders**

It is recommended that Bernalillo County include paved shoulders as part of road improvements to any road that is a Bike Route pursuant to this Master Plan. Adoption of this Master Plan shall trigger follow through by Bernalillo County within its Public Works Department and with NMDOT.

### **13. Collaborate on Trail Facilities on Open Space and National Forest Service Land**

It is recommended that Bernalillo County support and collaborate on the development of soft surface multi-use trails in the Master Plan on National Forest, County Open Space and City of Albuquerque land. The agency-owner will determine final alignments and usage rules.

### **14. Facilitate Trail Development Opportunities on Leased Public Land**

It is recommended that soft-surface multi-use trails in the Master Plan on leased public land, such as the lands of the New Mexico State Land Office, be negotiated by Bernalillo County in cooperation with the agency-owner and other private trail user associations, and the existing lessee. Unless otherwise agreed, the final trail alignments and proposed usage cannot negatively impact the economic value of the lease, and will be subject to approval of the lessee.

### **15. Work with Motorized User Groups to Designate and Establish Areas for Legal Motorized Use**

Motorized trail uses are a major issue in the East Mountains. Currently, ATV and motorbike use occurs on private property and is allowed at the USFS Cedro Peak Area. County ordinance prohibits their use within one-fourth mile of any residence, school or hospital. New residential development and population growth will limit motorized trail activities more because of County ordinance restrictions. The Master Plan attempts to accommodate motorized users by identifying recreation areas where this use could be concentrated. This use is subject to further planning, property owner permission, formal agreements, and the organization and stewardship development of specific motorized trail user groups like ATVs, motorbikes, and off-road Jeeps. Further, the New Mexico State Legislature adopted ATV and related motorized use legislation in 2005 that could affect motorized uses in Bernalillo County and the entire state.

## Section B. Guidelines for Trail and Bikeway Facility Types

Many roads in the East Mountain Area began as trails, prior to the development of motorized travel and local, state and federal road systems. These roads continue to be critical for non-motorized, as well as motorized travel, both for local connections and for regional transportation.

All new projects or major reconstruction projects shall accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the costs of including bikeways and walkways would be excessively disproportionate to the need or probable use. Where potential trails are near acequias, coordination with the Acequia Association is required. Equestrians will be accommodated in those corridors where there is current or projected equestrian use and where sufficient separation from vehicular traffic can be achieved.

Facilities for pedestrian, bicycle and equestrian use shall be designed to the best currently available standards and guidelines, such as AASHTO's *Guide for the Development of Bicycle Facilities* (1999) and *Guide for the Planning, Design, and operation of Pedestrian Facilities* (2004) and the Manual for Uniform Traffic Control Devices (MUTCD) for signing and marking of road crossings, bikeways, walkways and equestrian trails.

In the rural East Mountain Area of Bernalillo County, appropriate accommodations may range from shared roads or shoulders to sidewalks and/or separate multi-use trails, either paved or soft surface. Major bike corridors will be designated with Bike Route signs.

The Americans with Disabilities Act of 1990 (ADA), a federal law prohibiting discrimination against people with disabilities, requires public entities to provide accessible accommodations for people with disabilities. Regulations provide

that when new pedestrian facilities (or projects that alter existing facilities) are planned, those facilities must be designed and constructed to be accessible to and usable by people with disabilities. Trail design criteria are provided in the U.S. Access Board draft *Guidelines for Outdoor Developed Areas*. Draft guidelines for public rights-of-way can be found in the U.S. Access Board *Accessible Rights-of-Way: a Design Guide* (1999).

The following cross-sections (page 45-48) illustrate the critical dimensions and relationships between various types of accommodations. The combination of facilities and users will vary for individual road and trail corridors and subsequent design will be tailored for each section.

### 1. Rural Roads

Many existing rural roads with low traffic volumes and speeds serve motorized vehicles, bicyclists, pedestrians and equestrians well, either within the travel lane or on shoulders. Shoulder width and treatment become more important as traffic volumes and speeds increase and in areas with steep grades or where visibility is limited.

- Narrow, low speed, dirt or gravel roads, with low volumes and good sight distances can accommodate non-motorized users with few improvements.
- Paved locals - Though not ideal, if less than 1000 Average Daily Traffic, paved locals with slow speeds and good sight distances may accommodate bicyclists and pedestrians even with shoulders less than 4'.
- If existing paved roads are too narrow to accommodate other users safely and existing right of way isn't adequate to provide safe accommodations, acquisition of additional right of way is recommended. For new development, adequate right of way will be secured at time of development to accommodate future bicycle and pedestrian facilities.
  - *Issues:* As more roads are paved to reduce "fugitive dust" and comply with Air Quality regulations, or at the request of residents, special provisions for non-motorized travelers



become critical. Speeds tend to increase with pavement. Maintaining low speeds promotes safety for all users, especially where right of way on existing roads is limited. Either maintain low speeds through traffic calming measures or add shoulders.

Figure 13 through Figure 15 provide proposed alternative cross-sections which would accommodate existing trail users and can be adapted for particular segments, depending on available right-of-way and other physical considerations.

Figure 13. Shared Rural Road Facility Alternative 1

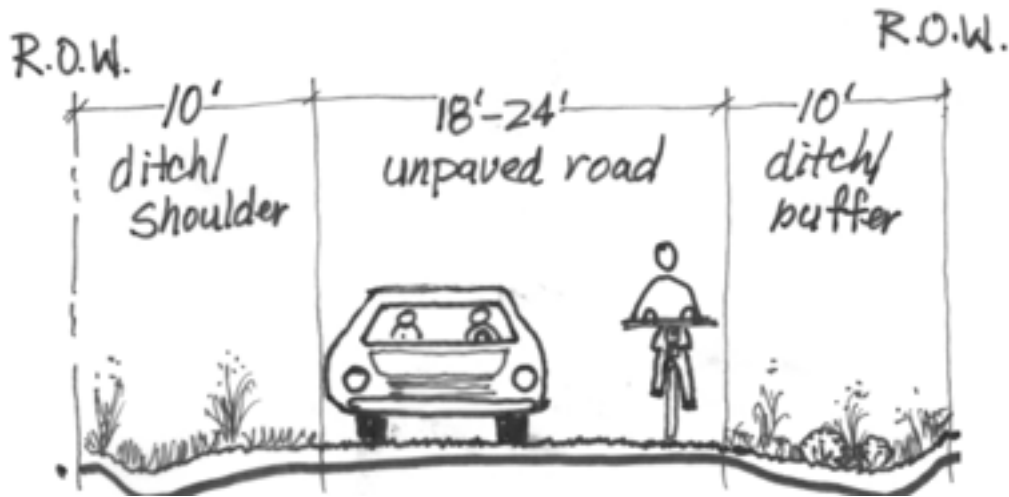


Figure 14. Shared Rural Road Facility Alternative 2

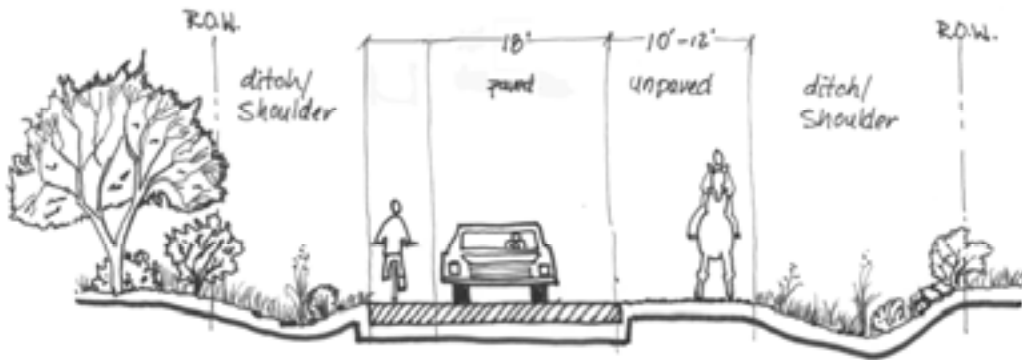
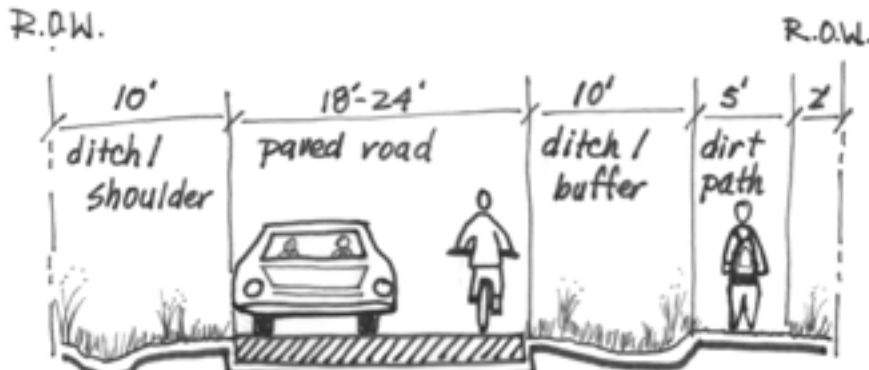


Figure 15. Shared Rural Road Facility Alternative 3



## 2. Bike Routes

The plan recommends paved shoulders and designation of bike routes on paved arterials and highways. Paved shoulders on paved roadways serve a variety of safety, operational and maintenance needs, in addition to accommodating bicyclists and pedestrians. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways with greater than 1,000 ADT. Use AASHTO's recommendations for shoulder width as described in *A Policy on Geometric Design of Highways and Streets (Green Book)*. With higher volumes and speeds, steep grades and/or limited sight distance, 4'-6" or wider paved shoulders are needed for bicycles and pedestrians. If possible, reduce travel lane width to widen shoulders in order to minimize additional pavement and right of way impacts.

Narrow lanes will also help manage vehicle speeds in residential areas.

Dirt shoulders or a separate soft surface trail should be provided for equestrians in paved road corridors where there is equestrian travel.

*Issues:* Context sensitive design considerations, severe physical constraints and insufficient right of way (ie. roads on prescriptive easements) may limit options. Additional right of way should be acquired in order to provide appropriate and safe facilities. Figure 16 shows a typical cross-section of a road that includes shoulders for a bike route.

## 3. Multi-Use Trails within the Road Right of Way

As a rural/semi-rural area, sidewalks and separate paved trails paralleling the roads in the plan area are currently very limited. Sidewalks or separated multi-use trails (paved or other firm stable ADA-compliant surface) are recommended in activity centers, particularly within one mile of schools and commercial centers.

- Sidewalks, within right of way, should be a minimum of 5' wide, with a 5' separation from the roadway and should meet ADA requirements for slopes, surfaces and access ramps. Figure 17 shows a road cross section with sidewalk and paved shoulder.

Figure 16. Bike Route with Paved Shoulders

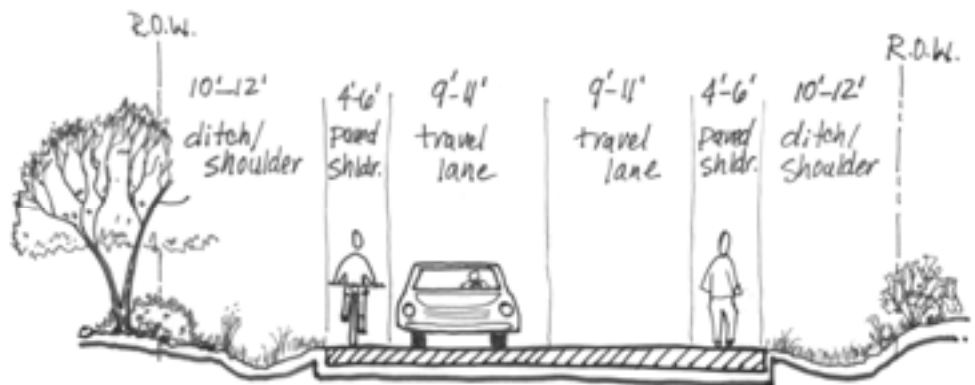
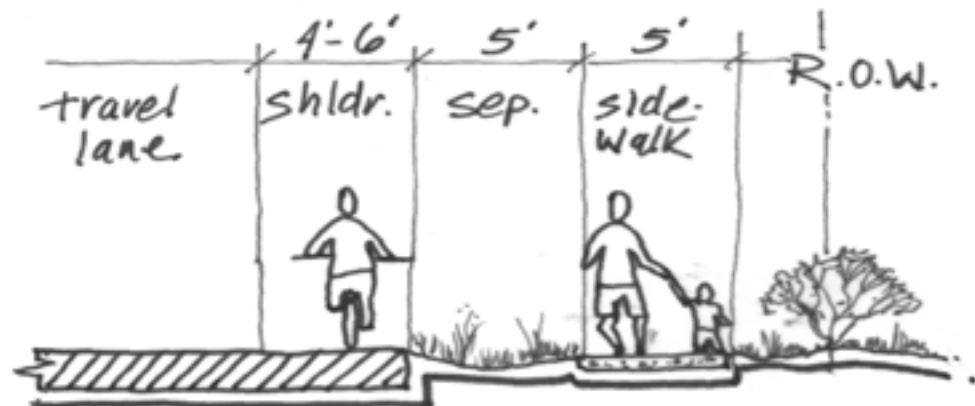


Figure 17. Sidewalk and Bike Lane Along Roadway



- Paved Multi-use Trails**  
 This type of facility is recommended for regional multi-use trails (I-40/NM333 and NM 14). Paved multi-use trails may be considered in lieu of sidewalks as an option for access to major destinations, like village centers and schools, (within one mile of destinations). Shoulders should still be provided for road bike use. Use *AASHTO Guide for Development of Bicycle Facilities*. Provide a minimum 5' separation from roadway or a physical barrier and meet ADA requirements.

- Issues:* Carefully evaluate the number of driveway crossings. If greater than four per mile, proceed with extreme caution.

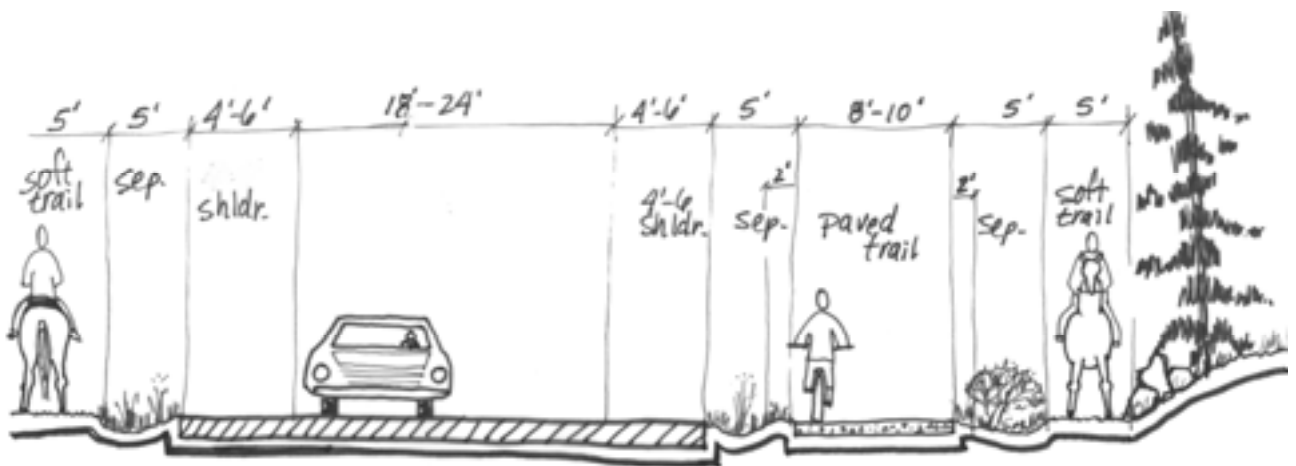
- Soft-surface Multi-use Trails**  
 Separate soft-surface trails or dirt shoulders should be provided for equestrians in paved road corridors where there is equestrian travel. These may also serve other users. Figure 18 shows a typical cross section at a roadway that includes paved and soft surface multi-use trails.

- Bridges**  
 Bridges should be built with sufficient width to accommodate two-way bicyclist, equestrian and pedestrian traffic. Existing bridges should be evaluated for retrofits that

would improve safety for non-motorized users.

- Trail Crossing Treatments at Roadways**  
 Safe crossings shall be provided for pedestrians and other non-motorized users including bicyclists and equestrians in activity centers, school areas, at major intersections, and where trails cross roads at mid-block locations. The treatment of trail crossings at roadways in the East Mountain Area will vary depending on a number of factors, including traffic volume, number of lanes, presence of a median, and speed on the road being crossed, as well as the expected trail volume at the crossing. Possible treatments include:
  - enhanced signing and striping
  - raised crossings
  - raised median for refuge
  - curb extensions/street narrowing
  - increased lighting
  - in-pavement or overhead flashing beacons
  - traffic signals (where warranted by the *Manual on Uniform Traffic Control Devices*)
 Providing marked crosswalks at locations uncontrolled by traffic signals or stop signs has been controversial, with many studies concluding that the crosswalk gives the pedestrian a false sense of security when

Figure 18. Cross Section of Road with Paved and Soft Surface Multi-Use Trails



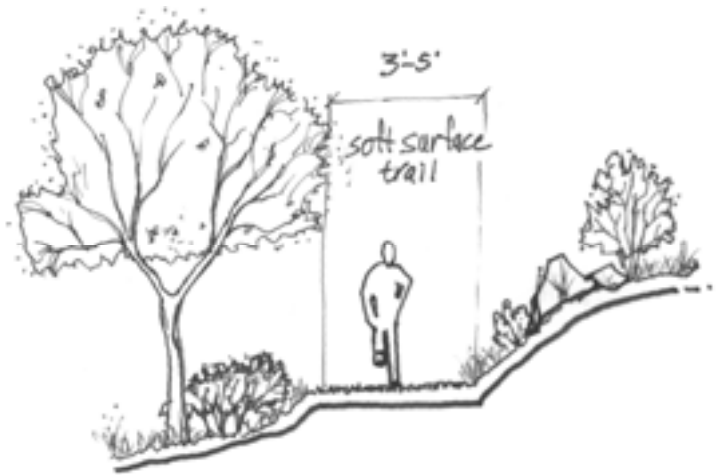
crossing the roadway. Recent research findings (“Safety Analysis of Marked Versus Unmarked Crosswalks in 30 Cities,” *ITE Journal*, January 2004) have resulted in recommendations for and against installing marked crosswalks and other pedestrian improvements at uncontrolled locations based on the roadway factors listed above. For instance, for a trail crossing at a two-lane road with a daily traffic volume less than 9,000 vehicles per day and a speed limit over 40 mph (as an example, the current condition on NM 337), an increase in pedestrian crash risk would be expected by installing a marked crosswalk without other pedestrian facility enhancements. The recommendations of the ITE Safety Analysis should be used as a guideline in selecting the appropriate treatment when designing trail crossings of roadways in the East Mountain Trails and Bikeways Plan area.

#### 4. Multi-use Soft Surface Trails in Separate Rights of Way or Easements

- Paved Multi-use Trails may also be developed in separate rights of way or easements, reducing potential conflicts with motor vehicles to crossing locations.
- Soft Surface Trails in separate rights-of-way on private property easements may occur in utility corridors, as local connections to subdivisions, including fire access roads and/or utility access roads doubling as trail access, or connections to and between destinations, including public lands with trail systems managed by various agencies. Most will be multi-use, serving a variety of users. Some may be signed to restrict user types. Motorized Off Highway Vehicles are restricted to designated roads, trails and areas. *The Trails and Bikeways Master Plan* discusses needs of individual users in Chapter IV and the Technical Appendix. The USDA Forest Service *Trail Construction and Maintenance Notebook* provides guidance

for these types of trails. Figure 19 is a cross-section of a soft surface multi-use trail.

Figure 19. Soft Surface Multi-Use Trail



#### 5. Trail Access Facilities

Access to the trail, bikeway and open space system will require dedicated points for entering the system. In places this will entail creating areas for potential users to park their vehicles and prepare for their trail activity. Other locales are not intended to have parking. Three types of trail access facilities are identified in the Master Plan:

- A) staging areas;
  - B) trailheads; and
  - C) neighborhood access points
- **Staging areas**  
Staging Areas are trail facilities that have large parking areas in order to provide sufficient space for five or more vehicles, including trailers that carry horses or off-road vehicles. A staging area could provide direct access for users to a major open space area, or could also be a staging area for cyclists using major roads or for other users making use of rural road and open space system.

Typically, the surface of the facility is gravel or crusher fines, but in certain instances may be paved asphalt or stabilized crusher fines in order to provide ADA access. Staging

Areas will typically include signage, designated entry points and an information kiosk with a map and interpretive materials. The Forest Service staging area at Mars Court is an example of a functional staging area. Several staging areas currently exist on National Forest land, but several more are proposed at various locations in the Master Plan area.

- **Trailheads**

Trailheads are meant to accommodate two to eight cars, but not trailers. They are smaller than staging areas. These facilities provide access to open space facilities or segments of the trail system. They may also be used to provide access in residential or other areas where a staging area would be inappropriate or problematic, or where the typical users are likely only to be hikers and dog walkers. Trailheads may be as simple as a gravel pull-off or could be a paved and striped series of parking places, in order to provide ADA access to a neighboring facility. Trailheads will typically include signage, designated entry points and an information box that provides maps to the facility/segment of the system. A typical Trailhead facility is similar to that currently found at Sunflower Park and Juan Tomas Open Space. Several Trailheads exist on National Forest and City and County Open Space lands, and several more are proposed by the Master Plan.

- **Neighborhood Access Points**

Neighborhood Access Points are the most limited of access facilities. Typically, the Master Plan has proposed these facilities at the interface between existing or future residential areas and open space areas. Because of the residential uses, parking facilities for non-residents would be inappropriate. The Neighborhood Access Point will permit existing and future residential neighbors, as well as users of the rural road and trail system to access the open space. Neighborhood Access Points

will have minimal signage and a designated entry point, but otherwise no supporting facilities. A typical Neighborhood Access Point proposed in this plan is found at the end of McGuinness Road into the Juan Tomas Open Space.

## 6. Potential Recreation Areas

A series of Potential Recreation Areas are identified. These areas would typically have more intensive recreational use than other open space areas. The goal for these areas would be to provide motorized and other intensive users with courses that could meet the needs of their particular use. These facilities would be jointly managed by the County and a formal foundation or association representing particular user group(s), pursuant to terms established at the time of acquisition or lease. Significant coordination and planning with property owners, user groups, and adjacent residents will be required to make these potential recreation areas a reality.

## 7. ADA Accessible Facilities

Currently, there are three major ADA accessible interpretive trail facilities on National Forest land at the Doc Long and Cienega Picnic Areas, and the Sandia Ranger District Station on South 14. ADA accessible facilities also exist along north 14 and between the Vista Grande Community Center and neighboring school facilities. There are several ADA accessible facilities identified in the Master Plan, including the paved trail along Frost Road and US 333, as well as the sidewalks and off road paved trails proposed near existing and proposed schools in Tijeras and near the County Line by the Route 66 Elementary School. Finally, there are fully accessible interpretive facilities proposed adjacent to the Tijeras Arroyo on the APS lands from the school road entrance to the bridge to Los Vecinos Community Center.

## Section C. Master Plan Description

The Master Plan is shown in Figure 20 and is also attached as fold-out map at the back of this report. The Plan provides for the following types of facilities, which are described in detail previously in Chapter IV Section B:

- Rural Roads
- Bike Routes
- Multi-Use Trails in the ROW (paved and soft surface)
- Trail Access Facilities (staging areas, trailheads and access points)
- Soft surface Multi-use Trails with separate ROW or easements
- Potential Recreation Areas
- ADA Accessible Facilities

The Master Plan has been divided into 15 segments that correspond to the 15 segments used for field assessment and planning. Brief descriptions of each segment's character and proposed facilities are presented below.

Figure 20 shows existing trail facilities and proposed corridors for new facilities. Segment descriptions are a guide for the County's future planning and design efforts. The final determination of legal feasibility (right-of-way and easement status), surveying, engineering feasibility, alignment, and construction plans for each trail facility will occur on a segment-by-segment basis during separate planning and design of projects to be undertaken by the County for specific facilities as part of the implementation of the Master Plan. New facilities be built only upon completion of a final alignment study, adequate design and construction funds.

### 1. Crest Highway (NM 536)

The Crest Highway is the principal route for many users to visit Sandia Crest and to access the Crest Trail and Faulty Trails. Currently, cyclists seeking a challenge use the road. The Master Plan proposes that it become a signed bikeway with a minimum paved shoulder width of two feet, however when a shoulder is less than 4 feet they share the travel lane.

Two proposed multi-use trail corridors are shown in this area, including the pipeline utility corridor that connects the University of New Mexico (UNM) La Madera and Paa-Ko lands to the National Forest and the Civilian Conservation Corps (CCC) trail corridor through the Campbell Ranch lands. No additional trail access facilities are proposed for the Crest Highway.

### 2. La Madera Road

La Madera Road forms the dividing line between the Paa-Ko lands and Campbell Ranch west of North 14. The Master Plan proposes four-foot paved shoulders along the entire length of the corridor to the Sandoval County Line. In addition a soft surface trail is recommended along the east side of the road inside Paa-Ko lands where enough ROW exists. The existing paved trail that connects the community center to San Antonito Elementary school would be extended along the northeast side of La Madera Road over to the East Mountain Charter High School.

In addition to the off-road trails discussed above, multi-purpose trails are proposed to connect the cul-de-sacs within the Paa-Ko subdivision to La Madera Road. A dirt trail/road at the north end of the Paa-Ko subdivision is proposed as a trail, which would connect through a proposed potential recreation area to La Madera Road. Inside the existing Paa-Ko subdivision, roads are to be signed for pedestrians and bicyclists. A Staging Area is proposed along the La Madera Road junction of the middle Paa-Ko trail and the Utility Easement Corridor Trail.

### 3. Far North 14 (NM14)

The Far North 14 segment goes from San Antonito all the way to the Sandoval County Line. In addition to the facilities described above that will tie into NM 14 in this area, the Master Plan proposes six-foot-wide shoulders along the roadway and a paved multi-use trail on the west side of the road from the County line south to the Vista Grande Community Center. A soft surface multi-use trail is proposed for the east side of the roadway, which will make connections into the Campbell Ranch subdivision as those internal trail systems develop. The paved

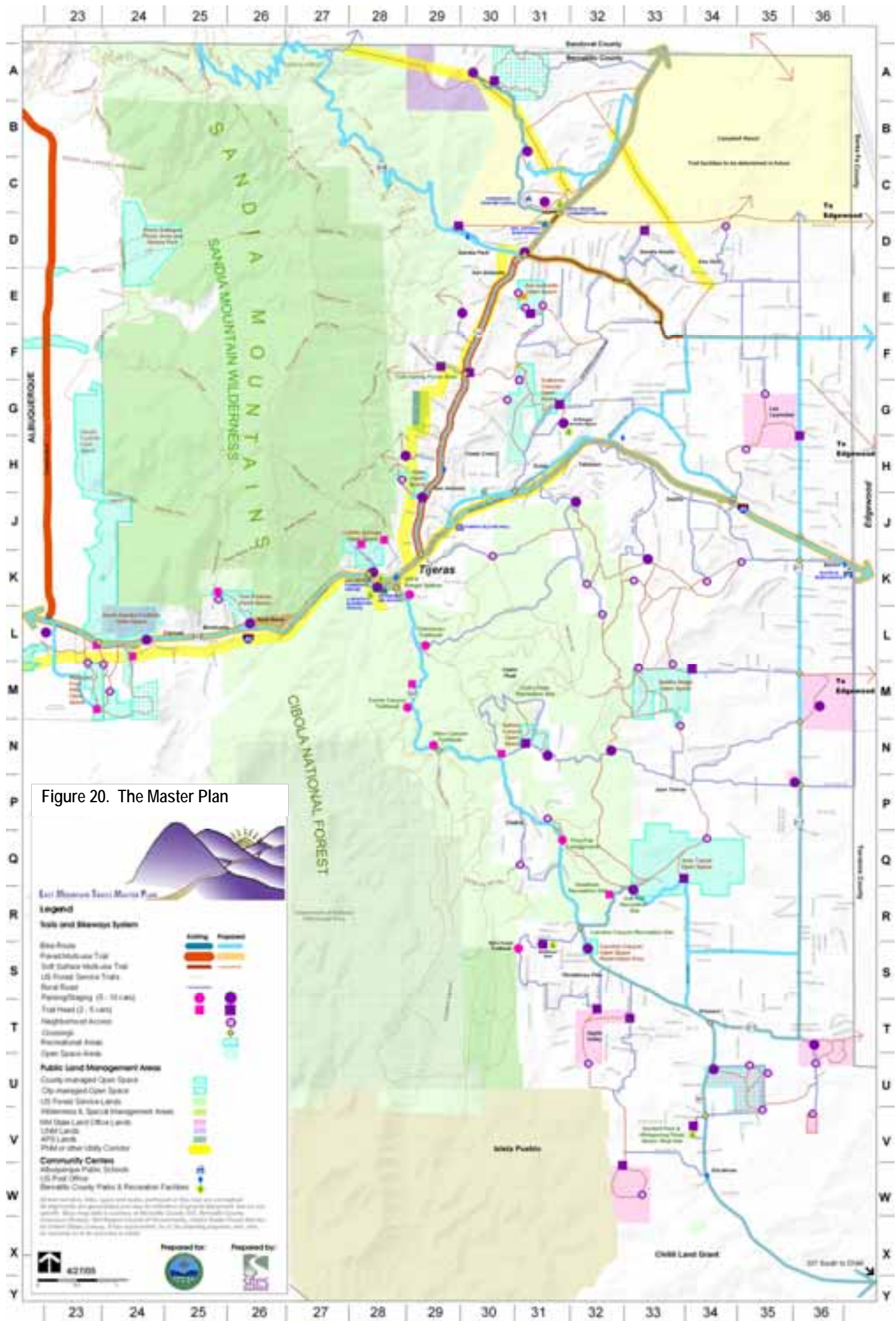


Figure 20. The Master Plan



East Mountain Trail Master Plan

Legend

Trails and Staging System

- Blue Ridge
- Forested Multi-Use Trail
- Soft Surface Multi-Use Trail
- US Forest Service Trails
- Road Run
- Paved/Staging (5-10 miles)
- Trail Head (2-5 miles)
- Neighborhood Access
- Crosswalk
- Recreational Area
- Open Space Area

Public Land Management Areas

- County managed Open Space
- City managed Open Space
- US Forest Service Lands
- Wilderness & Special Management Areas
- BLM Open Land Office Lands
- UMR Lands
- APN Lands
- PMA or other City Center

Community Centers

- Neighborhood Public Schools
- US Post Office
- Berkeley County Parks & Recreation Facilities

42705

Prepared for:

Prepared by:

shoulders, paved multi-use and soft surface multi-use trails would extend north to Sandoval County to connect with any future Santa Fe and Sandoval County trail system. The Master Plan proposes a second, multi-use trail from San Antonito Elementary School to the intersection of Frost Road. A Staging Area and a major crossing are shown at the intersection with Frost Road.

#### **4. Frost Road**

Frost Road connects from San Antonito and NM 14 to the Sandia Knolls subdivision to Mountain Valley Road and into Edgewood. Many current users of this road would like better accommodations. A paved multi-use trail is proposed from Valle Hermosa Road all the way to North 14 to accommodate the large volume of school children and other potential users. For recreational users, a soft surface trail is proposed for the south side of Frost Road with as much separation from driving lanes as possible. A safe crossing or signalization will be needed at the intersection of Frost and NM 14 as well as the intersections of local rural roads. The Master Plan identifies potential new access routes into and through the Sandia Knolls to enable continuous trail links and emergency vehicle access. The Plan also identifies four-foot wide paved shoulders along Vallecitos Road and shared Rural Road facilities along Adobe Lane, Pine Ridge Road, Valle Hermosa Road, Entranosa Road, Tumbleweed Road, Taft Road, Kramer Road and the north end of Mountain Valley Road. Access to the proposed Open Space area in Campbell Ranch (see Campbell Ranch Master Plan) would come off the Mountain Valley Road, whereas the Tumbleweed-Taft-Kramer Road connection would provide access to the State Land Office Lands on Mountain Valley Road. Both Adobe Lane and Pine Ridge Road would provide access to the San Antonito Open Space. Valle Hermosa Road would provide an additional soft-surface connection from Frost Road to Gutierrez Canyon Road.

#### **5. North 14 (NM 14)**

The North 14 segment runs from Tijeras to San Antonito and is the principal route for accessing the Sandia Mountain National Forest Wilderness and Ojito Open Space areas. Over the long term, the Master Plan proposes development of six-foot wide shoulders along this road for cyclists, redevelopment of the existing sidewalk into a paved multi-use trail with a buffer on the east side of the highway and development of soft surface trail on the west side. In addition, shared rural road facilities and access facilities are proposed for Line Road (Staging Area), Cole Springs Road (Trailhead), Casa Loma Road (Staging Area), and Ojito Road (Staging Area). A Trailhead and multi-purpose trail is proposed east of NM 14 from the intersection of Cole Springs Road to provide access through private property to the Gutierrez Canyon Open Space. The crossing at US 333 is another key facility to enable users to make connections.

#### **6. Gutierrez Canyon Road**

Gutierrez Canyon Road forms the spine of another important trail corridor in the East Mountain Area centered on the two City Open Spaces, Gutierrez Canyon and San Antonito. Under the Master Plan, the road itself is to be an important shared Rural Road facility. Other shared Rural Road facilities are proposed for Pine Ridge Road, Piñon Trail, Hobart Road, and El Refugio Road. In addition to trails and access points proposed in the existing open space resource management plans, multi-use trails are proposed to connect Piñon Trail to the Gutierrez Canyon Open Space, Piñon Trail, Hobart Road and Valle Hermosa Road to Gutierrez Canyon Road proper. El Refugio Archery Center is proposed as a major Staging Area facility for this segment.

#### **7. North Mountain Valley Road**

Mountain Valley Road between Frost Road and U.S. 333 is an important north-south connection on the east side of the Project Area. Six foot



shoulders are proposed for the entire length of this segment. A single Trailhead and set of connecting multi-use soft surface trails are proposed for the State Land Office lands. Coordination with the developers of the proposed Las Leyendas Subdivision is required to ensure their internal trail network has adequate connections to trail corridors beyond the subdivision that are identified in this Master Plan.

## 8. West US 333 (Old Route 66)

West 333 (Old Route 66) provides the western gateway to the Project Area and the point of connection to the City of Albuquerque trails and bikeways facilities. It connects from Four Hills Road and Tramway in Albuquerque to Tijeras and includes much of the original area of the Carnuel Land Grant. As a result, the principal facilities through the segment will be six-foot-wide paved shoulders and a paved multi-use trail along the south side of 333 within the ROW. Bike Route status is proposed for Stage Coach Road up to the Manzano/Four Hills Open Space. A shared Rural Road facility is proposed for Herrera Road and Carlito Springs Road. A series of additional soft surface multi-purpose trails and neighborhood access points are proposed for the private land below and north of the Open Space to connect to the Open Space and along the Tijeras Arroyo.

At Tres Pistolas, land is proposed to be purchased for a Staging Area that would provide access to the Open Space, and from there, to the National Forest from the southeast corner of the property. Additional Staging Areas are shown for the island at the Carnuel on-ramp to I-40 and at an unused parking lot near the Tijeras Arroyo. A motorized recreation area that could potentially be dedicated jeep use, subject to further planning and coordination is also shown on private land east of the Four Hills Open Space. Finally, a pedestrian bridge connection over I-40 between the Four Hills Open Space and the South Sandia Foothills Open Space, which was originally proposed as part of the Interstate Corridor

Enhancement plan, is also reiterated as part of this Master Plan.

## 9. Tijeras

The six-foot shoulders and the paved multi-use trail proposed on the south side of the US 333 will continue through Tijeras and connect with the multi-use paved trails on NM 14 to San Antonito and South 337 to the USFS Ranger Station. Between intersections of South 337 and NM 14, however, the multi-use trail will be an eight-foot sidewalk and the shoulders will be striped bike lanes. Widening of the entrance roads and provision for a continuous six-foot wide sidewalk and a striped bike lane are proposed for the Public School Road. A spur will connect to the existing pedestrian bridge across the Tijeras Arroyo to Los Vecinos Community Center. An ADA-accessible interpretive trail is proposed along the Arroyo from the west entrance road to the schools up to just beyond the bridge to the Community Center. A paved multi-use trail is also proposed from US 333 along the road leading up to Tijeras Village Hall and back to U.S. 333 along an adjacent road. Villacitos Road, including the segment that connects across the National Forest to Tablazon, is to be a shared Rural Road facility. Parking facilities at the schools and the Community Center are proposed as Staging Areas. Crossings to the School Road over NM 337 and across US 333 will also be important facilities.

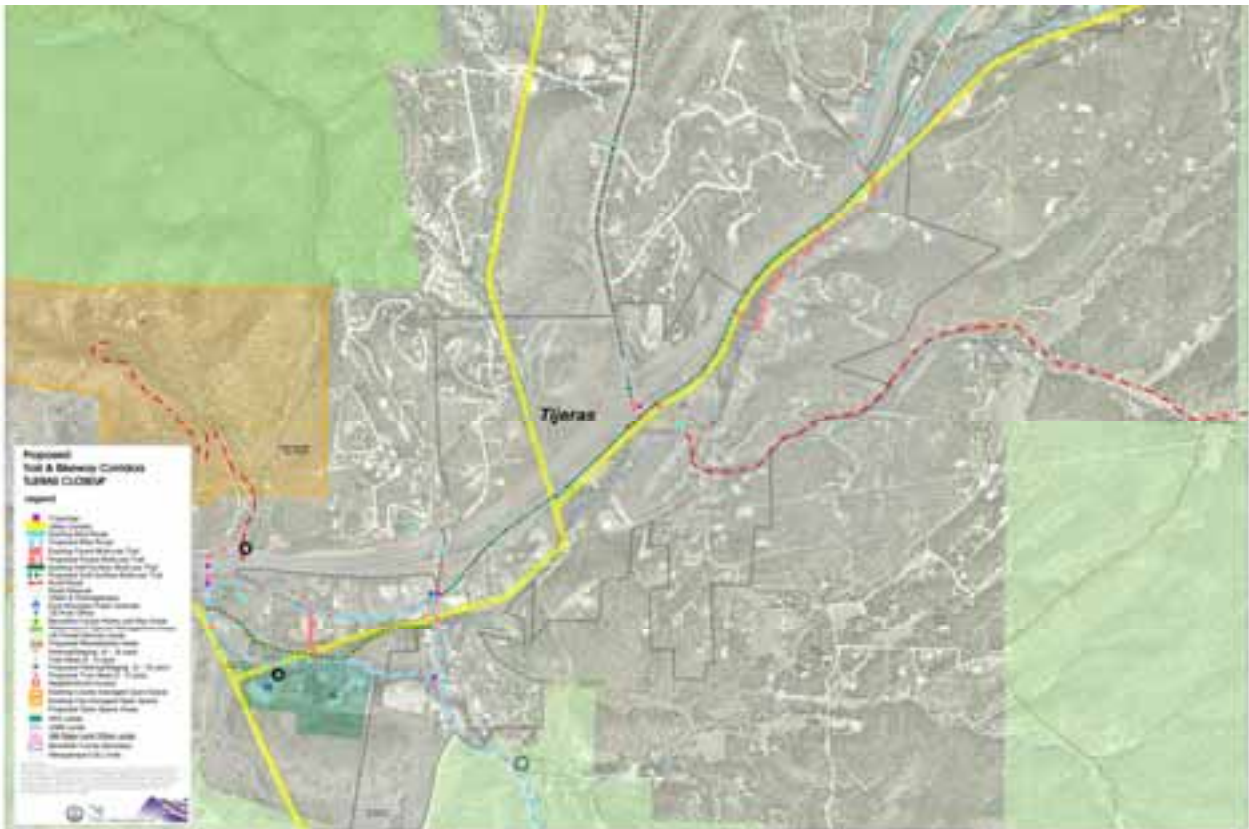


Figure 21. Tijeras Close-up

## 10. East US 333

The six-foot shoulders and the paved multi-use trail will continue from Tijeras past the Santa Fe County Line to connect with the City of Edgewood system. A soft surface multi-use trail is proposed in limited areas from Kennedy Road to the Zuzax underpass and to the beginning of Sedillo Road. Zuzax Road is to have four-foot shoulders for cyclists and a wide unpaved shoulder from Gutierrez Canyon Road to the Zuzax underpass. Sedillo Road will also have four foot paved shoulders. Camino del Poniente, Sunrise Road, Kennedy Road (including Forest Road 462), Sedillo Road and several of its local feeder roads (Five Hills Road, Longview Road, Via Sedillo Road) are all shared Rural Road facilities. Maintaining the Rural Road facilities will enable equestrian uses to continue over the long-term. Soft surface multi-use trail corridors are proposed from Sunshine Road to the Las Leyendas Property and along the Section Line from the National Forest land at the end of

Longview and east to Via Sedillo Road. The latter trail corridor has an additional spur corridor that goes south to connect to the Sedillo Ridge Open Space. A series of Neighborhood Access Points are shown off the Rural Roads for this segment. Staging Areas are shown at the nexus of Kennedy and Longview Roads with the National Forest.

## 11. South 337 to Oak Flat

South 337 has a number of new facilities that have been proposed as part of a recent Management Plan developed by the US Forest Service. Trails facilities at Chamisoso Canyon Road, Otero Canyon and David Canyon have been improved. Throughout this segment, six-foot-wide paved shoulders are proposed. In addition, sidewalks and bike lanes are proposed from the intersection of US 333 to Public School Road, and a paved multi-use trail from Public School Road up to the USFS Ranger Station on the East side of the road.

## 12. NM 217 (South Valley Mountain Road)

State Road 217 segment could provide access to the east side of many of the East Mountain Open Space areas, including the Cedro Peak area of the National Forest, Sedillo Ridge Open Space (BC) and Juan Tomas Open Space (COA). Along State Road 217 from US 333 to the intersection with Plant Road, six foot paved shoulders are proposed. A soft surface multi-use trail is proposed on the east side of the highway from Plant Road to Juan Tomas Road. Four-foot shoulders are proposed for Gonzales Road. Shared Rural Road facilities are shown for Barton Road, Brannan Road, Upper Juan Tomas Road, Young Road, Lower Juan Tomas Road, McGuinness Road, and Plant Road. Proposed soft surface multi-use trail corridors are shown connecting Brannan Road and Upper Juan Tomas Road to the Sedillo Ridge Open Space, State Road 217 and the SLO 217 Property to Edgewood Trails Park, and the Juan Tomas Open Space and McGuinness Road to Juan Tomas Road. A series of soft surface multi-use trail corridors are also proposed in the National Forest to provide connections among various open space areas. A trailhead is shown at the Sedillo Ridge Open Space and a Staging Area is proposed for the SLO 217 Property.

## 13. Juan Tomas Road

Juan Tomas Road, like Gutierrez Canyon Road, is an historic road that has evolved from earlier paths. It too is the spine for an existing trails network that should be preserved. The Master Plan shows the entire segment as a shared Rural Road facility. The Plan also provides for Upper and Lower Juan Tomas Roads, as well as Forest Road 252 and Young Road to be shared Rural Roads. A series of proposed soft-surface multi-use trail corridors are shown, which connect the Sedillo Ridge Open Space, Juan Tomas Open Space and the Sabino Canyon Open Space through National Forest lands. Staging Areas are shown on State Land Office Land at the

intersection with 217, at the junction of Bear Scat 2 Track Trail and Sabino Canyon Open Space.

## 14. South NM 337 (Pine Flat/Oak Flat)

South 337 from Juan Tomas Road down to Apple Valley Road is characterized by many relatively recent subdivisions, some of which are in-holdings in the National Forest. Along the highway, six-foot wide shoulders are proposed and a soft surface multi-use trail is proposed on the west side of the road from Raven Road/Oak Flat Road intersection to Apple Valley Road. Four-foot shoulders are proposed for Oak Flat Road, with a soft surface trail proposed for the north side of the road from 337 to the first entrance into the Oak Flat Picnic Ground. Shared Rural Road facilities are proposed for several roads in the Cedro subdivision, Raven Road, and Armin Road-Kuhn Road link. Soft surface multi-use trail corridors that would also serve as emergency vehicle access are shown in the Cedro subdivision and from Kuhn Road to Skyland Road in two places. Soft surface multi-use trail corridors are also proposed across the SLO Apple Valley property. A major staging area currently exists at Mars Court. The Master Plan proposes development of the Juan Tomas Trailhead and the Carolino Canyon Picnic Area parking lot into a Staging Area. Along with SLO parcel Neighborhood Access Points, Trailheads are shown at the Apple Valley.

## 15. Yrisarri-Escabosa

The Yrisarri- Escabosa area is at the southern end of the Plan Area and includes segments of South NM 337 and South NM 217. The Master Plan calls for six-foot wide shoulders along the highways, and a soft-surface multi-use trail along both sides of NM 337, from Raven Road to Plant Road, and on the west side of 337 from the intersection of 217 to Chilili. A four-foot shoulder is proposed for Anaya Road. Shared Rural Road facilities are proposed for a number of roads, including Apple Valley Road, San Isidro Road, Abbey Road, Bear Cat Road and Plant Road.

Additional soft surface multi-use trail corridors are proposed to connect to the SLO Apple Valley Property, the SLO Escabosa-Isleta Property and the SLO County Line Parcels. The SLO Escabosa-Yrisarri property is proposed for a motorized recreation course park, subject to further planning and coordination, and the area to the east is proposed for motorized trail use. Two staging areas are proposed for the Escabosa – Yrisarri and the County Line properties. Trailheads are also suggested near the Ponderosa Restaurant and the Escabosa-Isleta property.

## Chapter V. Phasing & Implementation



Completion and adoption of the East Mountain Trails and Bikeways Master Plan represents only the beginning of a process that will result in the creation of a fully functional trails and bikeways system. The implementation process envisioned by the Master Plan will take place over the next two to three decades. The level of coordination among different agencies during this Master Plan will be key to full implementation over the long term. The ongoing involvement of the East Mountain community through the East Mountain Coalition of Neighborhood and Landowner Associations, other user groups, and community stakeholders are also critically important.

**Bernalillo County emphasizes and recognizes the land management authority and jurisdiction of the United State Forest Service/Sandia Ranger District on its lands. Many desired trail improvements throughout the East Mountains are outside of the County's scope to implement.**

Bernalillo County Parks and Recreation Department (BCPR) and Bernalillo County Public Works Division (BCPW) will be the primary agencies responsible for implementing the East Mountain Trails and Bikeways Master Plan outside of the Cibola National Forest. Staff from these two agencies normally involved in trail projects will handle short-term implementation (< 3 years). Short-term implementation funding will come from the County's "Five-Percent Set Aside" ordinance, East Mountain Park impact fees, and any specific capital outlay appropriations obtained by a legislator representing the East Mountains. Excluding trail projects associated with subdivision and/or special use permit land use approvals, County staff cannot undertake more than a couple of trail corridor projects within three years of plan adoption because of staffing and funding limitations.

The East Mountain Coalition of Neighborhoods and Landowners will be involved in the short-term and long-term implementation of this plan. Though further coordination will be an on-going process, the County has reached general agreement with the Coalition about their long-term assistance in:

1. Supporting the adoption of the EM Trails Plan before the County Planning Commission and the Board of County Commissioners.
2. Promoting trail awareness and maintenance by volunteering on National Trails Day (first Saturday of June), possibly in conjunction with trail development and stewardship activities on County Open Space properties that will be undertaken with Talking Talons Youth Leadership, Inc..
3. Establishing a permanent trails sub-committee to work with the County and developers.
4. Participating in securing trail easements.
5. Helping to develop promotional information for distribution to the media, residents, etc.
6. Participating in periodic revisions of trail corridor development priorities.

Involving the East Mountain Coalition in plan implementation will be aided tremendously by the National Park Service RTCA technical assistance grant for 2005. This effort will help the Coalition establish themselves as a plan partner and gradually increase their organizational capacities relative to plan implementation.

During the on-going implementation process, priorities may shift from those outlined in this chapter depending on the opportunities that emerge through future development and open space acquisition processes. As priority projects are decided upon, the County will identify funding sources and partners at the Federal, State and

local level for planning, design and construction of the targeted facilities. An alignment/feasibility study will then take place to determine the specific placement of the trail in the landscape, as well as the projected construction costs, the real estate requirements (land, right-of-way and/or easements) and environmental and other clearances necessary to complete the proposed facility. Once all necessary funding, real estate and clearances have been obtained, the final design and construction documents will be developed for the facility. Only thereafter will the actually facility be constructed by the County through a contractor or its own staff. Typically, a given facility will take two to four years to complete from the time the County initiates' action on a proposed priority facility. This process is shown in Figure 22.

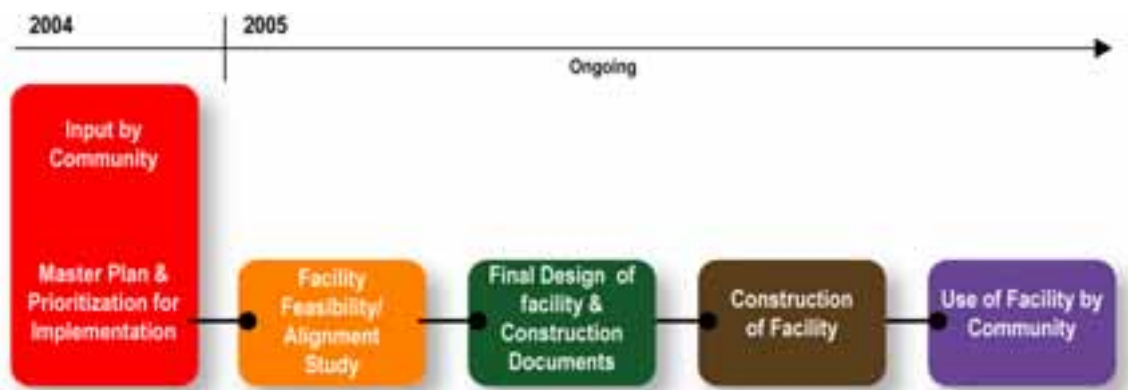
The specifics of the implementation process and partners will vary depending on the different types of facilities. In all projects, the East Mountain Coalition of Neighborhoods and Landowners will be involved.

- Bike Routes (shoulders, striping and signage) will typically be initiated by the County Public Works Division working with NMDOT utilizing funds earmarked for transportation projects. Where necessary, ROW will need to be secured.
- Future changes to rural roads, which already are functioning parts of the trail system, as

well as trail modifications to former rural roads that have been recently paved, will also be initiated by the Public Works Division and will in many cases require purchasing of additional ROW.

- Paved multi-purpose trails and soft surface trails within road ROW will be a joint effort of the Public Works and Parks and Recreation Departments, and depending on the type of road will also involve NMDOT. Paved multi-purpose trails will in many cases require an alignment study and some additional ROW purchases.
- Implementation of soft surface trails outside of road ROW will begin with securing of an easement for the trail, either by mutually agreeable transfer from a private landowner to the County, or as part of the platting of land for residential development. Trail easements may also involve a private third party that can hold the easement. In the case of trails on the State Land Office lands, permission of the existing lease-holder will have to be obtained and/or an additional lease will have to be negotiated with State Land Office. Once the easement or lease has been established the trail may be designed and constructed, often with the assistance of volunteers and user group organizations.
- Other facilities such as trailheads, recreation areas and staging areas will require the County to purchase or lease land from

Figure 22. Process Diagram



private land owners or the NM State Land Office to build the particular facility. In some cases, these will be joint efforts with other agencies such as the Open Space division of either the City or the County or the Forest Service.

As the implementation process for facilities construction gets underway, some of the recommendations above will also need to be implemented in order for the County to bring the plan and envisioned facilities to fruition. The order of priority for various recommendations are listed below.

- **Letters to Private Land Owners potentially impacted by the plan** – with the Master Plan out as a public document, private land owners whose land will may be affected should be notified. This effort is an important courtesy by the County and may alleviate the potential for resistance during the implementation process. This step has already been taken as the draft plan was in the final stages of completion.
- **East Mountain Coalition of Neighborhood and Landowner Associations** – establishing a trails committee as an advocacy and planning support organization for trails and bikeways in the East Mountains is perhaps the single most important recommendation for implementation. The committee will be critical to development of plans for specific facilities and for working with private landowners to secure easements. They will also be an advocate for funding and organizing volunteer efforts for fund raising, trail awareness, etc.
- **Easement Strategy and Package** – the easement

package is necessary for securing the many easements from private landowners to make the trail system a reality and to build the County's capability for managing implementation of this plan.

- **Completion of MOUs with Agencies** – many of the facilities envisioned by the plan can only become a reality once this recommendation has been implemented. Key MOUs will need to be executed with USFS, AOSD, NMDOT and the SLO.
- **East Mountain Trails Poster** – this could be the first tangible product of the Master Plan effort, and become an important, evolving reference for the East Mountain community.

## Section A. Generalized Priority Segments & Facilities

After the final Master Plan was developed, the facilities envisioned were aggregated into a series of projects by segment. As part of the community input process that involved the Steering Committee and the Technical Team, each segment was prioritized and priorities were presented and commented on the October 27 Open House. Table 4 shows the fifteen segments in general order of priority.

Table 4. Generalized Segment Priority

Segment	Priority
Frost Road	High
Gutierrez Canyon	High
Juan Tomas	High
Village of Tijeras	<i>Medium to High</i>
La Madera Road	<i>Medium to High</i>
South 337/Oak Flats	<i>Medium to High</i>
NM 14	<i>Medium to High</i>
East NM 333	<i>Medium to High</i>
West NM 333	<i>Medium to High</i>
Mountain Valley Road	<i>Medium to High</i>
Far North NM 14	<i>Medium</i>
NM 217	<i>Medium</i>
Yrissara – Escabosa	<i>Medium</i>
NM 337 to Pine Flats	<i>Low</i>
Crest Highway	<i>Low</i>

Priorities were based on:

- relative need currently, (e.g. emphasis and interest from community meetings or relatively large number of recreational users that would benefit from facility immediately)
- relative cross functionality, (e.g. crossing would serve both school kids and recreation enthusiasts)
- potential for completing a circuit or link, (e.g. creating an access trail and trailhead to an existing Forest Service trail)
- ease of implementation, (e.g. private land owners already interested in working with County to conveying easement, or facility already partly built)
- likelihood of being implemented through the development process, (e.g. parcel where trail corridor is located is likely to come before the county for site plan review, or rural road facility is likely to be upgraded under County paving schedule)

The Technical Appendix contains a preliminary effort to identify multiple and specific improvements within most of each of the generalized segments. Generalized costs are also identified.

After plan adoption, the County will work with the East Mountain Coalition of Neighborhoods and Landowners and other agencies and departments to secure funding for the “high” and “medium to high” segments.

## Section B. Funding Sources & Strategies

There are several funding sources and strategies open to the County in the implementation process. For the purposes of the plan, they have been divided into four categories, Federal, State, Local and Private Sector/volunteer. Full implementation of the Master Plan will require a combination from all of these sources.

## 1. Federal Programs & Opportunities

- Federal Highway Administration (FHWA) administers the Transportation Equity Act for the 21st Century (TEA-21), which expired in 2002 and has not been renewed by Congress, (currently extended through May of 2005). This Act allows use of federal highway funds for non-motorized transportation projects. Bicycle, trail or sidewalk projects may be included in a larger roadway project or may compete with other roadway projects for funding in the categories listed below under the existing TEA-21 legislation. The proposed successor to TEA-21 may include other funding opportunities and constraints. Except for the Recreational Trails Program, these funds are programmed through the Mid-Region Council of Governments. MRCOG’s involvement with the County will be necessary for federal funds.
  - **Surface Transportation Program Enhancements, (STPE)**, eligible projects include sidewalks and paths, striping, lighting and signing.
  - **Congestion Mitigation and Air Quality, (CMAQ)**, may be used for bikeways and trails with a transportation purpose in non-attainment areas (Bernalillo County).
  - **National Highway System (NHS)** may be used to construct bicycle facilities on lands adjacent to any highway on the National Highway System.
  - **Surface Transportation Program (STP)**, may be used for construction of on-street bike facilities and shoulders.
  - **Hazard Elimination and Railway-Highway Crossing Programs** funds corrections to locations dangerous to motorists and bicyclists.
  - **Recreational Trails Federal Grant Program (RTP)** is administered by the New Mexico State Parks Division of the Energy, Minerals and Natural Resources Department. The RTP program provides funds to states to develop and maintain



recreational trails and trail related facilities for both non-motorized and motorized recreational trail uses.

- **Scenic Byways** – NM 14 (Turquoise Trail) and NM 333 (historic Route 66) are National Scenic Byways, eligible for federal scenic byway funds.
- The USFS also has funds for trails facility projects that are within their management mandate and management plans. In this context, some of the projects outlined above could potentially be joint projects between the County and USFS. In the past, the Sandia District has also been successful in partnering with other local government entities to secure grant funds for trails facility improvements that benefited both the USFS and local government.
- The National Parks Service RTCA also has programs that can help facilitate and fund planning efforts and community engagement for specific projects.

## 2. State of New Mexico Programs & Opportunities

- The New Mexico Legislature may approve funds for bikeways and trail projects through special appropriations bills (capital requests or memorials) during annual legislative sessions.
- New Mexico Department of Transportation (NMDOT) provides funds for projects on New Mexico and US highways.
- The Land and Water Conservation Fund (LWCF) federal grant [mailto:](#) program is administered by the New Mexico State Parks Division of the Energy, Minerals and Natural Resources [mailto:](#) Department administers. Funds are provided through the National Park Service of the U.S. Department of Interior. The Land & Water Conservation Fund ACT of 1965 (P.L. 85-578) created a program to stimulate, encourage and assist

state and local governments to acquire, develop and/or rehabilitate quality outdoor recreation areas and facilities.

## 3. Local Programs and Opportunities

- The Bernalillo County Commission enacted the Trails and Bikeways Set Aside Ordinance in 1994. 5% of the total General Obligation (GO) Bond program for road and drainage projects is set aside for bikeways and trails, generating approximately \$800,000 every two years. This is the only dedicated funding source currently.
- Specific CIP projects funded by GO bonds for roads or other County facilities may include accommodations for bicycles, pedestrians and/or equestrians. Available funds for right of way acquisition are currently very limited.
- Small scale recommended improvements, such as limited shoulder work or striping might be accomplished through maintenance and operations budgets.

## 4. Private Sector & Volunteers

- Developers will be required to provide right of way and make infrastructure improvements consistent with Bernalillo County Standard Street Cross Sections and other subdivision requirements (which will be revised to include East Mountain Trails and Bikeways Master Plan recommendations). Bernalillo County development review of subdivision through County Development Review Authority process will need to incorporate these revised street cross-sections.
- Other land owners and neighborhood associations may be interested in working with the County to convey trail easements and even building trails in their neighborhoods
- Some privately organized groups such as the East Mountain Coalition, equestrian groups, Boy Scouts of America, Extreme Jeep and

others could undertake to build trail facilities, or could work with the County to secure grant/foundation funding for facilities and segments of the system.

- Some church groups and corporations (e.g. Intel) also have public service programs and funds for community outreach that could potentially be leveraged to build trails under the supervision of Bernalillo County staff.
- Selected projects, such as small soft-surface trail connections or small neighborhood accesses, might be built with volunteers from user groups, under the supervision of Bernalillo County staff.

## Section C. Long Term Management & Maintenance

Initial attention to good design will help to reduce maintenance needs. However, once trails and bikeways are developed in the plan area, it is essential to keep them in good condition, in order to promote use, protect the safety of the users and protect the investment. Regular scheduled routine maintenance, such as sweeping, litter removal, and vegetation control, will be required. Systematic inspection will identify problems and help in prioritizing needs. In addition, the maintenance staff needs the capacity to respond to problems reported by citizens, such as graffiti removal, vandalism and emergency repairs. And over time, resources need to be allocated for facility repair, rehabilitation or renovation and upgrades to meet evolving standards.

### 1. Maintenance Responsibilities

Proposed East Mountain trail and bikeway facilities will be under multiple jurisdictions:

- Roads, shoulders, sidewalks or sidepaths may be under the jurisdiction of NMDOT, Bernalillo County Public Works, or may be privately owned and maintained by homeowner associations.

- Roads, trails and related facilities on National Forest lands are maintained by the US Forest Service.
- Bernalillo County Parks and Recreation and Public Works share maintenance responsibilities for trails, with Parks and Recreation responsible for weed and litter and vegetation control and BCPW maintaining signs, benches, fences, trail surfaces and bridges. Trails and related facilities in Open Space lands, City or County, are maintained by the respective Open Space Divisions of Parks and Recreation. BCPW maintains asphalt trails, BCPR maintains soft surface trails. Public Works maintains County road rights-of-way, including mowing, drainage, pruning, sweeping, ice and snow removal and pavement repairs.

These divisions are confusing to the user. As county facilities increase in the plan area, it is recommended that the various agencies involved explore the possibility of instituting a central location where citizens can report problems.

### 2. Approaches for management and maintenance of the system

Currently, Bernalillo County has very few trails and bikeway facilities in the plan area. As the County trails and bikeway system develops, maintenance responsibilities will increase. Recommended strategies for supporting the County's maintenance resources include:

- implement a trail stewardship program to help maintain trails and bikeways
- form partnerships with other organizations, such as user groups, that would be interested in helping maintain trails
- seek cooperative agreements between Bernalillo County and other involved entities, such as NMDOT, USFS, City of Albuquerque Open Space that allow for the best use of limited maintenance resources.

The East Mountain Coalition of Neighborhoods and Landowners will be invaluable in helping to craft these strategies, as well as the essential management strategies for education and enforcement.

### 3. Maintenance Methods

Recommended maintenance practices can be found in the Technical Appendix. in excerpts modified from the following documents.

For on-street bicycle facilities, City of Albuquerque Comprehensive On-Street Bicycle Plan, November 2000. Comprehensive maintenance program guidelines were developed with this plan, with representation from BCPW, BCPR and BC representatives to the Greater Albuquerque Bicycling Advisory Committee (GABAC) and Greater Albuquerque Recreational Trails Committee (GARTC) on the steering committee. These excellent guidelines are included in this document, but modified to replace references to the City of Albuquerque with appropriate Bernalillo County references. Many of the on-street bicycle routes, parallel trails and crossings, proposed or currently in use in the East Mountain plan area, are on NMDOT facilities. The NM Bicycle-Pedestrian-Equestrian Advisory Plan of the NMDOT, December, 2003 includes the General Recommendations for maintenance, found in the Technical Appendix.

For paved and soft surface trails, the City of Albuquerque and GARTC have been engaged in developing trail maintenance guidelines (*Trail Maintenance Guidelines*, March 2003 Draft). These are still in draft form, but are included in the Technical Appendix, again with references to the City replaced by appropriate Bernalillo County references.

The USDA Forest Service *Trail Construction and Maintenance Notebook* should also be consulted as a resource for maintenance of soft surface trails.

### 4. Maintenance Costs

Expanded facilities and increased maintenance responsibilities will result in additional equipment and personnel needs. Currently, Bernalillo County doesn't have a dedicated sweeper for the East Mountain Area. A sweeper is borrowed from the South Valley. This plan recommends purchase of a sweeper (estimated at \$80,000) in a future CIP program to be housed in the East Mountains for trail and bikeway maintenance. As facilities expand, it will also be necessary to expand maintenance personnel. One proposal for addressing these needs is for BCPW and BCPR to form a combined county-wide trails and median maintenance crew. Table 5 shows the approximate maintenance cost of different trail and bikeway facilities on a per mile basis.

Table 5. Maintenance Matrix

Facility type	Maintenance cost per unit*	Person hours per year
Bikeways (shoulders, signs)	No cost increase over regular road maintenance	
Rural road facilities	No cost increase over regular road maintenance	
Paved multi-use trails	\$6000 - \$9000 per mile	150 - 160 hours per mile
Soft surface trails	\$400 - \$1000 per mile	100 - 110 hours per mile
Crossings	No cost increase over regular road maintenance	
Staging areas & trail heads	\$8,000 - 10,000 per acre	400 - 500 hours per acre
Access points	\$400 - \$1000 per unit	100 - 110 hours per unit

Maintenance costs are affected by the following:

- Quality of design and construction of facilities
- Level of development of facilities
- Use of volunteers
- Crew travel time and equipment availability
- Level of service\*
- Ability to share tasks with other agencies

\* BCPR workers maintain an average of 12 acres per worker; the standard set by NRPA is 4 acres of maintenance per worker. (from BC Parks, Open Space and Trails Master Plan, September 2003)

## Section D. Envisioning the Future East Mountain Trail System

By 2030, many of the goals and objectives of the East Mountain Trails and Bikeways Master Plan outlined above will have been achieved. Other goals and objectives, such as the map of existing trails, preserving rural quality and resolving user conflicts, go beyond the scope of this project. In most of these instances, important first steps have been taken as a part of this project, but the County and community will need to continue to work toward fulfilling the promise of these goals and objectives over the long term.

The Master Plan has provided the framework for a vision of what the future Trails and Bikeways system will be in 2030. By then, children from older and newer neighborhoods will be walking and biking on a variety of trails systems to schools, community centers and a range of recreation facilities from parks and recreation centers to open space and National Forest Lands. By 2030, a variety of users will have trails and areas of use linked together seamlessly across lands managed by a variety of agencies and even private land owners. The system of trails and bikeways will have become an important amenity for the many in the greater Albuquerque area, and quite possibly have become a regional destination for recreation enthusiasts. And yet in 2030, many of the traditional routes that formed the interconnected spine and circulation system among the early inhabitants of the East Mountain Area will have been preserved through the networks of soft surface trails and rural roads envisioned by this plan.

Ultimately, the promise of the East Mountain Trails and Bikeways Plan is one of connection – neighborhoods to public facilities and open space areas, and future community to earlier communities and the processes that gave shape to an evolving place that the many residents of the East Mountains area call home.

# Appendices

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- Appendix A. Key Terms
- Appendix B. Acronyms
- Appendix C. Generalized Projects and Costs
- Appendix D. References

(Other Appendices are provided in Technical Appendix Under Separate Cover)

## Appendix A. Key Terms

**Access Points-** Designated areas and passageways that allow the public to reach a trail or open space area from adjacent streets or community features.

**Americans with Disabilities Act of 1990 (ADA)** – Federal law requiring public entities and public accommodations to provide accessible accommodation for people with disabilities.

**All-Terrain Bike Trail-** Off-road trail for all-terrain (mountain) bikes. Single-use loop trails usually located in larger parks and natural resource areas.

**Bike Lane** – A portion of the roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicycles. (AASHTO)

**Bike Route-** A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number(s). (AASHTO)

**Bikeway-**Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes. (AASHTO)

**Cross-Country Ski Trail-**Trails developed for traditional and skate-style cross-country skiing. Loop trails usually located in larger parks and natural resource areas.

**Equestrian Trail-**Trails developed for horseback riding. Loop trails located in larger parks and natural areas. Sometimes developed as multi-use with hiking and all-terrain biking where conflicts can be controlled.

**Looped Trail-**Trail or trail systems designed so that the routes form loops, giving users the option of not traveling the same section of trail more than once on a trip.

**Major Public Open Space-** Major Public Open Space is an integrated system of lands and waters that have been designated either in the East Mountain Open Space Master Plan, the County Comprehensive Zoning Code or the City of Albuquerque Open Space Facility Plan.

**Multiple tread** - Trail design in which paved and unpaved trails run parallel within the same corridor. Usually, some separation is desirable between the two trail types.

**Out-and-Back Trail-** A trail on which users travel to a destination then backtrack to the trailhead.

**Multi-use Trail-** A trail permitting more than one type of user.

**Park Trails-** Trails located within greenways, parks, and natural resource areas. Focus is on recreational value and harmony with natural environment.

**Paved Trail-** Trail surfaced with asphalt or concrete, which may accommodate bicycles, in-line skaters and ski trainers, strollers, and pedestrians desiring a hard walking surface

**Primary Trails-** Trails of primary importance to the regional transportation network. These heavily used trails consist of a 10'-14' wide paved surface sometimes with a 5' wide unpaved trail separated by 5' or greater buffer. Primary trails are designed for higher speeds and thus have greater horizontal and vertical clearances and fewer intersections than secondary trails.

**Secondary Trails-** Trails that supplement and often provide access to primary trails; these are

narrower (8' minimum) trails with tighter clearances and lower design speeds.

***Shared Use Path***- A path physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way, developed for use by both bicyclists and pedestrians. (AASHTO)

***Shoulder*** – The portion of the roadway continuous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses.

***Single or Limited Use Trail***- A trail restricted to particular uses or prohibiting certain uses in order to minimize potential conflicts or impacts as in special wilderness and/or Open Space areas.

***Single tread, Multi-use Trail***- paved or unpaved trail within the trail corridor, open to all trail users.

***Soft surface trail***-Unpaved natural trail or trail surfaced with compacted earth, crusher fines, bark or gravel. Soft surface trails may accommodate equestrians, mountain bikers, joggers, and pedestrians preferring a soft walking surface (stabilized soft trails may also accommodate wheelchair users).

***Staging Area***-An area where users can congregate to begin or end a trip. Staging areas will typically include parking for five or more vehicles, including trailers, signage, access to a major trail, open space or bikeway system and an information kiosk.

***Trail***- A separate pathway designated by signs for use by non-motorized traffic only, including pedestrians, bicyclists, equestrians and people who use wheelchairs. Not all trails may accommodate all of these uses. Trails may be either paved or soft surface.

***Trailhead***-An access point to a trail or open

space facility. Trailheads typically include signage, designated entry points and maps, and may have parking for two to eight cars, but no trailers.

***Trail Corridor***- A trail alignment or a proposed or future trail designated where right-of-way is not available or not defined. In developed areas, traffic-slowing mechanisms may be applied to the street system to create linkages of trail segments. In undeveloped areas, when property is developed, trail access must be incorporated into the development.

***Watershed***- The region draining into a river, river system, or other body of water.

## Appendix B. Acronyms

### List of Commonly Used Acronyms

**AASHTO**-Refers to the American Association of State Highway and Transportation Officials.

**ADA** – Americans with Disabilities Act of 1990, federal law requiring public entities and public accommodation for people with disabilities.

**ADT** – Average Daily Traffic.

**APS** – Albuquerque Public Schools

**BCPR** -- Bernalillo County Parks & Recreation

**BCPW** – Bernalillo County Public Works

**CAOS or AOS** – City of Albuquerque Open Space Division.

**EMAP** – East Mountain Area Plan.

**EMTBMP** – East Mountain Trails and Bikeways Master Plan.

**ISTEA**- The Intermodal Surface Transportation Efficiency Act of 1991. The federal highway and transportation bill which provides funding for roads and other modes of transportation, including bikes and pedestrians. Superseded by Transportation Equity Act for 21<sup>st</sup> Century (TEA-21) in 1999.

**MDU** – Memorandum of Understanding.

**MRCOG** – Middle Region Council of Governments

**NMDOT** – New Mexico Department of Transportation.

**NPS RTCA** – National Park Services Rivers, Trails and Conservation Assistance Program.

**POST Plan** - A Bernalillo County interdepartmental planning effort for Parks, Open Space and Trails. Also, the physically connected system of Parks, Open Space and Trails.

**ROW** – Right-of-way.

**SLO** – New Mexico State Land Office

**USFS** – United States Forest Service (Department of Agriculture)



## Appendix C. Generalized Projects and Costs

**Table 6. Important Projects and Preliminary Cost Estimates**

Priority Projects	Improvement	Cost per L.F.	Length (L.F.)	Projected Cost	Potential Funding Sources	Land/ROW Reqmts
NM 14/Frost Road Crossing	Signalization of intersection	-	-	\$150,000	NMDOT, Bernco CIP, FHWA	
NM 14 to La Madera Utility Corridor	5' soft surface trail	\$6.00	7,300	\$44,000	RTP, LWCF, volunteers	Trail Easement
PAA-KO to Vista Grande Trail	5' soft surface trail	\$6.00	5,000	\$30,000	volunteers, 5% set-aside	Trail Easement
NM 14 Paved Multi-Purpose Trail (La Madera Road to Frost Road)	10' asphalt trail	\$33.00	5,000	\$165,000	NMDOT, Bernco CIP, FHWA, Scenic Byways, NM leg.	
NM 14/US 333 Crossing Improvements	Minor crossing improvements	-	-	\$75,000	NMDOT, FHWA	
Ojito Open Space Access Improvements						
Rural Road Improvements	18' asphalt, 12' unpaved shoulder	\$26.00	3,400	\$88,000	Bernco CIP	ROW
Soft Surface Trail	5' soft surface trail	\$6.00	4,300	\$26,000	Volunteers, RTP	Trail Easement
Trailhead	Parking and amenities	-	-	\$100,000	RTP, LWCF	Land Purchase
Frost Road Paved Multi-Purpose Trail (NM 14 to Valle Hermosa)	10' asphalt trail	\$33.00	15,400	\$509,000	Bernco 5% Setaside, FHWA, RTP	
Gutierrez Canyon Rural Road Improvements	18' asphalt, 12' unpaved shoulder	\$26.00	11,200	\$290,000	Bernco CIP	ROW
Mountain Valley Road Bike Route -- shoulders & signage (Frost Road to US 333)	6' paved shoulders each side	\$39.00	18,400	\$716,000	Bernco CIP, FHWA	
Old 66 Bike Route -- shoulders & signage (Tramway to Tijeras)	6' paved shoulders each side	\$39.00	33,400	\$1,304,000	FHWA, NMDOT	
Tijeras Village Loop						
Sidewalk/Paved Multi-use Trail	6' sidewalk	\$50.00	1,900	\$94,000	FHWA	
	10' asphalt trail	\$33.00	3,800	\$124,000	FHWA	
Bike Route -- shoulders & signage	6' paved shoulders each side	\$39.00	5,300	\$205,000	FHWA	
Old 66 Bike Route -- shoulders & signage (Tijeras to County Line)	6' paved shoulders each side	\$39.00	44,700	\$1,743,000	FHWA	
Long View Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside	Land Purchase
Mid-Block Crossing of NM 337 at Ranger Station	Signing only	-	-	\$2,000	Bernco 5% Setaside	
Juan Tomas Rural Road Improvements	18' asphalt, 12' unpaved shoulder	\$26.00	24,400	\$636,000	Bernco CIP	ROW
Juan Tomas Road/Sedillo Ridge/USFS Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, 5% Setaside	

Priority Projects	Improvement	Cost per L.F.	Length (L.F.)	Projected Cost	Potential Funding Sources	Land/ROW Reqmts
Mid-Block Crossing of NM 337 at Oak Flats/Raven Road	Signing only	-	-	\$2,000	Bernco CIP	
Bear Cat Improvements						
Rural Road Improvements	18' asphalt, 12' unpaved shoulder	\$26.00	14,800	\$386,000	Bernco CIP	ROW
Recreational trails	10' soft surface trail	\$6.00	11,900	\$71,000	RTP, LWCF, volunteers	Land Lease
Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside	Land Lease

Table 7. Important Projects and Preliminary Cost Estimates

Priority Projects	Improvement	Cost per L.F.	Length (L.F.)	Projected Cost	Potential Funding Sources	Land/ROW Reqmts
La Madera UNM Lands - Sandia Utility Corridor	10' soft surface trail	\$11.00	20,700	\$228,000	RTP, LWCF, (USFS), volunteers	Trail Easement
San Antonito Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside	
UNM Lands - La Madera Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside, (USFS)	Land Lease
NM 14 (Frost Road to San Pedro Estates)						
Soft Surface Trail	5' soft surface trail	\$6.00	5,800	\$35,000	RTP, LWCF, volunteers	
Bike Route -shoulder & signage	6' paved shoulders each side	\$39.00	12,900	\$504,000	FHWA	
NM 14 Bike Route -- shoulders & signage (NM 333 to Frost Road)	6' paved shoulders each side	\$39.00	31,200	\$1,218,000	Bernco CIP, FHWA	
Frost Road Soft Surface Trail Improvements	5' soft surface trail	\$6.00	13,900	\$84,000	RTP, LWCF, volunteers	
Sandia Knolls Secondary Access South Road/Trail	5' soft surface trail	\$6.00	4,500	\$27,000	RTP, LWCF, BCFD, volunteers	ROW, Easement
Pinon Trail						
Rural Road	18' asphalt, 12' unpaved shoulder	\$26.00	12,800	\$332,000	Bernco CIP	ROW
Trail Links & Access Points	5' soft surface trail	\$6.00	19,300	\$116,000	RTP, LWCF, BCFD, volunteers	Trail Easement
Gutierrez Canyon Open Space/Ridgeline Trail to NM 14	5' soft surface trail	\$6.00	6,100	\$37,000	RTP, LWCF, BCFD, volunteers	Trail Easement
Tres Pistolas Open Space						
Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside	Land Purchase
Trail Link	5' soft surface trail	\$6.00		\$0	RTP, LWCF, BCFD, volunteers	
Four Hills Recreation Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside	Land Purchase
Mountain Valley Road Crossing Improvements	Minor crossing improvements	-	-	\$75,000	NMDOT, FHWA	
NM 337 from NM 333 to NM 217Shoulder Improvements & Signage	6' paved shoulders each side	\$39.00	33,500	\$1,307,000	FHWA, NMDOT	
Sedillo Road Connection to National Forest						
Rural Road	18' asphalt, 12' unpaved shoulder	\$26.00	9,000	\$234,000	Bernco CIP	ROW
Trail	5' soft surface trail	\$6.00	9,300	\$56,000	RTP, LWCF, BCFD, volunteers	Trail Easement

Priority Projects	Improvement	Cost per L.F.	Length (L.F.)	Projected Cost	Potential Funding Sources	Land/ROW Reqmts
Trail Head	Parking and amenities	-	-	\$100,000	RTP, LWCF, (USFS)	Land Purchase
Rural Road Connections Between NM 217 and National Forest						
Brannan Road	18' asphalt, 12' unpaved shoulder	\$26.00	10,000	\$260,000	Bernco CIP	
Upper Juan Tomas Road	18' asphalt, 12' unpaved shoulder	\$26.00	13,400	\$348,000	Bernco CIP	
McGuinness Road	18' asphalt, 12' unpaved shoulder	\$26.00	600	\$16,000	Bernco CIP	
Oak Flats Road Soft Surface Trail	5' soft surface trail	\$6.00	14,200	\$85,000	RTP, LWCF, (USFS), volunteers	
Juan Tomas OS/USFS Joint Staging Area	Parking and amenities	-	-	\$250,000	RTP, LWCF, Bernco 5% Setaside, AOS	
Apple Valley State Land Office Parcel						
Trail Heads	Parking and amenities	-	-	\$200,000	RTP, LWCF, (USFS)	Land Lease
Trails	5' soft surface trail	\$6.00	6,100	\$37,000	RTP, LWCF, (USFS), volunteers	Land Lease
Rural Roads	18' asphalt, 12' unpaved shoulder	\$26.00	4,200	\$108,000	Bernco CIP	ROW
NM 337 Soft Surface Trail from Oak Flats/Raven Road to 217	5' soft surface trail	\$6.00	24,500	\$147,000	RTP, LWCF, (USFS), volunteers	



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