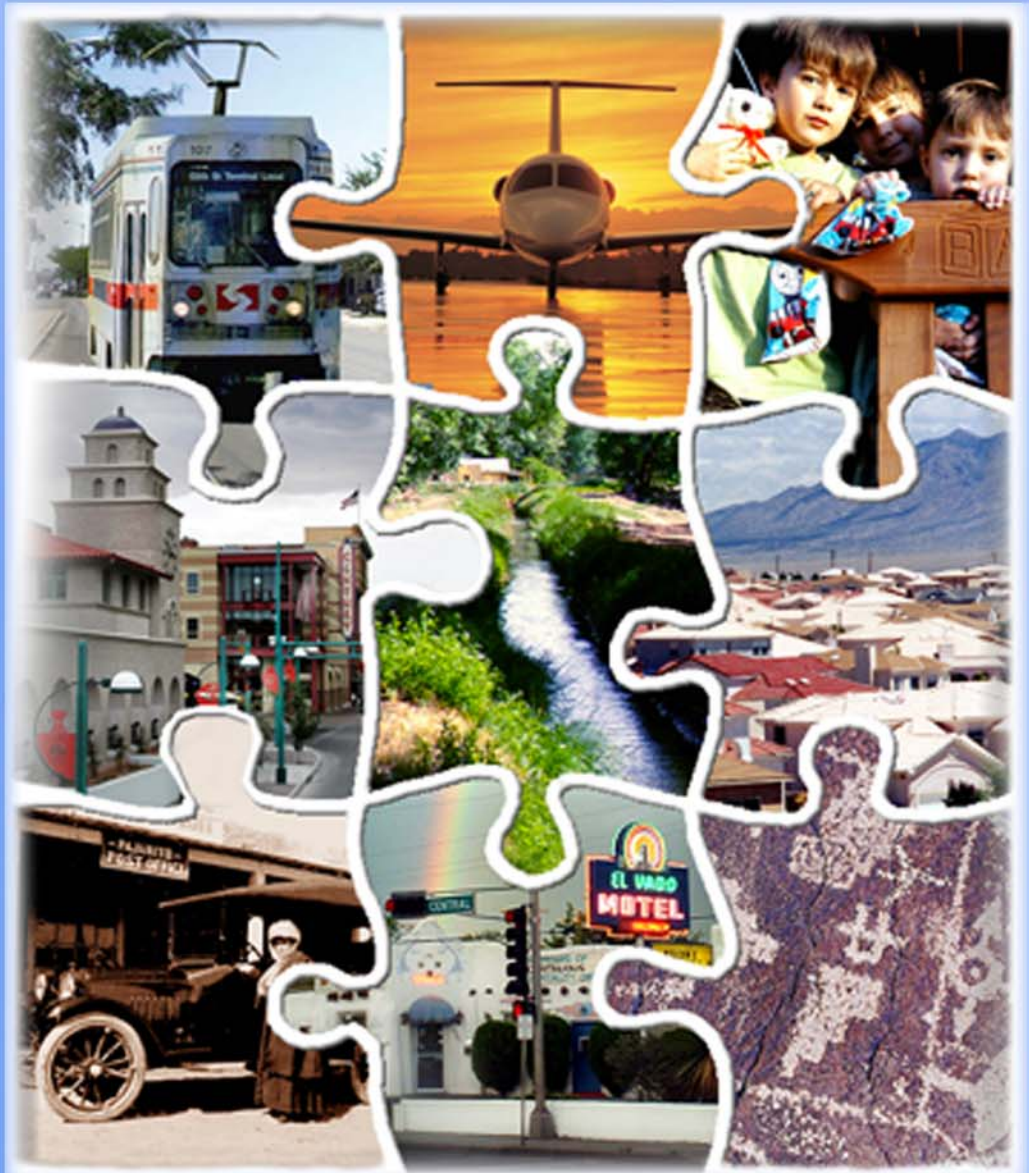


# Albuquerque/ Bernalillo County

As Amended  
Through 2013



COMPREHENSIVE



PLAN

# Albuquerque/Bernalillo County Comprehensive Plan

As Adopted by the Mayor and by City Council  
City Enactment No. 138-1988. August 30, 1988

As Adopted by the Board of County Commissioners  
Bernalillo County Resolution No. 103-88. August 23, 1988

**Amendments:**

This Plan incorporates the City of Albuquerque, Bernalillo County and Extraterritorial Land Use Authority amendments in the following referenced Resolutions. The Resolutions are also included in Appendix F of this document.

<i>City Resolution No.</i>	<i>County or (ELUA) Resolution No.</i>	<i>Plan Ref.</i>	<i>Description</i>
R-13-172	(BernCo)2013-70	(see description)	Update Appendix D. Statistical and Map Information, Fig. 30 Development Areas with Activity Centers and Transportation Corridors, Fig. 31 Development Areas, and add Fig. 32 Activity Centers and Transportation Corridors
R-03-233	(BernCo) 116-2003	Fig. 31	Amend area on either side of Montañó Rd. NW between Coors Blvd. and Corrales Riverside Drain from Rural to Established Urban
R-03-269	(BernCo) 20-2003 (ELUA) 2-2003	Fig. 31	Amend area in unincorporated South Valley from Established Urban and Developing Urban to Semi-Urban
R-02-150	(BernCo) 70-2003	I.C.7 & D.7 II.C.7 & D.7	Incorporate the Cultural Plan update
R-01-343	(BernCo) 7-2002	I.C.9 II.C.9	Amend text, policies and map relating to Community Identity
R-01-344	(BernCo) 6-2002 (ELUA) 2-2002 (ELUA) 3-2002	I.B.6 & D.4 II. B.6 & D.4 Fig. 30	Amend text, policies and map relating to Activity Centers and linking Transportation Corridors
R-01-304	NA	Fig. 31	Amend unincorporated area of North Albuquerque Acres from Developing Urban and Semi-Urban to Rural
R-254 (Enactment 56-1993)	(BernCo) AR 37-93	Fig. 31	Amend development area boundaries by enlarging and consolidating Semi-Urban and Rural areas consistent with recommendations of the North Valley Area Plan
R-420 (Enactment 160-1991)	(BernCo) AR 84-1991	II.B.1 – 6, D 3,4 & 6	Amend policies relating to Land Use and Community Resource Management based on recommendations of the 1990 Biennial Monitoring/Implementation Report on the Comprehensive Plan
R-281 (Enactment 32-1991)	(BernCo) AR 32-91	II.B.2	Amend policies regarding Planned Communities in the Reserve Area

**CITY OF  
ALBUQUERQUE**

**Mayor**

Honorable Martin J. Chavez

Jay Czar, Chief Administrative Officer

**City Council**

Honorable Vincent Griego, President, District 2  
Honorable Greg Payne, Vice-President, District 8  
Honorable Miguel Gomez, District 1  
Honorable Eric Griego, District 3  
Honorable Brad Winter, District 4  
Honorable Michael Cadigan, District 5  
Honorable Hess Yntema, District 6  
Honorable Sally Mayer, District 7  
Honorable Tina Cummins, District 9

**Environmental  
Planning  
Commission**

Jeffrey Jesionowski, Chairman  
Alan Schwartz, Vice Chairman  
Elizabeth Begay  
John Briscoe  
Larry Chavez  
Jens Deichmann  
Mick McMahan  
Bevin Owens  
Camilla Serrano

**Planning  
Department Staff**

Victor Chavez, P.E., Director,  
Planning Department  
Richard Sertich, AICP, Associate  
Director, Planning Department  
Joel C. Wooldridge, FAICP,  
Manager, Advance Planning &  
Urban Design Division  
Jon P. Messier, Senior Planner  
Advance Planning & Urban Design  
Selim Demusaj, Municipal  
Information Specialist  
Jesse Garves, Cover Design

Joe Lujan, Layout Design  
Ramona Gabaldon, Typing/  
Layout  
Barbara Findley, Typing/  
Proofing  
Alfredo Salas,  
Copy Technician  
Neil Weinberg, Division  
Manager, AGIS  
Colleen Griever, GIS  
Coordinator  
Patricia Apt, GIS Coordinator



**COUNTY OF  
BERNALILLO**

**County Commission**

Honorable Tom Rutherford, Chair  
Honorable Alan B. Armijo, Vice-Chair  
Honorable Tim Cummins  
Honorable Steve Gallegos  
Honorable Michael Brasher

**County Manager**

Juan R. Vigil

**County Planning  
Commission**

Ivonne Nelson, Chair  
David Halcomb, Vice-Chair  
Steven Becerra  
Manuel Facio  
Mick McMahan  
Joey Montañó  
Louis Pacias

**County Zoning  
Building & Planning  
Department**

Sanford Fish, AICP, Director  
Nano Chavez, Planning Manager



# ALBUQUERQUE/BERNALILLO COUNTY COMPREHENSIVE PLAN

## SECTION I. INTRODUCTION AND CONTEXT

### A. BACKGROUND

1. Context .....	I-1
2. Setting .....	I-7
3. Growth and Development .....	I-11

### B. LAND USE

1. Open Space Network .....	I-21
2. Reserve Area .....	I-25
3. Rural Area .....	I-27
4. Semi-Urban Area .....	I-29
5. Developing Urban and Established Urban Areas .....	I-31
6. Activity Centers .....	I-33

### C. ENVIRONMENTAL PROTECTION AND HERITAGE CONSERVATION

1. Air Quality .....	I-39
2. Water Quality .....	I-41
3. Solid Waste .....	I-43
4. Noise .....	I-45
5. Historic Resources .....	I-47
6. Archaeological Resources .....	I-49
7. Cultural Traditions and the Arts .....	I-51
8. Developed Landscape .....	I-53
9. Community Identity .....	I-55

### D. COMMUNITY RESOURCE MANAGEMENT

1. Service Provision .....	I-59
2. Water Management .....	I-61
3. Energy .....	I-65
4. Transportation and Transit .....	I-67
5. Housing .....	I-77
6. Economic Development .....	I-79
7. Education .....	I-81
8. Human Services .....	I-83
9. Public Safety .....	I-85

## SECTION II. GOALS AND POLICIES

<b>A.</b>	<b>SUMMARY AND INTENT .....</b>	<b>II-1</b>
<b>B.</b>	<b>LAND USE</b>	
	1. Open Space Network .....	II-5
	2. Reserve Area .....	II-11
	3. Rural Area .....	II-15
	4. Semi-Urban Area .....	II-21
	5. Developing Urban and Established Urban Areas .....	II-23
	6. Central Urban Area .....	II-33
	7. Activity Centers .....	II-35
<b>C.</b>	<b>ENVIRONMENTAL PROTECTION AND HERITAGE CONSERVATION</b>	
	1. Air Quality .....	II-45
	2. Water Quality .....	II-51
	3. Solid Waste .....	II-55
	4. Noise .....	II-59
	5. Historic Resources .....	II-61
	6. Archaeological Resources .....	II-63
	7. Cultural Traditions and the Arts .....	II-65
	8. Developed Landscape .....	II-67
	9. Community Identity and Urban Design .....	II-71
<b>D.</b>	<b>COMMUNITY RESOURCE MANAGEMENT</b>	
	1. Service Provision .....	II-73
	2. Water Management .....	II-75
	3. Energy Management .....	II-77
	4. Transportation and Transit .....	II-81
	5. Housing .....	II-93
	6. Economic Development .....	II-97
	7. Education .....	II-99
	8. Human Services .....	II-103
	9. Public Safety .....	II-105

### SECTION III. MONITORING AND IMPLEMENTATION

A. Key Ordinance and Policy Modification .....	III-1
B. Other Programs and Projects .....	III-3
C. Primary Planning Priorities .....	III-5
D. The Albuquerque Progress Report .....	III-7
E. Interjurisdictional Coordination .....	III-7
F. Plan Amendment .....	III-9

### APPENDICES

A. Plan Revision Technical Team and Plan Revision Oversight Committee .....	A-1
B. Selected Bibliography .....	B-1
C. Glossary .....	C-1
D. Statistical and Map Information .....	D-1
E. Plan Amendments adopted differently by City and County .....	E-1
F. Comprehensive Plan Resolutions .....	F-1

### TABLES AND FIGURES

Figure 1: Southwestern Emblems used by the 1975 Plan .....	I-3
Figure 2: Cross Section of the Rio Grande Valley at Albuquerque .....	I-7
Figure 3: Albuquerque Setting .....	I-8
Figure 4: Former Pueblos in the Modern City .....	I-11
Figure 5: Early European Settlements in the Modern City .....	I-12
Figure 6: The Railroad Creates a City .....	I-14
Figure 7: Two City Planning Concepts .....	I-15
Figure 8: Open Space Network Map (September, 2002) .....	I-23
Figure 9: Planned Community Criteria: Reserve Areas .....	I-25
Figure 10: Rural Area Along the Foothills .....	I-27
Figure 11: Planned Community Criteria: Rural Areas .....	I-28
Figure 12: Auto-oriented Strip Commercial Development .....	I-33

**TABLES AND FIGURES (CONTINUED)**

Figure 13: Typical Major Arterial Intersection and Auto-oriented Land use ..... I-34

Figure 14: Nob Hill: Good Examples of “Community-Scale” Activity Center Development ..... I-34

Figure 15: Arterial Intersection Showing Infill/redevelopment to Convert the Area into  
a Community-Scale Activity Center ..... I-35

Figure 16: Albuquerque’s Biopark Exemplifies the Uniqueness of Specialty Activity Centers ..... I-35

Figure 17: Downtown Albuquerque’s Original Major Activity Center ..... I-36

Figure 18: One Illustration of Downtown Developed with More Building Intensity, Transit and  
Pedestrian Opportunities ..... I-36

Figure 19: Commemorative Plaques on the Historic Buildings ..... I-47

Figure 20: Petroglyph National Monument ..... I-50

Figure 21: Community Areas Map ..... I-56

Figure 22: Sunport and KAFB Runways North of the Tijeras Arroyo ..... I-67

Figure 23: The International Sunport, New Mexico’s Major Air Traffic Hub and One of  
Albuquerque’s Specialty Activity Centers ..... I-68

Figure 24: The Alvarado Transportation Center on the East Side of Downtown ..... I-69

Figure 25: How a Major Transit Corridor Could Change Over Time ..... I-71

Figure 26: Long Range Bikeway System ..... I-74

Figure 27: How Moderate Intensity Mixed Land Uses Can Transform an Area ..... I-75

Figure 28: Marked Bike Lanes are Safer and More Attractive to Riders ..... I-75

Figure 29: Concept for Distribution of Land Use Intensity in a Transit Corridor Linking two  
Activity Centers ..... I-76

Figure 30: Development Areas with Activity Centers and Transportation Corridors Map ..... II-41

Figure 31: Development Areas Map.....II-42

Figure 32: Activity Centers and Transportation Corridors Map.....II-43

Table 1: Municipal Population and Density, 2000 ..... I-1

Table 2: Albuquerque Area Population at the Beginning of the Railroad Era ..... I-13

Table 3: Population Growth and Density, 1890-1900 ..... I-15

Table 4: Population Growth and Density, 1900-1950 ..... I-16

Table 5: Population Growth and Density, 1950-2000 ..... I-17

Table 6: Spatial Distribution of the City’s Population, 2000 ..... I-17

Table 7: Projected Population (1986) when this Plan was Adopted ..... I-18

Table 8: Census and Projected Municipal Population, 2000-2025 ..... I-18

Table 9: Public and Tribal Land Ownership ..... I-19

Table 10: Development Area Size and Densities, 2000 ..... I-31

Table 11: Population Growth Relative to Water Production ..... I-62

Table 12: Population Growth Relative to Water Consumed ..... I-62

Table 13: Projected Passenger Enplanements, 2000-2015 ..... I-69

Table 14: Housing Supply Density and Tenure ..... I-77

Table 15: Projected Housing Demand, 2000/2025 ..... I-78

Table 16: Percentage of Non-Agricultural Wage and Salary Employment, 1980/2000 ..... I-79

Table 17: Bernalillo county Employment, 2000 ..... I-79

Table 18: Projected Bernalillo County Employment by Sector, 2000/2025 ..... I-80

Table 19: Percent of High School Graduates, 25 Years and Older ..... I-81



**TABLES AND FIGURES (CONTINUED)**

Table 20: School District Enrollment Relative to County Population Growth .....	I-81
Table 21: University of New Mexico Growth .....	I-82
Table 22: Policy A: Types of Activity Centers .....	II-37
Table 23: Policy A: Corridor Policies .....	II-82

## A. BACKGROUND

### 1. CONTEXT

Albuquerque, New Mexico’s principal city, is one of the nation’s larger mid-size cities. The City’s 2000 population placed it 35th among municipalities and its metropolitan population sixty-second among 280 metropolitan areas. The unincorporated areas population now exceeds the State’s second largest city.

A City’s quality, though, is not measured by its size but by its livability and by the opportunities it offers its residents. Albuquerque’s future in this regard is considered positive by its citizens. The city’s future will largely be determined by the choices made by its citizens; achieving those choices requires a plan.

This text, with its maps, diagrams, tables, and photographs, is the municipal general plan (Comprehensive Plan) of the City of Albuquerque as authorized by New Mexico statutes Chapter 3,

Article 19, Sections 1-12. This plan has the same status for Bernalillo County. The County has continuously deepened its long range planning capacity as authorized by Chapter 4, Article 57, Sections 1-3. The eleven amendments adopted since 1988 through 2003 are included.

Several other municipalities in Bernalillo County\*, each with its own general plan, neighbor the state’s principal city.

#### **Region and Metropolitan Area**

Albuquerque is the center of the larger Middle Rio Grande Region of Bernalillo, Sandoval, Valencia, and Torrance Counties (State Planning and Development District Three.)

Albuquerque is also the center of its metropolitan area, (Metropolitan Statistical Area) defined by the Office of Management and Budget, and for the 2000 Census, includes Bernalillo, Sandoval and Valencia Counties. This concept, employed by the Census Bureau, describes a large population nucleus (a central city of at least 50,000 persons) together with adjacent communities that have a high degree of economic and social integration with the central city.

\*New Mexico statutes allow a municipality to extend into more than one County.

Table 1: Municipal Population and Density, 2000

	Population	Area Sq. Mi.	Density Pop./Sq. Mi.
New Mexico	1,819,046	121,598.48	14.96
Bernalillo County	556,678	1,168.65	476.34
Albuquerque	448,607	181.28	2,474.67
Corrales (part)	676	1.75	385.25
Edgewood (part)	0	-	-
Los Ranchos de Albuquerque	5,092	4.08	1,247.30
Rio Rancho (part)	0	18.5	0.0
Tijeras	474	0.85	559.54
Unincorporated	101,829	-	-

### **Authority**

The Plan is prepared in accordance with State law (Chapter 3, Article 19, Sections 1-12) which authorize cities to “prepare a general or master plan which may be referred to as the general plan.” \*

Albuquerque’s City Charter, Article IX, also provides a strong foundation for preparing and maintaining a general plan. This Article, adopted in 1971, requires City officials “in the interest of the public in general shall protect and preserve environmental features such as water, air, and other natural endowments, ensure the proper use and development of land, and promote and maintain an aesthetic and humane urban environment. To effect this end the Council shall take whatever action is necessary and shall enact ordinances and shall establish appropriate Commissions, Boards, or Committees with jurisdiction, authority and staff sufficient to effectively administer city policy in this area.”

### **Purpose**

The general plan is Albuquerque’s course of action for urban conservation and development and for environmental management. It’s Statutory purpose (Section 3-19-9A) is “to guide and accomplish a coordinated, adjusted and harmonious development of the City, which will, in accordance with existing, and future needs, best promote health, safety, morals, other, convenience, prosperity or the general welfare, as well as efficiency and economy in the process of development.”

Accomplishing these objectives requires the Plan to provide clear, practical statements about the proper relationships between public facility systems and the private investment which builds the city. New Mexico Statute 3-19-11 states:

- A. After the general plan or any part there of has been approved, and within the area of the plan. Approval of the Planning Commission is necessary to construct, authorize, accept, widen, narrow, remove, extend, relocate, vacate, abandon, acquire or change the use if any:
  - 1. Park, street, or other public way, ground, or space;
  - 2. Public building or structure; or
  - 3. Utility, whether publicly or privately owned.
  
- C. After adoption of the plan or any part thereof affecting the property of any public utility all extensions, betterments or additions to buildings, structure, plants, or other equipment of any public utility shall be made in conformity with the master plan or any part thereof affecting the property and upon approval of the Planning Commission.
  
- D. Any public agency or official not under the jurisdiction of the governing body of the municipality authorizing or financing a public way, ground, place, space, building, structure, or utility shall submit the proposal to the Planning Commission.

\* Other New Mexico Statutes refer to the term “comprehensive plan” limited to a rational pattern of zoning for the official zone map.

**Previous Plans**

This third plan intended to shape the city’s future has important differences and similarities to earlier plans.

Albuquerque’s Master Plan, 1962-1974, consisted of several sequentially prepared and adopted elements: Thoroughfare Plan (1950, revised 1965 as the Major Street and Highway Plan), 1985 Land Use Plan (1962), Master Plan for Water Supply for Albuquerque and Environs (1963), Parks and Recreation Master Plan (1964), Master Plan for Sanitary Sewers and Sewage Treatment Works (1964), Plan for Electric Service (1971) and Guidelines for Public Systems West of the Rio Grande (1974). It was a trend-based Plan for a 1985 County population ranging from 500,000 persons to 685,000 to 830,000 persons.

The 1975 Albuquerque/Bernalillo County Comprehensive Plan (hereafter the 1975 Plan), was prepared with citizen assistance in response to the city’s post 1960 growth. The Plan included both policies and maps which designated open space areas, six “metropolitan” areas (with prescribed housing density ranges), and urban centers. Elements included: Policies, Metropolitan Areas and Urban Centers, and Major Open Space (1975) Area-Wide Wastewater Collection and Treatment Facilities Plan (1977), Senior Citizen Centers (1977), and Subareas Master Plan for the Developing Urban Area of North Albuquerque Acres (1978).

The 1975 Plan’s development strategy was based on four objectives. A larger share of growth was to be accommodated by infill development. Public improvements, including utilities and transportation facilities, were to balance existing service area needs with proposed development. Major natural features were to become an open space network. Distinctive smaller communities and diverse neighborhoods in the greater metropolitan area were to provide a variety of lifestyles reflecting citizen needs, and preferences. It was a Plan to alter trends. A projected population was not part of the Plan.

The City and the County Planning Commissions began reviewing the 1975 Plan in 1981. The following year, the Mayor and the City Council established a Goals Committee to review adopted policies. The committee’s recommendations are the foundation for the Goals in this third (1988) Plan. A successor Goals Commission, appointed by the Mayor, served as an advocate and monitoring group for the 1983-1984 Goals Committee Report.

The consensus on goals for the city initiated a Plan revision program in 1986, led by the Planning staff and assisted by two committees (Appendix A). The issues and choices identified by citizens and staff were considerably different than those considered in the 1975 Plan.

**New Plan**

A new-rather than revised-Plan emerged and was adopted in 1988 allowing repeal of the 1975 Plan.

*Figure 1. The 1975 Plan’s emblems communicated the city’s setting.*



## **Scope**

New Mexico Statutes 3-19-9 (A and B) establish the scope of the municipal general plan. This Plan reflects that overall direction.

The Plan's geographic scope is the area within Albuquerque's municipal limits and the unincorporated area of Bernalillo County.

The Plan's content (or scope of topics) is also established by State Law. It must reflect "careful and comprehensive surveys and studies of existing conditions and probable future growth of the municipality and its environs. Among other things, the plan with accompanying maps, plats, charts, descriptive and explanatory matter, and recommendations of the planning commission for the physical development of the municipality, and/or its planning jurisdiction, may include:

1. The general location, character, and extent of streets, bridges, viaducts and parkways; parks and playgrounds, places, and spaces;
2. The general location of public schools, public buildings, and other public property;
3. The general location and extent of public utilities and terminals, whether publicly or privately owned;
4. The general location, character, layout, and extent of community centers and neighborhood units and the replanning of blighted districts and slum area;
5. The acceptance, widening, removal, extension, relocation, narrowing, vacation, abandonment or change of use of any of the foregoing public ways, grounds, places, buildings, properties, utilities, or terminals."

The Plan's scope has considerably changed since 1988 by adoption of subsequent amendments. A fundamentally important part of the Plan's scope are the assumptions about the city (page I-37). Projections, quantifying probable growth, are now included. Major planning opportunities are also identified.

The Plan also has several major concepts - now identified as such - to shape the city's future.

A network of open space is expected to shape the edges of the built environment.

Five development areas (the 1975 Plan's six "metropolitan areas") propose different development intensities and character based on natural features and man-made patterns. Average housing densities are associated with each development area. Three development areas Reserve, (formerly Private Grazing) Rural (formerly Rural and Open), and Semi-Urban surround a designated Urban Area. The Urban Area is a composite of the Developing Urban Area (the city's fringe area planned to urbanize), and the Established Urban Area (the closer in, existing built, planned or platted areas.) The Central Urban Area (formerly Redeveloping Urban) is now a specialized part of the Established Urban Area.

One or more planned communities may be developed to distribute growth to the city's far edges.

Redevelopment, as a public/private partnership, is to address more than physical deterioration and blight.

Activity Centers (six major and eighteen community scale) are the locations expected to have the highest concentrations of building density, employment, and housing density. This replaces (2001) the earlier concept of four Urban Centers (the 1975 Plan proposed eight).

Transportation Corridors are conceptualized as a network of three types, each type focussing on a different level of transit service.

The Plan's format organizes these issues and major concepts in three parts. The Introduction (Section I) describes and analyzes the city's most important characteristics and trends. It also discusses sixteen elements (basic topics) in three broad groups: Land Use, Environmental Protection and Heritage Conservation, and Community Resource Management. Goals and Policies (Section II) are the recommended courses of action for the various elements: they correspond to the previous section's findings. Implementation (Section III) is concerned with carrying out the Plan. (Originally included in this section was a proposed Biennial Report to evaluate implementation progress. It has been supplanted by the Albuquerque Progress Report, a different process).

Three important aspects of the Plan relate to its scope and application. The Plan's goals, objectives, policies, proposals, and recommendations pertain only to the City and to the County's unincorporated area. Although neighboring jurisdictions are not directly addressed by the Plan, it encourages coordination with them. When the term City (Capital "C") is used, the Plan refers to Albuquerque as a municipality. When the term city (lower case "c") is used, it refers to the built environment of Albuquerque as an urban community. Other adopted City plans are, by Ordinance, subordinate to this Plan.

## 2. SETTING

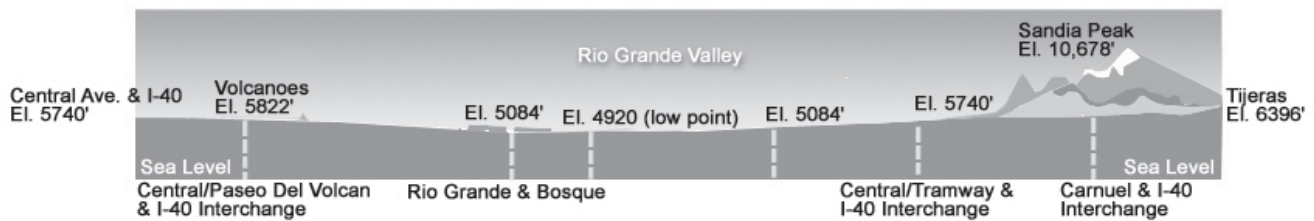
Bernalillo County lies in north central New Mexico, east of the Continental Divide within the Middle Rio Grande Basin. Strong topographic features outline the city's setting, providing the foundation around which planning efforts should revolve.

### Topography

Albuquerque is flanked by gentle mesa uplands which culminate in three mountain ranges on its eastern edge: The Sandia, Manzanitas, and the Manzanos rise to 10,678 feet above Mean Sea Level. The City's elevation ranges from 4,920 to over 6,000 feet above sea level.

The high, wide Rio Grande Valley in which Albuquerque is situated is illustrated in cross section by Figure 2. The valley's outer edges are about twenty miles apart, about the same width as the Grand Canyon. The valley is about 700 feet deep between its lowest point (4,990, Downtown) and the 5,740 foot elevations at Nine Mile Hill (Central Avenue/I-40) and at Four Hills (Tramway Boulevard/I-40). The valley's width and the elevations at its edges result in one of the broadest panoramas in North America.

Figure 2. Cross Section of the Rio Grande Valley at Albuquerque



The strong, defining features are distinct environmental regions. The mountainous eastern region is open forest (part of the Cibola National Forest), sparsely settled with a few pockets of denser habitation. Tijeras Canyon is the only major break in the mountain range. The mesa areas on either side of the valley are semi-arid, flat uplands. The east mesa stands as a shelf above the Rio Grande Valley. It is an alluvial fan, characterized by smooth, steep, slopes at the mountain's base, and tapers as it nears the valley; its slopes range from three to ten percent. Its width ranges from 3 miles (north) to nine miles (south).

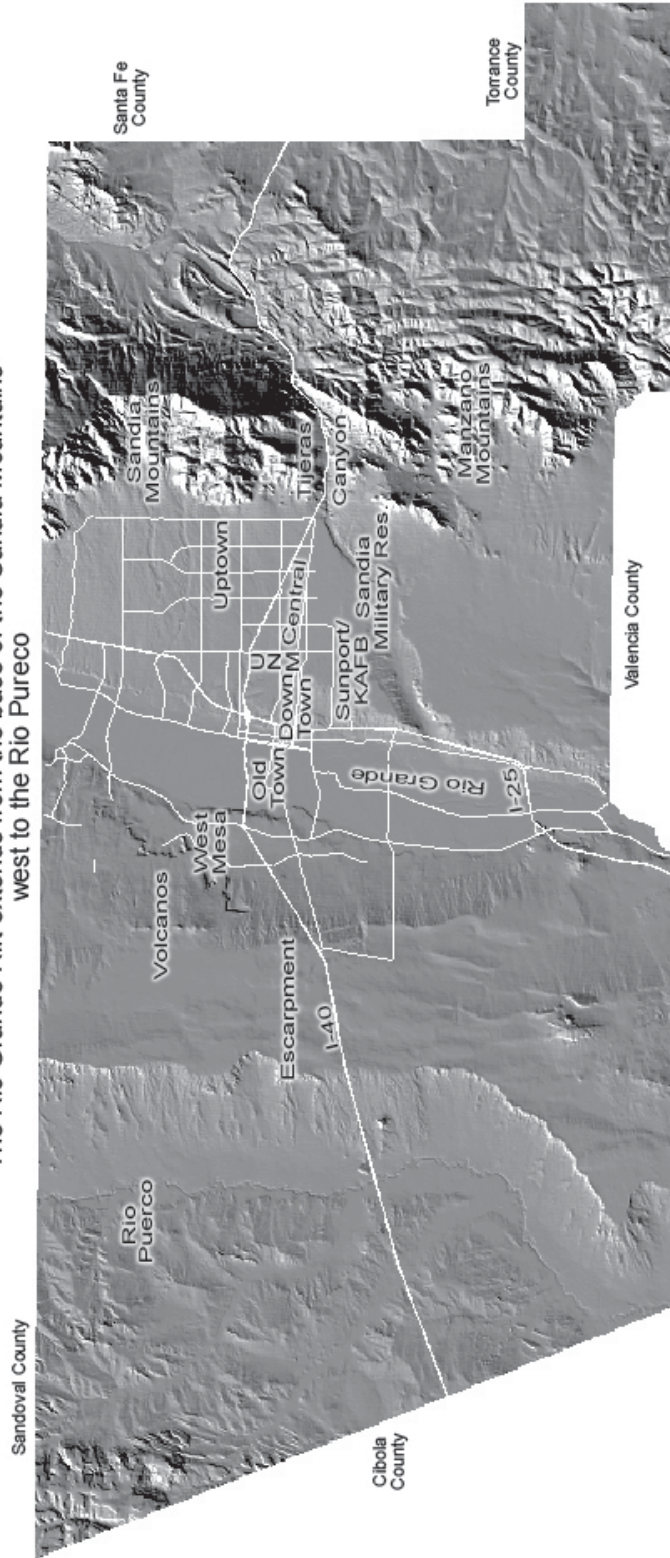
The Rio Grande passes through the city in the form of an "S". The areas, locally known as the North and South Valleys, nestle in the hollows of the "S" formation, one east and the other west of the river. The valley contains a long, narrow flood plain that has been extensively modified by agriculture and development. The bosque (the woodland along the river) provides a riparian wildlife habitat and a natural greenbelt area.

The west mesa's lower surface is a narrow bench between the Rio Grande and a 100 foot high cliff (escarpment). Beyond the escarpment the higher surface extends to the Rio Puerco which drains the county's western edge in a steeply sloping valley. It is characterized by volcanic cinder cones, basaltic lava flows, sandy soils, closed basins (playas) and sand dunes. The lava flow edges form a steep escarpment.

The Rio Grande Rift is a major geological feature in North America. Earthquakes are rare, but not unknown. Ten episodes of ground shaking have occurred in the area between 1893 and 1971.

Figure 3. Albuquerque Setting

The Rio Grande Rift extends from the base of the Sandia Mountains west to the Rio Puerco



Planning Department  
City of Albuquerque  
April, 2005





## **Climate**

Climatologically, Albuquerque is classified as a high altitude, arid, continental climate. The region's climate is one of its most attractive assets and is strongly affected by topography. The mountains shelter the city from all but the most severe continental air movements, affecting the distribution of precipitation and temperatures. The mountains receive sufficient moisture to support a dense forest; most vegetation in the adjacent lowlands and valley requires irrigation.

The dry, sunny weather produces an average annual temperature of 57 degrees and an average annual precipitation of 8.1 inches. There is a noticeable temperature difference between the valley and the mesa areas. This results in occasional air inversions trapping dust and other air pollutants above the city. Cool winters with occasional snow are followed by blustery springs. Summer daytime temperatures may be warm, but are moderated by short, frequent thunderstorms from July to September, and nights are invariably comfortably cool. The autumns are characterized by moderate temperatures.

Winds are normally light. Velocity occasionally increases in gusts to more than 25 MPH, but the mean hourly speed is only 9 MPH. The prevailing direction from April through October is from the southeast with the exception of July (the wettest and hottest month) when it is from the south. From November through January, winds prevail from the north, veering to the northwest during March. After periods of little or no precipitation, gusty winds may pick up dust. Spring wind velocities, the highest of the year, cause dust storms, the main climatic problem.

Humidity is relatively low, averaging about 43 percent. June, the driest month, averages 20 percent. The remainder of the year the warmer part of the day averages 30 percent humidity.

Sunshine is Albuquerque's outstanding year-round climatic characteristics. Over a year the sun shines from dawn to dusk about 75 percent of the time.

The city's climate has a direct impact on living conditions. Dress and daily life is more casual than in other parts of the country and the population spends more time outdoors. Our recreation and other leisure time activities reflect the beneficial conditions of climate, offered in abundance.

The city's climate has a direct impact on its economy. Climate is responsible for the city's role as a health resort. It still attracts people for health reasons or retirement, either because people want to live here or others who find the climate well suited to their needs. Tourism and convention activities benefit from the city's climate, attracting many people to the area to visit; many have returned to make it their home.

### 3. GROWTH AND DEVELOPMENT

#### Development

The Albuquerque area has one of the longest histories of human presence and habitation in North America.

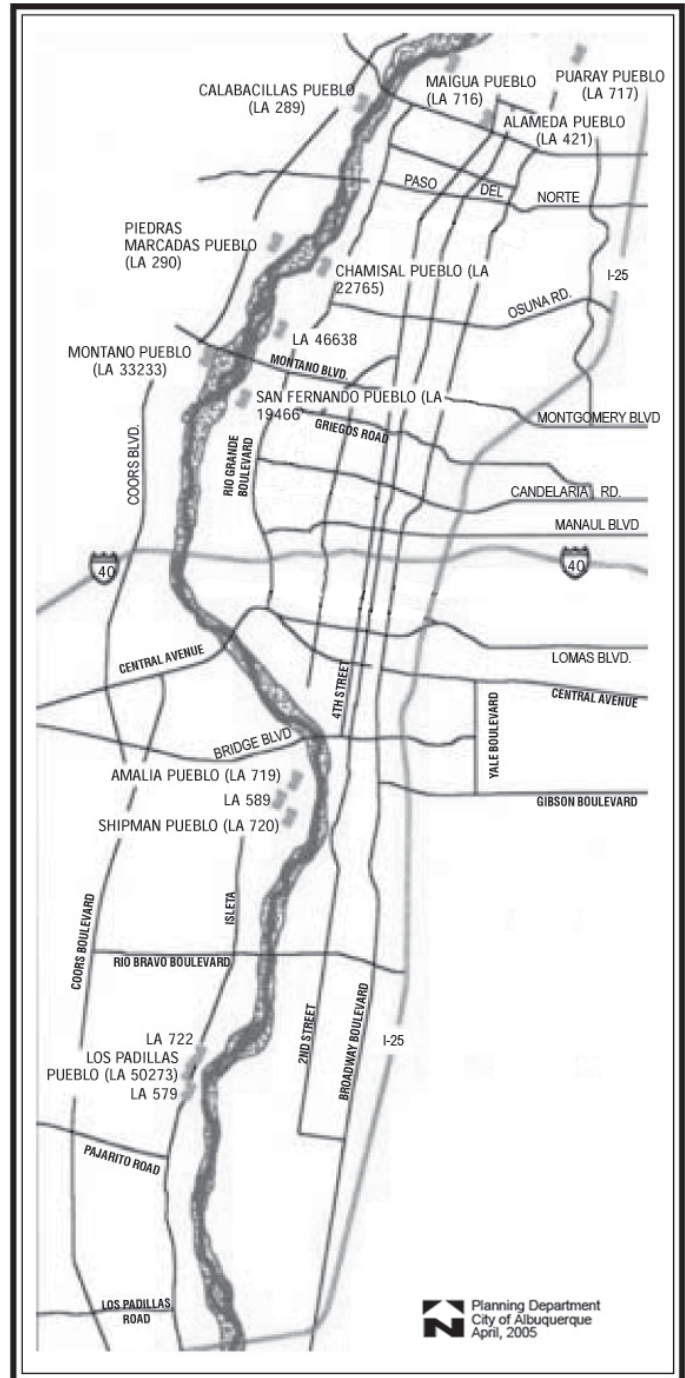
Man has inhabited central New Mexico’s Middle Rio Grande region for about 12,000 years. Archaeological evidence suggests the first people in the Albuquerque area were here as early as 7500 BC. Nomadic hunters found the lush valley, the grassy mesas, and heavily vegetated mountain slopes very hospitable. Ancestors of today’s Pueblo people eventually developed a corn-based civilization, reaching maturity around 100 AD. Pit houses (underground dwellings) evolved to become today’s Pueblo villages. These Pre-Pueblo people are thought to have migrated from the Four Corners area to the Jemez and Rio Grande Valley around 1200 AD. Today the ancient Pueblo villages of Sandia, Isleta, and Laguna surround the city, and their respective reservations extend into Bernalillo County.

Nomadic Athabascan people, from whom the Navajos and Apaches are descended, settled in the region around 1300 AD. Portions of today’s Navajo Nation extend into Bernalillo County.

European exploration and settlement of New Mexico began with Francisco Coronado’s 1540 exploratory expedition of the Southwest, the Tiguex Province. Spanish accounts generally agree that between 12 and 16 Tiwa language Pueblos from the Classic Period were inhabited along the Rio Grande from Bernalillo to an area just south of the present day Isleta Pueblo. By the mid 1600’s when the Spanish had settled throughout the Rio Grande Valley, only four of the Tiwa pueblos were still occupied. Only Sandia and Isleta remain today.

The Pueblo people spatially organized their towns to create urban forms and spaces focussed on a central square, one of several modes of city planning found in Albuquerque.

Figure 4. Former Pueblos in the Modern City



Source: Albuquerque Area Archaeology (1998)  
TRC Mariah for City Planning Dept.

As part of New Spain for nearly three centuries, New Mexico was an isolated frontier province, “remote beyond compare.”

European settlement of New Mexico occurred first in the Rio Grande’s upper reaches (the Rio Arriba) between Taos and Santa Fe. The area between Santa Fe and Socorro (the Rio Abajo) was chiefly settled later, after the Pueblo Revolt of 1680-1692.

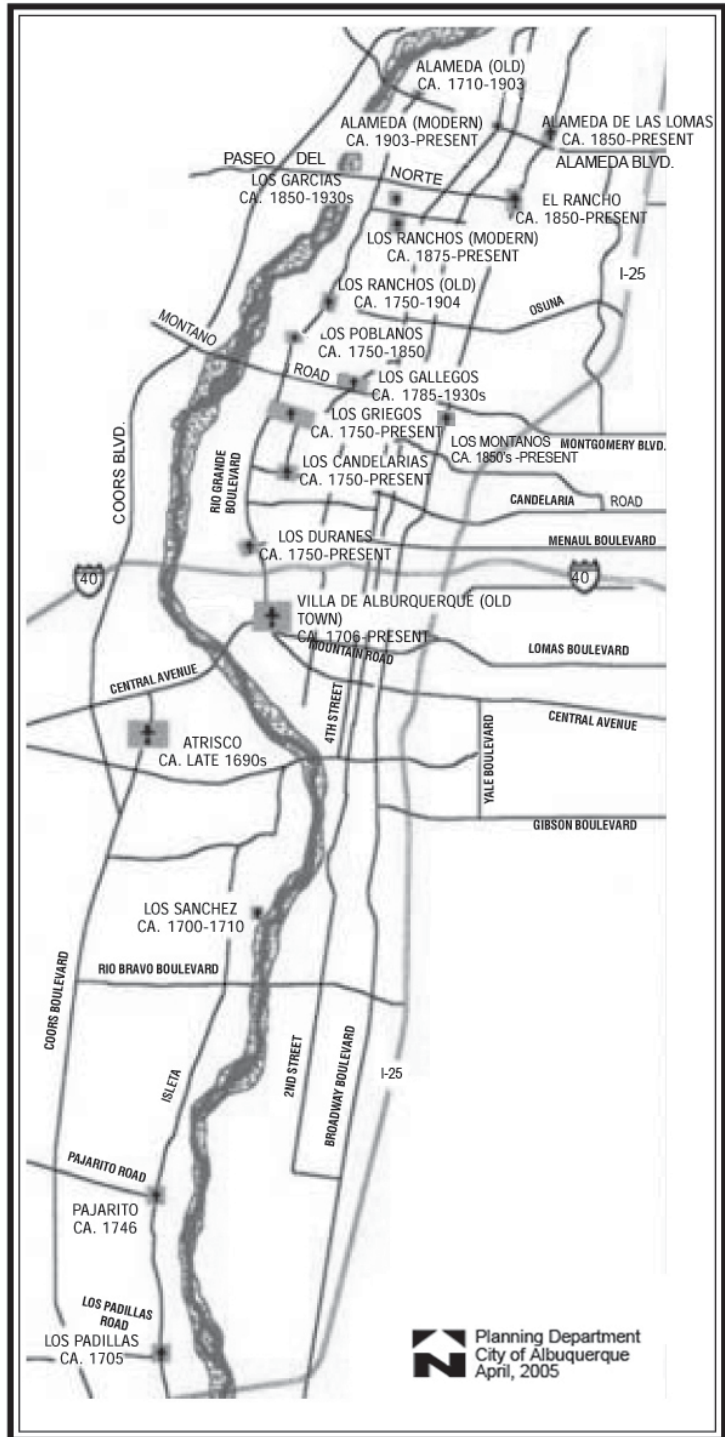
The valley was as attractive to the Spanish as it had been to the Pueblo peoples. At what was to become Albuquerque, a natural ford allowed a safe river crossing. No large settlements occurred in the Albuquerque area but settlers established farms and haciendas in the floodplain of the great river during the 17th century. The area eventually developed into a collection of small farming villages widely scattered along the valley floodplain. Many took the names of their founding families: Duranes, Candelarias, and Griegos.

Atrisco (1703) was the area’s first European settlement. In 1706 New Mexico Governor Don Francisco Cuervo y Valdes established a second Villa in New Mexico (Santa Fe being the first), San Felipe de Neri de Alburquerque. The Villa, a community founded by Royal Charter in accordance with the “Laws of the Indies”, incorporated European principals of city planning. The 1789 Spanish Royal Census recorded 1347 inhabitants, including its fourteen nearby “plazas” (outlying farming communities).

Mexico’s independence from Spain and its decision to seek commercial trade with the United States, opened the Santa Fe Trail. Increased commerce in Santa Fe also brought changes to the Albuquerque area linked to the capital and to Chihuahua by the Chihuahua Trail. The Mexican Republic’s 1822 Census recorded 2302 inhabitants in the area.

The early Spanish settlements were differently located than those of the Pueblo people. They were sited directly in the flood plain, often not far from the river itself, perhaps located in natural clearings of the riverside bosque.

Figure 5: Early European Settlements in the Modern City



Source: Albuquerque Area Archaeology (1998);TRC Mariah for City Planning Dept.

New Mexico became a United States Territory after the Mexican War. The General Land Office subsequently surveyed the Territory to establish a system of land ownership, using one square mile (a Section, or 640 acres) as a basic unit of land. This Survey legally recognized several Spanish and Mexican Land Grants including the Town of Albuquerque Grant, the Town of Atrisco Grant, the Town of Alameda Grant, the Ellena Gallegos Grant, and the San Pedro Grant extending across the Sandia Mountains. Land beyond these Grants was generally in the Public Domain.

The first Territorial Assembly (1852) organized Bernalillo and eight other counties. Los Ranchos was the County seat until moved to Albuquerque in 1854.

Albuquerque was later identified as an important point on one of several other Federal surveys conducted before the Civil War for a Pacific Railroad connecting the Missouri River and California.

During the Civil War, Albuquerque was occupied for three months by the Confederate Army. It's subsequent retreat (April, 1862) damaged New Mexico's fragile economy. Albuquerque continued to slowly develop as a commercial center until the construction of the railroad.

Railroad expansion and western settlement in the late Nineteenth Century initiated the city's development in the early Twentieth Century. Table 2 describes Albuquerque's population in the last decade before the presence of the railroad and the founding of the new town.

*Table 2: Albuquerque area population at the beginning of the Railroad Era*

<b>Year</b>	<b>Population</b>			
	<b>Albuquerque</b>	<b>Barelas</b>	<b>Los Griegos</b>	<b>Los Ranchos de Albuquerque</b>
1870	1,307	N/A	N/A	N/A
1880	2,315	350	300	740

The site of the modern city and the circumstance of its founding were the outcome of several related factors reflecting the emergence of a real estate market associated with the railroad.

The Atchison, Topeka, and Santa Fe Railroad entered the New Mexico Territory in 1879, building to the vicinity of Santa Fe. Extension to the Albuquerque area was logical, as a Federal land grant (following the earlier survey along the 35th Parallel between Isleta and the Colorado River) was available to construct the Atlantic and Pacific Railroad to access Pacific coast ports.

The railroad entered the Rio Grande Valley at Santo Domingo Pueblo, north of Bernalillo, the intended location of operating terminal facilities. Two railroad development requirements then converged to permanently set Albuquerque's future.

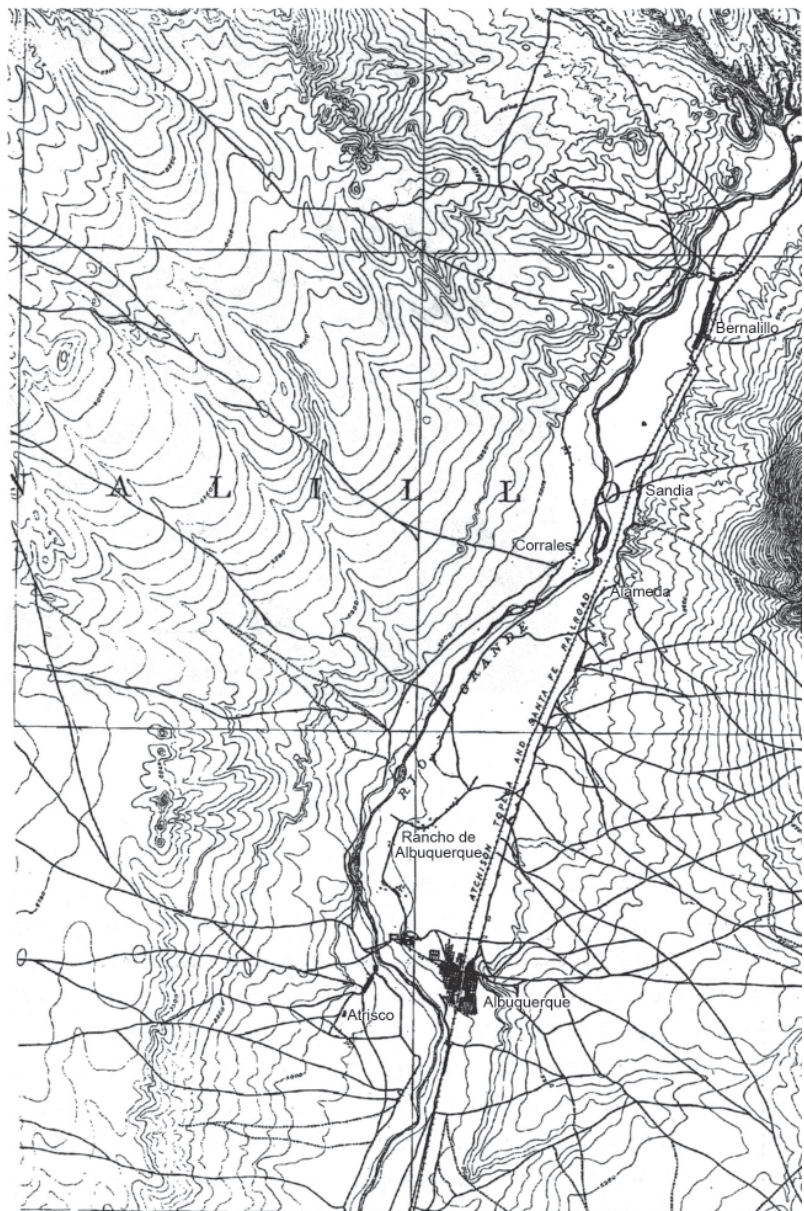
The first requirement was suitable, available land in a town to accommodate the railroad's facilities.

The second requirement was a route and specific alignment that could easily be constructed and reliably maintained with minimal disruption from natural forces. The Rio Grande valley offered such a route but the river itself was not naturally confined to one channel and subject to flooding.

Residents of Bernalillo, heir to a Spanish land grant, refused to sell land (other than right-of-way) to the railroad for its major servicing facilities. Albuquerque was the alternative location.

The railroad's final survey established an alignment on the east side of the valley, bypassing Albuquerque's riverside site. In Albuquerque, merchants Franz Huning, William Hazeldine, Elias Stover, and others, assured of the railroad's construction, purchased land two miles south east of the plaza on the surveyed alignment. Intending a simple direct sale at a high price, negotiations with the railroad resulted in an innovation. The property owners, in their combined interests, sold for \$1.00, some of their property for right-of-way and an area as the site of terminal facilities. In second \$1.00 transaction, they sold another tract of land west of the right-of-way to the New Mexico Town Company, a railroad subsidiary. In return, equal shares in a percentage of the profits were guaranteed on the sale of individual lots in this tract.

Figure 6: *The railroad creates a city.*



Source: *United States Geological Survey, 1888*

Planning Department  
City of Albuquerque  
April, 2005

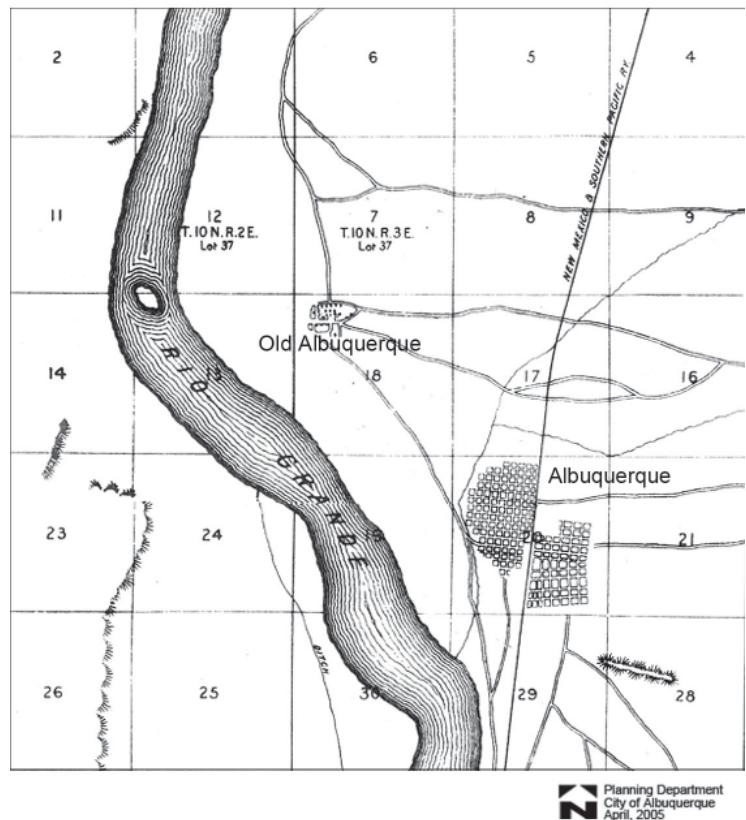
These 1879 real estate transactions assured Albuquerque its location on a transcontinental railroad.

The Town Company, a subsidiary of the Atchison, Topeka and Santa Fe Railroad, retained Colonel Walter Marmon who surveyed, marked, and laid out streets, blocks, and lots for a new town. It's fifty blocks between Copper Avenue, the railroad right-of-way, Coal Avenue, each contained twenty-four lots, each twenty-five feet wide. This area, identified as the Original Town Site, and the adjacent Atlantic and Pacific Addition to the south, were laid out at the same time. A third Addition, Huning's Highland Addition, east of the tracks, followed. The railroad's extension to the new town was completed on April 5, 1880.

The new Albuquerque initially functioned as a base camp for contractors continuing to build the railroad south and west. Its first inhabitants were railroad employees and transient construction crews. The railroad established major servicing facilities here which remained the city's largest single private employer to about 1950.

The new town attracted a permanent population in its first ten years that surpassed the older (1706) community and its outlying villages. It incorporated as a Town on June 4, 1885 and reincorporated as a City on April 1, 1891.

Figure 7. Two city planning concepts: the plaza centered old settlement and the grid-based new settlement



Planning Department  
City of Albuquerque  
April, 2005

By 1900, Albuquerque's population surpassed that of Santa Fe, and was the largest City in the Territory. Table 3 describes Albuquerque's growth in the late Nineteenth Century.

Table 3: Population Growth and Density 1890-1900

Census Year	Albuquerque			Old Albuquerque
	Population	Area	Pop./Sq. Mi.	Population
1890	3,785	3.12	1213.14	2,274
1900	6,238	3.12	1999.36	1,191

Steady growth characterized Albuquerque in the first half of the Twentieth Century. In 1918, the idea of a professionally prepared city plan to guide Albuquerque’s future was advanced by Aldo Leopold for the Commercial Club. This perhaps reflected awareness of Frederick Law Olmstead’s park plans for large cities, the impact of the Columbian Exposition of 1893 in Chicago, and the comprehensiveness of Burnham and Bennett’s Plan of Chicago (1909) Development, however, continued without a city plan. Between 1900-1930, the town evolved to a small city. Its dry climate attracted many persons convalescing from respiratory diseases. A major expansion of railroad facilities occurs (1922-1926). Jobs grow in agricultural processing: lumber and flour milling, meat packing, wool scouring, and brewing. Multi-floor steel frame buildings rise Downtown, including the County Court House (1926), replacing an Old Town building. The electric street railway system (1903-1927) closes.

The Conservancy District is established (1925) and begins to drain the valley. The crossroads role is strengthened in the 1930’s by the convergence of two National Highways (66, 85) and as a servicing point for early transcontinental air service. State Fair re-initiated (1938). Rio Grande floods (1940). Kirtland Air Force Base (1940) and Sandia National Laboratory (1949) established. Old Town and several other valley neighborhoods are annexed to the City (1949). Albuquerque, at the end of this half century cycle of development, is designated a Metropolitan Area in 1950.

*Table 4: Population Growth and Density, 1900-1950*

<b>Census Year</b>	<b>Total County</b>	<b>City Pop.</b>	<b>City Sq. Mi.</b>	<b>City Pop. Sq. Mi.</b>
1910	23,606	11,020	3.12	3,532
1920	29,855	15,157	3.12	4,858
1930	45,430	26,570	3.12	8,516
1940	69,631	35,449	11.10	3,193
1950	145,673	96,815	48.27	2,005

Rapid growth and extensive physical development characterized Albuquerque in the second half of the Twentieth Century. The expansion of governmental activities (especially in national defense) and an attractive climate were responsible for more recent development. The City’s most rapid growth occurred in the aftermath of World War Two. Employment opportunities created a dynamic prosperous metropolitan area.

The construction of the Interstate Highway 25 begins (1956). The Civic Auditorium completed (1957). Los Ranchos incorporates (1958). Rio Bravo Road bridges the Rio Grande (1959). Winrock regional shopping center opens (1961). The Flood Control Authority is established (1962) and begins construction of the North and South Diversion Channels to eliminate flooding in the valley. The Embudo Arroyo is channelized in Interstate Highway 40. City purchases the privately owned transit system with Federal funds (1965). Downtown disinvestment begins; the Tijeras Urban Renewal project initiated (1968). Alvarado Hotel demolished (1970). Tijeras incorporates (1973). United States Highway 66, along Central Avenue, decertified (1984). Paseo del Norte bridges the Rio Grande (1987). Montañero Road extended over the Rio Grande (1997). Edgewood annexation extends into Bernalillo County (2002). Rio Rancho annexation extends into Bernalillo County (2003).

*Table 5: Population Growth and Density, 1960-2000*

<b>Census Year</b>	<b>Total County</b>	<b>City Pop.</b>	<b>City Sq. Mi.</b>	<b>City Pop. Sq. Mi.</b>
1960	262,199	201,189	61.0	3293.3
1970	314,774	244,501	80.6	3033.1
1980	420,262	332,920	97.6	3409.3
1990	480,577	384,736	132.9	2814.9
2000	556,768	448,607	186.92	2474.6

Albuquerque’s development and growth has been influenced by its privileged position. A point to easily cross the Rio Grande, a transcontinental railroad, an important highway junction, early cross country airline service, selection as an atomic research center, a university, and climate gave the city its initial importance and its foundation for the future.

Where we are as a City today is a benchmark for the choices for the future. The population’s spatial distribution across the City and its density are particularly relevant.

*Table 6: Spatial Distribution of City’s Population, 2000*

<b>Quadrant</b>	<b>Persons</b>	<b>Percent of City Total</b>
Northeast	239,565	53.4%
Southeast	63,056	14.1%
Southwest	36,882	8.2%
Northwest	109,104	24.3%

The spatial distribution of the City’s 2000 population is as important as it’s total size. Although these are in many ways to describe the population’s spatial distribution, the Plan uses the quadrants established by the City’s street addressing system as the most meaningful point of reference.

Population density defines a place as urban and is most meaningfully measured as persons per square mile, the Census Bureau standard. The Bureau defines as “urban” areas with at least 1,000 persons per square mile.

The City’s population resides within an extensive area, much of which is vacant; the average population density of 2475 persons per square mile is low. Excluding vacant areas, population density is 4,480 persons per square mile; excluding all developed non-residential areas, the density per square mile is 9,600 persons.



**Growth**

The municipal general plan is expected by State law to “reflect the probable growth of the city and its environs.”

Urban growth is driven by changes in employment levels, the basics for population growth. A larger population, in turn, is responsible for housing expansion. This Plan, as originally adopted (1988) was not based on projected level of employment, population and housing, quantitative measures of urban growth. The then current projections to the year

2000 prepared by the University of New Mexico’s Bureau of Business and Economic Research projected employment to increase faster than population. This suggested Albuquerque would continue to attract employers while building an employment base to sustain the projected population increase. This, in fact, occurred. These earlier projected population levels (Table 7) were very close to those enumerated by the 2000 Census of Population and Housing.

Table 7. Projected Population (1986) when this Plan was adopted (1988)

	1988	2000
<b>City</b>	378,800	460,000
<b>County</b>	493,100	581,800

More recent population projections\* prepared in 2000 by the Mid Region Council of Governments for this Plan are as follows:

Table 8. Census and Projected Municipal Population, 2000-2025

Year	Bernalillo				
	County (Total)	Albuquerque	Los Ranchos	Tijeras	Unincorporated
2000	556,678	448,607	5,092	474	101,829
2005	594,317	475,454	5,628	444	112,138
2010	621,940	497,552	5,889	464	117,350
2015	650,784	520,627	6,162	486	122,793
2020	679,538	543,630	6,435	507	128,860
2025	709,487	567,590	6,718	530	133,860

These projections to 2025 indicate the City’s population will increase by about 50,000 persons per decade, and the unincorporated area’s population will increase by about 14,000 persons per decade from the 2000 Census.

\*Projections of employment and housing to 2025 are found in those elements of the Plan.

The physical distribution of projected growth will be affected by land ownership patterns. Developable land in Bernalillo County is limited due to extensive public ownership. Barely half of the County’s land area of 1,169 square miles land area is privately owned.

*Table 9: Public and Tribal Land Ownership (Sq. Miles)*

<b>Total Area</b>	<b>Forest Service</b>	<b>Bureau of Land Mgmt.</b>	<b>Indian Res. &amp; Trust Lands</b>	<b>State Parks</b>	<b>Depts. of Energy &amp; Defense</b>	<b>Other Public Land</b>
1,169	150.3	8.4	355.3	10.9	31.3	3.3

To better manage projected growth, several scenarios (alternative futures) were conceptualized during 1997-2001 to identify the one which would best achieve public benefits. These scenarios commonly reflect the Plan’s employment, population, and housing projections to 2025.

The Trend scenario, a baseline, reflects the continuation of the pattern of planned dispersal: relatively low density development in the Northwest and far Northeast portion of the city. Land absorption for urban development is expected to continue at a high rate in this scenario.

The Downtown scenario emphasizes higher density in selected Activity Centers, with a major concentration of employment east of the Rio Grande (Downtown, the University, and Uptown).

The Balanced scenario is a more compact distribution of population and employment than the Trend, with employment growth and housing balanced to the east and the west of the Rio Grande. Two transit oriented corridors—an east/west corridor encompassing Central Avenue, and a north/south corridor along Isleta Boulevard and Fourth Street—are priority areas for infill and redevelopment in this scenario.

A combination of the Downtown and the Balanced scenarios emerged as a Preferred Scenario, and is reflected in the Plan’s employment, population and housing projections and in its concepts and policies regarding Activity Centers and transportation corridors.

The scenarios differ in the spatial distribution of projected growth in employment, population, and housing, affecting the densities of population and housing across the city. Equally important, the scenarios vary in distributing the benefits and burdens of projected growth among the city’s residents, affecting livability and opportunity.

## **B. LAND USE**

### **1. OPEN SPACE NETWORK**

#### **Open Space**

Open Space is undeveloped land, which if retained in its undeveloped condition, contributes to the city's livability. Some land, reflecting various physical characteristics, is a candidate for open space because its character is poorly suited for development. Other land is desirable as open space for reasons such as separating incompatibly developed areas or to preserve vistas.

Open Space conserves natural resources and environmental features, provides educational and recreational opportunities, and it places the built environment in context. Land as open space is a form of stewardship which preserves and protects many of the features of the city's physical setting for the appreciation of residents and visitors. The Petroglyph National Monument, an exceptional, large open area, is not considered Open Space. The Monument, established in 1991, includes municipally owned land acquired earlier for Open Space.

The Plan proposes 76.9 square miles of open space (unchanged from the 1975 Plan). It is composed of Major Public Open Space, trail corridors, parks, and other low intensity uses. Beginning in 1969 with the City's purchase of 9.5 square miles of land for Open Space, about 31 square miles had been acquired by 1988.

Portions of the Rio Puerco Valley, the playa lakes in Mesa del Sol, and the petroglyph-rich volcanic escarpment are among sites proposed for preservation as Major Public Open Space.

Several open space sites lie in the mountains east of the city. These include the San Antonio site and Gutierrez Canyon (both east of NM14) in the Sandia Mountains. The Juan Tomas Mountain Park and Carolino Canyon Mountain Park (east of NM317 along Oak Flats Road) lie in the Manzano mountains. The Juan Tomas site is surrounded by the Cibola National Forest. No additional acquisitions are proposed in the mountains.

The foothills open space is a linear area separating the city's eastern-most neighborhood and the Cibola National Forest. Nearly all of the proposed foothills open space has been acquired.

The City's open space along the Rio Grande consists of the forest outside of the Rio Grande State Park totalling 586 acres. These sites are discrete sites, not adjacent to each other. About 382 acres had been acquired by 2000; another 186 acres were priority acquisition sites (2) in 2000.

Major Public Open Space areas are managed to retain and enhance either their natural values or archaeological resources. They are usually purchased fee simple by the City or they are jointly managed by the City and another public agency.

Open Space trails are linear areas linking open space sites as a network. They include arroyos and valley irrigation ditch systems as proposed by the Facility Plan for Arroyos.

Fiscal constraints may preclude the City's purchase of all proposed open space land. Options to fee simple purchase include easements, development rights acquisition, and public/private agreements. Site conservation can also be achieved through special zoning districts that provide for lower impact uses.

## **Parks**

The Open Space network is complemented by a system of developed parks. Similar to other urban amenities, parks are an important quality-of-life factor contributing to the city's livability.

Expansion of the City park system since 1950 has been driven by the dedication of land associated with residential development rather than the purchase of well located sites of adequate size which could best shape the form of the city. Although many one to three acre parks were developed in the post World War II era, the number and location of neighborhood parks now inadequately serves the area's population.

The County and the City have approximately 30 and 175 developed parks, respectively, totaling over 800 acres. There are approximately 400 more acres contained in 38 undeveloped parks (1985). The ratio of developed parkland to population is about 438 persons per acre while the ratio for all parkland is about 292 persons per acre. This compares poorly with other cities of similar size. The City and County parks systems are still below the national average for developed parks in the ten to twenty acre range. The City also lacks large, regional parks that can be used for major and multiple events which attract large attendance.

Attractively designed parks are highly used parks.

Climate and soil characteristics create difficult challenges for the City park system. Arid conditions and sandy soils affect the cost to provide large landscaped areas. Supplemental watering is necessary due to the low annual rainfall. Precipitation is usually of short duration and run-off is heavy. Parks must be continuously maintained to prevent deterioration and maintain their attractiveness.

Our abundant sunshine affects park use. For approximately half the year some protection from the sun is needed. Unprotected from the sun, midday park use will be low. However, a too dense grove of trees will reduce the functional quality of a park for open play. Good design that provides for the types of areas and facilities that residents desire, along with appropriate development and good maintenance, is the key to a well used and attractive park system.

The City's park system is complemented by the Rio Grande Valley State Park. It extends along the Rio Grande through Bernalillo County and beyond from Cochiti Dam south to Belen. The park lies entirely within the property of the Middle Rio Grande Conservancy District. The planning concept for the Park is a balance between recreational use and habitat conservation.

OPEN SPACE MAP GOES HERE

NEEDS A FIGURE #

## **2. RESERVE AREA**

The Plan designates two areas Reserve, about 48 square miles. One is Mesa del Sol, about ten square miles south of the Tijeras Arroyo. The other Reserve Area is located on the upper west mesa.

These areas may be committed to large scale urban development in the near future. Portions of these areas, where undisturbed, have important environmental qualities and/or paleontological, archaeological, or natural resources. These qualities and resources should shape the nature of development and the extent of conservation.

The Plan proposes two approaches to development and conservation in the Reserve Areas: conventional development or planned communities.

### **Conventional Development**

Development in the Reserve Areas can occur in a conventional manner, consistent with Rural Area policies. This approach uses Rural Area policies to guide existing zoning to shape development on separate lots. The Plan proposes an average housing density of one dwelling per acre using this approach. Clustered housing is included in this approach.

### **Planned Communities**

Development in the Reserve Areas can also occur in the form of a planned community. This extension of the city is a self sufficient urban development, separated from the areas the Plan designates Established Urban or Developing Urban by permanent open space, yet jurisdictionally part of the City. A planned community must be consistent with the Plan’s goals, policies, and proposals. Planned communities provide residents some degree of self-sufficiency; employment, services and housing in such new communities should minimize “bedroom communities” and leapfrog development patterns.

A required master plan may be approved if elected officials find that approval is justified by the balance between: 1) desired infill and fringe area development of the Established Urban and Developing Urban Areas, weighed against 2) needed areas to expand a wide variety of urban activities in planned communities.

*Figure 9 Planned Community Criteria: Reserve Area\**

#### **CRITERIA FOR PLANNED COMMUNITIES**

The Plan’s proposed Reserve Area planned communities are intended to take form based on the following criteria.

<b>CRITERION</b>	<b>POLICY INTENT</b>
Size	Five-to-ten thousand acres; 4-8 villages Population base sufficient to support community scale activities
Land Use	A mix which promotes self sufficiency: Residential (50%) Open Space (20%) Non-Residential (30%) A distinct identity defined by open space, architectural design, or other distinguishing features
Housing Density	Average housing density per lot to be proposed by the required Master Plan, but not to exceed three dwellings per acre.
Transport	The interior transportation system should be adequate to serve the ultimate development level specified in the master plan
Environment and Open Space	Identify and conserve environmental resources and incorporate them into the open space network.
Government and Public Services	The planned community should efficiently and equitably provide facilities and services at no net expense to the City to assure the public’s health, safety, and welfare.
Ownership and Management	An ownership/management arrangement sufficient to implement a master development plan.

*\*The County repealed these Criteria for the unincorporated area on May 27, 2003.*

Planned communities could occur on the basis of agreements with the City for the provision of public services. To avoid creating incentives for independent utility districts, the City may enter into pre-annexation agreements with developers regarding equitable timing and cost-of-service extensions.

The extensive Mesa del Sol area, south of the Tijeras Arroyo, will be developed consistent with a Planned Community Master Plan approved by the City.

### 3. RURAL AREA

The Plan designates twenty-three areas Rural Areas, about 294 square miles. Almost all of these Rural Areas are in the unincorporated County. One of the twenty-three areas was the subject of a 2001 Plan amendment, expanding the Rural Area designation in North Albuquerque Acres by reducing the Established Urban designation. The Plan proposes an average housing density of one dwelling per acre.

Several Rural Areas are within or adjacent to developed parts of the city. A portion of North Albuquerque Acres and three smaller areas are also designated Rural on the city’s northeast edge: the Tierra Monte, Sandia Heights, and Evergreen Hills neighborhoods.

Rural Areas in the North Valley east of the Rio Grande include all of the area north of the Village of Los Ranchos de Albuquerque including the Alameda neighborhood. A smaller area is the Rio Grande Nature Center, part of the Rio Grande State Park. Three areas west of the Rio Grande, approximately opposite the Village of Los Ranchos, are also designated Rural and are proposed to be acquired as Open Space.

The Plan’s Rural Area south of Downtown extends south from Prosperity Road (if extended) to the Isleta Indian Reservation, between the railroad main line and the Rio Grande. Two sites are proposed to be acquired as open space. The area is addressed in more detail by the County’s Southwest Area Plan.

Another extensive Rural Area south of Downtown lies west of the Rio Grande in the South Valley and includes the Los Padillas and Parajito neighborhoods, between Prosperity Road (if extended) and the Isleta Indian Reservation. It includes the escarpment of the west mesa; this segment is proposed to be acquired as open space.

The largest Rural Area is east of the Cibola National Forest extending through Tijeras Canyon and south through the private land in the Manzano Mountains. Continuing westward, the designation extends south to Kirtland Air Force Base (the National Forest Service withdrawal area leased to the Air Force). It is addressed in more detail by the County’s East Mountain Area Plan. A northward extension of this largest Rural Area extends west from Tijeras Canyon and is primarily in the City; it is addressed by the City’s Sandia Foothills Area Plan.

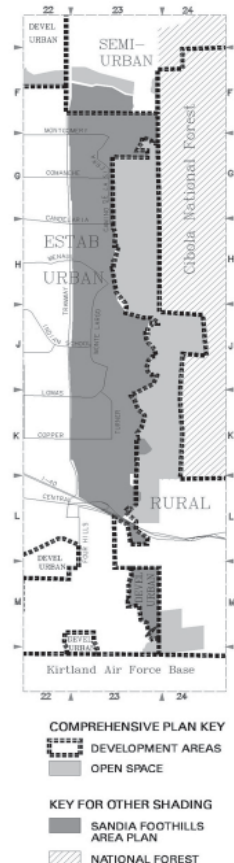
The mid section of the Tijeras arroyo, (approximately between Yale and San Mateo Boulevards, if extended) south of Kirtland Air Force Base, is designated Rural, and outside of the municipal limits.

One very large Rural Area parallels both sides of the Rio Puerco. Three additional extensive Rural Areas are west of the river.

Rural Areas have attributes and environmental conditions which warrant development standards that differ from those applied in Urban Areas. Environmentally compatible development is necessary to maintain the open character of Rural Areas.

Rural Areas of significant environmental or scenic value should be considered for major public open space designation.

Figure 10





The Plan proposes two approaches to development and conservation in the Rural Areas: conventional development or in limited circumstances, planned communities west and east of the city.

**Conventional Development**

Development in Rural Areas can occur in a conventional manner consistent with Rural Area policies. These policies guide existing zoning to shape development on existing lots. Land division for new lots is expected to respect the character and environmental conditions and qualities of the particular Rural Area in which it is located and that of the site and its immediate surroundings. Site suitability and potential impacts should receive particular attention. Clustered housing, as part of this approach is especially attractive for Rural Areas in the Rio Grande Valley. County A-1 and A-2 zoning is mapped for most undeveloped land in the Rural Areas. The County A-1 zone (one dwelling unit per acre), in particular, contributes to scattered development which erodes the areas character and the lifestyle it supports. County A-2 zoning (one dwelling unit on two acres) is preferable, providing for larger lots, and in the Rio Grande valley, for agriculture and for irrigation access.

The scattered development generally associated with County A-1 and A-2 zoning has costly environmental and economic drawbacks. The use of individual liquid waste disposal systems where the water table is shallow has polluted valley groundwater. The pattern of dispersed housing, characteristic of Rural Areas, greatly increases public facility extension costs. Decisions to extend public facilities and services to designated Rural Areas should be made with careful consideration of public health, safety, and the effect that service extension will have upon future development in those areas.

The Plan proposes the County enact very-large-lot zoning districts (one dwelling unit for every 5 to 20 acres) to be mapped for the most remote parts of the Rural Area.

**Planned Communities**

The Rural Areas west of the developed edge of the city and in the East Mountain area may be considered for a planned community in suitable locations.

*Figure 11 Planned Community Criteria: Rural Area\**

**CRITERIA FOR PLANNED COMMUNITIES**

The Plan's proposed planned communities in Rural Areas are intended to take form based on the following criteria.

<b><u>CRITERION</u></b>	<b><u>POLICY INTENT</u></b>
Size	Five-to-ten thousand acres; 4-8 villages Population base sufficient to support community scale activities
Land Use	A mix which promotes self sufficiency: Residential (50%) Open Space (20%) Non-Residential (30%) A distinct identity defined by open space, architectural design, or other distinguishing features
Housing Density	Average housing density per lot to be proposed by the required Master Plan, but not to exceed three dwellings per acre. In the East Mountain area the average net density will be urban, the exact density to be determined by lower ranking plans.
Transport	The interior transportation system should be adequate to serve the ultimate development level specified in the master plan.
Environment and Open Space	Identify and conserve environmental resources and incorporate them into the open space network.
Government and Public Services	No automatic requirement for incorporation into the City.  The planned community should efficiently and equitably provide facilities and services and will be approved only if all public infrastructure needed primarily to serve proposed areas is provided at the cost of the developers.
Ownership and Management	An ownership/management arrangement sufficient to implement a master development plan.

*\*The County repealed these Criteria for the unincorporated area on May 27, 2003.*

#### **4. SEMI-URBAN AREA**

The Plan designates eight areas Semi Urban primarily in the unincorporated County. A plan amendment in 2003 redesignated a portion the south valley from Developing Urban to Semi-Urban, about 1.75 square miles. The designation now addresses 20 square miles. These areas, located in the Sandia Foothills, the west mesa, the north valley and the south valley, are characterized by development limitations due to topography, soil conditions, water quality, flood potential, scenic qualities and recreational potential. Semi-Urban areas in the valley contain some of the County's best farming soil, with small scale agricultural potential.

An average housing density of three dwellings per acre is proposed by the Plan for the Semi-Urban Areas. Housing densities above three dwelling units per acre, except where clustered with shared open land, are likely to have high environmental impacts. Standard urban residential development patterns eliminate openness, create traffic, alter drainage conditions, limit recreation and agriculture potential, and degrade water quality when either community or City services are not available.

## **5. DEVELOPING URBAN AREA AND ESTABLISHED URBAN AREA**

The Plan’s five development areas are a concept for future conditions to be found in the City and in the County’s unincorporated area. The development areas are illustrated in a manner which includes (overlaps) land designated Open Space. The size and extent of these development areas, excluding Open Space, are compared to existing densities of population and housing in 2000.

*Table 10: Development Area Size and Densities*

<b>Development Area</b>	<b>Area (Sq. Mi.)</b>	<b>Population (Sq. Mi.)</b>	<b>Housing (Sq. Mi.)</b>
Established Urban	100	4,992	1,922
Central Urban	(10)	(5,378)	(2,485)
Balance	(90)	(4,873)	(1,862)
Developing Urban	49	3,124	1,229
Semi Urban	20	2,261	896
Rural	294	619	208
Reserve	48	87	32

### **Urban Area Concept**

The Plan concept of an Urban Area is a composite of the Developing Urban Area and the Established Urban Area; the Central Urban Area is a part of the latter.

The Plan designates nine areas Developing Urban, about 49 square miles. Development in the Developing Urban Area is subject to sector planning requirements for non-residential development and for medium and high density residential development allowing orderly provision of services as well as accomplishing the urban form envisioned in this Plan. This procedure may result in a Plan amendment to expand the boundary of the Established Urban Area.

The Plan designates a large, contiguous area Established Urban, about 100 square miles, 10 square miles of which is further distinguished as Central Urban. A Plan amendment in 2001 reduced this designation in North Albuquerque Acres; a 1989 amendment expanded it in the Manzano Mesa area, south of Central Avenue and east of Eubank Boulevard.

The Established Urban Area’s most distinctive part is specially identified as the Central Urban area. It is distinctive enough to require two additional policies in addition to those addressing the rest of the Established Urban Area.

The Central Urban Area includes Downtown, Old Town, and the University district, places well established in the early Twentieth Century. The area has a very high building density. Area characteristics are the largest concentration of older (pre 1940) housing and a significant concentration of larger public and private buildings, cultural amenities, historic districts, and parks.

### **Urban Area Housing Density**

This Plan (1988, as subsequently amended) proposes an average housing density of up to five dwelling units per acre for the entire Urban Area or 3,200 dwellings per square mile. The city's average housing density is now (2000) about 1,100 dwellings per square mile. Higher densities are appropriate in Activity Centers to eventually increase the average gross housing density to five dwelling units per acre.

### **Redevelopment**

The Plan's Established Urban Area, especially its Central Urban part, also provides direction to redevelopment activities: the designation of Metropolitan Redevelopment Areas and the subsequent action of preparing a Metropolitan Redevelopment Plan. Eleven Redevelopment Plans had been adopted by 1987.

Redevelopment renews declining neighborhoods. Present redevelopment activities are an outcome of a city-wide survey (1967) of physical conditions, identifying candidate areas for maintenance, conservation, rehabilitation, or clearance and renewal. The earliest redevelopment actions addressing disinvestment and blight occurred in the Central Urban Area: the Tijeras Urban Renewal Project (Downtown) and the Model City Neighborhood Development Program in some Downtown adjacent neighborhoods. Housing improvement and infrastructure rehabilitation were of the next focus of subsequent redevelopment actions. Redevelopment further evolved and expanded during the preparation of this Plan (1986-1988) to include the application of broader economic development techniques in the Established Urban Area.

The present, broader focus of redevelopment is intended to promote equitable economic development conditions in the Established Urban Area. Commercial revitalization, job creation, historic preservation, and mixed use development are now important redevelopment objectives. This present focus requires Metropolitan Redevelopment Area designations reflect an assessment of opportunities as well as correcting conditions of deterioration and blight (need). The Plan's Activity Centers and the Transportation Corridor policy concepts should integrate this new approach (Appendix E).

Partnerships among government, business, and community organizations will economically strengthen neighborhoods while promoting their diversity and unique character. The partnership idea is compelling. Many cities now rely on creative public/private partnership arrangements to achieve public redevelopment objectives. Successful private/public ventures require local government to lead the initiative, efficiently directing such efforts in tandem with the private sector and neighborhoods.

The City has an entrepreneurial role in initiating joint venture development actions under this concept. "No more and no less" will be the standard governing public/private ventures, with the former providing only enough public assistance to support a project. Respective contributions, risks, and rewards can be determined through negotiation. Publicly adopted redevelopment objectives can be successfully carried out under public/private cooperation by these ventures.

## 6. ACTIVITY CENTERS

### **Trend**

As noted elsewhere in the Comprehensive Plan, much of Albuquerque’s development for the last 50 years has been in a form characterized by buildings with large setbacks and parking lots served by a grid of arterial streets designed primarily to move vehicular traffic. Commercial, office and retail land uses typically are not concentrated in well-differentiated activity centers, but rather tend to be strung out along many of the arterial streets. Also typically, these land uses are auto/driver oriented, with substantial amounts of surface parking. This trend has been made more prevalent in the last two or three decades by increasing numbers of big box retail establishments, and by larger formats for medical services.

While it is true that slightly more agglomerated activity nodes occur at arterial street intersections, they seldom function as singular activity centers with easy walking connections among uses. Instead, they work more like four “sub-centers”, one on each corner, separated by multiple lanes of traffic, not at all conducive to pedestrian trips from one side to the other, nor to mass transit usage.

### **Activity Centers Concept**

The Plan’s Activity Centers element describes a concept that can have a major effect on urban form through balanced growth and consumption of land. Activity Centers are intended to concentrate a diversity of community activities at appropriate locations. Designated Activity Centers should be the focus of City and County efforts to build upon existing locations and develop future Activity Centers as vibrant, transit-oriented urban places that encourage walking to destinations throughout each center.

The Activity Centers concept provides a rational framework for the efficient allocation of public and private resources. The concept would concentrate land uses for greater efficiency, stability, image, diversity and control while safeguarding the city’s single-family residential areas from potential intrusion by more intense land uses. Population concentrations located within Activity Centers and interconnected corridors could help reduce automobile travel, provide better mass transit opportunities, and decrease adverse environmental effects. Other benefits may include housing close to jobs and services, reduced personal transportation costs which can go toward other needs, and increased options for living an urban lifestyle with easy access to a great variety of activities.

*Figure 12: Auto-oriented strip commercial development*



Activity Centers can become magnets for activity and development which positively affect urban form, environmental quality, and the transportation network. Committing capital implementation funds specifically to public improvement in Activity Centers and taking actions necessary to limit the range and intensity of land uses outside the Activity Centers are key needs if such a new development style is to be realized, and it will likely take two decades or more to accomplish, depending on what proportion of the capital program is committed to Activity Centers implementation, and on land use regulatory success and private sector response.

### **Types of Activity Centers**

The Plan envisions five basic Activity Center types: Major Activity Centers, Community, and Neighborhood Centers, as well as Specialty Centers and Rural Village Centers. The Plan contains policies which address the function and composition of each.

- **Major Activity Centers:** These are areas whose major focus is concentration of commercial and/or major employment uses.

A Major Activity Center is an area between 300 and 1,000 acres designated to provide a place of work for residents throughout the metropolitan area, but also including medium (7-12 dwelling units per net acre) to high-density (12 dwelling units or greater per net acre) housing and other uses in support of employees and commerce in the area and region.

Predominantly auto-oriented in Albuquerque at the present time, Major Activity Centers should be more concentrated in the future to better support transit usage, and be redesigned for greater pedestrian access. Major Activity Centers floor area ratios should be higher than elsewhere in the city, and they should contain such activities as regional shopping centers, government and financial institutions, and major cultural and entertainment features. Major transportation corridors would connect these Activity Centers with each other and with residential areas.

- **Community Activity Centers:** These are Areas designated to provide focus, identity, and convenient goods and services as well as some employment for a number of surrounding neighborhoods with a combined population of 30,000 or more. The ideal Community Activity Center should be between 15 and 60 acres of

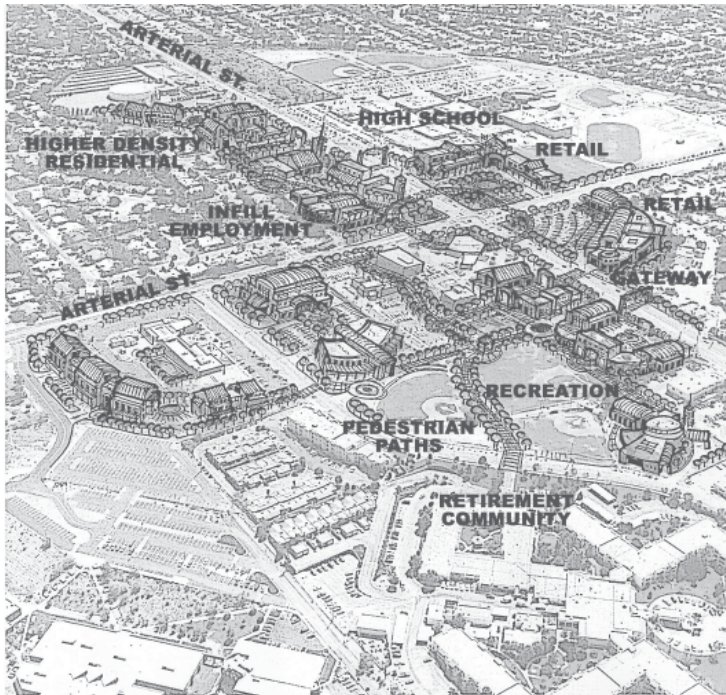
*Figure 13: Typical major arterial intersection and auto-oriented land use.*



*Figure 14: Nob Hill contains good examples of "community scale" center development.*



Figure 15: The same arterial intersection showing infill/redevelopment that would convert the area into a community-scale activity center.



commercial, office, entertainment, medium density residential, and institutional uses accessed by arterial streets and a range of transit service levels depending on composition; adjacent, contributing uses could result in larger quantities of acreage.

The ideal Community Activity Center would have parcels and buildings scaled to pedestrians, small enough to encourage parking once and walking to more than one destination. Off-street parking is often shared, and on-street parking helps contribute to the intimate scale typical of well functioning pedestrian areas. Parking located between and behind buildings would permit people to walk more safely and comfortably between uses that front on sidewalks rather than parking lots. Seating and shade along pedestrian routes also promote walking and informal gathering. The successful multi-use Community Activity Center is a vibrant people place especially serving the surrounding community area as defined by the Plan's "Community Identity and Urban Design" Plan

sections and map, e.g. the San Mateo/Montgomery and Hoffmantown Community Activity Centers serve the Mid-Heights Community Area.

- **Specialty Activity Centers:** Several "one-of-a-kind" facilities or Specialty Activity Centers, need support to continue providing the metropolitan area population with variety and interest. The State Fairgrounds, UNM Sports Complex, Balloon Fiesta Park, Old Town/Museum Complex, Biological Park and Zoo all provide unique recreational and entertainment opportunities and, in some cases other, more year-round uses that are complementary to the primary use. The Albuquerque Sunport, the regional air travel hub, is a Specialty Activity Center with another type of significance to Albuquerque and this part of New Mexico. Specialty Activity Centers tend to be quite large, several hundred acres in size, due to their extensive regional, state, and national "service area".

Figure 16: Albuquerque's Biopark exemplifies the uniqueness of Specialty Activity Centers.



- **Neighborhood Activity Centers:** These are designated to meet the daily "convenience" goods and service needs of residents in two or three immediately adjacent neighborhoods. Their size would not usually exceed 10 acres, and would include a mix of small scale retail/service uses, neighborhood park and perhaps small

institutional uses such as elementary schools. Access is generally by local and collector streets. Too numerous to indicate on the following map, Neighborhood Activity Centers should be specifically located and mapped in the course of smaller area planning.

- **Rural Village Activity Centers:** These Activity Centers exist at several locations in unincorporated areas of Bernalillo County. They are designated to serve daily convenience goods and service needs of residents living in the surrounding Rural and Semi-Urban Areas. Similar to Neighborhood Activity Centers in the Urban Area, Rural Village Activity Centers are usually only a few acres in size, located on an arterial street or highway, and should ultimately contain a mix of small scale retail and service uses such as grocery stores, restaurants, gasoline service stations, hardware stores and offices, as well as some housing within walking distance of the other uses.

Figure 17: Downtown, Albuquerque's original Major Activity Center.



### **Objectives for Creating Activity Centers**

Generally speaking, Major Activity Centers designated by Figure 30 are too diverse in terms of function to be effectively governed by a single set of design principles, either for streets or the private realm. Where Downtown (in the near term, and perhaps Uptown in the longer term) can realistically pursue a development philosophy of “park once and walk” to multiple destinations during the course of a day, the relatively low density employment district of a Journal Center lacks the small block grid and mixed land use necessary to successfully promote significant pedestrian activity. Specific solutions suited to the unique circumstances of each Major Activity Center must be designed to effectively build and redevelop street features and complimentary land uses. This is best accomplished through Rank Three development plans, similar to those already in place for Downtown and Uptown.

Most of the remaining Activity Centers designated by Figure 30 are community scale in nature, and while they too are quite diverse in their history and functional character, it is useful to establish basic community identity design and development objectives intended to gradually move them toward greater pedestrian and bicycle

Figure 18: One illustration of Downtown developed with more building intensity, transit and pedestrian opportunities.





accessibility and transit usage. This objective is important because the goal of community centers is to serve mainly the routine daily and weekly service needs of nearby neighborhoods, with some employment. This Plan prescribes a “baseline” set of design/development policy objectives for Community Activity Centers. More detailed design objectives appropriate to different locations should be set forth in smaller area planning efforts.

Land use, zoning and transportation decisions made incrementally over decades have undermined effective implementation of the Activity Centers concept at designated locations. A dispersed pattern of commercial, office, industrial and low to medium-density residential zoning and use has developed since the 1975 Plan’s adoption. The availability of lower cost vacant land with equivalent zoning outside the designated Activity Centers works against attempts to concentrate uses in the Activity Centers.

With rigorous community support, public investment and effort to contain intense uses in designated Activity Center areas over the next 20 to 25 years, the concept might succeed. Travel would become less dispersed, making transit systems more efficient and public/private expenditures for pedestrian ways and community amenities more feasible.

As of 2001, with a limited capital program that annually is \$20 million short of funding infrastructure rehabilitation needs, and with declining Gross Receipts Tax revenue undermining local government operating capacity, Albuquerque and Bernalillo County will need the efficiencies which can be achieved through implementation of Activity Centers and transportation corridors development policy.\* A corollary benefit would be a more compact urban area that is more sustainable, not only fiscally and economically by virtue of more concentrated and efficiently used infrastructure, but also environmentally by virtue of shorter travel distances and reduced landscape irrigation. And finally, property values within the built urban area would be stabilized or improved through reinvestment.

Activity Center development can only be accomplished through careful analysis and identification of advantageous connections among interrelated factors such as land use form and intensity, zoning and its spatial distribution, demographics, market trends, transit considerations, redevelopment and infrastructure conditions and objectives. Ongoing public-private cooperation is essential to creating market conditions that support Activity Center development.

Assumptions that underlie successful development of mixed use Activity Centers and transportation corridors include:

- Albuquerque and Bernalillo County will continue to grow, probably at or near the recent annual rate of 1.4%, most years through 2025, adding more than 60,000 additional households.
- Personal vehicles will continue to be the predominant choice in mode of transportation, though drive time will erode considerably, and a larger share of trips than today will be taken on mass transit, bicycles, or by walking or ridesharing.
- Arterial streets will be maintained and/or reconstructed, with greater attention to serving travel modes including mass transit, walking and bicycling as well as vehicles.
- Transit services will be improved in terms of comfort, convenience and competitiveness as a viable transportation choice.

\* It is also useful to note that, in 2001, there is an estimated \$1.8 billion backlog of water, sewer, transportation and hydrology rehabilitation needs, as well as \$700 million in deficiencies.

## **C. ENVIRONMENTAL PROTECTION AND HERITAGE CONSERVATION**

### **1. AIR QUALITY**

The City's climate and air quality are among its most attractive but least tangible environmental assets. This asset is so highly valued by Albuquerque's residents, that through the City Charter, we are committed to "protect and preserve environmental factors such as air."

The geographic location in a river valley bounded by a high mountain range to the east, the mile-high altitude and meteorological conditions affect Albuquerque's air quality, particularly in the winter months. Frequent winter temperature inversions result in limited vertical mixing and poor dispersion of pollutants. Mountain down slope winds and valley drainage winds also affect pollutant concentrations. Episodes of degraded air quality have occurred, reflecting high levels of carbon monoxide and suspended particulates. Primary sources of air pollutants include vehicular emissions, residential wood burning, dust from unpaved roads and construction sites and, to a lesser degree, industrial operations.

The City's network of air quality monitors sample the air for concentrations of suspended particulate matter, carbon monoxide, nitrogen dioxide, lead and ozone. The monitors enables planners to use forecasting and modeling techniques to predict how location and type of development projects will affect air quality.

The city's urban form and the land use pattern within it affect air quality as a consequence of our reliance on the auto to access the highly dispersed city. Preserving the quality of the air requires a long term commitment to build a city of more compact places, attracting projected growth in employment, population, and housing to activity centers and along certain arterial streets as corridors. It also requires reducing travel distances by supporting the conditions for investment which integrates work, shopping, and leisure activities. In addition, the provision of space and facilities for bicycling, walking and use of transit or paratransit will encourage use of the travel alternatives.

Vehicular emissions can also be decreased through transportation system management techniques such as signal synchronization and limited access arterials which maintain vehicular speeds. An auto emissions testing and maintenance program could improve ambient air quality.

Suspended particulates in the air are associated with episodes of visibility impairment. The wintertime "Brown Cloud", a phenomenon which affects the distant views characteristic of Albuquerque, is chiefly the result of woodburning for heat and for decoration. Regulating the use of fireplaces will reduce emissions from this stationary source.

Excavation for new construction and travel on unpaved roads are other sources of suspended particulates. Top soil disturbance permits and dust control plans for construction sites and the paving or surfacing of dirt roads will reduce particulates from these sources. In addition, landscaping of bare areas and/or retention of native vegetation in areas not under active construction will reduce dust.

## **2. WATER QUALITY**

Water is a finite and valuable resource. As such, water quality in the metropolitan area is a factor in determining the amount of growth the area can sustain. Albuquerque residents, through the City Charter, are committed to “protect and preserve environmental features such as water.”

Water quality may vary greatly due to well depth, groundwater source, and the effects of man’s activities upon the aquifer.

### **Variations due to Human Activities**

Man’s impact on groundwater quality include septic tanks, agricultural activities, petroleum handling facilities, solid waste disposal sites, illegal discharges, dumping and other anthropogenic activities. It is important to identify these sources, quantify their effects, initiate remedial action where appropriate, and take steps to prevent future contamination.

Most of the unincorporated Valley area was developed without sanitary sewer lines, and groundwater quality has cumulatively been affected by low density development relying on septic tanks and domestic wells. Groundwater in the South Valley has nitrates, volatile organics, and gasoline, documented by the State’s Environmental Improvement Division. (April, 1986)

The continued absence of sanitary sewer lines in the unincorporated county will result in shallow groundwater degradation due to higher wastewater volume flowing through on-site disposal systems, a rising localized water table and increased groundwater flow velocities.

Line extension to outlying areas is recommended to minimize domestic use of shallow groundwater which may be contaminated by waste discharges. The preferred alternative is the extension of both water and sanitary sewer lines into the unincorporated area lying within the service areas of the City’s systems.

Some groundwater quality problems are a consequence of leaking underground storage tanks which housed petroleum products or other hazardous materials. There are approximately 2,400 underground storage tanks in Bernalillo County; many probably leak. The New Mexico Environmental Improvement Division concludes Albuquerque is similar to the rest of the nation in which 5 to 15 percent of the underground steel storage tanks have leaked or are leaking. Health threats from underground storage tanks will increase without a corrective program. The program should assess the condition of existing tanks, their influence upon the environment, establish tank design and installation requirements, and institute land use regulations governing their use.

### **Variation due to Well Depth**

Shallow groundwater supplies near the Rio Grande are generally of poor quality and may contain excessive concentrations of total dissolved solids, iron, manganese, nitrates, and in some cases, petroleum products.

Groundwater west of the Rio Grande requires deeper City wells than east of the Rio Grande; the quality of the water requires more extensive treatment than water from wells east of the Rio Grande.

### **3. SOLID WASTE**

Albuquerque's growth will increase the quantities of both nonhazardous and hazardous solid wastes generated in the area. An effective and comprehensive long-range waste management plan for the region will ensure that storage, collection, disposal and recycling of wastes occur in an environmentally and economically acceptable manner.

Landfill sites and their associated transfer stations are included in the Public and Semi-Public class of land uses.

#### **Existing Landfills**

Two active landfills accept solid waste. Municipal waste is deposited in the City's Cerro Colorado landfill in the western part of the unincorporated county. Some hazardous wastes have been accepted since 2000. A private landfill on the West Mesa above the Pajarito neighborhood accepts construction debris.

Solid waste transfer stations located throughout the county area would not only provide residents the opportunity to dispose of their refuse more conveniently, but it would also help curb illegal disposal. Private refuse collection and transfer systems may provide an alternative which will improve efficiency while decreasing public expenditures. Advanced technology also should be applied to treat wastes wherever feasible.

Reducing the sources of solid waste is a logical step in dealing with the problems associated with disposal. Supporting measures which reduce waste generation such as recycling plastics, glass, aluminum and paper will extend the life of existing landfills.

#### **Former Landfills**

Some of the former twenty-five sanitary landfill sites, 11 of which were operated by the City, now exhibit ground subsidence, methane gas discharge, and groundwater contamination from leachate. These conditions must be corrected before development can proceed on these sites.

#### **Criteria for New Landfill Sites**

The Plan proposes six criteria for any additional landfills.

- Compatibility with area character
- Compatibility with adjacent land uses
- Adequate Accessibility
- Adequate size
- Geologic compatibility
- Site Reusability

## **4. NOISE**

The absence of unwanted sound (noise) is a measure of the city's livability. Albuquerque's rapid growth and its associated increase in vehicular and air traffic have resulted in urban noise levels affecting the population's health, welfare, and quality of life. Siting noise producing activities adjacent to residential or other noise sensitive uses also increased the number of noise conflicts.

Noise has many direct and indirect effects. Noise above recommended levels can increase general morbidity and either induce or aggravate several health disorders such as hypertension, cardiac disease, digestive disorders and general neuropsychological disturbances. Excessive noise levels can contribute to learning difficulties in school children.

### **Noise Sensitive Uses and Areas**

Guidelines developed by several federal agencies including the Federal Highway Administration, the Federal Aviation Administration, the Environmental Protection Agency and the Department of Housing and Urban Development stipulate residential land use sound levels not exceed 55-65 decibels (Ldn or Leq). Schools, hospitals, lodging and certain recreational facilities are noise sensitive uses which should be protected from noise at or above these sound levels.

Field surveys and computer modelling have located numerous areas in the City which exceed Federally recommended noise levels. These studies have been confirmed by numerous complaints to the City Environmental Health Department. Southeast neighborhoods near the Albuquerque International Airport, neighborhoods adjacent to Interstates 25 and 40, certain arterial streets, and industrial areas are affected by excessive noise levels.

Several methods can be employed to protect the public from the impact of noise. The location of noise-producing activities is regulated by zoning. Other noise problems can be ameliorated by construction and design measures. Spatial separation, berm and barrier construction, placement of nonsensitive uses to buffer sensitive uses, and proper building orientation, layout and construction are methods that can be utilized to minimize noise effects. Furthermore, evaluation of potential noise conflicts in new or expanded transportation facilities (e.g. roadways and airports) must incorporate noise mitigation measures in the design.

## 5. HISTORIC RESOURCES

The sequence of the City's development is reflected by the homes, businesses, public buildings, and industrial structures in the city's fabric.

Since before World War Two, Albuquerque residents have worked to retain the city's history. Many of the old adobe homes in the valley were restored by their owners in the 1930's and 1940's.

As the city grew after World War II many historic landmarks such as the Alvarado Hotel and Huning Castle have been demolished. Demolition of pre World War II buildings is a greater loss here than in other cities the size of Albuquerque because of the relative scarcity of pre-1940 buildings.

The demolition of historic buildings led to an extensive historic site survey and the enactment of City Ordinances protecting historic districts and sites.

At the time of the Plan's preparation (1986-1988), eleven Historic Districts had been included in the New Mexico Register of Cultural Properties and/or the National Register of Historic Places. Three more have been added since that time. This designation affects, and is affected by, several Plan policy concepts (Appendix E).

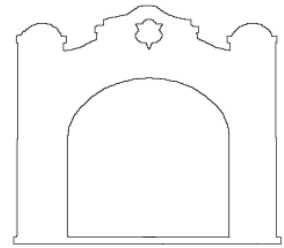
Three types of actions are necessary to better support historic preservation objectives. One is to provide for local incentives for preservation. A second concerns local ordinances. A third is increasing public and interagency awareness of historic resources and preservation efforts.

Preservation incentives include State and Federal tax credits. The Plan proposes the City and County explore incentives which enhance existing Federal and State tax credits and programs, and which encourage the preservation of significant local properties that would not otherwise qualify for investment tax credits.

A second action to further historic preservation concerns ordinances. Local means of protecting historic properties in the City include two 1978 ordinances: one establishes the Landmarks and Urban Conservation Commission; the second enacted the Historic and Urban Conservation Overlay zone. The Conservation Commission recommends mapping overlay zones and the designation of landmarks to the Mayor and the City Council. Major alterations, demolitions, and new construction in overlay zones and upon landmark structures must be reviewed and approved by the Commission. Bernalillo County does not yet have an ordinance to protect historic districts and sites outside the City limits; thus several unique, historic structures in the unincorporated area may be at risk.

The major planning opportunity represented by historic preservation is higher community awareness about Albuquerque's development as a city. Public awareness of the area's heritage and the policies and regulations which preserve and protect important districts and buildings are crucial to both public appreciation and preservation actions. Measures to provide information about historic resources and regulations would enhance public and private preservation efforts.

Figure 19



*This emblem recalls a pavilion at the demolished Alvarado Hotel. It was placed on the first commemorative plaques attached to City-owned landmarked buildings.*

## **6. ARCHAEOLOGICAL RESOURCES**

Extensive evidence of man's long presence in this area is found in an around the modern city: prehistoric Pueblo archeological sites national importance and sites of early eighteenth century Spanish Colonial settlements (plazas).

More remote parts of the West Mesa for example, have yielded several Paleo-Indian sites dating back 12,000 years (or more). More recent are the prehistoric petroglyphs, rock etchings on above ground rock. Found in abundance along the western escarpment they are directly associated with other subsurface archeological sites. They are one of the most significant and extensive examples of this cultural artifact found within an American city.

Most petroglyphs were etched between 1330 and 1650 AD although some may be up to 3000 years old. Native American petroglyphs are powerful cultural symbols that reflect the complex society of Pueblo people. Themes include Pueblo sacred images. They appear in clusters across the escarpment. Four areas have concentrations of many petroglyphs within relatively small areas: Piedras Marcadas Canyon, Boca Negra Canyon, Rinconada Canyon, and Mesa Prieta.

Part of the petroglyph rich area was acquired by the City (1973) and improved with State funds as Indian Petroglyph State Park.

### **Petroglyph National Monument**

During the Plan's preparation (1986-88) recognition grew of the national importance of these cultural properties. The outcome of their greater prominence is the Petroglyph National Monument.

The National Monument, authorized by the Congress on June 27, 1990 is a unit of the national park system. Its purpose is to "preserve for the benefit and enjoyment of present and future generations, that area in New Mexico containing the nationally significant West Mesa Escarpment, the Las Imagines National Archeological District, a portion of the Atrisco Land Grant, and other significant natural and cultural resources, and to facilitate research activities associated with the resources..."

Cultural properties conserved by the Monument include more than 300 archeological sites and more than 15,000 prehistoric and historic petroglyphs. (Petroglyphs are considered archeological sites with the same significance and value as subsurface sites.)

A non-contiguous part of the National Monument is the Piedras Marcadas archeological site, the largest unexcavated pueblo in the middle Rio Grande valley. The ruins are what remains of a two and three story pueblo that is thought to have contained 1000 rooms.

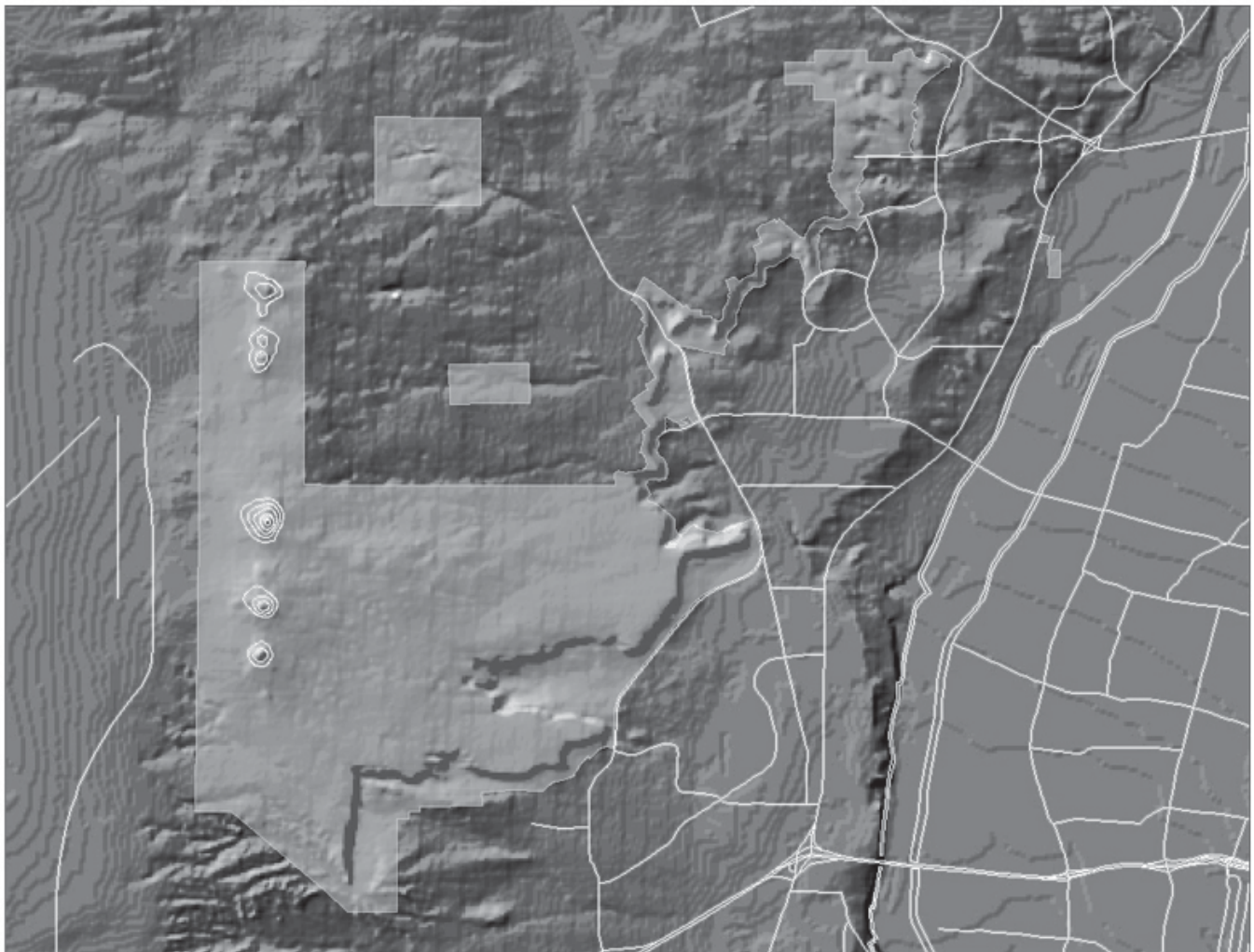
### **Planning and Management Considerations**

Archeological sites differ from historic buildings in certain fundamental ways. These differences require specialized planning and site management techniques.

- They may be partly or entirely below the ground's surface and invisible to the untrained eye.
- Their value may lie wholly or in part in the information they contain and not in their aesthetic qualities or in their capacity for adaptive reuse.
- They require the involvement of professionals more than historic properties.
- The confidentiality of site locations is required except where protective measures have occurred.

Archeological sites can be comprised by unintentional removal, unintentional damage, looting, and vandalism. Given the significance and extent of sites in and around the city, the Plan proposes policies and site conservation programs to retain this cultural heritage.

*Figure 20: The Petroglyph National Monument*





## **7. CULTURAL TRADITIONS AND THE ARTS**

The character of a city is shaped in large part by the cultural artifacts activities, crafts, and the fine and performing arts created and enjoyed by its residents and visitors. They impact the qualities of city life, the urban economy, the city's heritage, and educational opportunities and attainment.

Culture is definable as the product of human history that encompasses the totality of human work and thought. It is expressed through institutions, beliefs, expressions, behavior, recreational and leisure activities, and the arts discipline's dance, theater, music, and the visual arts.

Cultural resources are definable as the organizations, institutions, and enterprises that collect, conserve, and exhibit cultural artifacts and activities.

The scope of cultural expressions in the city is defined by public art, planning for the arts, art activities, and community celebrations.

### **Public Art**

Public art as an urban amenity has been very limited in Albuquerque until recently. Public spaces and excellence in architectural design were not valued in public buildings and sites. For many years the Braden Memorial sculpture (1896) in Robinson Park and McClellan Park's Madonna of the Trail sculpture represented the city's meager commitment to public art.

Support for art as a public urban amenity crossed a threshold in 1978 with the enactment of the City Art in Municipal Places Ordinance. It commits one percent of all City construction funds from General Obligation Bonds and from certain Revenue Bonds for the purchase of or for the commission of works of art.

The categories of holdings are:

two dimensional wall art	paintings, drawings, photographs, prints
murals	painted, tiled, or otherwise decorated walls
sculptures	3 dimensional forms in-the-round or wall mounted
decorative arts and crafts	pottery, textiles, mixed craft media
installations	works of art integrated into architectural forms

Public art is directly associated with sites in or immediately adjacent to new (or reconstructed) municipal facilities across the entire city, with a large concentration Downtown, University/Nob Hill, and Old Town districts.

**Planning for Arts and Cultural Activities**

In 1995 the City adopted its Cultural Plan. Six policies on cultural education, involvement, and funding were stated in this plan. They were to be implemented by the City's Public Arts program through the City's Designated Arts Agency, the Albuquerque Arts Alliance.

In 2002 the Cultural Plan was updated to revisit the cultural needs of the community and to determine which of the 1995 goals were still relevant. The new plan restates the six goals as three, addressing Arts Education (Plan pages I-80, II-99), Increasing Opportunities for Involvement in the Arts, and securing sustainable funding for arts and cultural activities.

## **8. THE DEVELOPED LANDSCAPE**

Albuquerque residents, through the City Charter, are committed to “promote and maintain an aesthetic and humane Urban environment.” The developed landscape is the physical expression of that environment.

A particular challenge in meeting this high standard is the limited heritage of past urban expressions of excellence found in the City. For example, the “City Beautiful” theme in city planning and architecture had no opportunity to be expressed in the small Territorial city that was Albuquerque.

The developed landscape is comprised of the natural and built features of the city in its setting. These features express the aesthetic qualities of the area. They form the overall impression an observer receives of the area’s landscape character. Visual qualities are associated with the city’s livability.

### **Visually Sensitive Features**

Areas in and around the city, generally recognized for their aesthetic qualities, are susceptible to visual impact of development. Highly sensitive areas include the National Monument, Historic Districts, parks and buildings of architectural merit, and other features noted for their aesthetic qualities.

### **Assessing Visual Impact**

Visual impacts on these areas by development is measurable by the level of visual sensitivity: the degree of public interest in a visual resource and concern about adverse changes to appreciating its aesthetic qualities. A significant impact can generally be defined as an action that would substantially alter a sensitive visual setting.

### **Public Projects**

Building and street design, landscaping, and street furniture should be complementary and create places with character. Public building and spaces reflect the image and character of their community. Each public project should protect and enhance this character by incorporating high standards for design quality.

### **Sustainability**

Acknowledging natural features in planning for any addition to the built environment is a sign of respect. Such planning can create a distinctive whole that improves the overall appearance and function of the city.

Attention to the developed landscape extends beyond aesthetic considerations to sustainability. Wind erosion and soil instability, for example, result when natural features in the developed landscape are not respected.

The natural features of the city’s setting are strongly acknowledged by the Plan. Its policies recommend actions for their enhancement through the development process. For example, concentrations of native vegetation could be integrated into new development through careful site planning rather than removed.

Several opportunities exist to improve the attractiveness of the built environment. These opportunities can make a substantial positive difference in Albuquerque’s developed landscape.

## **9. COMMUNITY IDENTITY**

As Albuquerque has grown into a city and its environs of over a half-million people, it has differentiated into a number of distinct areas based on history, cultural traditions, physical setting and the technology of development at various points in time. Neighborhoods are the “building blocks” of these areas. People distinguish the area of the city they live in from the city as a whole. These unique areas, or “communities,” are familiar and meaningful to the people who live or work there; each community takes on its own individual image and sense of place because of its special combination of natural environment, social life, history, architecture and demographic composition.

Identifying Albuquerque/Bernalillo County communities and their strengths provides one cornerstone of preserving their identity. Other factors noted by the City Council in its adopting resolution (Enactment No. 102-1995) that support the maintenance and enhancement of unique community identity might be expressed in the form of goals:

**Promote neighborhood vitality, public safety, affordable housing, customer service, balanced infrastructure spending, sustainability and infill, economic vitality and cultural development;**

**Reinforce and expand interest in and sense of community as evidenced by the growth of neighborhood organizations and other special purpose community organizations;**

**Strengthen community spirit and pride;**

**Effectively integrate and coordinate sub-area planning with community involvement to extend planning services to all parts of Albuquerque.**

Thirteen community identity areas, focusing on their individual character, are illustrated on Figure 21. Boundaries are not a precise line where one community gives way to another. The important thing is to respect their differences, and to protect and build upon their unique attributes and attractions. The Activity Centers and linking transportation corridors in each offer a significant and visible public realm for this focus, through both formal and informal mechanisms such as capital spending and regulatory policy.

Figure 21 Community Areas Map Goes Here

## **D. COMMUNITY RESOURCE MANAGEMENT**

### **1. SERVICE PROVISION**

Long-range regional planning for the major urban facility systems - water, sanitary sewer, drainage, and transportation - is essential to identify appropriate service levels and to prudently manage fiscal resources.

#### **Capital Planning**

A high level of capital investment is necessary to build and maintain major systems of facilities. Long range financial planning is represented by the City's Decade Plan for capital investment. Short range infrastructure planning, such as the six-year Capital Improvements Program and the Transportation Improvements Program, more closely reflect the City's growth strategy, fiscal position, and land use priorities at any given point in time. Service provision timing and costs are determined through these funding programs.

#### **Water and Sanitary Sewer Service Areas**

The City's water system and its sanitary sewer system each have an ultimate service area. Within these service areas, the City currently (1987) provides water and sanitary sewer service to a population that exceeds 400,000 persons. Approximately 40,000 persons located outside the City limits in the unincorporated North and South Valley areas are served by joint-powers agreements with Bernalillo County. The City also provides sanitary sewer service to Paradise Hills, a portion of Sandia Heights, City of Rio Rancho, the University of New Mexico, and Kirtland Air Force Base under separate contractual arrangements.

The City sewage treatment plant capacity was expanded in 1988 to treat 60 million gallons/day. The increased capacity will accommodate approximately 550,000 people, the projected City population between 1990 and 1995. The average daily volume of water treated by the plant and released into the Rio Grande in 1990 was 51.1 million gallons; annual treatment was 18.6 billion gallons.

#### **Balancing Rehabilitation and Facility Extensions**

A large portion of the existing water and sanitary sewer system was built in the 1950s and 1960s. Almost all of the Capital Improvements Program related expenditures were allocated for new development at mid-century. Currently (1988) replacement of inadequate and deteriorated water and sanitary sewer lines are needed in several areas; approximately 50 percent of water utilities capital improvement monies are now used for maintenance or replacement.

The capacities of the water and sanitary sewer systems can sustain forecasted demand. However, the cost and the desirability of extending service to a particular area may vary depending on existing policies and proximity to existing systems. Service priorities may be needed in the future to ensure a balance between new growth and rehabilitation. Present service levels should not be permitted to deteriorate to serve new growth. City water and sanitary sewer line extension policies support service priorities which begin with the existing service area, followed by contiguous and then by non-contiguous growth areas.

Costs allocated to developers and new home owners outside the present water and sanitary sewer service area should reflect the fiscal impact of growth. A graduated system expansion charge, increasing with the distance from each system's existing service area, may be one method of balancing new service costs.

### **Streets**

New street construction requires planning and preliminary engineering years before actual construction. The Metropolitan Transportation Plan, adopted by local elected officials, anticipates future demand and transportation service needs. Actual street construction proposed by that Plan is determined by factors such as State and Federal funding availability. New street construction must also be balanced with existing maintenance and rehabilitation needs.

Some facilities and services historically provided directly by the City or County government might be more efficiently provided by private organizations. It can be useful to periodically evaluate the privatizing of various functions.

## **2. WATER MANAGEMENT**

A reliable supply of water is necessary to sustain the city's population. Water, a natural resource that is unconstrained by jurisdictional boundaries, requires regional planning for the city's development.

### **Water Supply**

Albuquerque draws its public water supply from an aquifer west of the mountain ranges, drawing water from several well fields throughout the County. Sole reliance on the aquifer will shift, about 2007, to supplemental renewable supplies of surface water.

New water rights acquisition is fundamental to future development and growth. The City's present water rights holding exceeds 18,800 acre-feet, and reserves should accommodate demand beyond 2030. Approximately one-half of the water pumped by City wells now returns to the Rio Grande through the wastewater treatment plant, a return-flow credit which is important in water rights holdings calculations.

Surface water from beyond the region will begin to supplement the traditional groundwater supply around 2007. This is the result of the acquisition of water rights in 1962, a major long range planning accomplishment to assure Albuquerque's sustainability in its semi-arid grassland setting. These acquired water rights, 48,200 acre feet per year, are part of New Mexico's share of the Colorado River. The water must be put to beneficial use in New Mexico under the terms of Interstate Compacts and Federal statutes.

Since 1962, City water system customers have invested more than \$50 million in the San Juan Chama Water Reclamation Project. This project consists of diversion structures in the Colorado River Basin of southern Colorado and channeling the diverted water through twenty-six miles of tunnels under the Continental Divide, and storing the water in Heron Reservoir on the Chama River before it flows into the Rio Grande.

### **Water System**

The City's water system is supplied by 90 wells and 45 reservoirs. The system is structured by sixteen water pressure zones based on elevation points along the Rio Grande. Twelve pressure zones are east of the Rio Grande, four lie to the west.

The City's water supply system requires several major modifications to the aquifer based system. These are necessary to use the surface water from the San Juan-Chama project for drinking purposes. These modifications include construction of a water diversion facility on the Rio Grande in the vicinity of Alameda, a state-of-the-art water purification plant, and a network of large water distribution pipelines.

The water system is an important element in fire suppression, directly related to public safety. System reliability for fire suppression requires water facilities be kept in a state of good repair.



**Water Production**

Water production for all municipal purposes is related to the City’s growth. Population has greatly increased, rising faster than population growth.

*Table 11: Population Growth Relative to Water Production*

<b>Year</b>	<b>Population Served</b>			<b>Annual Water Production (Billion Gallons)</b>
	<b>City</b>	<b>Non-City</b>	<b>Total</b>	
<b>1950</b>	96,815			5,364,000,000
<b>1960</b>	201,189			13,650,390,000
<b>1970</b>	243,751			19,282,203,000
<b>1980</b>	332,920	21,858	355,087	30,058,000,000
<b>1990</b>	389,487	34,446	423,371	38,554,000,000
<b>2000</b>	448,607	41,065	476,285	37,470,000,000

Water production from ground water and surface water must increase to meet the demand created by 50,000 additional persons in the City per decade.

**Water Demand**

Even though Albuquerque draws its public water supply from an apparently abundant underground aquifer, it is never wise to waste such an important resource. Demand for water, based on quantity billed is residential, 56%; commercial, 31%; institutional, 11%; and industrial, 2%. Demand (the daily average consumption per person) steadily increased to 1990, then decreased, reflecting conservation measures. Projected population growth, however, will increase total water demand, and perhaps affect per capita consumption.

*Table 12: Population Growth Relative to Water Consumed*

<b>Year</b>	<b>Population Served</b>			<b>Water Consumed Gallons Per Capita Per Day</b>
	<b>City</b>	<b>Non-City</b>	<b>Total</b>	
1980	332,920	21,858	355,087	232
1990	389,487	34,446	423,371	249
2000	448,607	41,065	476,285	216

### **Land Subject to Flooding**

The lower lying valley has been subject to flooding from two sources: the Rio Grande, and from storm water run-off on the higher mesas flanking the valley.

The bed of the Rio Grande has aggraded (risen) over many decades. Today, the river bed is higher than much of the adjacent land, including Downtown. The Rio Grande's last severe flood event occurred in 1940. Since then, the levees containing the river in its banks have been strengthened and the United States Army Corps. of Engineers has constructed (1962) a flood control dam at Cochiti Pueblo north of the city.

The valley has also been subject to sheet flows and widespread flooding in its lowest lying areas from water carried by arroyos. The spread of urbanization across the east mesa created extensive impermeable surfaces. Storm water run-off from localized weather events would often exceed the capacity of arroyos to carry the water from the Sandia Mountain foothills across the mesa to the valley. Entering the valley the arroyos diffused into broad alluvial fans on the valley floor where water ponded. The construction of the North and South Diversion Channels, networked with the arroyos, assures that storm run-off is conveyed to the Rio Grande in an efficient manner.

### **3. ENERGY**

Every metropolitan area requires a large reliable supply of energy in the forms of power and natural gas to meet a variety of demands.

#### **Conventional Energy Sources**

Power supply primarily comes from gas and coal-fired power plants in the Four Corners region owned by Public Service Company of New Mexico. Power produced at generating plants is transmitted long distances high voltage transmission lines and stepped down several times for ultimate use. These lines are prominent features in the cityscape. The transmission of power within the city is addressed by the adopted Facility Plan for Public Service Company of New Mexico's transmission line network. Two natural gas fired plants in Albuquerque (Reeves Generating Station in North Albuquerque Acres and the Pearson Generating Station in the South Valley) provide standby capacity.

Natural gas supplies are gathered in northwestern and southeastern New Mexico and transported by pipeline to metropolitan Albuquerque. Most distribution is provided by the Public Service Company of New Mexico. Some larger customers of natural gas such as schools, hospitals and, to a lesser extent, local governments are obtaining less expensive natural gas supplies from other suppliers.

Transportation fuels are primarily supplied by various refineries around the state and transported by truck, pipeline, and rail to distribution terminals. The terminals are located in the south valley near the Pearson Generating Station.

#### **Alternative and Renewable Energy Sources**

Alternative and renewable energy sources (e.g. solar, wind, geothermal, and possibly solid waste), may be utilized for residential, commercial, industrial and transportation-related development. Solar energy can probably more easily be used in residential development. Approximately 55 percent of the single-family dwellings in the County and the nearly 69 percent in the City have solar retrofit potential. New Additions should be laid out to orient lots to facilitate passive solar gains.

Alternative and renewable resources may also supply energy in the future to the commercial and industrial sectors where cogeneration and low temperature geothermal possibilities exist. Cogeneration may involve electrical-industrial production. Low-temperature geothermal resources underlies the west mesa's upper surface. The geothermal reservoir formation is a large sedimentary basin. It probably also contains large quantities of hotter water at depths greater than hydrostatic. The financial feasibility of converting these geothermal resources into steam to generate electricity should be assessed.

Commercial enterprises which are not utility companies may lead the way in producing power from "renewable" energy sources for sale in the open market. The economic feasibility of producing electric power from "renewable" energy sources will depend upon whether the rates to be charged to buyers are competitive with power produced from conventional sources.

## **Conservation**

The county's total demand for energy will increase with projected population growth. Public and private planning decisions should promote energy management and efficient use of energy-related resources to ensure the community is served with a balanced mix of affordable energy supplies.

The county's per capita energy use is a measurement that should be used to gauge the effectiveness of our energy demand policies and programs. While there are indications that per capita energy use has declined in some economic sectors, a reliable projection of energy demand is needed.

Energy efficiency supports economic growth and development by freeing funds that otherwise would be spent on energy. Energy efficient development patterns also make the region less vulnerable to conventional energy supply disruptions. Furthermore, efficient energy consumption and diversity of supply can reduce the environmental costs of large scale production and distribution. However, there are no energy performance standards prescribing annual consumption levels for various types of urban development.

Conservation of electricity and natural gas used in buildings should increase by incorporating innovative and conventional energy efficient techniques into design, siting and construction development. The City and County Subdivision and Zoning ordinances, as typically applied, encourage design and layout uniformity which does not maximize energy efficient site design; however, the City's Zoning and Subdivision Ordinance contain provisions to preserve solar access. Ordinance amendments and effective compliance of new or existing energy-related ordinances will encourage energy conservation and management. A handbook, or guide, for solar access landscaping should be developed.

Conservation of automobile fuel can be achieved in the short-term by strengthening use of travel alternatives (e.g. bicycle lanes and ride sharing programs), and disincentives to private, single-occupancy automobile use. Long term conservation may be achieved by policies which decrease the population's auto dependency, by focusing policies and investment decisions on transportation systems designed to move people rather than automobiles.

#### **4. TRANSPORTATION AND TRANSIT**

The national air, rail, and highway systems are necessary for a functioning economy in the city. They connect the Albuquerque region to the state, nation, and other countries. They enable regional specialization, and link spatially separated activities into an economic system. The major facilities of these systems are also important in providing the structure for the city's physical development pattern. Albuquerque is the state's transportation center; it is the only community in the state in which all the modes converge locally. The bus transit system is a significant potential alternative to drive - alone automobile trips.

##### **The Interstate Highway System**

Albuquerque is served by two interstate highways: Interstate Highway 25 and Interstate Highway 40. Both carry large volumes of traffic locally and regionally, and are being upgraded through 2010. The State's highway upgrade program is an opportunity to enhance the I-25 and I-40 Corridors.

Albuquerque and Bernalillo County, in cooperation with the NMSHTD, the Middle Rio Grande Council of Governments (MRGCOG), community groups, business, and professionals, has prepared the Interstate Corridor Enhancement Plan - A Conceptual Framework (ICEPlan) for I-25 and I-40.

In addition to a great deal of local commuter travel, these facilities are used by two modes of transport. These are trucking and motor coach carriers.

Trucking is the dominant freight transport mode in New Mexico relative to the dollar value of goods destined to or originating in the state. Albuquerque is New Mexico's motor freight hub for truck firms, terminals, and warehousing.

Trucking and warehousing has three distinctive business groups. Each serves the economy differently and has different requirements for development, access, and circulation within the city.

Truckload/intercity firms are national or multi-regional in scope and specialize in truckloads of freight from an origination terminal in one major city to a destination terminal in another major city. Scheduled service is provided over fixed routes. Rail transport is increasingly used to carry trailers or containers in distances of 600 or more miles between major cities.

*Figure 22: Sunport and KAFB runways north of the Tijeras Arroyo.*



Regional truckload and regional less-than-truckload firms are generally regional in scope, moving freight from the origin customer to a terminal (origin-terminal movements) or moving freight from a terminal to a final destination (terminal-destination movements).

Local distribution trucking generally operates only within the city and delivers products to outlets.

Trucking terminals in the city are presently concentrated in three geographic locations. The largest concentration of terminals is within a 3/4 mile radius of Edith Boulevard and Montaño Road in the North valley west of Interstate Highway 25. A smaller concentration is located on the west mesa near Hanover Road and Coors Boulevard, South of Interstate Highway 40. A new concentration is developing on the west mesa along Central Avenue at Nine Mile Hill, near Interstate Highway 40.

Motor coach carriers using the Interstate Highways offer affordable passenger service to major destinations and to destinations without any other mode of scheduled passenger services. Carriers serving Albuquerque have changed service patterns since Federal deregulation. Several new companies now provide service to destinations within the state and beyond, supplementing very long distance service operated by more established carriers. Albuquerque generates about 200,000 passengers annually for scheduled motor coach carriers.

The primary purpose of the interstate highway system is to carry longer distance trips to and through urban areas; that function could be facilitated by a “managed lane” dedicated to truck movement much of the time and shared with express (local) buses, carpools, etc. at other times.

### **Aviation**

Albuquerque is the location of a Federal Aviation Administration Air Route Traffic Control Center, a facility necessary for reliable aircraft operations across a major part of the Southwest.

Two of New Mexico’s fifty-six publicly owned airports are in Albuquerque. The largest is International Sunport, a terminal with three passenger concourses and twenty-seven gates, four active runways, a separate air cargo building, and a full range of support facilities.

*Figure 23: The International Sunport, New Mexico’s major air traffic hub and one of Albuquerque’s Specialty Activity Centers*



General aviation is served by two airports dedicated to that activity: Double Eagle Airport (west mesa), and privately - owned Coronado Airport (east mesa). Some general aviation operations continue to use the International Sunport. Corporate general aviation activity has been growing in Albuquerque with a trend of using larger aircraft.

Albuquerque is the focus of commercial air traffic in New Mexico: over half of the state’s population is within 100 miles of the city’s principal airport. It is a medium hub air passenger market, one which annually enplanes between .25 and 1.00 percent of all certified domestic activity. About 95% of New Mexico’s airline passenger activity occurs here.

Commercial aviation (scheduled airline service) has two components. Major airlines (Level 1 carriers) are responsible for the largest number of operations and passenger enplanements. Commuter airlines (Level II carriers) represent a much smaller share of total commercial aviation operations in Albuquerque. Five all-cargo carriers serve the city.

Commercial aviation exclusively uses the City’s International Sunport, a facility shared with Kirtland Air Force Base. The National Plan of Integrated Airport Systems classifies it as a medium haul commercial service airport. Such airports accommodate non-stop commercial airline service to destinations of 500 to 1500 miles. The City’s Airport Master Plan (1993) (focusing on landside issues) constitutes a development plan to assure this facility will meet projected demand.

The feasibility of direct flights to international destinations and more non-stop flights to domestic destinations has recently been analyzed and found to be a potential need.

The following table describes projections of annual passenger enplanements.

*Table 13: Projected passenger enplanements, 2000-2015*

<b>Year</b>	<b>Major Airlines</b>	<b>Commuter Airlines</b>	<b>Total Enplanements</b>
<b>2000</b>	4,047,000	213,000	4,260,000
<b>2005</b>	4,826,000	254,000	5,050,000
<b>2015</b>	5,610,000	290,000	5,900,000

*Source: 1996 Forecast, Landside Master Plan (1998)*

## **Rail**

The national railroad network provides both freight and passenger service to Albuquerque. Railroad right-of-way is also important for advanced telecommunications: it is used as a fiber optics cable route.

The freight railroad companies consist of three business groups based on their operating revenue (Class I), or on other characteristics (Class II, Regional and Class III, Local). Class I carriers, similar to intercity truck load firms, are wholesalers of transportation services. In 1991 there were 196,081 miles of Class I track, nationally, 1,910 of which are in New Mexico.

Rail freight service is provided by the Burlington Northern and Santa Fe Railway (BNSF), a Class I carrier. Between 10-12 million tons of freight annually pass through or are shipped to/from Albuquerque by rail, depending on national and regional economic conditions. Albuquerque contains the only trailer and container “straddle lift” (crane) for intermodal car loading in the state.

*Figure 24: The Alvarado Transportation Center on the east side of Downtown*



Rail passenger service is provided by the National Railroad Passenger Corporation (Amtrak). Albuquerque has the main rail passenger station in the region. It generates about 52,000 passengers annually for the single schedule through the city. Several new service possibilities has been recently analyzed including Albuquerque-Santa Fe and El Paso-Albuquerque-Denver and found to be potentially feasible.

The crossing of railroad lines with streets at grade is a safety issue. There are 28 railroad/highway crossings in Bernalillo County, only 10 of which are grade separated. The remaining 18 are protected by lights and gates but increasing traffic (motor vehicle and rail) increase the risk of collisions.

The preservation of the two inactive rail corridors in the city is an economic development issue. One corridor extends east toward the airport terminal. The other (further south) extends along the north bank of the Tijeras Arroyo to Kirtland Air Force Base. Federal Funds are available for preservation, possibly allowing future re-use options.

Other concepts to expand rail service and improve safety are contained in the New Mexico Transportation Plan's Railroad Plan (1996). Perhaps the most important change for Albuquerque's rail corridor is completion of the new Alvarado Transportation Center along First Street south of Central Avenue. It will serve as Albuquerque's ground transportation hub, where passengers may switch from one mode to another or simply transfer from one local bus to another.

### **Transit**

All transit service in the Albuquerque area today consists of publicly-provided buses. The Transit Development Program is important in the area's transportation network. Transit is not only a vital transportation link for people without private automobiles; increased usage can generate substantial savings in public and private expenditures. Transit use, walking and biking are likely to increase as traffic congestion and fuel prices increase in the future, and logically, more people should opt to live close to activity centers in order to reduce trip distances.

Between 1960 and 1985, increased automobile use and declining transit ridership occurred simultaneously and attest to the auto centered development patterns characterizing metropolitan Albuquerque. Before 1960, about 30% of trips in Albuquerque were made by transit. In 1995, less than 1% of all trips were made on transit. Carpooling accounts for around 12% of work trips, and drive - alone trips to work account for more than 80%.

Future population growth, environmental concerns and transportation network saturation at peak periods will likely stimulate greater mass transit use. Land use decisions can encourage transit use by concentrating major activities in easily served locations. In addition to providing cost effective service, transit riders do not have to contend with congested traffic and parking problems associated with private travel. In areas where high intensity land uses currently exist, such as Downtown, transit and ridepooling are viable alternatives to additional parking facility construction. Transit can also be used in downtown revitalization and within other activity centers by promoting pedestrian activity and reducing the need for parking. Greater transit use could also generate savings on street maintenance, improve air quality, and relieve traffic congestion.



Figure 25: How a Major Transit Corridor could change over time.

**Looking West on Central Avenue at Locust Street, Today**



**Tomorrow?**



To reduce dependency on travel by auto, the metropolitan area must provide more travel options to residents. A major step toward providing travel options is improving the public transit system. With a good transit system, access is improved for people with limited mobility - whether it be to their jobs, getting home at night or going to the many cultural and special events offered in the evenings and on weekends. A good transit system also provides an additional choice of travel mode for many trips within the area. To provide this system, transit must be able to provide convenient local and express bus service, including service for the mobility impaired. New types of service like over-the-road coach service, circulation within Activity Centers, and deviated fixed route service within neighborhoods may be feasible to replace or supplement the standard route service. Transportation Demand Management (TDM)\* strategies can also be promoted by implementing subsidized vanpools, carpools, bikes, and high capacity transit (light rail, busways, bus priority facilities).

Transportation Demand Management (TDM) Programs include strategies for working with employers and developers to plan and promote use of transit, ridesharing, bicycle and pedestrian commuting. Efforts are concentrated in areas which generate a significant number of trips.

\*NOTE: A TDM program should include:

- Developing proposals and guidelines for the establishment of Transportation Management Associations (TMAs).
- Developing commute management programs for major employers.
- Promoting development conditions at the Environmental Planning Commission for the implementation of TDM programs that provide: Onsite assistance to employees seeking alternative transportation; subsidized transit passes; carpool and vanpool matching; subsidized vanpool programs; preferential parking for ridesharers; facilities for bicycle commuters (lockers, showers); transit marketing programs; workday schedule alternatives; financial and other incentives.

### **Street Network**

The Long Range Roadway System Plan identifies the location and the functional classifications of the street network. Automobile usage dominates the means of transportation in Albuquerque. Vehicle miles traveled (VMT) per person per day has increased from 12.2 in 1970 to about 22 in 2000. Overall VMT for Albuquerque was 9.4 million in 1987, and now approaches 13 million. Lane miles increased from 2078 in 1995 to 2267 in 2000, averaging to about 38 additional lane miles per year.

Vehicle-carrying capacity is being approached during peak periods on a number of major travel corridors and intersections such as Coors and Montañó Boulevards. Some ten links citywide have peak hour traffic volumes that exceed the capacity those links were designed for: Alameda from the west side to 4th Street NW; Golf Course Road north of Paradise Hills; Coors Boulevard at Paseo del Norte, Montañó, I-40, and South of Coors; Paseo del Norte at several points between the west side and Wyoming Boulevard; Montañó from Coors to 4th Street; Academy at points between San Mateo and Wyoming; Central Avenue over the Rio Grande; Bridge Boulevard over the Rio Grande; Rio Bravo between Isleta and Broadway; Gibson between Yale and Carlisle.

Extensive residential development west of the Rio Grande has generated more river crossing trips in an area where existing street deterioration is already outpacing maintenance. Street efficiency can be improved by increasing emphasis upon compatible land use and street design measures. New land uses along major roadways should not, for example, impede traffic flow through the inappropriate placement of driveway entrances and exits.

Some 300 lane miles are rated as congested, and despite the addition of lane miles at the pace noted above, there would be an estimated 1100 lane miles congested in 2020, with an erosion in drive time of 35%. And as evidenced by the number of comparatively new street links with traffic volumes exceeding their design capacity, new roads and network expansion are both short-term and finite solutions to the area's ultimate transportation needs and demands. Continued air quality degradation, and network and fiscal constraints are some factors making alternative travel options more feasible, particularly as land development aggravates existing difficulties. The development and continued improvement of transit and TDM provide feasible transportation alternatives to building new or wider roads. Albuquerque and its surrounding area have a growing network of bicycle paths whose expansion and linkage will improve prospects for both recreational and work related bike travel.

### **Corridors Connecting Activity Centers**

The Corridors identified in Figure 20 delineate a framework for the growth of Albuquerque and Bernalillo County which will protect the area's environmental, economic, social and fiscal resources. Widely supported by the public in a 2001 series of community gatherings, focus groups and stakeholder meetings, the concept seeks to change the patterns of growth and transportation service in a manner that allows transit, bicycle, and pedestrian travel to provide an increasing percentage of the transportation needs and create centers of community and regional activity. The auto has been the primary form of transportation in the area, and auto service levels affect the economic vitality of the city. The Plan's Activity Centers and Corridors policy concept would balance auto needs with increasing efforts to shift to other modes, reduce trip lengths, and reduce auto trip making. Specific to this vision is encouraging more compact mixed-use development along transportation corridors and in specified Activity Centers. An additional objective is to promote transit by increasing transit

service in a pattern of Activity Centers and Transportation Corridors which gives transit the maximum potential to shift trips from the automobile. Finally, the vision seeks to increase the mode share of bicyclist and pedestrian trips by improving pedestrian environments and bicycle connections within/to centers and corridors.

The Plan's Activity Centers and Transportation Corridors policy concept makes the best use of the arterial street network to move people. The concept guides not only street infrastructure and transit service investments, but land use development. The corridor designations are applied in addition to the arterials' destinations according to the Functional Street Classification System. These designations are depicted on the Long Range Roadway System Map (Appendix E). The Plan's Activity Centers and Corridors policies are also consistent with the Middle Rio Grande Connections Study (April, 2001).

### **Types of Corridors**

This policy concept intends to change transportation characteristics and service as well as land use forms. The existing transportation characteristics and land uses within the corridors/centers are not generally described in the following designations. The Plan promotes the change of transportation and land development characteristics over time.

- **Express Corridors:** A network of roadways that would be dedicated to developing higher speeds with fewer interruptions to travel for the car and public transit vehicles. These corridors are typically limited access, higher speed with pedestrian and bicycle trails separate and protected, and would provide efficient express bus service to the major activity centers where the largest share of the region's jobs are located. These corridors would be the site of some future infill and redevelopment that could create a larger number of people living close enough to have good access to public transportation at selected locations.
- **Major Transit Corridor:** Roadways designed to optimize public transit and move large numbers of people in a very timely and efficient manner. These roadways could have dedicated bus lanes, wide sidewalks, bike lanes, and longer term possibility of light rail service. These corridors would focus on the movement of many people in a pedestrian friendly environment, would emphasize short trips and convenience and would be prime candidates for significant mixed use infill and redevelopment.
- **Enhanced Transit Corridor:** Roadways designed or redesigned to improve transit and pedestrian opportunities for residents, businesses and other users nearby. These roadways could have similar features to the major transit corridor. Their goal is to provide transit service competitive with the car, and develop adjacent land uses and intensities that promote the use of transit.

### **Roadway Design**

Environmental features and adverse effect should be considered in planning roadway facilities. The all weather circulation system for rural areas which ensures access to existing and planned development is one example of the environmental and network conditions that must be considered when designing roadways. Natural features (escarpments, arroyos, volcanic cinder cones, basalt rock, soils and topography) will continue to be a strong alignment choice determinant. Man-made features like diversion channels also require consideration in designing new facilities which traverse them. Air quality, noise pollution and visual effect on existing neighborhoods are important environmental and aesthetic questions which must be weighed when designing new roadways. New

facilities should protect neighborhoods from negative roadway design while providing amenities such as safe road crossings and parallel paths which facilitate non-motorized travel.

### **Bicyclists and Pedestrians**

Bicycling and walking have become increasingly important transportation modes because trips can be made with no environmental degradation and the modes are supported by generally smaller investments. The choice to bicycle or walk is influenced by travel distance, traffic safety, weather, topography, convenience, costs, valuation of time and exercise, physical condition, family circumstances, habits, attitudes/values, and peer group acceptance. Other factors which influence a person’s decision to bicycle or walk and for which the city has control are the presence of bicycle facilities, traffic conditions, and access and linkage to destinations. The most common reasons given why an individual does not bicycle or walk is the lack of safe, direct, and interconnected facilities. The interconnection of bicycle and pedestrian facilities to transit service expands the opportunity to travel further distances for bicyclists and pedestrians.

Figure 26: Long Range Bikeway System



Figure 27: How moderate intensity mixed land uses can transform an area.



In 1998, the bikeway system identified 200 miles of existing (unmarked, on-street) bike routes and 45 miles of existing (marked, on-street) bike lanes. The Comprehensive Bike Plan proposes reducing bike routes on arterials in favor of safer facilities. In most cases, existing routes are upgraded to bike lanes when adequate right-of-way or curb-to-curb width is available. Other bike lanes are lanes placed on minor arterials and collectors which typically have lower traffic volumes and speeds. Bike routes will primarily be located on local, residential streets (low volume) when other streets are less safe and attractive.

Of critical importance to the Bike Plan is elimination of travel barriers. To this end, the Plan maintains all river crossings and seeks to obtain crossings of the two interstates. River crossings are few (9) and the distant spacing between them does not allow any one river crossing to be a substitute route for another. An even more challenging barrier occurs for east/west travel across I-25. The width of the highway includes frontage roads which limits options for overcrossing the Interstate, and opportunities to cross under the Interstate are limited by congested intersections. In contrast, north/south travel across I-40 east of the Big “I” is facilitated with five overcrossings, and crossing west of the Big “I” can be incorporated into the existing at-grade intersections.

Figure 28: Marked bike lanes are safer and therefore more attractive to riders.



A comprehensive and integrated pedestrian plan, providing regional guidance on pedestrian facilities, is yet to be completed for the Albuquerque/Bernalillo County area. At the city level, policy on pedestrians is stated in many planning documents. Some of the critical elements are pedestrianism within and to centers, pedestrian connections between adjacent parcels, neighborhoods, and the arterial streets, and compliance with ADA

(Americans with Disabilities Act) Standards for sidewalk design and pedestrian access.

**Land Use**

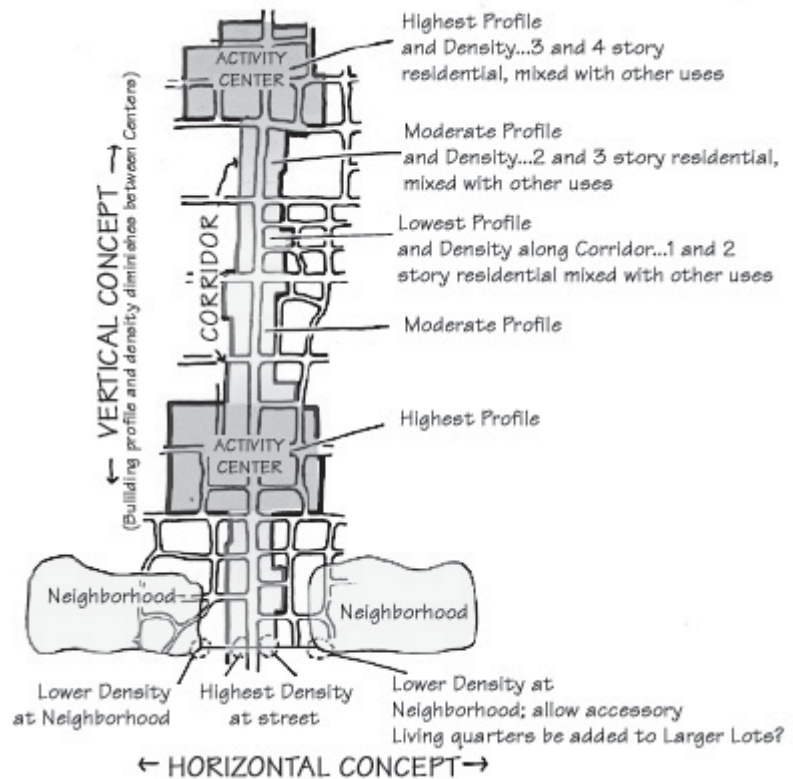
Internal circulation is closely associated with the location and design of land uses that generate the need for movement. Reducing the need to travel by automobile and reducing trip lengths are as important as providing transportation facilities that meet area needs. Altering the placement and mix of land uses can make alternatives to private automobile travel feasible. Mixed land use, for example, congregates several different activities at one location, facilitating work, leisure, and shopping functions without driving. Not everyone will live close to where they work, or shop close to where they live, but the option should be available.

Density of housing and intensity of non-residential development should be highest where corridors coincide with designated activity centers. Between seven and twelve dwelling units per net acre is necessary to support frequent bus service. Density and intensity should, generally speaking, also be highest at or near the street/corridor, and diminish as the adjacent residential neighborhoods are encountered. Successfully developed Activity Centers and linking corridors with mixed residential and non-residential uses offer an alternative to sprawl, creating more life - style choices and a more sustainable city in the process. With cooperation among local government, the private sector, and consumers, 15,000 to 20,000 housing units could be added by 2025 within the Activity Centers and the transit corridors shown on Figure 20.

**Planning Coordination**

The Middle Rio Grande Council of Governments’ (MRGCOG) Urban Transportation Policy Board (UTPPB), composed of elected officials from the City, the County and other local governments and agencies in the region, is responsible for setting regional transportation policy. By contrast, land use planning and zoning decisions fall under the jurisdiction of the respective local government, be it the City of Albuquerque, Bernalillo County, Corrales or Tijeras. The current urban form has evolved based upon the desires and policies of the past. The Activity Centers and transportation corridors policy concept seeks to promote a more compact built environment with areas of greater population and mix of uses, that increases opportunities for transit, bicycle, and walking. Early coordination is essential to properly planning multi-modal transportation systems for this changed pattern of growth. These coordinating efforts also need to incorporate such concepts as carpooling/vanpooling, Intelligent Transportation Systems (ITS), and Transportation Demand Management (TDM).

Figure 29: A general concept for distribution of land use intensity in a transit corridor linking two activity centers.



## 5. HOUSING

The city’s livability is reflected by the quantity, quality, variety, and accessibility of its housing stock.

### Market

The Metropolitan Statistical Area’s three counties comprise the Albuquerque Housing Market. The center of this market is Bernalillo County; the City is it’s core.

### Inventory

The quality of housing, of course, is directly related to the size of the city’s population. As the size of the city’s population greatly increased since 1950, so did the quantity of housing.

Housing inventory growth has been greater than population growth. The housing unit increase between 1970 and 1980 was almost double the City and County population growth. Smaller household size accounted for most change, declining from 3.17 persons per household in 1970 to 2.65 persons per household in 1980.

Between 1970 and 1980 Albuquerque’s housing inventory grew from 78,825 dwelling units to 132,788 dwelling units, a 69 percent increase. The area’s relatively new housing stock exceeded population growth by 4 percent. The 1980 Census indicated 41 percent of the City’s housing structures had been built in the previous ten years.

The supply of Albuquerque’s housing stock is a good measure of how well the population lives today.

### Demand

*Table 14 Housing Supply, Density, and Tenure, 2000*

	<b>Housing Units</b>	<b>Density Housing Sq. Mi.</b>	<b>Total Occupied Housing Units</b>	<b>Owner Occupied</b>	<b>Renter Occupied</b>
New Mexico	780,579	6.42	677,971	474,445	203,526
Bernalillo County	239,074	204.57	220,936	140,634	80,302
Albuquerque	198,465	1094.80	183,236	110,606	72,630
Corrales - Bernalillo County	273	155.58	267	229	38
Los Ranchos de Albuquerque	2,107	516.12	1,997	1,649	348
Tijeras	210	247.90	191	145	46

*Source: Bureau of the Census, 2000 Census of Population and Housing*

While the general extent of housing demand is also shaped by the population’s size and composition, housing demand is shaped by the is the relationship between income (family or household) and housing cost (rental or purchase). Albuquerque has a long standing difference between family income levels and housing costs.

Table 15: Projected Housing Demand, Bernalillo County, 2000/2025

<b>Year</b>	<b>Single Family</b>	<b>Multi-Family Units</b>	<b>Percent Multi-Family</b>	<b>Total Units</b>
2000	173,990	65,084	27.22	239,074
2005	189,300	67,573	26.31	256,873
2010	204,679	71,999	26.02	276,678
2015	216,883	77,607	26.35	294,490
2020	227,228	84,617	27.13	311,905
2025	235,894	92,873	28.25	328,767

Source: 2025 Socioeconomic Forecasts for the Mid-Region of New Mexico, 5-03-01.  
MRCOG, 2003

The City coordinates Federal assistance for housing: rehabilitation, public housing, and rent subsidies. The City also owns and manages over 1,000 public housing units and it supports another 2,000 units through the Federal rent subsidy program. The number of families eligible for rental assistance far exceeds current resources. Regardless of demand, Federal housing assistance continues to decline, challenging local government to devise innovative solutions. Rental or sale incentives to developers willing to provide low cost housing is an example of a potential solution to the affordable housing question. Adequate housing for the entire population is an outcome of maintaining a balanced housing market to accommodate the population’s varied wants and needs.



## 6. ECONOMIC DEVELOPMENT

Albuquerque’s dynamic post World War Two expansion would not have been possible without a strong economy capable of providing economic opportunity for its citizens. Today, the urban economy extends into two adjacent counties comprising the metropolitan statistical area. Opportunity, as a quality of the city, is directly related to many features of the city’s economy.

### Economic Structure

The City’s economy is structured by broad types of economic activities (sectors) defined as Basic and Non-Basic economic activities. Basic economic activities are Agriculture; Construction and Mining; Manufacturing; Transportation, Communications, and Utilities; Wholesale Trade; and Military. Non-Basic economic sectors (local population serving) are Retail Trade; Finance, Insurance, and Real Estate Services; and Government.

The composition of Albuquerque’s economy historically has been weighted toward the Non-basic sectors, softening the local adverse effects of national economic downturns. The relative position between the Basic and Non-Basic groups of sectors in 2000 is unchanged since the 1988 adoption of this Plan which used 1980 as a base year. Some individual sectors, though, are more (or less) significant than they were in 1980, measured by employment in them.

Table 16: *Percentage of Non-Agricultural Wage and Salary Employment, Bernalillo County*

Year	Manufacturing	Mining	Construction	Transportation; Public Utility	Wholesale Trade	Retail Trade	F.I.R.E.	Services	Government
1980	9.4%	0.1%	6.9%	6.3%	NA	NA	5.8%	23.2%	
1990	8.6%	NA	5.2%	5.0%	5.7%	19.0%	5.7%	30.6%	20.0%
2000	6.6%	0.0%	6.7%	5.5%	5.3%	19.1%	5.5%	33.9%	17.3%

A major dimension of the city’s economy is current employment.

Table 17: *Bernalillo County Employment, 2000*

Armed Forces	Agricultural Jobs	Non-Agricultural Jobs	Non-Agricultural Self Employment	Non-Agricultural Unpaid Workers	Total Employment
6,937	1,229	317,943	18,117	685	344,911

**Economic Development**

The City’s current economic development policy (1987) proposes creation of a Favorable Business Climate.

By assessing the difficult growth-related choices that face a rapidly developing community, Albuquerque can fortify and strengthen its local economy.

Industrial development is encouraged in areas with existing City facilities. However, lower land costs on the City’s fringe attracts industrial development even though it absorbs infrastructure costs. Peripheral industrial development which is not consistent with the Comprehensive Plan suggests the need for improved locational standards for new industrial businesses.

A crucial quality growth ingredient is the conservation and revitalization of developed areas and the infill of vacant developable land in addition to new development on the City’s fringe. Market expansion and diversification is promoted by coordinating the location of new development. This requires analyzing each site’s respective benefits whether its for preservation, redevelopment, infill development, suburban or rural development. Although each responds to a separate market, they must be beneficial in the context of the Plan. This ensures variety and choice in both urban form and the local economy.

Aside from the growing employment base, and the convergence of all intercity modes of transport, Albuquerque’s assets include a desirable climate, a clean environment, an attractive setting, a distinct cultural mix, and a citizenry committed to preserving the city’s heritage and assets. Just as a private corporation protects its assets, local government as a municipal corporation has the responsibility to protect the asset base which makes the area a desirable place to live. Planning will provide the “shareholding” taxpayers a means to ensure a satisfactory return on the public’s investment.

Projected increases in employment is associated with economic expansion; the distribution of employment by economic sector identifies the direction of the economy’s development.

*Table 18: Projected Bernalillo County Employment by Sector, 2000/2025*

<b>Sector</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>Agriculture</b>	3,305	2,997	2,826	2,743	2,658	2,573
<b>Construction</b>	22,427	22,737	22,789	22,176	25,045	22,212
<b>Manufacturing</b>	21,436	22,308	21,963	22,460	23,630	24,553
<b>T.C.U.</b>	18,691	20,251	21,565	21,941	22,077	22,011
<b>Wholesale Trade</b>	16,483	16,528	16,323	16,415	16,322	15,977
<b>Retail Trade</b>	61,964	67,163	71,258	73,455	75,451	77,444
<b>F.I.R.E.</b>	22,192	24,656	26,308	27,220	27,919	28,550
<b>Services</b>	111,734	124,538	140,506	153,527	166,475	179,401
<b>Government</b>	59,664	64,134	71,586	77,145	81,376	85,349
<b>Military</b>	7,015	6,804	7,439	7,840	8,168	8,510
<b>Total</b>	344,911	371,846	402,563	425,102	446,121	466,580

*Source: 2025 Socioeconomic Forecasts for the Mid-Region of New Mexico, 5-03-01. MRGCOG, 2003*

## 7. EDUCATION

The availability of educational opportunities and the location of the facilities which provide them are major contributors to building a good city. Opportunity to lead a good life depends on access to education, educational opportunity, in turn, is the foundation for life-long learning.

### **Educational Attainment of the Population**

Formal educational attainment has steadily increased, a measure of general well-being and an asset for economic development. The percentage of Bernalillo County’s total population over 25 years old with a high school education has steadily increased; it is somewhat higher in the City. (Appendix D)

Table 19: Projected Percent of High School Graduates, 25 Years and Older

	1970	1980	1990	2000
County total	66.2	76.5	82.1	84.4
City	71	79	84	86

### **The Public School District**

The Albuquerque Public Schools district was formed in 1949, the consolidation of separate City and County districts. It is one of the largest in the United States, serving Albuquerque, unincorporated Bernalillo County, Corrales, Tijeras, Los Ranchos de Albuquerque, and Kirtland Air Force Base\*.

The number of “school age” (6-18) persons in the total population is the primary factor in the organization and provision of educational opportunities. The District has been greatly affected by Bernalillo County’s post World War Two population growth.

Table 20: School District Enrollment relative to County Population

	1950	1960	1970	1980	1990	2000
County Population	145,673	262,199	314,774	420,262	480,577	556,768
District Enrollment	21,235	56,161	84,362	78,660	88,112	85,039

The District’s planning concept organizes its 74 elementary and 23 middle schools in clusters around its 11 comprehensive high schools. Six special schools also offer alternative educational programs to students with special needs. Two additional high schools will be opened by 2010 west of the Rio Grande to relieve over crowding of the two high schools there.

\*A separate district was established in 1994 to serve the City of Rio Rancho.

Capital investment in educational facilities best occurs when there is sustained consensus between the School District and local governments about the growth and form of the city. Population growth is the source of increased student enrollment. The city’s population requires suitable housing in locations accessible to schools to accommodate households with school-aged children. The spatial distribution of the population across the city may (and has) exceed design capacity of schools on the city’s edge while schools are closed in the more mature parts of the city.

Education in the arts is highly valued by the city’s residents. A plan for the arts was developed for the city (1992-1994) proposing to increase arts and cultural activities through the school district’s classrooms. The City’s Cultural Plan is intended to support the School District’s Fine Arts Plan.

In 1995 the City adopted the Cultural Plan, containing specific policies for art education. The plan was not incorporated into the Comprehensive Plan at that time.

In 2002 the City adopted an updated Cultural Plan and two assorted Comprehensive Plan amendments. The Cultural Plan (2002) contains specific policies for art education throughout Albuquerque. This Plan references the Cultural Plan (2002) in this Section (I) and incorporates two additional policies in Section (II), Cultural Traditions and the Arts and Education. The Cultural Plan is also used as a stand alone document of goals and policies regarding cultural and art education involvement and funding.

**Post Secondary Education**

Albuquerque is the state’s center for post-secondary education.

Vocational education and skill development are provided by the Albuquerque Technical-Vocational Institute (T-VI), Southwestern Indian Polytechnical Institute (SIPI). The Technical Vocational Institute, established in 1965, serves about 20,000 in three campus sites.

Several colleges and universities offer classes and degrees in the city as extensions from their home campuses. The Technical Vocational Institute’s Community College Division also offers Associate Degrees. These programs compliment the University of New Mexico, the states largest and most diversified university with eight undergraduate schools and colleges, the graduate school, law school, and medical school. It’s growth has been independent of that of the city.

The University is a major physical feature in the city. The campus, two miles east of Downtown, and twelve miles west of the mountains, extends over 769 acres in three large tracts. It identifies them as the north, main, and south campus areas; the latter (275 acres) is close but not contiguous to the other two which total 494 acres.

This Plan (1988 as subsequently amended) designates the University Campus a Major Activity Center; it is adjacent to several Transportation Corridors. The University’s 1996 Campus Development Plan is based on a projected enrollment of 35,000 students by 2040 requiring an additional 4.9 million square feet of building space. Much of this will probably be developed on a fourth campus area, between I-25, University Boulevard, Lomas Boulevard, and Indian School Road.

*Table 21: University of New Mexico Growth*

	1960	1994
Enrollment	5,000	25,000
Gross Sq. Ft. (millions)	2.1	6.8

Source: University Campus Development Plan, 1996

The primary planning opportunity associated with University’s expansion is strengthening the positive interactions between it and the surrounding area.

## **8. HUMAN SERVICES**

The City Department of Family and Community Services provides support to the high priority human service needs for disadvantaged. The City also coordinates private and non-profit efforts to supply human services to qualifying residents and as liaison with outside organizations.

Three neighborhood multi-service centers provide residents a broad range of community services. Other City supported programs include employment and youth training, senior citizen services, human rights assistance, public and subsidized housing, and community development assistance.

The City periodically assesses human service needs, developing effective approaches to serve area-wide necessities.

The County also provides a variety of health and social services needs to both City and County residents. The County Health Department operates clinics for immunization, chest, blood pressure check, venereal disease and well child programs. That Department also administers birth and death certificates.

The County Housing Department operates two housing projects on El Centro Familiar SW, (a 21-unit handicap facility) and a 40-unit housing complex for the elderly. In addition the County administers 22 vouchers and 454 certificates for Section 8 housing program participants.

The County also operates the Juvenile Detention Facility on Edith Boulevard NE.

## **9. PUBLIC SAFETY**

The City's livability is partially reflected in safety from hazards and in a sense of security for persons and property.

### **Fire Protection**

The Albuquerque Fire Department has 500 fire fighters based at eighteen fire stations, a maintenance facility, a training academy, and an arson laboratory. The City's 1984 per capita fire loss was \$16.32, a figure below both the national (\$30.50) and western regional (\$25.70) averages. Each of the nine fire stations have an emergency rescue unit composed of three paramedics. The Albuquerque Ambulance Service provides emergency medical services to accident victims. The department has maintained a four minute emergency response time for the Fire Suppression and Paramedic Divisions since 1983.

Fire suppression responses are directly related to successful fire prevention techniques.

The Bernalillo County Fire Department has 11 independent fire districts, each with a volunteer chief. Each volunteer chief reports to the permanent chief who serves at the discretion of the Bernalillo County Commission. The Department operates two paramedic units in the north and south valley which are staffed 24 hours a day. The County Fire Department responded to 5173 rescue calls and 2426 fires last year. The south valley made up 60% of the call load.

The County Fire Department has a largely unpaid staff. Volunteers comprise over 85% of the force. This has raised issues regarding training of volunteers, which varies by district; fire insurance rates, which are determined in part by personnel; and staffing of districts in rapidly growing areas where too few people volunteer.

### **Police Protection**

Crime has become a concern of Albuquerque residents. A steady increase in crime occurred from 1978 to 1984 including home burglary, auto burglary, auto theft, and robbery.

The Albuquerque Police Department had 683 sworn police officers, 375 civilian employees, and 38 cadets in 1986. Three substations supplement the central police station. New technology and more human resources will enable the City to provide more efficient service.

The Bernalillo County Sheriff's Department has about 200 sworn officers and 200 civilian employees. The Department has a substation in the East Mountain area, and on Broadway SE. The Department also has a contract with the Village of Los Ranchos for provision of police services and operates a station at the Village Hall on Rio Grande Boulevard NW.

### **Prevention**

Public safety is a shared community responsibility. Educational programs directed at school age children and the general public will increase awareness of crime and fire prevention. Neighborhood Crime Watch programs is an example of a successful crime prevention measure. The design of new structures can also take fire safety and crime prevention into account, by incorporating "defensible space" into site and building plans.

## A. BACKGROUND

### 1. CONTEXT

Albuquerque, New Mexico’s principal city, is one of the nation’s larger mid-size cities. The City’s 2000 population placed it 35th among municipalities and its metropolitan population sixty-second among 280 metropolitan areas. The unincorporated areas population now exceeds the State’s second largest city.

A City’s quality, though, is not measured by its size but by its livability and by the opportunities it offers its residents. Albuquerque’s future in this regard is considered positive by its citizens. The city’s future will largely be determined by the choices made by its citizens; achieving those choices requires a plan.

This text, with its maps, diagrams, tables, and photographs, is the municipal general plan (Comprehensive Plan) of the City of Albuquerque as authorized by New Mexico statutes Chapter 3,

Article 19, Sections 1-12. This plan has the same status for Bernalillo County. The County has continuously deepened its long range planning capacity as authorized by Chapter 4, Article 57, Sections 1-3. The eleven amendments adopted since 1988 through 2003 are included.

Several other municipalities in Bernalillo County\*, each with its own general plan, neighbor the state’s principal city.

#### **Region and Metropolitan Area**

Albuquerque is the center of the larger Middle Rio Grande Region of Bernalillo, Sandoval, Valencia, and Torrance Counties (State Planning and Development District Three.)

Albuquerque is also the center of its metropolitan area, (Metropolitan Statistical Area) defined by the Office of Management and Budget, and for the 2000 Census, includes Bernalillo, Sandoval and Valencia Counties. This concept, employed by the Census Bureau, describes a large population nucleus (a central city of at least 50,000 persons) together with adjacent communities that have a high degree of economic and social integration with the central city.

\*New Mexico statutes allow a municipality to extend into more than one County.

Table 1: Municipal Population and Density, 2000

	Population	Area Sq. Mi.	Density Pop./Sq. Mi.
New Mexico	1,819,046	121,598.48	14.96
Bernalillo County	556,678	1,168.65	476.34
Albuquerque	448,607	181.28	2,474.67
Corrales (part)	676	1.75	385.25
Edgewood (part)	0	-	-
Los Ranchos de Albuquerque	5,092	4.08	1,247.30
Rio Rancho (part)	0	18.5	0.0
Tijeras	474	0.85	559.54
Unincorporated	101,829	-	-

### **Authority**

The Plan is prepared in accordance with State law (Chapter 3, Article 19, Sections 1-12) which authorize cities to “prepare a general or master plan which may be referred to as the general plan.” \*

Albuquerque’s City Charter, Article IX, also provides a strong foundation for preparing and maintaining a general plan. This Article, adopted in 1971, requires City officials “in the interest of the public in general shall protect and preserve environmental features such as water, air, and other natural endowments, ensure the proper use and development of land, and promote and maintain an aesthetic and humane urban environment. To effect this end the Council shall take whatever action is necessary and shall enact ordinances and shall establish appropriate Commissions, Boards, or Committees with jurisdiction, authority and staff sufficient to effectively administer city policy in this area.”

### **Purpose**

The general plan is Albuquerque’s course of action for urban conservation and development and for environmental management. It’s Statutory purpose (Section 3-19-9A) is “to guide and accomplish a coordinated, adjusted and harmonious development of the City, which will, in accordance with existing, and future needs, best promote health, safety, morals, other, convenience, prosperity or the general welfare, as well as efficiency and economy in the process of development.”

Accomplishing these objectives requires the Plan to provide clear, practical statements about the proper relationships between public facility systems and the private investment which builds the city. New Mexico Statute 3-19-11 states:

- A. After the general plan or any part there of has been approved, and within the area of the plan. Approval of the Planning Commission is necessary to construct, authorize, accept, widen, narrow, remove, extend, relocate, vacate, abandon, acquire or change the use if any:
  - 1. Park, street, or other public way, ground, or space;
  - 2. Public building or structure; or
  - 3. Utility, whether publicly or privately owned.
  
- C. After adoption of the plan or any part thereof affecting the property of any public utility all extensions, betterments or additions to buildings, structure, plants, or other equipment of any public utility shall be made in conformity with the master plan or any part thereof affecting the property and upon approval of the Planning Commission.
  
- D. Any public agency or official not under the jurisdiction of the governing body of the municipality authorizing or financing a public way, ground, place, space, building, structure, or utility shall submit the proposal to the Planning Commission.

\* Other New Mexico Statutes refer to the term “comprehensive plan” limited to a rational pattern of zoning for the official zone map.



**Previous Plans**

This third plan intended to shape the city’s future has important differences and similarities to earlier plans.

Albuquerque’s Master Plan, 1962-1974, consisted of several sequentially prepared and adopted elements: Thoroughfare Plan (1950, revised 1965 as the Major Street and Highway Plan), 1985 Land Use Plan (1962), Master Plan for Water Supply for Albuquerque and Environs (1963), Parks and Recreation Master Plan (1964), Master Plan for Sanitary Sewers and Sewage Treatment Works (1964), Plan for Electric Service (1971) and Guidelines for Public Systems West of the Rio Grande (1974). It was a trend-based Plan for a 1985 County population ranging from 500,000 persons to 685,000 to 830,000 persons.

The 1975 Albuquerque/Bernalillo County Comprehensive Plan (hereafter the 1975 Plan), was prepared with citizen assistance in response to the city’s post 1960 growth. The Plan included both policies and maps which designated open space areas, six “metropolitan” areas (with prescribed housing density ranges), and urban centers. Elements included: Policies, Metropolitan Areas and Urban Centers, and Major Open Space (1975) Area-Wide Wastewater Collection and Treatment Facilities Plan (1977), Senior Citizen Centers (1977), and Subareas Master Plan for the Developing Urban Area of North Albuquerque Acres (1978).

The 1975 Plan’s development strategy was based on four objectives. A larger share of growth was to be accommodated by infill development. Public improvements, including utilities and transportation facilities, were to balance existing service area needs with proposed development. Major natural features were to become an open space network. Distinctive smaller communities and diverse neighborhoods in the greater metropolitan area were to provide a variety of lifestyles reflecting citizen needs, and preferences. It was a Plan to alter trends. A projected population was not part of the Plan.

The City and the County Planning Commissions began reviewing the 1975 Plan in 1981. The following year, the Mayor and the City Council established a Goals Committee to review adopted policies. The committee’s recommendations are the foundation for the Goals in this third (1988) Plan. A successor Goals Commission, appointed by the Mayor, served as an advocate and monitoring group for the 1983-1984 Goals Committee Report.

The consensus on goals for the city initiated a Plan revision program in 1986, led by the Planning staff and assisted by two committees (Appendix A). The issues and choices identified by citizens and staff were considerably different than those considered in the 1975 Plan.

**New Plan**

A new-rather than revised-Plan emerged and was adopted in 1988 allowing repeal of the 1975 Plan.

*Figure 1. The 1975 Plan’s emblems communicated the city’s setting.*



## **Scope**

New Mexico Statutes 3-19-9 (A and B) establish the scope of the municipal general plan. This Plan reflects that overall direction.

The Plan's geographic scope is the area within Albuquerque's municipal limits and the unincorporated area of Bernalillo County.

The Plan's content (or scope of topics) is also established by State Law. It must reflect "careful and comprehensive surveys and studies of existing conditions and probable future growth of the municipality and its environs. Among other things, the plan with accompanying maps, plats, charts, descriptive and explanatory matter, and recommendations of the planning commission for the physical development of the municipality, and/or its planning jurisdiction, may include:

1. The general location, character, and extent of streets, bridges, viaducts and parkways; parks and playgrounds, places, and spaces;
2. The general location of public schools, public buildings, and other public property;
3. The general location and extent of public utilities and terminals, whether publicly or privately owned;
4. The general location, character, layout, and extent of community centers and neighborhood units and the replanning of blighted districts and slum area;
5. The acceptance, widening, removal, extension, relocation, narrowing, vacation, abandonment or change of use of any of the foregoing public ways, grounds, places, buildings, properties, utilities, or terminals."

The Plan's scope has considerably changed since 1988 by adoption of subsequent amendments. A fundamentally important part of the Plan's scope are the assumptions about the city (page I-37). Projections, quantifying probable growth, are now included. Major planning opportunities are also identified.

The Plan also has several major concepts - now identified as such - to shape the city's future.

A network of open space is expected to shape the edges of the built environment.

Five development areas (the 1975 Plan's six "metropolitan areas") propose different development intensities and character based on natural features and man-made patterns. Average housing densities are associated with each development area. Three development areas Reserve, (formerly Private Grazing) Rural (formerly Rural and Open), and Semi-Urban surround a designated Urban Area. The Urban Area is a composite of the Developing Urban Area (the city's fringe area planned to urbanize), and the Established Urban Area (the closer in, existing built, planned or platted areas.) The Central Urban Area (formerly Redeveloping Urban) is now a specialized part of the Established Urban Area.

One or more planned communities may be developed to distribute growth to the city's far edges.

Redevelopment, as a public/private partnership, is to address more than physical deterioration and blight.

Activity Centers (six major and eighteen community scale) are the locations expected to have the highest concentrations of building density, employment, and housing density. This replaces (2001) the earlier concept of four Urban Centers (the 1975 Plan proposed eight).

Transportation Corridors are conceptualized as a network of three types, each type focussing on a different level of transit service.

The Plan's format organizes these issues and major concepts in three parts. The Introduction (Section I) describes and analyzes the city's most important characteristics and trends. It also discusses sixteen elements (basic topics) in three broad groups: Land Use, Environmental Protection and Heritage Conservation, and Community Resource Management. Goals and Policies (Section II) are the recommended courses of action for the various elements: they correspond to the previous section's findings. Implementation (Section III) is concerned with carrying out the Plan. (Originally included in this section was a proposed Biennial Report to evaluate implementation progress. It has been supplanted by the Albuquerque Progress Report, a different process).

Three important aspects of the Plan relate to its scope and application. The Plan's goals, objectives, policies, proposals, and recommendations pertain only to the City and to the County's unincorporated area. Although neighboring jurisdictions are not directly addressed by the Plan, it encourages coordination with them. When the term City (Capital "C") is used, the Plan refers to Albuquerque as a municipality. When the term city (lower case "c") is used, it refers to the built environment of Albuquerque as an urban community. Other adopted City plans are, by Ordinance, subordinate to this Plan.

## 2. SETTING

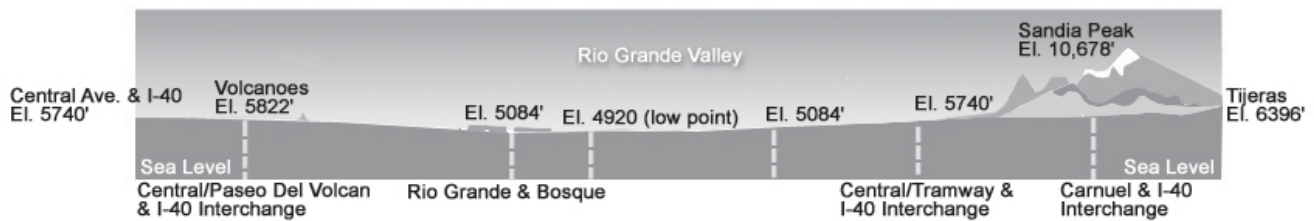
Bernalillo County lies in north central New Mexico, east of the Continental Divide within the Middle Rio Grande Basin. Strong topographic features outline the city's setting, providing the foundation around which planning efforts should revolve.

### Topography

Albuquerque is flanked by gentle mesa uplands which culminate in three mountain ranges on its eastern edge: The Sandia, Manzanitas, and the Manzanos rise to 10,678 feet above Mean Sea Level. The City's elevation ranges from 4,920 to over 6,000 feet above sea level.

The high, wide Rio Grande Valley in which Albuquerque is situated is illustrated in cross section by Figure 2. The valley's outer edges are about twenty miles apart, about the same width as the Grand Canyon. The valley is about 700 feet deep between its lowest point (4,990, Downtown) and the 5,740 foot elevations at Nine Mile Hill (Central Avenue/I-40) and at Four Hills (Tramway Boulevard/I-40). The valley's width and the elevations at its edges result in one of the broadest panoramas in North America.

Figure 2. Cross Section of the Rio Grande Valley at Albuquerque



The strong, defining features are distinct environmental regions. The mountainous eastern region is open forest (part of the Cibola National Forest), sparsely settled with a few pockets of denser habitation. Tijeras Canyon is the only major break in the mountain range. The mesa areas on either side of the valley are semi-arid, flat uplands. The east mesa stands as a shelf above the Rio Grande Valley. It is an alluvial fan, characterized by smooth, steep, slopes at the mountain's base, and tapers as it nears the valley; its slopes range from three to ten percent. Its width ranges from 3 miles (north) to nine miles (south).

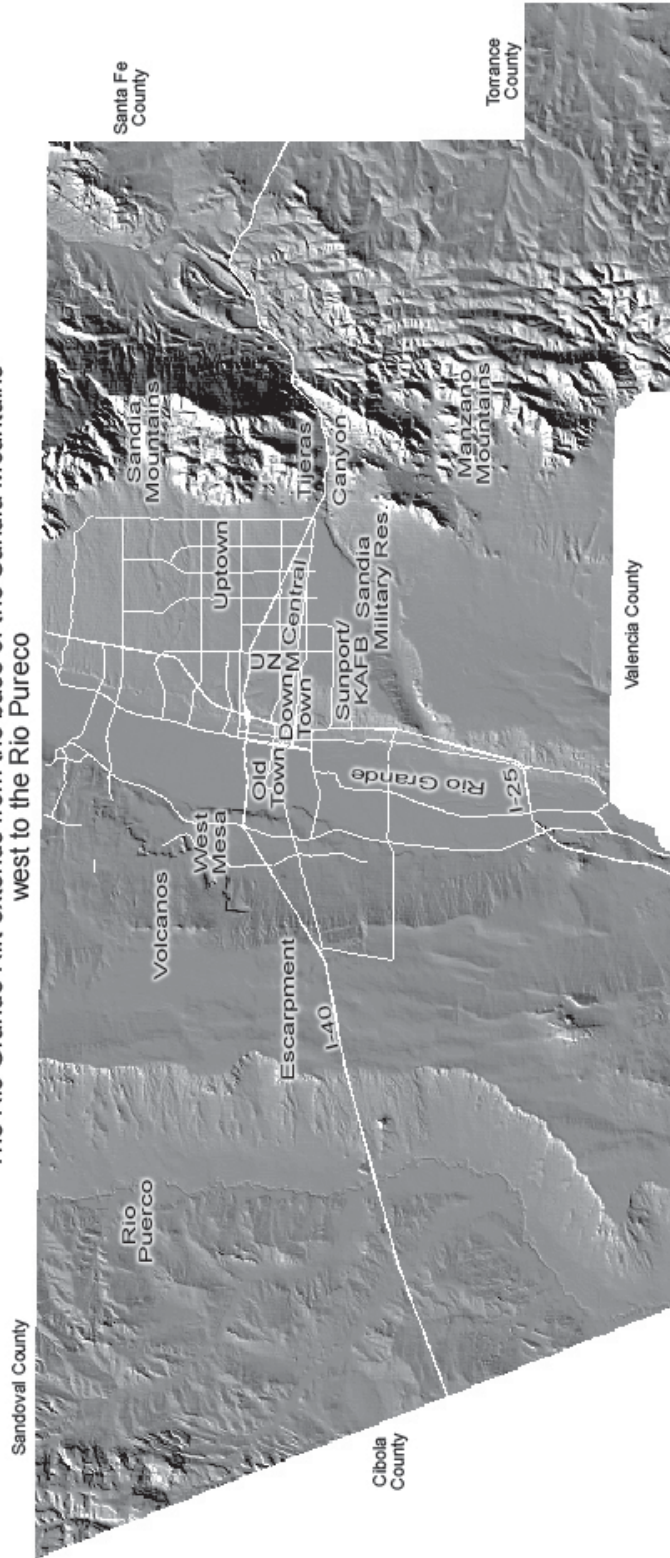
The Rio Grande passes through the city in the form of an "S". The areas, locally known as the North and South Valleys, nestle in the hollows of the "S" formation, one east and the other west of the river. The valley contains a long, narrow flood plain that has been extensively modified by agriculture and development. The bosque (the woodland along the river) provides a riparian wildlife habitat and a natural greenbelt area.

The west mesa's lower surface is a narrow bench between the Rio Grande and a 100 foot high cliff (escarpment). Beyond the escarpment the higher surface extends to the Rio Puerco which drains the county's western edge in a steeply sloping valley. It is characterized by volcanic cinder cones, basaltic lava flows, sandy soils, closed basins (playas) and sand dunes. The lava flow edges form a steep escarpment.

The Rio Grande Rift is a major geological feature in North America. Earthquakes are rare, but not unknown. Ten episodes of ground shaking have occurred in the area between 1893 and 1971.

Figure 3. Albuquerque Setting

The Rio Grande Rift extends from the base of the Sandia Mountains west to the Rio Puerco



Planning Department  
City of Albuquerque  
April, 2005



## **Climate**

Climatologically, Albuquerque is classified as a high altitude, arid, continental climate. The region's climate is one of its most attractive assets and is strongly affected by topography. The mountains shelter the city from all but the most severe continental air movements, affecting the distribution of precipitation and temperatures. The mountains receive sufficient moisture to support a dense forest; most vegetation in the adjacent lowlands and valley requires irrigation.

The dry, sunny weather produces an average annual temperature of 57 degrees and an average annual precipitation of 8.1 inches. There is a noticeable temperature difference between the valley and the mesa areas. This results in occasional air inversions trapping dust and other air pollutants above the city. Cool winters with occasional snow are followed by blustery springs. Summer daytime temperatures may be warm, but are moderated by short, frequent thunderstorms from July to September, and nights are invariably comfortably cool. The autumns are characterized by moderate temperatures.

Winds are normally light. Velocity occasionally increases in gusts to more than 25 MPH, but the mean hourly speed is only 9 MPH. The prevailing direction from April through October is from the southeast with the exception of July (the wettest and hottest month) when it is from the south. From November through January, winds prevail from the north, veering to the northwest during March. After periods of little or no precipitation, gusty winds may pick up dust. Spring wind velocities, the highest of the year, cause dust storms, the main climatic problem.

Humidity is relatively low, averaging about 43 percent. June, the driest month, averages 20 percent. The remainder of the year the warmer part of the day averages 30 percent humidity.

Sunshine is Albuquerque's outstanding year-round climatic characteristics. Over a year the sun shines from dawn to dusk about 75 percent of the time.

The city's climate has a direct impact on living conditions. Dress and daily life is more casual than in other parts of the country and the population spends more time outdoors. Our recreation and other leisure time activities reflect the beneficial conditions of climate, offered in abundance.

The city's climate has a direct impact on its economy. Climate is responsible for the city's role as a health resort. It still attracts people for health reasons or retirement, either because people want to live here or others who find the climate well suited to their needs. Tourism and convention activities benefit from the city's climate, attracting many people to the area to visit; many have returned to make it their home.

### 3. GROWTH AND DEVELOPMENT

#### Development

The Albuquerque area has one of the longest histories of human presence and habitation in North America.

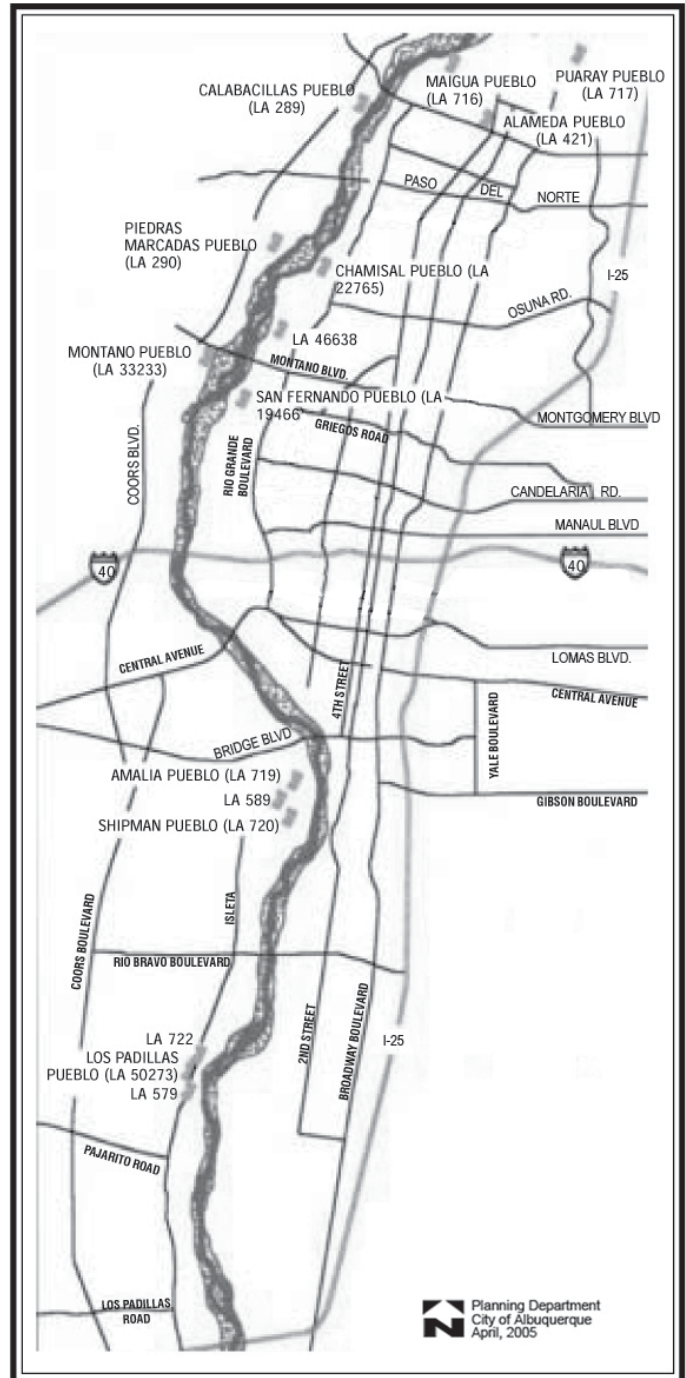
Man has inhabited central New Mexico's Middle Rio Grande region for about 12,000 years. Archaeological evidence suggests the first people in the Albuquerque area were here as early as 7500 BC. Nomadic hunters found the lush valley, the grassy mesas, and heavily vegetated mountain slopes very hospitable. Ancestors of today's Pueblo people eventually developed a corn-based civilization, reaching maturity around 100 AD. Pit houses (underground dwellings) evolved to become today's Pueblo villages. These Pre-Pueblo people are thought to have migrated from the Four Corners area to the Jemez and Rio Grande Valley around 1200 AD. Today the ancient Pueblo villages of Sandia, Isleta, and Laguna surround the city, and their respective reservations extend into Bernalillo County.

Nomadic Athabascan people, from whom the Navajos and Apaches are descended, settled in the region around 1300 AD. Portions of today's Navajo Nation extend into Bernalillo County.

European exploration and settlement of New Mexico began with Francisco Coronado's 1540 exploratory expedition of the Southwest, the Tiguex Province. Spanish accounts generally agree that between 12 and 16 Tiwa language Pueblos from the Classic Period were inhabited along the Rio Grande from Bernalillo to an area just south of the present day Isleta Pueblo. By the mid 1600's when the Spanish had settled throughout the Rio Grande Valley, only four of the Tiwa pueblos were still occupied. Only Sandia and Isleta remain today.

The Pueblo people spatially organized their towns to create urban forms and spaces focussed on a central square, one of several modes of city planning found in Albuquerque.

Figure 4. Former Pueblos in the Modern City



Source: Albuquerque Area Archaeology (1998)  
TRC Mariah for City Planning Dept.

As part of New Spain for nearly three centuries, New Mexico was an isolated frontier province, “remote beyond compare.”

European settlement of New Mexico occurred first in the Rio Grande’s upper reaches (the Rio Arriba) between Taos and Santa Fe. The area between Santa Fe and Socorro (the Rio Abajo) was chiefly settled later, after the Pueblo Revolt of 1680-1692.

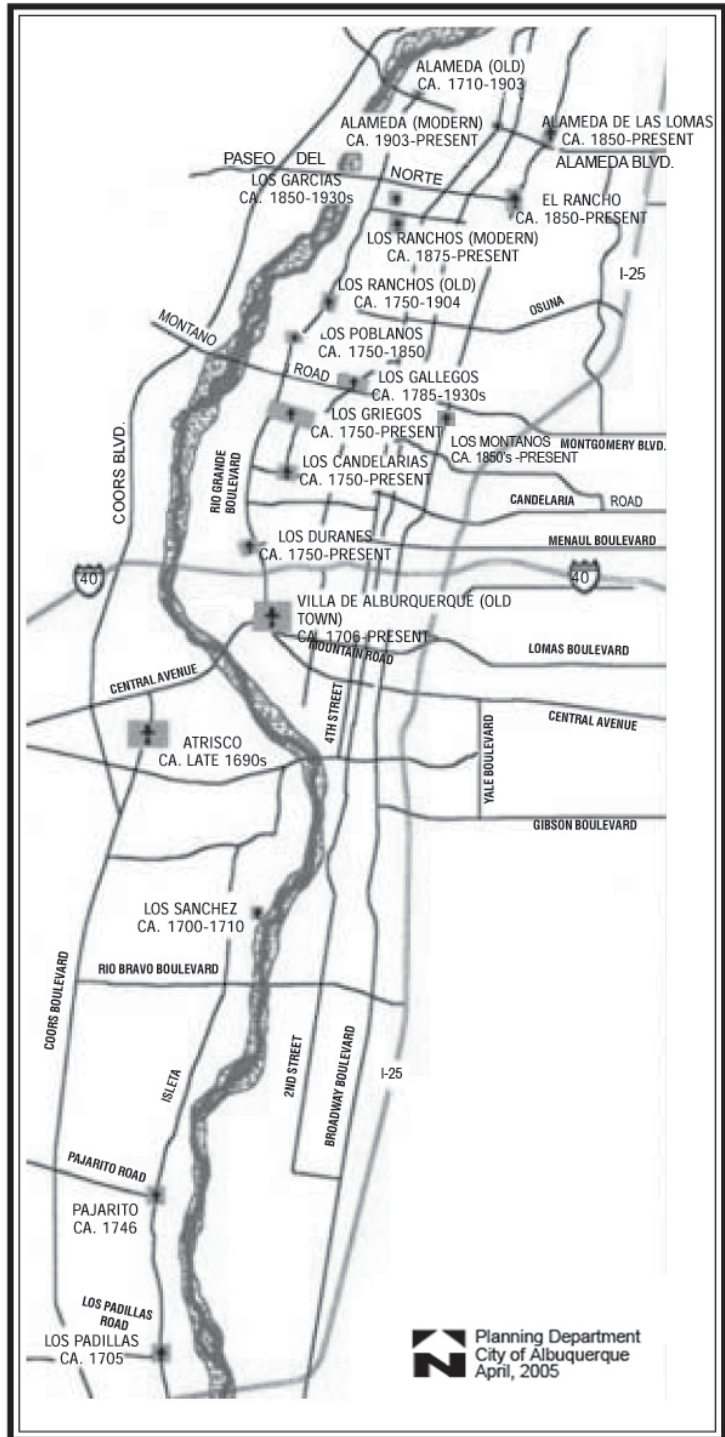
The valley was as attractive to the Spanish as it had been to the Pueblo peoples. At what was to become Albuquerque, a natural ford allowed a safe river crossing. No large settlements occurred in the Albuquerque area but settlers established farms and haciendas in the floodplain of the great river during the 17th century. The area eventually developed into a collection of small farming villages widely scattered along the valley floodplain. Many took the names of their founding families: Duranes, Candelarias, and Griegos.

Atrisco (1703) was the area’s first European settlement. In 1706 New Mexico Governor Don Francisco Cuervo y Valdes established a second Villa in New Mexico (Santa Fe being the first), San Felipe de Neri de Alburquerque. The Villa, a community founded by Royal Charter in accordance with the “Laws of the Indies”, incorporated European principals of city planning. The 1789 Spanish Royal Census recorded 1347 inhabitants, including its fourteen nearby “plazas” (outlying farming communities).

Mexico’s independence from Spain and its decision to seek commercial trade with the United States, opened the Santa Fe Trail. Increased commerce in Santa Fe also brought changes to the Albuquerque area linked to the capital and to Chihuahua by the Chihuahua Trail. The Mexican Republic’s 1822 Census recorded 2302 inhabitants in the area.

The early Spanish settlements were differently located than those of the Pueblo people. They were sited directly in the flood plain, often not far from the river itself, perhaps located in natural clearings of the riverside bosque.

Figure 5: Early European Settlements in the Modern City



Source: Albuquerque Area Archaeology (1998);TRC Mariah for City Planning Dept.



New Mexico became a United States Territory after the Mexican War. The General Land Office subsequently surveyed the Territory to establish a system of land ownership, using one square mile (a Section, or 640 acres) as a basic unit of land. This Survey legally recognized several Spanish and Mexican Land Grants including the Town of Albuquerque Grant, the Town of Atrisco Grant, the Town of Alameda Grant, the Ellena Gallegos Grant, and the San Pedro Grant extending across the Sandia Mountains. Land beyond these Grants was generally in the Public Domain.

The first Territorial Assembly (1852) organized Bernalillo and eight other counties. Los Ranchos was the County seat until moved to Albuquerque in 1854.

Albuquerque was later identified as an important point on one of several other Federal surveys conducted before the Civil War for a Pacific Railroad connecting the Missouri River and California.

During the Civil War, Albuquerque was occupied for three months by the Confederate Army. It's subsequent retreat (April, 1862) damaged New Mexico's fragile economy. Albuquerque continued to slowly develop as a commercial center until the construction of the railroad.

Railroad expansion and western settlement in the late Nineteenth Century initiated the city's development in the early Twentieth Century. Table 2 describes Albuquerque's population in the last decade before the presence of the railroad and the founding of the new town.

*Table 2: Albuquerque area population at the beginning of the Railroad Era*

<b>Year</b>	<b>Population</b>			
	<b>Albuquerque</b>	<b>Barelas</b>	<b>Los Griegos</b>	<b>Los Ranchos de Albuquerque</b>
1870	1,307	N/A	N/A	N/A
1880	2,315	350	300	740

The site of the modern city and the circumstance of its founding were the outcome of several related factors reflecting the emergence of a real estate market associated with the railroad.

The Atchison, Topeka, and Santa Fe Railroad entered the New Mexico Territory in 1879, building to the vicinity of Santa Fe. Extension to the Albuquerque area was logical, as a Federal land grant (following the earlier survey along the 35th Parallel between Isleta and the Colorado River) was available to construct the Atlantic and Pacific Railroad to access Pacific coast ports.

The railroad entered the Rio Grande Valley at Santo Domingo Pueblo, north of Bernalillo, the intended location of operating terminal facilities. Two railroad development requirements then converged to permanently set Albuquerque's future.

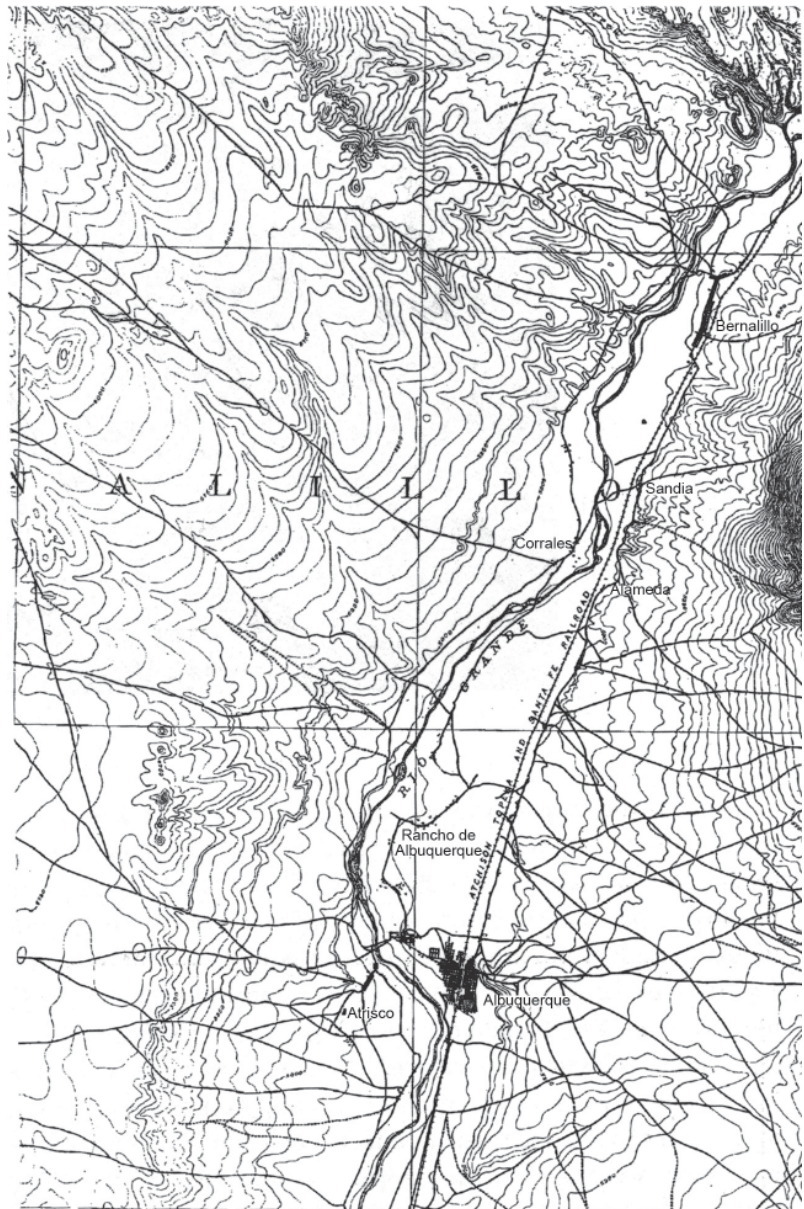
The first requirement was suitable, available land in a town to accommodate the railroad's facilities.

The second requirement was a route and specific alignment that could easily be constructed and reliably maintained with minimal disruption from natural forces. The Rio Grande valley offered such a route but the river itself was not naturally confined to one channel and subject to flooding.

Residents of Bernalillo, heir to a Spanish land grant, refused to sell land (other than right-of-way) to the railroad for its major servicing facilities. Albuquerque was the alternative location.

The railroad's final survey established an alignment on the east side of the valley, bypassing Albuquerque's riverside site. In Albuquerque, merchants Franz Huning, William Hazeldine, Elias Stover, and others, assured of the railroad's construction, purchased land two miles south east of the plaza on the surveyed alignment. Intending a simple direct sale at a high price, negotiations with the railroad resulted in an innovation. The property owners, in their combined interests, sold for \$1.00, some of their property for right-of-way and an area as the site of terminal facilities. In second \$1.00 transaction, they sold another tract of land west of the right-of-way to the New Mexico Town Company, a railroad subsidiary. In return, equal shares in a percentage of the profits were guaranteed on the sale of individual lots in this tract.

Figure 6: *The railroad creates a city.*



Source: *United States Geological Survey, 1888*

Planning Department  
City of Albuquerque  
April, 2005

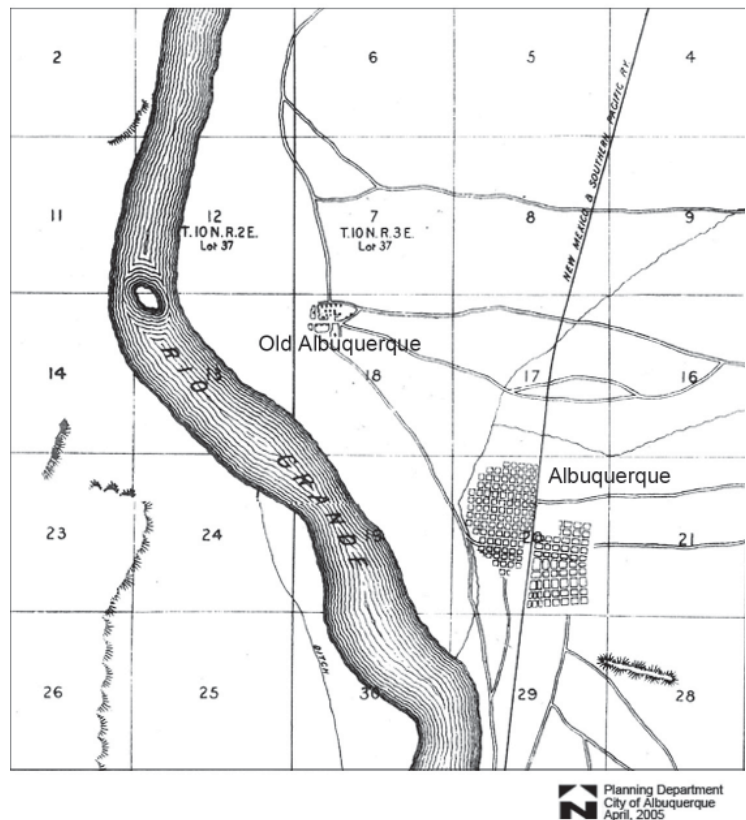
These 1879 real estate transactions assured Albuquerque its location on a transcontinental railroad.

The Town Company, a subsidiary of the Atchison, Topeka and Santa Fe Railroad, retained Colonel Walter Marmon who surveyed, marked, and laid out streets, blocks, and lots for a new town. It's fifty blocks between Copper Avenue, the railroad right-of-way, Coal Avenue, each contained twenty-four lots, each twenty-five feet wide. This area, identified as the Original Town Site, and the adjacent Atlantic and Pacific Addition to the south, were laid out at the same time. A third Addition, Huning's Highland Addition, east of the tracks, followed. The railroad's extension to the new town was completed on April 5, 1880.

The new Albuquerque initially functioned as a base camp for contractors continuing to build the railroad south and west. Its first inhabitants were railroad employees and transient construction crews. The railroad established major servicing facilities here which remained the city's largest single private employer to about 1950.

The new town attracted a permanent population in its first ten years that surpassed the older (1706) community and its outlying villages. It incorporated as a Town on June 4, 1885 and reincorporated as a City on April 1, 1891.

Figure 7. Two city planning concepts: the plaza centered old settlement and the grid-based new settlement



By 1900, Albuquerque's population surpassed that of Santa Fe, and was the largest City in the Territory. Table 3 describes Albuquerque's growth in the late Nineteenth Century.

Table 3: Population Growth and Density 1890-1900

Census Year	Albuquerque			Old Albuquerque
	Population	Area	Pop./Sq. Mi.	Population
1890	3,785	3.12	1213.14	2,274
1900	6,238	3.12	1999.36	1,191

Steady growth characterized Albuquerque in the first half of the Twentieth Century. In 1918, the idea of a professionally prepared city plan to guide Albuquerque’s future was advanced by Aldo Leopold for the Commercial Club. This perhaps reflected awareness of Frederick Law Olmstead’s park plans for large cities, the impact of the Columbian Exposition of 1893 in Chicago, and the comprehensiveness of Burnham and Bennett’s Plan of Chicago (1909) Development, however, continued without a city plan. Between 1900-1930, the town evolved to a small city. Its dry climate attracted many persons convalescing from respiratory diseases. A major expansion of railroad facilities occurs (1922-1926). Jobs grow in agricultural processing: lumber and flour milling, meat packing, wool scouring, and brewing. Multi-floor steel frame buildings rise Downtown, including the County Court House (1926), replacing an Old Town building. The electric street railway system (1903-1927) closes.

The Conservancy District is established (1925) and begins to drain the valley. The crossroads role is strengthened in the 1930’s by the convergence of two National Highways (66, 85) and as a servicing point for early transcontinental air service. State Fair re-initiated (1938). Rio Grande floods (1940). Kirtland Air Force Base (1940) and Sandia National Laboratory (1949) established. Old Town and several other valley neighborhoods are annexed to the City (1949). Albuquerque, at the end of this half century cycle of development, is designated a Metropolitan Area in 1950.

*Table 4: Population Growth and Density, 1900-1950*

<b>Census Year</b>	<b>Total County</b>	<b>City Pop.</b>	<b>City Sq. Mi.</b>	<b>City Pop. Sq. Mi.</b>
1910	23,606	11,020	3.12	3,532
1920	29,855	15,157	3.12	4,858
1930	45,430	26,570	3.12	8,516
1940	69,631	35,449	11.10	3,193
1950	145,673	96,815	48.27	2,005

Rapid growth and extensive physical development characterized Albuquerque in the second half of the Twentieth Century. The expansion of governmental activities (especially in national defense) and an attractive climate were responsible for more recent development. The City’s most rapid growth occurred in the aftermath of World War Two. Employment opportunities created a dynamic prosperous metropolitan area.

The construction of the Interstate Highway 25 begins (1956). The Civic Auditorium completed (1957). Los Ranchos incorporates (1958). Rio Bravo Road bridges the Rio Grande (1959). Winrock regional shopping center opens (1961). The Flood Control Authority is established (1962) and begins construction of the North and South Diversion Channels to eliminate flooding in the valley. The Embudo Arroyo is channelized in Interstate Highway 40. City purchases the privately owned transit system with Federal funds (1965). Downtown disinvestment begins; the Tijeras Urban Renewal project initiated (1968). Alvarado Hotel demolished (1970). Tijeras incorporates (1973). United States Highway 66, along Central Avenue, decertified (1984). Paseo del Norte bridges the Rio Grande (1987). Montañño Road extended over the Rio Grande (1997). Edgewood annexation extends into Bernalillo County (2002). Rio Rancho annexation extends into Bernalillo County (2003).

Table 5: Population Growth and Density, 1960-2000

<b>Census Year</b>	<b>Total County</b>	<b>City Pop.</b>	<b>City Sq. Mi.</b>	<b>City Pop. Sq. Mi.</b>
1960	262,199	201,189	61.0	3293.3
1970	314,774	244,501	80.6	3033.1
1980	420,262	332,920	97.6	3409.3
1990	480,577	384,736	132.9	2814.9
2000	556,768	448,607	186.92	2474.6

Albuquerque’s development and growth has been influenced by its privileged position. A point to easily cross the Rio Grande, a transcontinental railroad, an important highway junction, early cross country airline service, selection as an atomic research center, a university, and climate gave the city its initial importance and its foundation for the future.

Where we are as a City today is a benchmark for the choices for the future. The population’s spatial distribution across the City and its density are particularly relevant.

Table 6: Spatial Distribution of City’s Population, 2000

<b>Quadrant</b>	<b>Persons</b>	<b>Percent of City Total</b>
Northeast	239,565	53.4%
Southeast	63,056	14.1%
Southwest	36,882	8.2%
Northwest	109,104	24.3%

The spatial distribution of the City’s 2000 population is as important as it’s total size. Although these are in many ways to describe the population’s spatial distribution, the Plan uses the quadrants established by the City’s street addressing system as the most meaningful point of reference.

Population density defines a place as urban and is most meaningfully measured as persons per square mile, the Census Bureau standard. The Bureau defines as “urban” areas with at least 1,000 persons per square mile.

The City’s population resides within an extensive area, much of which is vacant; the average population density of 2475 persons per square mile is low. Excluding vacant areas, population density is 4,480 persons per square mile; excluding all developed non-residential areas, the density per square mile is 9,600 persons.

**Growth**

The municipal general plan is expected by State law to “reflect the probable growth of the city and its environs.”

Urban growth is driven by changes in employment levels, the basics for population growth. A larger population, in turn, is responsible for housing expansion. This Plan, as originally adopted (1988) was not based on projected level of employment, population and housing, quantitative measures of urban growth. The then current projections to the year

2000 prepared by the University of New Mexico’s Bureau of Business and Economic Research projected employment to increase faster than population. This suggested Albuquerque would continue to attract employers while building an employment base to sustain the projected population increase. This, in fact, occurred. These earlier projected population levels (Table 7) were very close to those enumerated by the 2000 Census of Population and Housing.

*Table 7. Projected Population (1986) when this Plan was adopted (1988)*

	<b>1988</b>	<b>2000</b>
<b>City</b>	378,800	460,000
<b>County</b>	493,100	581,800

More recent population projections\* prepared in 2000 by the Mid Region Council of Governments for this Plan are as follows:

*Table 8. Census and Projected Municipal Population, 2000-2025*

<b>Year</b>	<b>Bernalillo County (Total)</b>	<b>Albuquerque</b>	<b>Los Ranchos</b>	<b>Tijeras</b>	<b>Unincorporated</b>
2000	556,678	448,607	5,092	474	101,829
2005	594,317	475,454	5,628	444	112,138
2010	621,940	497,552	5,889	464	117,350
2015	650,784	520,627	6,162	486	122,793
2020	679,538	543,630	6,435	507	128,860
2025	709,487	567,590	6,718	530	133,860

These projections to 2025 indicate the City’s population will increase by about 50,000 persons per decade, and the unincorporated area’s population will increase by about 14,000 persons per decade from the 2000 Census.

\*Projections of employment and housing to 2025 are found in those elements of the Plan.

The physical distribution of projected growth will be affected by land ownership patterns. Developable land in Bernalillo County is limited due to extensive public ownership. Barely half of the County’s land area of 1,169 square miles land area is privately owned.

*Table 9: Public and Tribal Land Ownership (Sq. Miles)*

<b>Total Area</b>	<b>Forest Service</b>	<b>Bureau of Land Mgmt.</b>	<b>Indian Res. &amp; Trust Lands</b>	<b>State Parks</b>	<b>Depts. of Energy &amp; Defense</b>	<b>Other Public Land</b>
1,169	150.3	8.4	355.3	10.9	31.3	3.3

To better manage projected growth, several scenarios (alternative futures) were conceptualized during 1997-2001 to identify the one which would best achieve public benefits. These scenarios commonly reflect the Plan’s employment, population, and housing projections to 2025.

The Trend scenario, a baseline, reflects the continuation of the pattern of planned dispersal: relatively low density development in the Northwest and far Northeast portion of the city. Land absorption for urban development is expected to continue at a high rate in this scenario.

The Downtown scenario emphasizes higher density in selected Activity Centers, with a major concentration of employment east of the Rio Grande (Downtown, the University, and Uptown).

The Balanced scenario is a more compact distribution of population and employment than the Trend, with employment growth and housing balanced to the east and the west of the Rio Grande. Two transit oriented corridors—an east/west corridor encompassing Central Avenue, and a north/south corridor along Isleta Boulevard and Fourth Street—are priority areas for infill and redevelopment in this scenario.

A combination of the Downtown and the Balanced scenarios emerged as a Preferred Scenario, and is reflected in the Plan’s employment, population and housing projections and in its concepts and policies regarding Activity Centers and transportation corridors.

The scenarios differ in the spatial distribution of projected growth in employment, population, and housing, affecting the densities of population and housing across the city. Equally important, the scenarios vary in distributing the benefits and burdens of projected growth among the city’s residents, affecting livability and opportunity.

## **B. LAND USE**

### **1. OPEN SPACE NETWORK**

#### **Open Space**

Open Space is undeveloped land, which if retained in its undeveloped condition, contributes to the city's livability. Some land, reflecting various physical characteristics, is a candidate for open space because its character is poorly suited for development. Other land is desirable as open space for reasons such as separating incompatibly developed areas or to preserve vistas.

Open Space conserves natural resources and environmental features, provides educational and recreational opportunities, and it places the built environment in context. Land as open space is a form of stewardship which preserves and protects many of the features of the city's physical setting for the appreciation of residents and visitors. The Petroglyph National Monument, an exceptional, large open area, is not considered Open Space. The Monument, established in 1991, includes municipally owned land acquired earlier for Open Space.

The Plan proposes 76.9 square miles of open space (unchanged from the 1975 Plan). It is composed of Major Public Open Space, trail corridors, parks, and other low intensity uses. Beginning in 1969 with the City's purchase of 9.5 square miles of land for Open Space, about 31 square miles had been acquired by 1988.

Portions of the Rio Puerco Valley, the playa lakes in Mesa del Sol, and the petroglyph-rich volcanic escarpment are among sites proposed for preservation as Major Public Open Space.

Several open space sites lie in the mountains east of the city. These include the San Antonio site and Gutierrez Canyon (both east of NM14) in the Sandia Mountains. The Juan Tomas Mountain Park and Carolino Canyon Mountain Park (east of NM317 along Oak Flats Road) lie in the Manzano mountains. The Juan Tomas site is surrounded by the Cibola National Forest. No additional acquisitions are proposed in the mountains.

The foothills open space is a linear area separating the city's eastern-most neighborhood and the Cibola National Forest. Nearly all of the proposed foothills open space has been acquired.

The City's open space along the Rio Grande consists of the forest outside of the Rio Grande State Park totalling 586 acres. These sites are discrete sites, not adjacent to each other. About 382 acres had been acquired by 2000; another 186 acres were priority acquisition sites (2) in 2000.

Major Public Open Space areas are managed to retain and enhance either their natural values or archaeological resources. They are usually purchased fee simple by the City or they are jointly managed by the City and another public agency.

Open Space trails are linear areas linking open space sites as a network. They include arroyos and valley irrigation ditch systems as proposed by the Facility Plan for Arroyos.



Fiscal constraints may preclude the City's purchase of all proposed open space land. Options to fee simple purchase include easements, development rights acquisition, and public/private agreements. Site conservation can also be achieved through special zoning districts that provide for lower impact uses.

## **Parks**

The Open Space network is complemented by a system of developed parks. Similar to other urban amenities, parks are an important quality-of-life factor contributing to the city's livability.

Expansion of the City park system since 1950 has been driven by the dedication of land associated with residential development rather than the purchase of well located sites of adequate size which could best shape the form of the city. Although many one to three acre parks were developed in the post World War II era, the number and location of neighborhood parks now inadequately serves the area's population.

The County and the City have approximately 30 and 175 developed parks, respectively, totaling over 800 acres. There are approximately 400 more acres contained in 38 undeveloped parks (1985). The ratio of developed parkland to population is about 438 persons per acre while the ratio for all parkland is about 292 persons per acre. This compares poorly with other cities of similar size. The City and County parks systems are still below the national average for developed parks in the ten to twenty acre range. The City also lacks large, regional parks that can be used for major and multiple events which attract large attendance.

Attractively designed parks are highly used parks.

Climate and soil characteristics create difficult challenges for the City park system. Arid conditions and sandy soils affect the cost to provide large landscaped areas. Supplemental watering is necessary due to the low annual rainfall. Precipitation is usually of short duration and run-off is heavy. Parks must be continuously maintained to prevent deterioration and maintain their attractiveness.

Our abundant sunshine affects park use. For approximately half the year some protection from the sun is needed. Unprotected from the sun, midday park use will be low. However, a too dense grove of trees will reduce the functional quality of a park for open play. Good design that provides for the types of areas and facilities that residents desire, along with appropriate development and good maintenance, is the key to a well used and attractive park system.

The City's park system is complemented by the Rio Grande Valley State Park. It extends along the Rio Grande through Bernalillo County and beyond from Cochiti Dam south to Belen. The park lies entirely within the property of the Middle Rio Grande Conservancy District. The planning concept for the Park is a balance between recreational use and habitat conservation.

# OPEN SPACE NETWORK (SEPT, 2002)

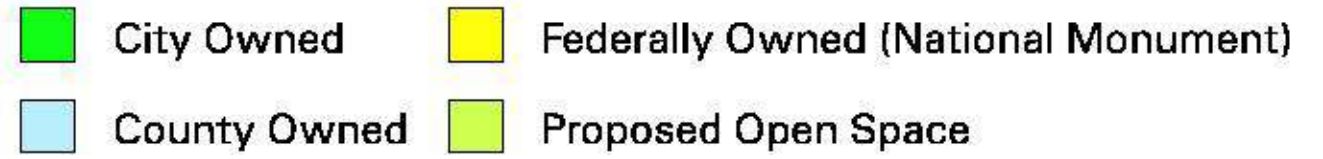
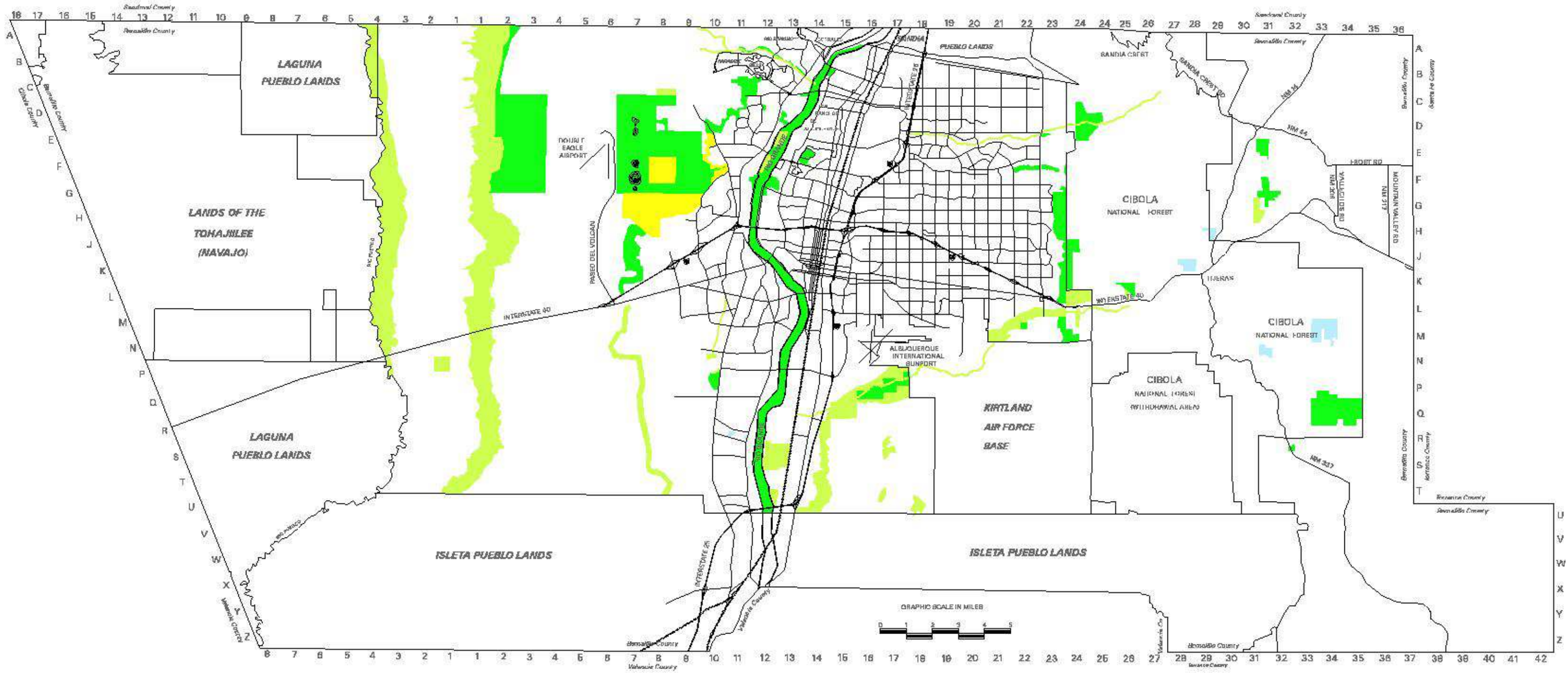


FIGURE 8

## 2. RESERVE AREA

The Plan designates two areas Reserve, about 48 square miles. One is Mesa del Sol, about ten square miles south of the Tijeras Arroyo. The other Reserve Area is located on the upper west mesa.

These areas may be committed to large scale urban development in the near future. Portions of these areas, where undisturbed, have important environmental qualities and/or paleontological, archaeological, or natural resources. These qualities and resources should shape the nature of development and the extent of conservation.

The Plan proposes two approaches to development and conservation in the Reserve Areas: conventional development or planned communities.

### Conventional Development

Development in the Reserve Areas can occur in a conventional manner, consistent with Rural Area policies. This approach uses Rural Area policies to guide existing zoning to shape development on separate lots. The Plan proposes an average housing density of one dwelling per acre using this approach. Clustered housing is included in this approach.

### Planned Communities

Development in the Reserve Areas can also occur in the form of a planned community. This extension of the city is a self sufficient urban development, separated from the areas the Plan designates Established Urban or Developing Urban by permanent open space, yet jurisdictionally part of the City. A planned community must be consistent with the Plan’s goals, policies, and proposals. Planned communities provide residents some degree of self-sufficiency; employment, services and housing in such new communities should minimize “bedroom communities” and leapfrog development patterns.

A required master plan may be approved if elected officials find that approval is justified by the balance between: 1) desired infill and fringe area development of the Established Urban and Developing Urban Areas, weighed against 2) needed areas to expand a wide variety of urban activities in planned communities.

*Figure 9 Planned Community Criteria: Reserve Area\**

#### CRITERIA FOR PLANNED COMMUNITIES

The Plan’s proposed Reserve Area planned communities are intended to take form based on the following criteria.

CRITERION	POLICY INTENT
Size	Five-to-ten thousand acres; 4-8 villages Population base sufficient to support community scale activities
Land Use	A mix which promotes self sufficiency: Residential (50%) Open Space (20%) Non-Residential (30%) A distinct identity defined by open space, architectural design, or other distinguishing features
Housing Density	Average housing density per lot to be proposed by the required Master Plan, but not to exceed three dwellings per acre.
Transport	The interior transportation system should be adequate to serve the ultimate development level specified in the master plan
Environment and Open Space	Identify and conserve environmental resources and incorporate them into the open space network.
Government and Public Services	The planned community should efficiently and equitably provide facilities and services at no net expense to the City to assure the public’s health, safety, and welfare.
Ownership and Management	An ownership/management arrangement sufficient to implement a master development plan.

*\*The County repealed these Criteria for the unincorporated area on May 27, 2003.*

Planned communities could occur on the basis of agreements with the City for the provision of public services. To avoid creating incentives for independent utility districts, the City may enter into pre-annexation agreements with developers regarding equitable timing and cost-of-service extensions.

The extensive Mesa del Sol area, south of the Tijeras Arroyo, will be developed consistent with a Planned Community Master Plan approved by the City.

### 3. RURAL AREA

The Plan designates twenty-three areas Rural Areas, about 294 square miles. Almost all of these Rural Areas are in the unincorporated County. One of the twenty-three areas was the subject of a 2001 Plan amendment, expanding the Rural Area designation in North Albuquerque Acres by reducing the Established Urban designation. The Plan proposes an average housing density of one dwelling per acre.

Several Rural Areas are within or adjacent to developed parts of the city. A portion of North Albuquerque Acres and three smaller areas are also designated Rural on the city’s northeast edge: the Tierra Monte, Sandia Heights, and Evergreen Hills neighborhoods.

Rural Areas in the North Valley east of the Rio Grande include all of the area north of the Village of Los Ranchos de Albuquerque including the Alameda neighborhood. A smaller area is the Rio Grande Nature Center, part of the Rio Grande State Park. Three areas west of the Rio Grande, approximately opposite the Village of Los Ranchos, are also designated Rural and are proposed to be acquired as Open Space.

The Plan’s Rural Area south of Downtown extends south from Prosperity Road (if extended) to the Isleta Indian Reservation, between the railroad main line and the Rio Grande. Two sites are proposed to be acquired as open space. The area is addressed in more detail by the County’s Southwest Area Plan.

Another extensive Rural Area south of Downtown lies west of the Rio Grande in the South Valley and includes the Los Padillas and Parajito neighborhoods, between Prosperity Road (if extended) and the Isleta Indian Reservation. It includes the escarpment of the west mesa; this segment is proposed to be acquired as open space.

The largest Rural Area is east of the Cibola National Forest extending through Tijeras Canyon and south through the private land in the Manzano Mountains. Continuing westward, the designation extends south to Kirtland Air Force Base (the National Forest Service withdrawal area leased to the Air Force). It is addressed in more detail by the County’s East Mountain Area Plan. A northward extension of this largest Rural Area extends west from Tijeras Canyon and is primarily in the City; it is addressed by the City’s Sandia Foothills Area Plan.

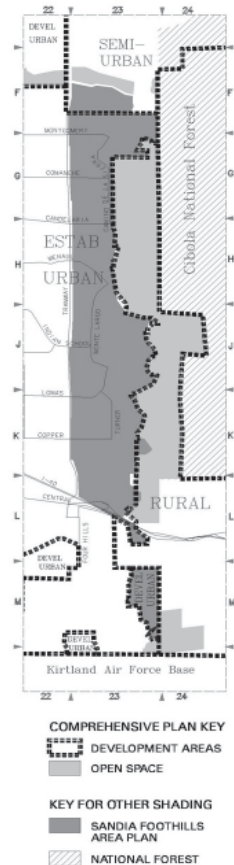
The mid section of the Tijeras arroyo, (approximately between Yale and San Mateo Boulevards, if extended) south of Kirtland Air Force Base, is designated Rural, and outside of the municipal limits.

One very large Rural Area parallels both sides of the Rio Puerco. Three additional extensive Rural Areas are west of the river.

Rural Areas have attributes and environmental conditions which warrant development standards that differ from those applied in Urban Areas. Environmentally compatible development is necessary to maintain the open character of Rural Areas.

Rural Areas of significant environmental or scenic value should be considered for major public open space designation.

Figure 10



The Plan proposes two approaches to development and conservation in the Rural Areas: conventional development or in limited circumstances, planned communities west and east of the city.

**Conventional Development**

Development in Rural Areas can occur in a conventional manner consistent with Rural Area policies. These policies guide existing zoning to shape development on existing lots. Land division for new lots is expected to respect the character and environmental conditions and qualities of the particular Rural Area in which it is located and that of the site and its immediate surroundings. Site suitability and potential impacts should receive particular attention. Clustered housing, as part of this approach is especially attractive for Rural Areas in the Rio Grande Valley. County A-1 and A-2 zoning is mapped for most undeveloped land in the Rural Areas. The County A-1 zone (one dwelling unit per acre), in particular, contributes to scattered development which erodes the areas character and the lifestyle it supports. County A-2 zoning (one dwelling unit on two acres) is preferable, providing for larger lots, and in the Rio Grande valley, for agriculture and for irrigation access.

The scattered development generally associated with County A-1 and A-2 zoning has costly environmental and economic drawbacks. The use of individual liquid waste disposal systems where the water table is shallow has polluted valley groundwater. The pattern of dispersed housing, characteristic of Rural Areas, greatly increases public facility extension costs. Decisions to extend public facilities and services to designated Rural Areas should be made with careful consideration of public health, safety, and the effect that service extension will have upon future development in those areas.

The Plan proposes the County enact very-large-lot zoning districts (one dwelling unit for every 5 to 20 acres) to be mapped for the most remote parts of the Rural Area.

**Planned Communities**

The Rural Areas west of the developed edge of the city and in the East Mountain area may be considered for a planned community in suitable locations.

*Figure 11 Planned Community Criteria: Rural Area\**

**CRITERIA FOR PLANNED COMMUNITIES**

The Plan's proposed planned communities in Rural Areas are intended to take form based on the following criteria.

<b><u>CRITERION</u></b>	<b><u>POLICY INTENT</u></b>
Size	Five-to-ten thousand acres; 4-8 villages Population base sufficient to support community scale activities
Land Use	A mix which promotes self sufficiency: Residential (50%) Open Space (20%) Non-Residential (30%) A distinct identity defined by open space, architectural design, or other distinguishing features
Housing Density	Average housing density per lot to be proposed by the required Master Plan, but not to exceed three dwellings per acre. In the East Mountain area the average net density will be urban, the exact density to be determined by lower ranking plans.
Transport	The interior transportation system should be adequate to serve the ultimate development level specified in the master plan.
Environment and Open Space	Identify and conserve environmental resources and incorporate them into the open space network.
Government and Public Services	No automatic requirement for incorporation into the City.  The planned community should efficiently and equitably provide facilities and services and will be approved only if all public infrastructure needed primarily to serve proposed areas is provided at the cost of the developers.
Ownership and Management	An ownership/management arrangement sufficient to implement a master development plan.

*\*The County repealed these Criteria for the unincorporated area on May 27, 2003.*

#### **4. SEMI-URBAN AREA**

The Plan designates eight areas Semi Urban primarily in the unincorporated County. A plan amendment in 2003 redesignated a portion the south valley from Developing Urban to Semi-Urban, about 1.75 square miles. The designation now addresses 20 square miles. These areas, located in the Sandia Foothills, the west mesa, the north valley and the south valley, are characterized by development limitations due to topography, soil conditions, water quality, flood potential, scenic qualities and recreational potential. Semi-Urban areas in the valley contain some of the County's best farming soil, with small scale agricultural potential.

An average housing density of three dwellings per acre is proposed by the Plan for the Semi-Urban Areas. Housing densities above three dwelling units per acre, except where clustered with shared open land, are likely to have high environmental impacts. Standard urban residential development patterns eliminate openness, create traffic, alter drainage conditions, limit recreation and agriculture potential, and degrade water quality when either community or City services are not available.

## 5. DEVELOPING URBAN AREA AND ESTABLISHED URBAN AREA

The Plan’s five development areas are a concept for future conditions to be found in the City and in the County’s unincorporated area. The development areas are illustrated in a manner which includes (overlaps) land designated Open Space. The size and extent of these development areas, excluding Open Space, are compared to existing densities of population and housing in 2000.

*Table 10: Development Area Size and Densities*

<b>Development Area</b>	<b>Area (Sq. Mi.)</b>	<b>Population (Sq. Mi.)</b>	<b>Housing (Sq. Mi.)</b>
Established Urban	100	4,992	1,922
Central Urban	(10)	(5,378)	(2,485)
Balance	(90)	(4,873)	(1,862)
Developing Urban	49	3,124	1,229
Semi Urban	20	2,261	896
Rural	294	619	208
Reserve	48	87	32

### **Urban Area Concept**

The Plan concept of an Urban Area is a composite of the Developing Urban Area and the Established Urban Area; the Central Urban Area is a part of the latter.

The Plan designates nine areas Developing Urban, about 49 square miles. Development in the Developing Urban Area is subject to sector planning requirements for non-residential development and for medium and high density residential development allowing orderly provision of services as well as accomplishing the urban form envisioned in this Plan. This procedure may result in a Plan amendment to expand the boundary of the Established Urban Area.

The Plan designates a large, contiguous area Established Urban, about 100 square miles, 10 square miles of which is further distinguished as Central Urban. A Plan amendment in 2001 reduced this designation in North Albuquerque Acres; a 1989 amendment expanded it in the Manzano Mesa area, south of Central Avenue and east of Eubank Boulevard.

The Established Urban Area’s most distinctive part is specially identified as the Central Urban area. It is distinctive enough to require two additional policies in addition to those addressing the rest of the Established Urban Area.



The Central Urban Area includes Downtown, Old Town, and the University district, places well established in the early Twentieth Century. The area has a very high building density. Area characteristics are the largest concentration of older (pre 1940) housing and a significant concentration of larger public and private buildings, cultural amenities, historic districts, and parks.

### **Urban Area Housing Density**

This Plan (1988, as subsequently amended) proposes an average housing density of up to five dwelling units per acre for the entire Urban Area or 3,200 dwellings per square mile. The city's average housing density is now (2000) about 1,100 dwellings per square mile. Higher densities are appropriate in Activity Centers to eventually increase the average gross housing density to five dwelling units per acre.

### **Redevelopment**

The Plan's Established Urban Area, especially its Central Urban part, also provides direction to redevelopment activities: the designation of Metropolitan Redevelopment Areas and the subsequent action of preparing a Metropolitan Redevelopment Plan. Eleven Redevelopment Plans had been adopted by 1987.

Redevelopment renews declining neighborhoods. Present redevelopment activities are an outcome of a city-wide survey (1967) of physical conditions, identifying candidate areas for maintenance, conservation, rehabilitation, or clearance and renewal. The earliest redevelopment actions addressing disinvestment and blight occurred in the Central Urban Area: the Tijeras Urban Renewal Project (Downtown) and the Model City Neighborhood Development Program in some Downtown adjacent neighborhoods. Housing improvement and infrastructure rehabilitation were of the next focus of subsequent redevelopment actions. Redevelopment further evolved and expanded during the preparation of this Plan (1986-1988) to include the application of broader economic development techniques in the Established Urban Area.

The present, broader focus of redevelopment is intended to promote equitable economic development conditions in the Established Urban Area. Commercial revitalization, job creation, historic preservation, and mixed use development are now important redevelopment objectives. This present focus requires Metropolitan Redevelopment Area designations reflect an assessment of opportunities as well as correcting conditions of deterioration and blight (need). The Plan's Activity Centers and the Transportation Corridor policy concepts should integrate this new approach (Appendix E).

Partnerships among government, business, and community organizations will economically strengthen neighborhoods while promoting their diversity and unique character. The partnership idea is compelling. Many cities now rely on creative public/private partnership arrangements to achieve public redevelopment objectives. Successful private/public ventures require local government to lead the initiative, efficiently directing such efforts in tandem with the private sector and neighborhoods.

The City has an entrepreneurial role in initiating joint venture development actions under this concept. "No more and no less" will be the standard governing public/private ventures, with the former providing only enough public assistance to support a project. Respective contributions, risks, and rewards can be determined through negotiation. Publicly adopted redevelopment objectives can be successfully carried out under public/private cooperation by these ventures.

## 6. ACTIVITY CENTERS

### Trend

As noted elsewhere in the Comprehensive Plan, much of Albuquerque’s development for the last 50 years has been in a form characterized by buildings with large setbacks and parking lots served by a grid of arterial streets designed primarily to move vehicular traffic. Commercial, office and retail land uses typically are not concentrated in well-differentiated activity centers, but rather tend to be strung out along many of the arterial streets. Also typically, these land uses are auto/driver oriented, with substantial amounts of surface parking. This trend has been made more prevalent in the last two or three decades by increasing numbers of big box retail establishments, and by larger formats for medical services.

While it is true that slightly more agglomerated activity nodes occur at arterial street intersections, they seldom function as singular activity centers with easy walking connections among uses. Instead, they work more like four “sub-centers”, one on each corner, separated by multiple lanes of traffic, not at all conducive to pedestrian trips from one side to the other, nor to mass transit usage.

### Activity Centers Concept

The Plan’s Activity Centers element describes a concept that can have a major effect on urban form through balanced growth and consumption of land. Activity Centers are intended to concentrate a diversity of community activities at appropriate locations. Designated Activity Centers should be the focus of City and County efforts to build upon existing locations and develop future Activity Centers as vibrant, transit-oriented urban places that encourage walking to destinations throughout each center.

The Activity Centers concept provides a rational framework for the efficient allocation of public and private resources. The concept would concentrate land uses for greater efficiency, stability, image, diversity and control while safeguarding the city’s single-family residential areas from potential intrusion by more intense land uses. Population concentrations located within Activity Centers and interconnected corridors could help reduce automobile travel, provide better mass transit opportunities, and decrease adverse environmental effects. Other benefits may include housing close to jobs and services, reduced personal transportation costs which can go toward other needs, and increased options for living an urban lifestyle with easy access to a great variety of activities.

Figure 12: Auto-oriented strip commercial development



Activity Centers can become magnets for activity and development which positively affect urban form, environmental quality, and the transportation network. Committing capital implementation funds specifically to public improvement in Activity Centers and taking actions necessary to limit the range and intensity of land uses outside the Activity Centers are key needs if such a new development style is to be realized, and it will likely take two decades or more to accomplish, depending on what proportion of the capital program is committed to Activity Centers implementation, and on land use regulatory success and private sector response.

### **Types of Activity Centers**

The Plan envisions five basic Activity Center types: Major Activity Centers, Community, and Neighborhood Centers, as well as Specialty Centers and Rural Village Centers. The Plan contains policies which address the function and composition of each.

- **Major Activity Centers:** These are areas whose major focus is concentration of commercial and/or major employment uses.

A Major Activity Center is an area between 300 and 1,000 acres designated to provide a place of work for residents throughout the metropolitan area, but also including medium (7-12 dwelling units per net acre) to high-density (12 dwelling units or greater per net acre) housing and other uses in support of employees and commerce in the area and region.

Predominantly auto-oriented in Albuquerque at the present time, Major Activity Centers should be more concentrated in the future to better support transit usage, and be redesigned for greater pedestrian access. Major Activity Centers floor area ratios should be higher than elsewhere in the city, and they should contain such activities as regional shopping centers, government and financial institutions, and major cultural and entertainment features. Major transportation corridors would connect these Activity Centers with each other and with residential areas.

- **Community Activity Centers:** These are Areas designated to provide focus, identity, and convenient goods and services as well as some employment for a number of surrounding neighborhoods with a combined population of 30,000 or more. The ideal Community Activity Center should be between 15 and 60 acres of

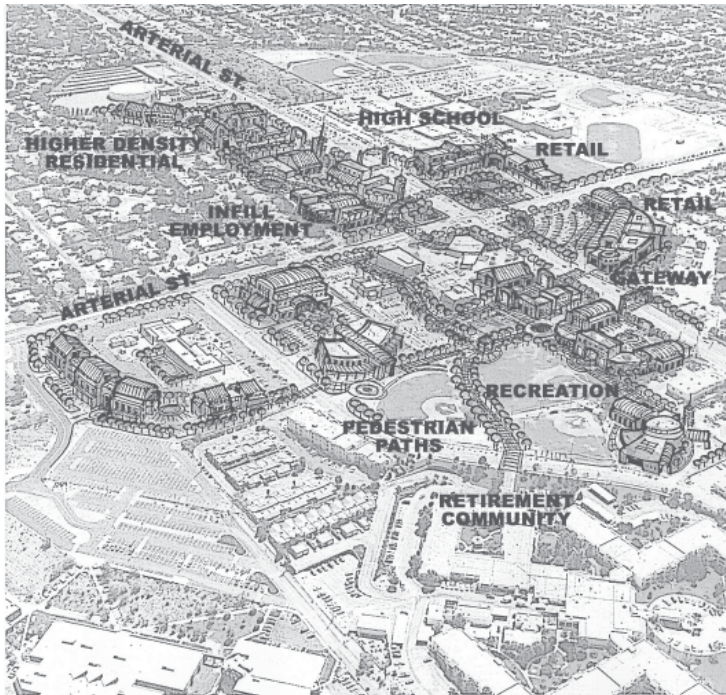
*Figure 13: Typical major arterial intersection and auto-oriented land use.*



*Figure 14: Nob Hill contains good examples of "community scale" center development.*



Figure 15: The same arterial intersection showing infill/redevelopment that would convert the area into a community-scale activity center.



commercial, office, entertainment, medium density residential, and institutional uses accessed by arterial streets and a range of transit service levels depending on composition; adjacent, contributing uses could result in larger quantities of acreage.

The ideal Community Activity Center would have parcels and buildings scaled to pedestrians, small enough to encourage parking once and walking to more than one destination. Off-street parking is often shared, and on-street parking helps contribute to the intimate scale typical of well functioning pedestrian areas. Parking located between and behind buildings would permit people to walk more safely and comfortably between uses that front on sidewalks rather than parking lots. Seating and shade along pedestrian routes also promote walking and informal gathering. The successful multi-use Community Activity Center is a vibrant people place especially serving the surrounding community area as defined by the Plan's "Community Identity and Urban Design" Plan

sections and map, e.g. the San Mateo/Montgomery and Hoffmantown Community Activity Centers serve the Mid-Heights Community Area.

- **Specialty Activity Centers:** Several "one-of-a-kind" facilities or Specialty Activity Centers, need support to continue providing the metropolitan area population with variety and interest. The State Fairgrounds, UNM Sports Complex, Balloon Fiesta Park, Old Town/Museum Complex, Biological Park and Zoo all provide unique recreational and entertainment opportunities and, in some cases other, more year-round uses that are complementary to the primary use. The Albuquerque Sunport, the regional air travel hub, is a Specialty Activity Center with another type of significance to Albuquerque and this part of New Mexico. Specialty Activity Centers tend to be quite large, several hundred acres in size, due to their extensive regional, state, and national "service area".

Figure 16: Albuquerque's Biopark exemplifies the uniqueness of Specialty Activity Centers.



- **Neighborhood Activity Centers:** These are designated to meet the daily "convenience" goods and service needs of residents in two or three immediately adjacent neighborhoods. Their size would not usually exceed 10 acres, and would include a mix of small scale retail/service uses, neighborhood park and perhaps small

institutional uses such as elementary schools. Access is generally by local and collector streets. Too numerous to indicate on the following map, Neighborhood Activity Centers should be specifically located and mapped in the course of smaller area planning.

- **Rural Village Activity Centers:** These Activity Centers exist at several locations in unincorporated areas of Bernalillo County. They are designated to serve daily convenience goods and service needs of residents living in the surrounding Rural and Semi-Urban Areas. Similar to Neighborhood Activity Centers in the Urban Area, Rural Village Activity Centers are usually only a few acres in size, located on an arterial street or highway, and should ultimately contain a mix of small scale retail and service uses such as grocery stores, restaurants, gasoline service stations, hardware stores and offices, as well as some housing within walking distance of the other uses.

Figure 17: Downtown, Albuquerque's original Major Activity Center.



### **Objectives for Creating Activity Centers**

Generally speaking, Major Activity Centers designated by Figure 30 are too diverse in terms of function to be effectively governed by a single set of design principles, either for streets or the private realm. Where Downtown (in the near term, and perhaps Uptown in the longer term) can realistically pursue a development philosophy of “park once and walk” to multiple destinations during the course of a day, the relatively low density employment district of a Journal Center lacks the small block grid and mixed land use necessary to successfully promote significant pedestrian activity. Specific solutions suited to the unique circumstances of each Major Activity Center must be designed to effectively build and redevelop street features and complimentary land uses. This is best accomplished through Rank Three development plans, similar to those already in place for Downtown and Uptown.

Most of the remaining Activity Centers designated by Figure 30 are community scale in nature, and while they too are quite diverse in their history and functional character, it is useful to establish basic community identity design and development objectives intended to gradually move them toward greater pedestrian and bicycle

Figure 18: One illustration of Downtown developed with more building intensity, transit and pedestrian opportunities.



accessibility and transit usage. This objective is important because the goal of community centers is to serve mainly the routine daily and weekly service needs of nearby neighborhoods, with some employment. This Plan prescribes a “baseline” set of design/development policy objectives for Community Activity Centers. More detailed design objectives appropriate to different locations should be set forth in smaller area planning efforts.

Land use, zoning and transportation decisions made incrementally over decades have undermined effective implementation of the Activity Centers concept at designated locations. A dispersed pattern of commercial, office, industrial and low to medium-density residential zoning and use has developed since the 1975 Plan’s adoption. The availability of lower cost vacant land with equivalent zoning outside the designated Activity Centers works against attempts to concentrate uses in the Activity Centers.

With rigorous community support, public investment and effort to contain intense uses in designated Activity Center areas over the next 20 to 25 years, the concept might succeed. Travel would become less dispersed, making transit systems more efficient and public/private expenditures for pedestrian ways and community amenities more feasible.

As of 2001, with a limited capital program that annually is \$20 million short of funding infrastructure rehabilitation needs, and with declining Gross Receipts Tax revenue undermining local government operating capacity, Albuquerque and Bernalillo County will need the efficiencies which can be achieved through implementation of Activity Centers and transportation corridors development policy.\* A corollary benefit would be a more compact urban area that is more sustainable, not only fiscally and economically by virtue of more concentrated and efficiently used infrastructure, but also environmentally by virtue of shorter travel distances and reduced landscape irrigation. And finally, property values within the built urban area would be stabilized or improved through reinvestment.

Activity Center development can only be accomplished through careful analysis and identification of advantageous connections among interrelated factors such as land use form and intensity, zoning and its spatial distribution, demographics, market trends, transit considerations, redevelopment and infrastructure conditions and objectives. Ongoing public-private cooperation is essential to creating market conditions that support Activity Center development.

Assumptions that underlie successful development of mixed use Activity Centers and transportation corridors include:

- Albuquerque and Bernalillo County will continue to grow, probably at or near the recent annual rate of 1.4%, most years through 2025, adding more than 60,000 additional households.
- Personal vehicles will continue to be the predominant choice in mode of transportation, though drive time will erode considerably, and a larger share of trips than today will be taken on mass transit, bicycles, or by walking or ridesharing.
- Arterial streets will be maintained and/or reconstructed, with greater attention to serving travel modes including mass transit, walking and bicycling as well as vehicles.
- Transit services will be improved in terms of comfort, convenience and competitiveness as a viable transportation choice.

\* It is also useful to note that, in 2001, there is an estimated \$1.8 billion backlog of water, sewer, transportation and hydrology rehabilitation needs, as well as \$700 million in deficiencies.

## **C. ENVIRONMENTAL PROTECTION AND HERITAGE CONSERVATION**

### **1. AIR QUALITY**

The City's climate and air quality are among its most attractive but least tangible environmental assets. This asset is so highly valued by Albuquerque's residents, that through the City Charter, we are committed to "protect and preserve environmental factors such as air."

The geographic location in a river valley bounded by a high mountain range to the east, the mile-high altitude and meteorological conditions affect Albuquerque's air quality, particularly in the winter months. Frequent winter temperature inversions result in limited vertical mixing and poor dispersion of pollutants. Mountain down slope winds and valley drainage winds also affect pollutant concentrations. Episodes of degraded air quality have occurred, reflecting high levels of carbon monoxide and suspended particulates. Primary sources of air pollutants include vehicular emissions, residential wood burning, dust from unpaved roads and construction sites and, to a lesser degree, industrial operations.

The City's network of air quality monitors sample the air for concentrations of suspended particulate matter, carbon monoxide, nitrogen dioxide, lead and ozone. The monitors enables planners to use forecasting and modeling techniques to predict how location and type of development projects will affect air quality.

The city's urban form and the land use pattern within it affect air quality as a consequence of our reliance on the auto to access the highly dispersed city. Preserving the quality of the air requires a long term commitment to build a city of more compact places, attracting projected growth in employment, population, and housing to activity centers and along certain arterial streets as corridors. It also requires reducing travel distances by supporting the conditions for investment which integrates work, shopping, and leisure activities. In addition, the provision of space and facilities for bicycling, walking and use of transit or paratransit will encourage use of the travel alternatives.

Vehicular emissions can also be decreased through transportation system management techniques such as signal synchronization and limited access arterials which maintain vehicular speeds. An auto emissions testing and maintenance program could improve ambient air quality.

Suspended particulates in the air are associated with episodes of visibility impairment. The wintertime "Brown Cloud", a phenomenon which affects the distant views characteristic of Albuquerque, is chiefly the result of woodburning for heat and for decoration. Regulating the use of fireplaces will reduce emissions from this stationary source.

Excavation for new construction and travel on unpaved roads are other sources of suspended particulates. Top soil disturbance permits and dust control plans for construction sites and the paving or surfacing of dirt roads will reduce particulates from these sources. In addition, landscaping of bare areas and/or retention of native vegetation in areas not under active construction will reduce dust.

## **2. WATER QUALITY**

Water is a finite and valuable resource. As such, water quality in the metropolitan area is a factor in determining the amount of growth the area can sustain. Albuquerque residents, through the City Charter, are committed to “protect and preserve environmental features such as water.”

Water quality may vary greatly due to well depth, groundwater source, and the effects of man’s activities upon the aquifer.

### **Variations due to Human Activities**

Man’s impact on groundwater quality include septic tanks, agricultural activities, petroleum handling facilities, solid waste disposal sites, illegal discharges, dumping and other anthropogenic activities. It is important to identify these sources, quantify their effects, initiate remedial action where appropriate, and take steps to prevent future contamination.

Most of the unincorporated Valley area was developed without sanitary sewer lines, and groundwater quality has cumulatively been affected by low density development relying on septic tanks and domestic wells. Groundwater in the South Valley has nitrates, volatile organics, and gasoline, documented by the State’s Environmental Improvement Division. (April, 1986)

The continued absence of sanitary sewer lines in the unincorporated county will result in shallow groundwater degradation due to higher wastewater volume flowing through on-site disposal systems, a rising localized water table and increased groundwater flow velocities.

Line extension to outlying areas is recommended to minimize domestic use of shallow groundwater which may be contaminated by waste discharges. The preferred alternative is the extension of both water and sanitary sewer lines into the unincorporated area lying within the service areas of the City’s systems.

Some groundwater quality problems are a consequence of leaking underground storage tanks which housed petroleum products or other hazardous materials. There are approximately 2,400 underground storage tanks in Bernalillo County; many probably leak. The New Mexico Environmental Improvement Division concludes Albuquerque is similar to the rest of the nation in which 5 to 15 percent of the underground steel storage tanks have leaked or are leaking. Health threats from underground storage tanks will increase without a corrective program. The program should assess the condition of existing tanks, their influence upon the environment, establish tank design and installation requirements, and institute land use regulations governing their use.

### **Variation due to Well Depth**

Shallow groundwater supplies near the Rio Grande are generally of poor quality and may contain excessive concentrations of total dissolved solids, iron, manganese, nitrates, and in some cases, petroleum products.

Groundwater west of the Rio Grande requires deeper City wells than east of the Rio Grande; the quality of the water requires more extensive treatment than water from wells east of the Rio Grande.



### **3. SOLID WASTE**

Albuquerque's growth will increase the quantities of both nonhazardous and hazardous solid wastes generated in the area. An effective and comprehensive long-range waste management plan for the region will ensure that storage, collection, disposal and recycling of wastes occur in an environmentally and economically acceptable manner.

Landfill sites and their associated transfer stations are included in the Public and Semi-Public class of land uses.

#### **Existing Landfills**

Two active landfills accept solid waste. Municipal waste is deposited in the City's Cerro Colorado landfill in the western part of the unincorporated county. Some hazardous wastes have been accepted since 2000. A private landfill on the West Mesa above the Pajarito neighborhood accepts construction debris.

Solid waste transfer stations located throughout the county area would not only provide residents the opportunity to dispose of their refuse more conveniently, but it would also help curb illegal disposal. Private refuse collection and transfer systems may provide an alternative which will improve efficiency while decreasing public expenditures. Advanced technology also should be applied to treat wastes wherever feasible.

Reducing the sources of solid waste is a logical step in dealing with the problems associated with disposal. Supporting measures which reduce waste generation such as recycling plastics, glass, aluminum and paper will extend the life of existing landfills.

#### **Former Landfills**

Some of the former twenty-five sanitary landfill sites, 11 of which were operated by the City, now exhibit ground subsidence, methane gas discharge, and groundwater contamination from leachate. These conditions must be corrected before development can proceed on these sites.

#### **Criteria for New Landfill Sites**

The Plan proposes six criteria for any additional landfills.

- Compatibility with area character
- Compatibility with adjacent land uses
- Adequate Accessibility
- Adequate size
- Geologic compatibility
- Site Reusability

## **4. NOISE**

The absence of unwanted sound (noise) is a measure of the city's livability. Albuquerque's rapid growth and its associated increase in vehicular and air traffic have resulted in urban noise levels affecting the population's health, welfare, and quality of life. Siting noise producing activities adjacent to residential or other noise sensitive uses also increased the number of noise conflicts.

Noise has many direct and indirect effects. Noise above recommended levels can increase general morbidity and either induce or aggravate several health disorders such as hypertension, cardiac disease, digestive disorders and general neuropsychological disturbances. Excessive noise levels can contribute to learning difficulties in school children.

### **Noise Sensitive Uses and Areas**

Guidelines developed by several federal agencies including the Federal Highway Administration, the Federal Aviation Administration, the Environmental Protection Agency and the Department of Housing and Urban Development stipulate residential land use sound levels not exceed 55-65 decibels (Ldn or Leq). Schools, hospitals, lodging and certain recreational facilities are noise sensitive uses which should be protected from noise at or above these sound levels.

Field surveys and computer modelling have located numerous areas in the City which exceed Federally recommended noise levels. These studies have been confirmed by numerous complaints to the City Environmental Health Department. Southeast neighborhoods near the Albuquerque International Airport, neighborhoods adjacent to Interstates 25 and 40, certain arterial streets, and industrial areas are affected by excessive noise levels.

Several methods can be employed to protect the public from the impact of noise. The location of noise-producing activities is regulated by zoning. Other noise problems can be ameliorated by construction and design measures. Spatial separation, berm and barrier construction, placement of nonsensitive uses to buffer sensitive uses, and proper building orientation, layout and construction are methods that can be utilized to minimize noise effects. Furthermore, evaluation of potential noise conflicts in new or expanded transportation facilities (e.g. roadways and airports) must incorporate noise mitigation measures in the design.

## **5. HISTORIC RESOURCES**

The sequence of the City's development is reflected by the homes, businesses, public buildings, and industrial structures in the city's fabric.

Since before World War Two, Albuquerque residents have worked to retain the city's history. Many of the old adobe homes in the valley were restored by their owners in the 1930's and 1940's.

As the city grew after World War II many historic landmarks such as the Alvarado Hotel and Huning Castle have been demolished. Demolition of pre World War II buildings is a greater loss here than in other cities the size of Albuquerque because of the relative scarcity of pre-1940 buildings.

The demolition of historic buildings led to an extensive historic site survey and the enactment of City Ordinances protecting historic districts and sites.

At the time of the Plan's preparation (1986-1988), eleven Historic Districts had been included in the New Mexico Register of Cultural Properties and/or the National Register of Historic Places. Three more have been added since that time. This designation affects, and is affected by, several Plan policy concepts (Appendix E).

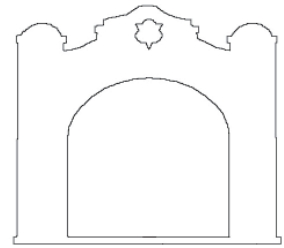
Three types of actions are necessary to better support historic preservation objectives. One is to provide for local incentives for preservation. A second concerns local ordinances. A third is increasing public and interagency awareness of historic resources and preservation efforts.

Preservation incentives include State and Federal tax credits. The Plan proposes the City and County explore incentives which enhance existing Federal and State tax credits and programs, and which encourage the preservation of significant local properties that would not otherwise qualify for investment tax credits.

A second action to further historic preservation concerns ordinances. Local means of protecting historic properties in the City include two 1978 ordinances: one establishes the Landmarks and Urban Conservation Commission; the second enacted the Historic and Urban Conservation Overlay zone. The Conservation Commission recommends mapping overlay zones and the designation of landmarks to the Mayor and the City Council. Major alterations, demolitions, and new construction in overlay zones and upon landmark structures must be reviewed and approved by the Commission. Bernalillo County does not yet have an ordinance to protect historic districts and sites outside the City limits; thus several unique, historic structures in the unincorporated area may be at risk.

The major planning opportunity represented by historic preservation is higher community awareness about Albuquerque's development as a city. Public awareness of the area's heritage and the policies and regulations which preserve and protect important districts and buildings are crucial to both public appreciation and preservation actions. Measures to provide information about historic resources and regulations would enhance public and private preservation efforts.

Figure 19



*This emblem recalls a pavilion at the demolished Alvarado Hotel. It was placed on the first commemorative plaques attached to City-owned landmarked buildings.*

## **6. ARCHAEOLOGICAL RESOURCES**

Extensive evidence of man's long presence in this area is found in an around the modern city: prehistoric Pueblo archeological sites national importance and sites of early eighteenth century Spanish Colonial settlements (plazas).

More remote parts of the West Mesa for example, have yielded several Paleo-Indian sites dating back 12,000 years (or more). More recent are the prehistoric petroglyphs, rock etchings on above ground rock. Found in abundance along the western escarpment they are directly associated with other subsurface archeological sites. They are one of the most significant and extensive examples of this cultural artifact found within an American city.

Most petroglyphs were etched between 1330 and 1650 AD although some may be up to 3000 years old. Native American petroglyphs are powerful cultural symbols that reflect the complex society of Pueblo people. Themes include Pueblo sacred images. They appear in clusters across the escarpment. Four areas have concentrations of many petroglyphs within relatively small areas: Piedras Marcadas Canyon, Boca Negra Canyon, Rinconada Canyon, and Mesa Prieta.

Part of the petroglyph rich area was acquired by the City (1973) and improved with State funds as Indian Petroglyph State Park.

### **Petroglyph National Monument**

During the Plan's preparation (1986-88) recognition grew of the national importance of these cultural properties. The outcome of their greater prominence is the Petroglyph National Monument.

The National Monument, authorized by the Congress on June 27, 1990 is a unit of the national park system. It's purpose is to "preserve for the benefit and enjoyment of present and future generations, that area in New Mexico containing the nationally significant West Mesa Escarpment, the Las Imagines National Archeological District, a portion of the Atrisco Land Grant, and other significant natural and cultural resources, and to facilitate research activities associated with the resources..."

Cultural properties conserved by the Monument include more than 300 archeological sites and more than 15,000 prehistoric and historic petroglyphs. (Petroglyphs are considered archeological sites with the same significance and value as subsurface sites.)

A non-contiguous part of the National Monument is the Piedras Marcadas archeological site, the largest unexcavated pueblo in the middle Rio Grande valley. The ruins are what remains of a two and three story pueblo that is thought to have contained 1000 rooms.

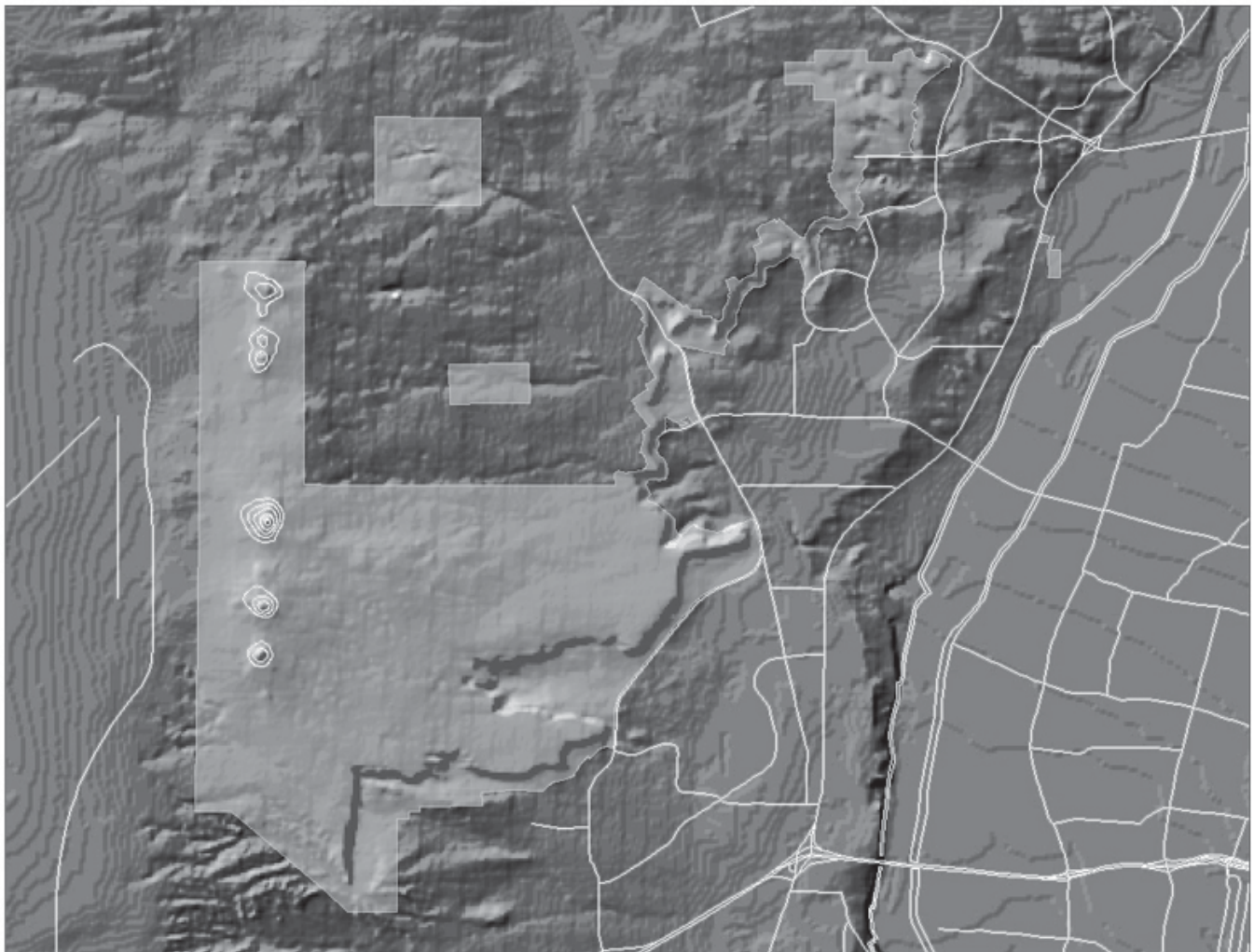
### **Planning and Management Considerations**

Archeological sites differ from historic buildings in certain fundamental ways. These differences require specialized planning and site management techniques.

- They may be partly or entirely below the ground's surface and invisible to the untrained eye.
- Their value may lie wholly or in part in the information they contain and not in their aesthetic qualities or in their capacity for adaptive reuse.
- They require the involvement of professionals more than historic properties.
- The confidentiality of site locations is required except where protective measures have occurred.

Archeological sites can be comprised by unintentional removal, unintentional damage, looting, and vandalism. Given the significance and extent of sites in and around the city, the Plan proposes policies and site conservation programs to retain this cultural heritage.

*Figure 20: The Petroglyph National Monument*



## **7. CULTURAL TRADITIONS AND THE ARTS**

The character of a city is shaped in large part by the cultural artifacts activities, crafts, and the fine and performing arts created and enjoyed by its residents and visitors. They impact the qualities of city life, the urban economy, the city's heritage, and educational opportunities and attainment.

Culture is definable as the product of human history that encompasses the totality of human work and thought. It is expressed through institutions, beliefs, expressions, behavior, recreational and leisure activities, and the arts discipline's dance, theater, music, and the visual arts.

Cultural resources are definable as the organizations, institutions, and enterprises that collect, conserve, and exhibit cultural artifacts and activities.

The scope of cultural expressions in the city is defined by public art, planning for the arts, art activities, and community celebrations.

### **Public Art**

Public art as an urban amenity has been very limited in Albuquerque until recently. Public spaces and excellence in architectural design were not valued in public buildings and sites. For many years the Braden Memorial sculpture (1896) in Robinson Park and McClellan Park's Madonna of the Trail sculpture represented the city's meager commitment to public art.

Support for art as a public urban amenity crossed a threshold in 1978 with the enactment of the City Art in Municipal Places Ordinance. It commits one percent of all City construction funds from General Obligation Bonds and from certain Revenue Bonds for the purchase of or for the commission of works of art.

The categories of holdings are:

two dimensional wall art	paintings, drawings, photographs, prints
murals	painted, tiled, or otherwise decorated walls
sculptures	3 dimensional forms in-the-round or wall mounted
decorative arts and crafts	pottery, textiles, mixed craft media
installations	works of art integrated into architectural forms

Public art is directly associated with sites in or immediately adjacent to new (or reconstructed) municipal facilities across the entire city, with a large concentration Downtown, University/Nob Hill, and Old Town districts.

**Planning for Arts and Cultural Activities**

In 1995 the City adopted its Cultural Plan. Six policies on cultural education, involvement, and funding were stated in this plan. They were to be implemented by the City's Public Arts program through the City's Designated Arts Agency, the Albuquerque Arts Alliance.

In 2002 the Cultural Plan was updated to revisit the cultural needs of the community and to determine which of the 1995 goals were still relevant. The new plan restates the six goals as three, addressing Arts Education (Plan pages I-80, II-99), Increasing Opportunities for Involvement in the Arts, and securing sustainable funding for arts and cultural activities.

## **8. THE DEVELOPED LANDSCAPE**

Albuquerque residents, through the City Charter, are committed to “promote and maintain an aesthetic and humane Urban environment.” The developed landscape is the physical expression of that environment.

A particular challenge in meeting this high standard is the limited heritage of past urban expressions of excellence found in the City. For example, the “City Beautiful” theme in city planning and architecture had no opportunity to be expressed in the small Territorial city that was Albuquerque.

The developed landscape is comprised of the natural and built features of the city in its setting. These features express the aesthetic qualities of the area. They form the overall impression an observer receives of the area’s landscape character. Visual qualities are associated with the city’s livability.

### **Visually Sensitive Features**

Areas in and around the city, generally recognized for their aesthetic qualities, are susceptible to visual impact of development. Highly sensitive areas include the National Monument, Historic Districts, parks and buildings of architectural merit, and other features noted for their aesthetic qualities.

### **Assessing Visual Impact**

Visual impacts on these areas by development is measurable by the level of visual sensitivity: the degree of public interest in a visual resource and concern about adverse changes to appreciating its aesthetic qualities. A significant impact can generally be defined as an action that would substantially alter a sensitive visual setting.

### **Public Projects**

Building and street design, landscaping, and street furniture should be complementary and create places with character. Public building and spaces reflect the image and character of their community. Each public project should protect and enhance this character by incorporating high standards for design quality.

### **Sustainability**

Acknowledging natural features in planning for any addition to the built environment is a sign of respect. Such planning can create a distinctive whole that improves the overall appearance and function of the city.

Attention to the developed landscape extends beyond aesthetic considerations to sustainability. Wind erosion and soil instability, for example, result when natural features in the developed landscape are not respected.

The natural features of the city’s setting are strongly acknowledged by the Plan. Its policies recommend actions for their enhancement through the development process. For example, concentrations of native vegetation could be integrated into new development through careful site planning rather than removed.

Several opportunities exist to improve the attractiveness of the built environment. These opportunities can make a substantial positive difference in Albuquerque’s developed landscape.



## **9. COMMUNITY IDENTITY**

As Albuquerque has grown into a city and its environs of over a half-million people, it has differentiated into a number of distinct areas based on history, cultural traditions, physical setting and the technology of development at various points in time. Neighborhoods are the “building blocks” of these areas. People distinguish the area of the city they live in from the city as a whole. These unique areas, or “communities,” are familiar and meaningful to the people who live or work there; each community takes on its own individual image and sense of place because of its special combination of natural environment, social life, history, architecture and demographic composition.

Identifying Albuquerque/Bernalillo County communities and their strengths provides one cornerstone of preserving their identity. Other factors noted by the City Council in its adopting resolution (Enactment No. 102-1995) that support the maintenance and enhancement of unique community identity might be expressed in the form of goals:

**Promote neighborhood vitality, public safety, affordable housing, customer service, balanced infrastructure spending, sustainability and infill, economic vitality and cultural development;**

**Reinforce and expand interest in and sense of community as evidenced by the growth of neighborhood organizations and other special purpose community organizations;**

**Strengthen community spirit and pride;**

**Effectively integrate and coordinate sub-area planning with community involvement to extend planning services to all parts of Albuquerque.**

Thirteen community identity areas, focusing on their individual character, are illustrated on Figure 21. Boundaries are not a precise line where one community gives way to another. The important thing is to respect their differences, and to protect and build upon their unique attributes and attractions. The Activity Centers and linking transportation corridors in each offer a significant and visible public realm for this focus, through both formal and informal mechanisms such as capital spending and regulatory policy.

# COMMUNITY AREAS

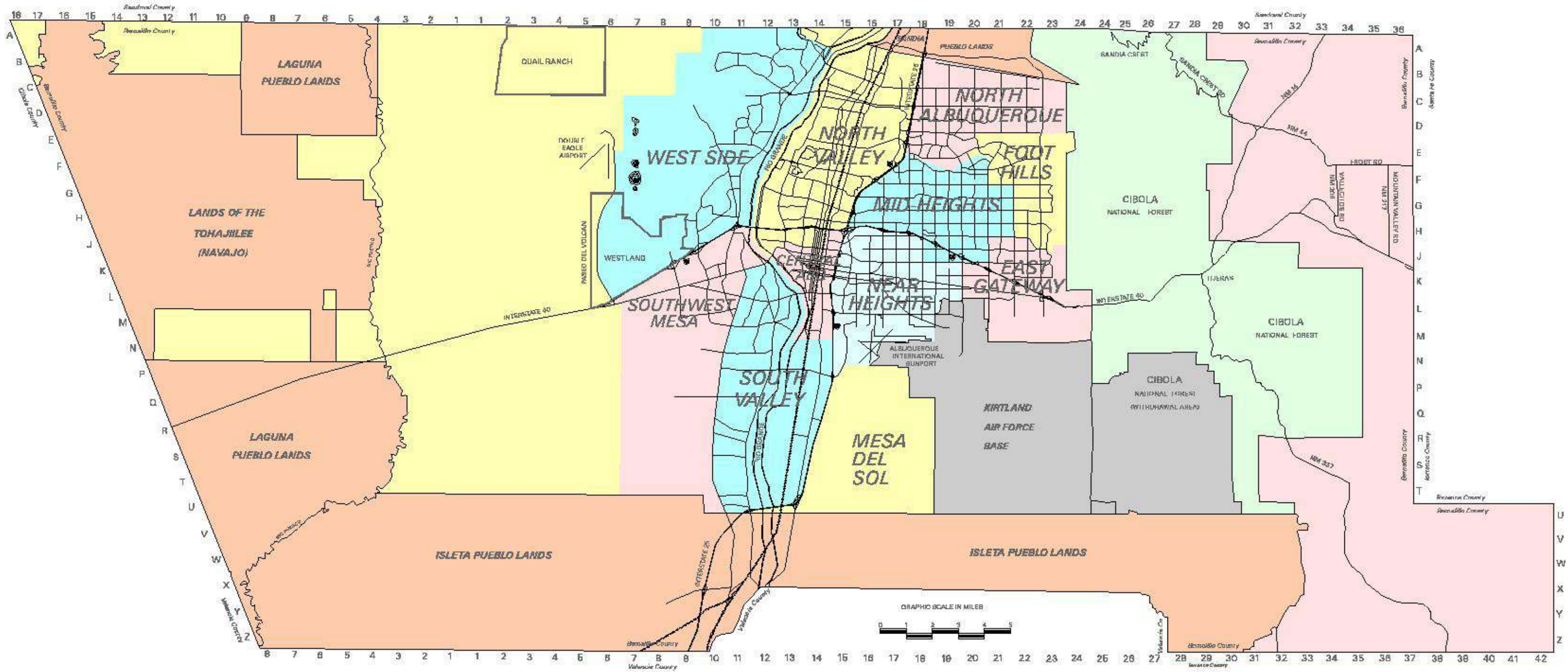


FIGURE 21

## **D. COMMUNITY RESOURCE MANAGEMENT**

### **1. SERVICE PROVISION**

Long-range regional planning for the major urban facility systems - water, sanitary sewer, drainage, and transportation - is essential to identify appropriate service levels and to prudently manage fiscal resources.

#### **Capital Planning**

A high level of capital investment is necessary to build and maintain major systems of facilities. Long range financial planning is represented by the City's Decade Plan for capital investment. Short range infrastructure planning, such as the six-year Capital Improvements Program and the Transportation Improvements Program, more closely reflect the City's growth strategy, fiscal position, and land use priorities at any given point in time. Service provision timing and costs are determined through these funding programs.

#### **Water and Sanitary Sewer Service Areas**

The City's water system and its sanitary sewer system each have an ultimate service area. Within these service areas, the City currently (1987) provides water and sanitary sewer service to a population that exceeds 400,000 persons. Approximately 40,000 persons located outside the City limits in the unincorporated North and South Valley areas are served by joint-powers agreements with Bernalillo County. The City also provides sanitary sewer service to Paradise Hills, a portion of Sandia Heights, City of Rio Rancho, the University of New Mexico, and Kirtland Air Force Base under separate contractual arrangements.

The City sewage treatment plant capacity was expanded in 1988 to treat 60 million gallons/day. The increased capacity will accommodate approximately 550,000 people, the projected City population between 1990 and 1995. The average daily volume of water treated by the plant and released into the Rio Grande in 1990 was 51.1 million gallons; annual treatment was 18.6 billion gallons.

#### **Balancing Rehabilitation and Facility Extensions**

A large portion of the existing water and sanitary sewer system was built in the 1950s and 1960s. Almost all of the Capital Improvements Program related expenditures were allocated for new development at mid-century. Currently (1988) replacement of inadequate and deteriorated water and sanitary sewer lines are needed in several areas; approximately 50 percent of water utilities capital improvement monies are now used for maintenance or replacement.

The capacities of the water and sanitary sewer systems can sustain forecasted demand. However, the cost and the desirability of extending service to a particular area may vary depending on existing policies and proximity to existing systems. Service priorities may be needed in the future to ensure a balance between new growth and rehabilitation. Present service levels should not be permitted to deteriorate to serve new growth. City water and sanitary sewer line extension policies support service priorities which begin with the existing service area, followed by contiguous and then by non-contiguous growth areas.

Costs allocated to developers and new home owners outside the present water and sanitary sewer service area should reflect the fiscal impact of growth. A graduated system expansion charge, increasing with the distance from each system's existing service area, may be one method of balancing new service costs.

### **Streets**

New street construction requires planning and preliminary engineering years before actual construction. The Metropolitan Transportation Plan, adopted by local elected officials, anticipates future demand and transportation service needs. Actual street construction proposed by that Plan is determined by factors such as State and Federal funding availability. New street construction must also be balanced with existing maintenance and rehabilitation needs.

Some facilities and services historically provided directly by the City or County government might be more efficiently provided by private organizations. It can be useful to periodically evaluate the privatizing of various functions.

## **2. WATER MANAGEMENT**

A reliable supply of water is necessary to sustain the city's population. Water, a natural resource that is unconstrained by jurisdictional boundaries, requires regional planning for the city's development.

### **Water Supply**

Albuquerque draws its public water supply from an aquifer west of the mountain ranges, drawing water from several well fields throughout the County. Sole reliance on the aquifer will shift, about 2007, to supplemental renewable supplies of surface water.

New water rights acquisition is fundamental to future development and growth. The City's present water rights holding exceeds 18,800 acre-feet, and reserves should accommodate demand beyond 2030. Approximately one-half of the water pumped by City wells now returns to the Rio Grande through the wastewater treatment plant, a return-flow credit which is important in water rights holdings calculations.

Surface water from beyond the region will begin to supplement the traditional groundwater supply around 2007. This is the result of the acquisition of water rights in 1962, a major long range planning accomplishment to assure Albuquerque's sustainability in its semi-arid grassland setting. These acquired water rights, 48,200 acre feet per year, are part of New Mexico's share of the Colorado River. The water must be put to beneficial use in New Mexico under the terms of Interstate Compacts and Federal statutes.

Since 1962, City water system customers have invested more than \$50 million in the San Juan Chama Water Reclamation Project. This project consists of diversion structures in the Colorado River Basin of southern Colorado and channeling the diverted water through twenty-six miles of tunnels under the Continental Divide, and storing the water in Heron Reservoir on the Chama River before it flows into the Rio Grande.

### **Water System**

The City's water system is supplied by 90 wells and 45 reservoirs. The system is structured by sixteen water pressure zones based on elevation points along the Rio Grande. Twelve pressure zones are east of the Rio Grande, four lie to the west.

The City's water supply system requires several major modifications to the aquifer based system. These are necessary to use the surface water from the San Juan-Chama project for drinking purposes. These modifications include construction of a water diversion facility on the Rio Grande in the vicinity of Alameda, a state-of-the-art water purification plant, and a network of large water distribution pipelines.

The water system is an important element in fire suppression, directly related to public safety. System reliability for fire suppression requires water facilities be kept in a state of good repair.

**Water Production**

Water production for all municipal purposes is related to the City’s growth. Population has greatly increased, rising faster than population growth.

*Table 11: Population Growth Relative to Water Production*

<b>Year</b>	<b>Population Served</b>			<b>Annual Water Production (Billion Gallons)</b>
	<b>City</b>	<b>Non-City</b>	<b>Total</b>	
<b>1950</b>	96,815			5,364,000,000
<b>1960</b>	201,189			13,650,390,000
<b>1970</b>	243,751			19,282,203,000
<b>1980</b>	332,920	21,858	355,087	30,058,000,000
<b>1990</b>	389,487	34,446	423,371	38,554,000,000
<b>2000</b>	448,607	41,065	476,285	37,470,000,000

Water production from ground water and surface water must increase to meet the demand created by 50,000 additional persons in the City per decade.

**Water Demand**

Even though Albuquerque draws its public water supply from an apparently abundant underground aquifer, it is never wise to waste such an important resource. Demand for water, based on quantity billed is residential, 56%; commercial, 31%; institutional, 11%; and industrial, 2%. Demand (the daily average consumption per person) steadily increased to 1990, then decreased, reflecting conservation measures. Projected population growth, however, will increase total water demand, and perhaps affect per capita consumption.

*Table 12: Population Growth Relative to Water Consumed*

<b>Year</b>	<b>Population Served</b>			<b>Water Consumed Gallons Per Capita Per Day</b>
	<b>City</b>	<b>Non-City</b>	<b>Total</b>	
1980	332,920	21,858	355,087	232
1990	389,487	34,446	423,371	249
2000	448,607	41,065	476,285	216

### **Land Subject to Flooding**

The lower lying valley has been subject to flooding from two sources: the Rio Grande, and from storm water run-off on the higher mesas flanking the valley.

The bed of the Rio Grande has aggraded (risen) over many decades. Today, the river bed is higher than much of the adjacent land, including Downtown. The Rio Grande's last severe flood event occurred in 1940. Since then, the levees containing the river in its banks have been strengthened and the United States Army Corps. of Engineers has constructed (1962) a flood control dam at Cochiti Pueblo north of the city.

The valley has also been subject to sheet flows and widespread flooding in its lowest lying areas from water carried by arroyos. The spread of urbanization across the east mesa created extensive impermeable surfaces. Storm water run-off from localized weather events would often exceed the capacity of arroyos to carry the water from the Sandia Mountain foothills across the mesa to the valley. Entering the valley the arroyos diffused into broad alluvial fans on the valley floor where water ponded. The construction of the North and South Diversion Channels, networked with the arroyos, assures that storm run-off is conveyed to the Rio Grande in an efficient manner.

### **3. ENERGY**

Every metropolitan area requires a large reliable supply of energy in the forms of power and natural gas to meet a variety of demands.

#### **Conventional Energy Sources**

Power supply primarily comes from gas and coal-fired power plants in the Four Corners region owned by Public Service Company of New Mexico. Power produced at generating plants is transmitted long distances high voltage transmission lines and stepped down several times for ultimate use. These lines are prominent features in the cityscape. The transmission of power within the city is addressed by the adopted Facility Plan for Public Service Company of New Mexico's transmission line network. Two natural gas fired plants in Albuquerque (Reeves Generating Station in North Albuquerque Acres and the Pearson Generating Station in the South Valley) provide standby capacity.

Natural gas supplies are gathered in northwestern and southeastern New Mexico and transported by pipeline to metropolitan Albuquerque. Most distribution is provided by the Public Service Company of New Mexico. Some larger customers of natural gas such as schools, hospitals and, to a lesser extent, local governments are obtaining less expensive natural gas supplies from other suppliers.

Transportation fuels are primarily supplied by various refineries around the state and transported by truck, pipeline, and rail to distribution terminals. The terminals are located in the south valley near the Pearson Generating Station.

#### **Alternative and Renewable Energy Sources**

Alternative and renewable energy sources (e.g. solar, wind, geothermal, and possibly solid waste), may be utilized for residential, commercial, industrial and transportation-related development. Solar energy can probably more easily be used in residential development. Approximately 55 percent of the single-family dwellings in the County and the nearly 69 percent in the City have solar retrofit potential. New Additions should be laid out to orient lots to facilitate passive solar gains.

Alternative and renewable resources may also supply energy in the future to the commercial and industrial sectors where cogeneration and low temperature geothermal possibilities exist. Cogeneration may involve electrical-industrial production. Low-temperature geothermal resources underlies the west mesa's upper surface. The geothermal reservoir formation is a large sedimentary basin. It probably also contains large quantities of hotter water at depths greater than hydrostatic. The financial feasibility of converting these geothermal resources into steam to generate electricity should be assessed.

Commercial enterprises which are not utility companies may lead the way in producing power from "renewable" energy sources for sale in the open market. The economic feasibility of producing electric power from "renewable" energy sources will depend upon whether the rates to be charged to buyers are competitive with power produced from conventional sources.



## **Conservation**

The county's total demand for energy will increase with projected population growth. Public and private planning decisions should promote energy management and efficient use of energy-related resources to ensure the community is served with a balanced mix of affordable energy supplies.

The county's per capita energy use is a measurement that should be used to gauge the effectiveness of our energy demand policies and programs. While there are indications that per capita energy use has declined in some economic sectors, a reliable projection of energy demand is needed.

Energy efficiency supports economic growth and development by freeing funds that otherwise would be spent on energy. Energy efficient development patterns also make the region less vulnerable to conventional energy supply disruptions. Furthermore, efficient energy consumption and diversity of supply can reduce the environmental costs of large scale production and distribution. However, there are no energy performance standards prescribing annual consumption levels for various types of urban development.

Conservation of electricity and natural gas used in buildings should increase by incorporating innovative and conventional energy efficient techniques into design, siting and construction development. The City and County Subdivision and Zoning ordinances, as typically applied, encourage design and layout uniformity which does not maximize energy efficient site design; however, the City's Zoning and Subdivision Ordinance contain provisions to preserve solar access. Ordinance amendments and effective compliance of new or existing energy-related ordinances will encourage energy conservation and management. A handbook, or guide, for solar access landscaping should be developed.

Conservation of automobile fuel can be achieved in the short-term by strengthening use of travel alternatives (e.g. bicycle lanes and ride sharing programs), and disincentives to private, single-occupancy automobile use. Long term conservation may be achieved by policies which decrease the population's auto dependency, by focusing policies and investment decisions on transportation systems designed to move people rather than automobiles.

## **4. TRANSPORTATION AND TRANSIT**

The national air, rail, and highway systems are necessary for a functioning economy in the city. They connect the Albuquerque region to the state, nation, and other countries. They enable regional specialization, and link spatially separated activities into an economic system. The major facilities of these systems are also important in providing the structure for the city's physical development pattern. Albuquerque is the state's transportation center; it is the only community in the state in which all the modes converge locally. The bus transit system is a significant potential alternative to drive - alone automobile trips.

### **The Interstate Highway System**

Albuquerque is served by two interstate highways: Interstate Highway 25 and Interstate Highway 40. Both carry large volumes of traffic locally and regionally, and are being upgraded through 2010. The State's highway upgrade program is an opportunity to enhance the I-25 and I-40 Corridors.

Albuquerque and Bernalillo County, in cooperation with the NMSHTD, the Middle Rio Grande Council of Governments (MRGCOG), community groups, business, and professionals, has prepared the Interstate Corridor Enhancement Plan - A Conceptual Framework (ICEPlan) for I-25 and I-40.

In addition to a great deal of local commuter travel, these facilities are used by two modes of transport. These are trucking and motor coach carriers.

Trucking is the dominant freight transport mode in New Mexico relative to the dollar value of goods destined to or originating in the state. Albuquerque is New Mexico's motor freight hub for truck firms, terminals, and warehousing.

Trucking and warehousing has three distinctive business groups. Each serves the economy differently and has different requirements for development, access, and circulation within the city.

Truckload/intercity firms are national or multi-regional in scope and specialize in truckloads of freight from an origination terminal in one major city to a destination terminal in another major city. Scheduled service is provided over fixed routes. Rail transport is increasingly used to carry trailers or containers in distances of 600 or more miles between major cities.

*Figure 22: Sunport and KAFB runways north of the Tijeras Arroyo.*



Regional truckload and regional less-than-truckload firms are generally regional in scope, moving freight from the origin customer to a terminal (origin-terminal movements) or moving freight from a terminal to a final destination (terminal-destination movements).

Local distribution trucking generally operates only within the city and delivers products to outlets.

Trucking terminals in the city are presently concentrated in three geographic locations. The largest concentration of terminals is within a 3/4 mile radius of Edith Boulevard and Montaño Road in the North valley west of Interstate Highway 25. A smaller concentration is located on the west mesa near Hanover Road and Coors Boulevard, South of Interstate Highway 40. A new concentration is developing on the west mesa along Central Avenue at Nine Mile Hill, near Interstate Highway 40.

Motor coach carriers using the Interstate Highways offer affordable passenger service to major destinations and to destinations without any other mode of scheduled passenger services. Carriers serving Albuquerque have changed service patterns since Federal deregulation. Several new companies now provide service to destinations within the state and beyond, supplementing very long distance service operated by more established carriers. Albuquerque generates about 200,000 passengers annually for scheduled motor coach carriers.

The primary purpose of the interstate highway system is to carry longer distance trips to and through urban areas; that function could be facilitated by a “managed lane” dedicated to truck movement much of the time and shared with express (local) buses, carpools, etc. at other times.

### **Aviation**

Albuquerque is the location of a Federal Aviation Administration Air Route Traffic Control Center, a facility necessary for reliable aircraft operations across a major part of the Southwest.

Two of New Mexico’s fifty-six publicly owned airports are in Albuquerque. The largest is International Sunport, a terminal with three passenger concourses and twenty-seven gates, four active runways, a separate air cargo building, and a full range of support facilities.

*Figure 23: The International Sunport, New Mexico’s major air traffic hub and one of Albuquerque’s Specialty Activity Centers*



General aviation is served by two airports dedicated to that activity: Double Eagle Airport (west mesa), and privately - owned Coronado Airport (east mesa). Some general aviation operations continue to use the International Sunport. Corporate general aviation activity has been growing in Albuquerque with a trend of using larger aircraft.

Albuquerque is the focus of commercial air traffic in New Mexico: over half of the state’s population is within 100 miles of the city’s principal airport. It is a medium hub air passenger market, one which annually enplanes between .25 and 1.00 percent of all certified domestic activity. About 95% of New Mexico’s airline passenger activity occurs here.

Commercial aviation (scheduled airline service) has two components. Major airlines (Level 1 carriers) are responsible for the largest number of operations and passenger enplanements. Commuter airlines (Level II carriers) represent a much smaller share of total commercial aviation operations in Albuquerque. Five all-cargo carriers serve the city.

Commercial aviation exclusively uses the City’s International Sunport, a facility shared with Kirtland Air Force Base. The National Plan of Integrated Airport Systems classifies it as a medium haul commercial service airport. Such airports accommodate non-stop commercial airline service to destinations of 500 to 1500 miles. The City’s Airport Master Plan (1993) (focusing on landside issues) constitutes a development plan to assure this facility will meet projected demand.

The feasibility of direct flights to international destinations and more non-stop flights to domestic destinations has recently been analyzed and found to be a potential need.

The following table describes projections of annual passenger enplanements.

*Table 13: Projected passenger enplanements, 2000-2015*

<b>Year</b>	<b>Major Airlines</b>	<b>Commuter Airlines</b>	<b>Total Enplanements</b>
<b>2000</b>	4,047,000	213,000	4,260,000
<b>2005</b>	4,826,000	254,000	5,050,000
<b>2015</b>	5,610,000	290,000	5,900,000

*Source: 1996 Forecast, Landside Master Plan (1998)*

## **Rail**

The national railroad network provides both freight and passenger service to Albuquerque. Railroad right-of-way is also important for advanced telecommunications: it is used as a fiber optics cable route.

The freight railroad companies consist of three business groups based on their operating revenue (Class I), or on other characteristics (Class II, Regional and Class III, Local). Class I carriers, similar to intercity truck load firms, are wholesalers of transportation services. In 1991 there were 196,081 miles of Class I track, nationally, 1,910 of which are in New Mexico.

Rail freight service is provided by the Burlington Northern and Santa Fe Railway (BNSF), a Class I carrier. Between 10-12 million tons of freight annually pass through or are shipped to/from Albuquerque by rail, depending on national and regional economic conditions. Albuquerque contains the only trailer and container “straddle lift” (crane) for intermodal car loading in the state.

*Figure 24: The Alvarado Transportation Center on the east side of Downtown*



Rail passenger service is provided by the National Railroad Passenger Corporation (Amtrak). Albuquerque has the main rail passenger station in the region. It generates about 52,000 passengers annually for the single schedule through the city. Several new service possibilities has been recently analyzed including Albuquerque-Santa Fe and El Paso-Albuquerque-Denver and found to be potentially feasible.

The crossing of railroad lines with streets at grade is a safety issue. There are 28 railroad/highway crossings in Bernalillo County, only 10 of which are grade separated. The remaining 18 are protected by lights and gates but increasing traffic (motor vehicle and rail) increase the risk of collisions.

The preservation of the two inactive rail corridors in the city is an economic development issue. One corridor extends east toward the airport terminal. The other (further south) extends along the north bank of the Tijeras Arroyo to Kirtland Air Force Base. Federal Funds are available for preservation, possibly allowing future re-use options.

Other concepts to expand rail service and improve safety are contained in the New Mexico Transportation Plan's Railroad Plan (1996). Perhaps the most important change for Albuquerque's rail corridor is completion of the new Alvarado Transportation Center along First Street south of Central Avenue. It will serve as Albuquerque's ground transportation hub, where passengers may switch from one mode to another or simply transfer from one local bus to another.

### **Transit**

All transit service in the Albuquerque area today consists of publicly-provided buses. The Transit Development Program is important in the area's transportation network. Transit is not only a vital transportation link for people without private automobiles; increased usage can generate substantial savings in public and private expenditures. Transit use, walking and biking are likely to increase as traffic congestion and fuel prices increase in the future, and logically, more people should opt to live close to activity centers in order to reduce trip distances.

Between 1960 and 1985, increased automobile use and declining transit ridership occurred simultaneously and attest to the auto centered development patterns characterizing metropolitan Albuquerque. Before 1960, about 30% of trips in Albuquerque were made by transit. In 1995, less than 1% of all trips were made on transit. Carpooling accounts for around 12% of work trips, and drive - alone trips to work account for more than 80%.

Future population growth, environmental concerns and transportation network saturation at peak periods will likely stimulate greater mass transit use. Land use decisions can encourage transit use by concentrating major activities in easily served locations. In addition to providing cost effective service, transit riders do not have to contend with congested traffic and parking problems associated with private travel. In areas where high intensity land uses currently exist, such as Downtown, transit and ridepooling are viable alternatives to additional parking facility construction. Transit can also be used in downtown revitalization and within other activity centers by promoting pedestrian activity and reducing the need for parking. Greater transit use could also generate savings on street maintenance, improve air quality, and relieve traffic congestion.

Figure 25: How a Major Transit Corridor could change over time.

**Looking West on Central Avenue at Locust Street, Today**



**Tomorrow?**



To reduce dependency on travel by auto, the metropolitan area must provide more travel options to residents. A major step toward providing travel options is improving the public transit system. With a good transit system, access is improved for people with limited mobility - whether it be to their jobs, getting home at night or going to the many cultural and special events offered in the evenings and on weekends. A good transit system also provides an additional choice of travel mode for many trips within the area. To provide this system, transit must be able to provide convenient local and express bus service, including service for the mobility impaired. New types of service like over-the-road coach service, circulation within Activity Centers, and deviated fixed route service within neighborhoods may be feasible to replace or supplement the standard route service. Transportation Demand Management (TDM)\* strategies can also be promoted by implementing subsidized vanpools, carpools, bikes, and high capacity transit (light rail, busways, bus priority facilities).

Transportation Demand Management (TDM) Programs include strategies for working with employers and developers to plan and promote use of transit, ridesharing, bicycle and pedestrian commuting. Efforts are concentrated in areas which generate a significant number of trips.

\*NOTE: A TDM program should include:

- Developing proposals and guidelines for the establishment of Transportation Management Associations (TMAs).
- Developing commute management programs for major employers.
- Promoting development conditions at the Environmental Planning Commission for the implementation of TDM programs that provide: Onsite assistance to employees seeking alternative transportation; subsidized transit passes; carpool and vanpool matching; subsidized vanpool programs; preferential parking for ridesharers; facilities for bicycle commuters (lockers, showers); transit marketing programs; workday schedule alternatives; financial and other incentives.

### **Street Network**

The Long Range Roadway System Plan identifies the location and the functional classifications of the street network. Automobile usage dominates the means of transportation in Albuquerque. Vehicle miles traveled (VMT) per person per day has increased from 12.2 in 1970 to about 22 in 2000. Overall VMT for Albuquerque was 9.4 million in 1987, and now approaches 13 million. Lane miles increased from 2078 in 1995 to 2267 in 2000, averaging to about 38 additional lane miles per year.

Vehicle-carrying capacity is being approached during peak periods on a number of major travel corridors and intersections such as Coors and Montañó Boulevards. Some ten links citywide have peak hour traffic volumes that exceed the capacity those links were designed for: Alameda from the west side to 4th Street NW; Golf Course Road north of Paradise Hills; Coors Boulevard at Paseo del Norte, Montañó, I-40, and South of Coors; Paseo del Norte at several points between the west side and Wyoming Boulevard; Montañó from Coors to 4th Street; Academy at points between San Mateo and Wyoming; Central Avenue over the Rio Grande; Bridge Boulevard over the Rio Grande; Rio Bravo between Isleta and Broadway; Gibson between Yale and Carlisle.

Extensive residential development west of the Rio Grande has generated more river crossing trips in an area where existing street deterioration is already outpacing maintenance. Street efficiency can be improved by increasing emphasis upon compatible land use and street design measures. New land uses along major roadways should not, for example, impede traffic flow through the inappropriate placement of driveway entrances and exits.

Some 300 lane miles are rated as congested, and despite the addition of lane miles at the pace noted above, there would be an estimated 1100 lane miles congested in 2020, with an erosion in drive time of 35%. And as evidenced by the number of comparatively new street links with traffic volumes exceeding their design capacity, new roads and network expansion are both short-term and finite solutions to the area's ultimate transportation needs and demands. Continued air quality degradation, and network and fiscal constraints are some factors making alternative travel options more feasible, particularly as land development aggravates existing difficulties. The development and continued improvement of transit and TDM provide feasible transportation alternatives to building new or wider roads. Albuquerque and its surrounding area have a growing network of bicycle paths whose expansion and linkage will improve prospects for both recreational and work related bike travel.

### **Corridors Connecting Activity Centers**

The Corridors identified in Figure 20 delineate a framework for the growth of Albuquerque and Bernalillo County which will protect the area's environmental, economic, social and fiscal resources. Widely supported by the public in a 2001 series of community gatherings, focus groups and stakeholder meetings, the concept seeks to change the patterns of growth and transportation service in a manner that allows transit, bicycle, and pedestrian travel to provide an increasing percentage of the transportation needs and create centers of community and regional activity. The auto has been the primary form of transportation in the area, and auto service levels affect the economic vitality of the city. The Plan's Activity Centers and Corridors policy concept would balance auto needs with increasing efforts to shift to other modes, reduce trip lengths, and reduce auto trip making. Specific to this vision is encouraging more compact mixed-use development along transportation corridors and in specified Activity Centers. An additional objective is to promote transit by increasing transit

service in a pattern of Activity Centers and Transportation Corridors which gives transit the maximum potential to shift trips from the automobile. Finally, the vision seeks to increase the mode share of bicyclist and pedestrian trips by improving pedestrian environments and bicycle connections within/to centers and corridors.

The Plan's Activity Centers and Transportation Corridors policy concept makes the best use of the arterial street network to move people. The concept guides not only street infrastructure and transit service investments, but land use development. The corridor designations are applied in addition to the arterials' destinations according to the Functional Street Classification System. These designations are depicted on the Long Range Roadway System Map (Appendix E). The Plan's Activity Centers and Corridors policies are also consistent with the Middle Rio Grande Connections Study (April, 2001).

### **Types of Corridors**

This policy concept intends to change transportation characteristics and service as well as land use forms. The existing transportation characteristics and land uses within the corridors/centers are not generally described in the following designations. The Plan promotes the change of transportation and land development characteristics over time.

- **Express Corridors:** A network of roadways that would be dedicated to developing higher speeds with fewer interruptions to travel for the car and public transit vehicles. These corridors are typically limited access, higher speed with pedestrian and bicycle trails separate and protected, and would provide efficient express bus service to the major activity centers where the largest share of the region's jobs are located. These corridors would be the site of some future infill and redevelopment that could create a larger number of people living close enough to have good access to public transportation at selected locations.
- **Major Transit Corridor:** Roadways designed to optimize public transit and move large numbers of people in a very timely and efficient manner. These roadways could have dedicated bus lanes, wide sidewalks, bike lanes, and longer term possibility of light rail service. These corridors would focus on the movement of many people in a pedestrian friendly environment, would emphasize short trips and convenience and would be prime candidates for significant mixed use infill and redevelopment.
- **Enhanced Transit Corridor:** Roadways designed or redesigned to improve transit and pedestrian opportunities for residents, businesses and other users nearby. These roadways could have similar features to the major transit corridor. Their goal is to provide transit service competitive with the car, and develop adjacent land uses and intensities that promote the use of transit.

### **Roadway Design**

Environmental features and adverse effect should be considered in planning roadway facilities. The all weather circulation system for rural areas which ensures access to existing and planned development is one example of the environmental and network conditions that must be considered when designing roadways. Natural features (escarpments, arroyos, volcanic cinder cones, basalt rock, soils and topography) will continue to be a strong alignment choice determinant. Man-made features like diversion channels also require consideration in designing new facilities which traverse them. Air quality, noise pollution and visual effect on existing neighborhoods are important environmental and aesthetic questions which must be weighed when designing new roadways. New



facilities should protect neighborhoods from negative roadway design while providing amenities such as safe road crossings and parallel paths which facilitate non-motorized travel.

### **Bicyclists and Pedestrians**

Bicycling and walking have become increasingly important transportation modes because trips can be made with no environmental degradation and the modes are supported by generally smaller investments. The choice to bicycle or walk is influenced by travel distance, traffic safety, weather, topography, convenience, costs, valuation of time and exercise, physical condition, family circumstances, habits, attitudes/values, and peer group acceptance. Other factors which influence a person’s decision to bicycle or walk and for which the city has control are the presence of bicycle facilities, traffic conditions, and access and linkage to destinations. The most common reasons given why an individual does not bicycle or walk is the lack of safe, direct, and interconnected facilities. The interconnection of bicycle and pedestrian facilities to transit service expands the opportunity to travel further distances for bicyclists and pedestrians.

Figure 26: Long Range Bikeway System



Figure 27: How moderate intensity mixed land uses can transform an area.



In 1998, the bikeway system identified 200 miles of existing (unmarked, on-street) bike routes and 45 miles of existing (marked, on-street) bike lanes. The Comprehensive Bike Plan proposes reducing bike routes on arterials in favor of safer facilities. In most cases, existing routes are upgraded to bike lanes when adequate right-of-way or curb-to-curb width is available. Other bike lanes are lanes placed on minor arterials and collectors which typically have lower traffic volumes and speeds. Bike routes will primarily be located on local, residential streets (low volume) when other streets are less safe and attractive.

Of critical importance to the Bike Plan is elimination of travel barriers. To this end, the Plan maintains all river crossings and seeks to obtain crossings of the two interstates. River crossings are few (9) and the distant spacing between them does not allow any one river crossing to be a substitute route for another. An even more challenging barrier occurs for east/west travel across I-25. The width of the highway includes frontage roads which limits options for overcrossing the Interstate, and opportunities to cross under the Interstate are limited by congested intersections. In contrast, north/south travel across I-40 east of the Big “I” is facilitated with five overcrossings, and crossing west of the Big “I” can be incorporated into the existing at-grade intersections.

Figure 28: Marked bike lanes are safer and therefore more attractive to riders.



A comprehensive and integrated pedestrian plan, providing regional guidance on pedestrian facilities, is yet to be completed for the Albuquerque/Bernalillo County area. At the city level, policy on pedestrians is stated in many planning documents. Some of the critical elements are pedestrianism within and to centers, pedestrian connections between adjacent parcels, neighborhoods, and the arterial streets, and compliance with ADA

(Americans with Disabilities Act) Standards for sidewalk design and pedestrian access.

**Land Use**

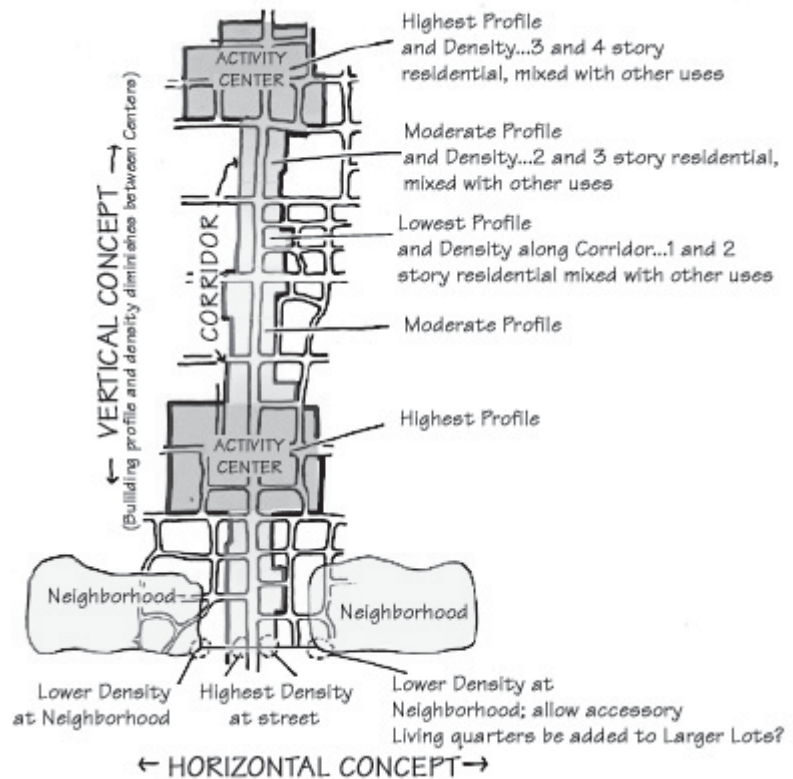
Internal circulation is closely associated with the location and design of land uses that generate the need for movement. Reducing the need to travel by automobile and reducing trip lengths are as important as providing transportation facilities that meet area needs. Altering the placement and mix of land uses can make alternatives to private automobile travel feasible. Mixed land use, for example, congregates several different activities at one location, facilitating work, leisure, and shopping functions without driving. Not everyone will live close to where they work, or shop close to where they live, but the option should be available.

Density of housing and intensity of non-residential development should be highest where corridors coincide with designated activity centers. Between seven and twelve dwelling units per net acre is necessary to support frequent bus service. Density and intensity should, generally speaking, also be highest at or near the street/corridor, and diminish as the adjacent residential neighborhoods are encountered. Successfully developed Activity Centers and linking corridors with mixed residential and non-residential uses offer an alternative to sprawl, creating more life - style choices and a more sustainable city in the process. With cooperation among local government, the private sector, and consumers, 15,000 to 20,000 housing units could be added by 2025 within the Activity Centers and the transit corridors shown on Figure 20.

**Planning Coordination**

The Middle Rio Grande Council of Governments’ (MRGCOG) Urban Transportation Policy Board (UTPPB), composed of elected officials from the City, the County and other local governments and agencies in the region, is responsible for setting regional transportation policy. By contrast, land use planning and zoning decisions fall under the jurisdiction of the respective local government, be it the City of Albuquerque, Bernalillo County, Corrales or Tijeras. The current urban form has evolved based upon the desires and policies of the past. The Activity Centers and transportation corridors policy concept seeks to promote a more compact built environment with areas of greater population and mix of uses, that increases opportunities for transit, bicycle, and walking. Early coordination is essential to properly planning multi-modal transportation systems for this changed pattern of growth. These coordinating efforts also need to incorporate such concepts as carpooling/vanpooling, Intelligent Transportation Systems (ITS), and Transportation Demand Management (TDM).

Figure 29: A general concept for distribution of land use intensity in a transit corridor linking two activity centers.



## 5. HOUSING

The city’s livability is reflected by the quantity, quality, variety, and accessibility of its housing stock.

### Market

The Metropolitan Statistical Area’s three counties comprise the Albuquerque Housing Market. The center of this market is Bernalillo County; the City is it’s core.

### Inventory

The quality of housing, of course, is directly related to the size of the city’s population. As the size of the city’s population greatly increased since 1950, so did the quantity of housing.

Housing inventory growth has been greater than population growth. The housing unit increase between 1970 and 1980 was almost double the City and County population growth. Smaller household size accounted for most change, declining from 3.17 persons per household in 1970 to 2.65 persons per household in 1980.

Between 1970 and 1980 Albuquerque’s housing inventory grew from 78,825 dwelling units to 132,788 dwelling units, a 69 percent increase. The area’s relatively new housing stock exceeded population growth by 4 percent. The 1980 Census indicated 41 percent of the City’s housing structures had been built in the previous ten years.

The supply of Albuquerque’s housing stock is a good measure of how well the population lives today.

### Demand

*Table 14 Housing Supply, Density, and Tenure, 2000*

	<b>Housing Units</b>	<b>Density Housing Sq. Mi.</b>	<b>Total Occupied Housing Units</b>	<b>Owner Occupied</b>	<b>Renter Occupied</b>
New Mexico	780,579	6.42	677,971	474,445	203,526
Bernalillo County	239,074	204.57	220,936	140,634	80,302
Albuquerque	198,465	1094.80	183,236	110,606	72,630
Corrales - Bernalillo County	273	155.58	267	229	38
Los Ranchos de Albuquerque	2,107	516.12	1,997	1,649	348
Tijeras	210	247.90	191	145	46

*Source: Bureau of the Census, 2000 Census of Population and Housing*

While the general extent of housing demand is also shaped by the population’s size and composition, housing demand is shaped by the is the relationship between income (family or household) and housing cost (rental or purchase). Albuquerque has a long standing difference between family income levels and housing costs.

Table 15: Projected Housing Demand, Bernalillo County, 2000/2025

<b>Year</b>	<b>Single Family</b>	<b>Multi-Family Units</b>	<b>Percent Multi-Family</b>	<b>Total Units</b>
2000	173,990	65,084	27.22	239,074
2005	189,300	67,573	26.31	256,873
2010	204,679	71,999	26.02	276,678
2015	216,883	77,607	26.35	294,490
2020	227,228	84,617	27.13	311,905
2025	235,894	92,873	28.25	328,767

Source: 2025 Socioeconomic Forecasts for the Mid-Region of New Mexico, 5-03-01.  
MRCOG, 2003

The City coordinates Federal assistance for housing: rehabilitation, public housing, and rent subsidies. The City also owns and manages over 1,000 public housing units and it supports another 2,000 units through the Federal rent subsidy program. The number of families eligible for rental assistance far exceeds current resources. Regardless of demand, Federal housing assistance continues to decline, challenging local government to devise innovative solutions. Rental or sale incentives to developers willing to provide low cost housing is an example of a potential solution to the affordable housing question. Adequate housing for the entire population is an outcome of maintaining a balanced housing market to accommodate the population’s varied wants and needs.

## 6. ECONOMIC DEVELOPMENT

Albuquerque’s dynamic post World War Two expansion would not have been possible without a strong economy capable of providing economic opportunity for its citizens. Today, the urban economy extends into two adjacent counties comprising the metropolitan statistical area. Opportunity, as a quality of the city, is directly related to many features of the city’s economy.

### Economic Structure

The City’s economy is structured by broad types of economic activities (sectors) defined as Basic and Non-Basic economic activities. Basic economic activities are Agriculture; Construction and Mining; Manufacturing; Transportation, Communications, and Utilities; Wholesale Trade; and Military. Non-Basic economic sectors (local population serving) are Retail Trade; Finance, Insurance, and Real Estate Services; and Government.

The composition of Albuquerque’s economy historically has been weighted toward the Non-basic sectors, softening the local adverse effects of national economic downturns. The relative position between the Basic and Non-Basic groups of sectors in 2000 is unchanged since the 1988 adoption of this Plan which used 1980 as a base year. Some individual sectors, though, are more (or less) significant than they were in 1980, measured by employment in them.

Table 16: *Percentage of Non-Agricultural Wage and Salary Employment, Bernalillo County*

Year	Manufacturing	Mining	Construction	Transportation; Public Utility	Wholesale Trade	Retail Trade	F.I.R.E.	Services	Government
1980	9.4%	0.1%	6.9%	6.3%	NA	NA	5.8%	23.2%	
1990	8.6%	NA	5.2%	5.0%	5.7%	19.0%	5.7%	30.6%	20.0%
2000	6.6%	0.0%	6.7%	5.5%	5.3%	19.1%	5.5%	33.9%	17.3%

A major dimension of the city’s economy is current employment.

Table 17: *Bernalillo County Employment, 2000*

Armed Forces	Agricultural Jobs	Non-Agricultural Jobs	Non-Agricultural Self Employment	Non-Agricultural Unpaid Workers	Total Employment
6,937	1,229	317,943	18,117	685	344,911

**Economic Development**

The City’s current economic development policy (1987) proposes creation of a Favorable Business Climate.

By assessing the difficult growth-related choices that face a rapidly developing community, Albuquerque can fortify and strengthen its local economy.

Industrial development is encouraged in areas with existing City facilities. However, lower land costs on the City’s fringe attracts industrial development even though it absorbs infrastructure costs. Peripheral industrial development which is not consistent with the Comprehensive Plan suggests the need for improved locational standards for new industrial businesses.

A crucial quality growth ingredient is the conservation and revitalization of developed areas and the infill of vacant developable land in addition to new development on the City’s fringe. Market expansion and diversification is promoted by coordinating the location of new development. This requires analyzing each site’s respective benefits whether its for preservation, redevelopment, infill development, suburban or rural development. Although each responds to a separate market, they must be beneficial in the context of the Plan. This ensures variety and choice in both urban form and the local economy.

Aside from the growing employment base, and the convergence of all intercity modes of transport, Albuquerque’s assets include a desirable climate, a clean environment, an attractive setting, a distinct cultural mix, and a citizenry committed to preserving the city’s heritage and assets. Just as a private corporation protects its assets, local government as a municipal corporation has the responsibility to protect the asset base which makes the area a desirable place to live. Planning will provide the “shareholding” taxpayers a means to ensure a satisfactory return on the public’s investment.

Projected increases in employment is associated with economic expansion; the distribution of employment by economic sector identifies the direction of the economy’s development.

*Table 18: Projected Bernalillo County Employment by Sector, 2000/2025*

<b>Sector</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>Agriculture</b>	3,305	2,997	2,826	2,743	2,658	2,573
<b>Construction</b>	22,427	22,737	22,789	22,176	25,045	22,212
<b>Manufacturing</b>	21,436	22,308	21,963	22,460	23,630	24,553
<b>T.C.U.</b>	18,691	20,251	21,565	21,941	22,077	22,011
<b>Wholesale Trade</b>	16,483	16,528	16,323	16,415	16,322	15,977
<b>Retail Trade</b>	61,964	67,163	71,258	73,455	75,451	77,444
<b>F.I.R.E.</b>	22,192	24,656	26,308	27,220	27,919	28,550
<b>Services</b>	111,734	124,538	140,506	153,527	166,475	179,401
<b>Government</b>	59,664	64,134	71,586	77,145	81,376	85,349
<b>Military</b>	7,015	6,804	7,439	7,840	8,168	8,510
<b>Total</b>	344,911	371,846	402,563	425,102	446,121	466,580

*Source: 2025 Socioeconomic Forecasts for the Mid-Region of New Mexico, 5-03-01. MRGCOG, 2003*

## 7. EDUCATION

The availability of educational opportunities and the location of the facilities which provide them are major contributors to building a good city. Opportunity to lead a good life depends on access to education, educational opportunity, in turn, is the foundation for life-long learning.

### Educational Attainment of the Population

Formal educational attainment has steadily increased, a measure of general well-being and an asset for economic development. The percentage of Bernalillo County's total population over 25 years old with a high school education has steadily increased; it is somewhat higher in the City. (Appendix D)

Table 19: Projected Percent of High School Graduates, 25 Years and Older

	1970	1980	1990	2000
County total	66.2	76.5	82.1	84.4
City	71	79	84	86

### The Public School District

The Albuquerque Public Schools district was formed in 1949, the consolidation of separate City and County districts. It is one of the largest in the United States, serving Albuquerque, unincorporated Bernalillo County, Corrales, Tijeras, Los Ranchos de Albuquerque, and Kirtland Air Force Base\*.

The number of "school age" (6-18) persons in the total population is the primary factor in the organization and provision of educational opportunities. The District has been greatly affected by Bernalillo County's post World War Two population growth.

Table 20: School District Enrollment relative to County Population

	1950	1960	1970	1980	1990	2000
County Population	145,673	262,199	314,774	420,262	480,577	556,768
District Enrollment	21,235	56,161	84,362	78,660	88,112	85,039

The District's planning concept organizes its 74 elementary and 23 middle schools in clusters around its 11 comprehensive high schools. Six special schools also offer alternative educational programs to students with special needs. Two additional high schools will be opened by 2010 west of the Rio Grande to relieve over crowding of the two high schools there.

\*A separate district was established in 1994 to serve the City of Rio Rancho.



Capital investment in educational facilities best occurs when there is sustained consensus between the School District and local governments about the growth and form of the city. Population growth is the source of increased student enrollment. The city’s population requires suitable housing in locations accessible to schools to accommodate households with school-aged children. The spatial distribution of the population across the city may (and has) exceed design capacity of schools on the city’s edge while schools are closed in the more mature parts of the city.

Education in the arts is highly valued by the city’s residents. A plan for the arts was developed for the city (1992-1994) proposing to increase arts and cultural activities through the school district’s classrooms. The City’s Cultural Plan is intended to support the School District’s Fine Arts Plan.

In 1995 the City adopted the Cultural Plan, containing specific policies for art education. The plan was not incorporated into the Comprehensive Plan at that time.

In 2002 the City adopted an updated Cultural Plan and two assorted Comprehensive Plan amendments. The Cultural Plan (2002) contains specific policies for art education throughout Albuquerque. This Plan references the Cultural Plan (2002) in this Section (I) and incorporates two additional policies in Section (II), Cultural Traditions and the Arts and Education. The Cultural Plan is also used as a stand alone document of goals and policies regarding cultural and art education involvement and funding.

**Post Secondary Education**

Albuquerque is the state’s center for post-secondary education.

Vocational education and skill development are provided by the Albuquerque Technical-Vocational Institute (T-VI), Southwestern Indian Polytechnical Institute (SIPI). The Technical Vocational Institute, established in 1965, serves about 20,000 in three campus sites.

Several colleges and universities offer classes and degrees in the city as extensions from their home campuses. The Technical Vocational Institute’s Community College Division also offers Associate Degrees. These programs compliment the University of New Mexico, the states largest and most diversified university with eight undergraduate schools and colleges, the graduate school, law school, and medical school. It’s growth has been independent of that of the city.

The University is a major physical feature in the city. The campus, two miles east of Downtown, and twelve miles west of the mountains, extends over 769 acres in three large tracts. It identifies them as the north, main, and south campus areas; the latter (275 acres) is close but not contiguous to the other two which total 494 acres.

This Plan (1988 as subsequently amended) designates the University Campus a Major Activity Center; it is adjacent to several Transportation Corridors. The University’s 1996 Campus Development Plan is based on a projected enrollment of 35,000 students by 2040 requiring an additional 4.9 million square feet of building space. Much of this will probably be developed on a fourth campus area, between I-25, University Boulevard, Lomas Boulevard, and Indian School Road.

*Table 21: University of New Mexico Growth*

	<b>1960</b>	<b>1994</b>
Enrollment	5,000	25,000
Gross Sq. Ft. (millions)	2.1	6.8

Source: University Campus Development Plan, 1996

The primary planning opportunity associated with University’s expansion is strengthening the positive interactions between it and the surrounding area.

## **8. HUMAN SERVICES**

The City Department of Family and Community Services provides support to the high priority human service needs for disadvantaged. The City also coordinates private and non-profit efforts to supply human services to qualifying residents and as liaison with outside organizations.

Three neighborhood multi-service centers provide residents a broad range of community services. Other City supported programs include employment and youth training, senior citizen services, human rights assistance, public and subsidized housing, and community development assistance.

The City periodically assesses human service needs, developing effective approaches to serve area-wide necessities.

The County also provides a variety of health and social services needs to both City and County residents. The County Health Department operates clinics for immunization, chest, blood pressure check, venereal disease and well child programs. That Department also administers birth and death certificates.

The County Housing Department operates two housing projects on El Centro Familiar SW, (a 21-unit handicap facility) and a 40-unit housing complex for the elderly. In addition the County administers 22 vouchers and 454 certificates for Section 8 housing program participants.

The County also operates the Juvenile Detention Facility on Edith Boulevard NE.

## **9. PUBLIC SAFETY**

The City's livability is partially reflected in safety from hazards and in a sense of security for persons and property.

### **Fire Protection**

The Albuquerque Fire Department has 500 fire fighters based at eighteen fire stations, a maintenance facility, a training academy, and an arson laboratory. The City's 1984 per capita fire loss was \$16.32, a figure below both the national (\$30.50) and western regional (\$25.70) averages. Each of the nine fire stations have an emergency rescue unit composed of three paramedics. The Albuquerque Ambulance Service provides emergency medical services to accident victims. The department has maintained a four minute emergency response time for the Fire Suppression and Paramedic Divisions since 1983.

Fire suppression responses are directly related to successful fire prevention techniques.

The Bernalillo County Fire Department has 11 independent fire districts, each with a volunteer chief. Each volunteer chief reports to the permanent chief who serves at the discretion of the Bernalillo County Commission. The Department operates two paramedic units in the north and south valley which are staffed 24 hours a day. The County Fire Department responded to 5173 rescue calls and 2426 fires last year. The south valley made up 60% of the call load.

The County Fire Department has a largely unpaid staff. Volunteers comprise over 85% of the force. This has raised issues regarding training of volunteers, which varies by district; fire insurance rates, which are determined in part by personnel; and staffing of districts in rapidly growing areas where too few people volunteer.

### **Police Protection**

Crime has become a concern of Albuquerque residents. A steady increase in crime occurred from 1978 to 1984 including home burglary, auto burglary, auto theft, and robbery.

The Albuquerque Police Department had 683 sworn police officers, 375 civilian employees, and 38 cadets in 1986. Three substations supplement the central police station. New technology and more human resources will enable the City to provide more efficient service.

The Bernalillo County Sheriff's Department has about 200 sworn officers and 200 civilian employees. The Department has a substation in the East Mountain area, and on Broadway SE. The Department also has a contract with the Village of Los Ranchos for provision of police services and operates a station at the Village Hall on Rio Grande Boulevard NW.

### **Prevention**

Public safety is a shared community responsibility. Educational programs directed at school age children and the general public will increase awareness of crime and fire prevention. Neighborhood Crime Watch programs is an example of a successful crime prevention measure. The design of new structures can also take fire safety and crime prevention into account, by incorporating "defensible space" into site and building plans.