



COMMUNITY MASTER PLAN

LEVEL A PLAN : JUNE 2005

Submitted by:
Forest City Covington New Mexico, LLC
Albuquerque

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MESA DEL SOL
ALBUQUERQUE SOUTH MESA

**ADDENDUM to the
MESA DEL SOL LEVEL A COMMUNITY MASTER PLAN
PROJECT # 1004260**

The Mesa Del Sol Level A Community Master Plan ("the Plan") was heard by the Environmental Planning Commission on August 13 and October 13, 2005 and approved by the City Council on January 18, 2006. In the course of review and approval certain questions arose, and certain modifications made that warrant being documented in writing. This Addendum is hereby made part of the Plan for the purpose of addressing these issues:

ACREAGE: Acreages of uses throughout the project area are referred to on pages ii and iii and in sections 1.2.1 and 1.2.2, and sometimes vary slightly from each other. For clarity, the following breakdown of acreages throughout the project at time of approval is submitted:

State Land Office Lease to FCC:	8792 acres
University of New Mexico:	480 acres
Private In-Holdings (6x40):	240 acres
New Mexico NHRA (drag strip):	160 acres
County Recreational Complex:	634 acres
La Semilla Preserve:	2687 acres
Total:	12993 acres

SIZE OF EMPLOYMENT CENTER: The Plan variously notes the size of the employment center as being 10% of the acreage, or alternately as 1400 acres. Neither the percentage or the acreage is exact, or fixed, and may vary during refinement of the Plan through the Level B and Level C processes.

USES IN EMPLOYMENT CENTER: Section 1.2.1 gives a limited description of the uses allowed in the employment center, which is further clarified and expanded in the Zoning Matrix Table 7.1 on page 74. Note that for allocation of land uses the words "district" and "center" are used interchangeably.

OPEN SPACE: The Plan makes reference on page ii and in sections 1.2.2, 2.2, and 2.2.6 to the dedication of major public open space. This will be done as part of platting procedures as individual Level C plans are approved, and will be subject to the reservation of corridors for transportation, utilities, drainage and the like. After dedication, procedures for extraordinary use of open space as defined in Section 14-13-3-7 of the Code of Ordinances will be employed. Major Public Open Space is a permissive use in all Districts defined in the Level A Plan.

STATUS OF LA SEMILLA: Various references (page iii, 2.1.3, 2.2, 2.2.6, and notably 4.2.2) describe how the area known as La Semilla is to be accounted for as part of the Open Space system. La Semilla is owned by the State Commissioner of Public Lands and not included within Forest City Covington's ("FCC's) Development Lease. The Land Commissioner has not consented to the inclusion of La Semilla in the Plan. Therefore FCC has withdrawn La Semilla from the Plan; all references to La Semilla should be taken as informational only. The Commissioner has agreed that La Semilla can be used for the purpose of transferring development rights for 8061 units (2687 acres x 3 DU/acre) into the developable portion of the Plan.

SIZE OF LEVEL B PLANS: While the Planned Community Criteria and the Level A Plan itself suggest an area of 650 to 1200 acres for Level B planning, nothing about the Criteria or the Plan preclude larger or smaller areas from being considered and approved.

STATUS OF LEVEL A DEVELOPMENT AGREEMENT: The Level A Development Agreement was approved by Council Resolution on January 18, 2006, executed by the City on February 12, 2006, and filed in the real estate records of Bernalillo County on March 21, 2006 in Book A-113, page 9604 as Document Number 2006039738.

HIGH SECURITY AREA: Reference is made in Section 1.2.1 of the Level A Plan to a "high security area" but this area does not appear on the Level A map. It is to be located in the far northeast area of the Employment District, most proximate to the south gate of Kirtland Air Force Base. If developed prior to the extension of roads internal to Mesa Del Sol, access will be taken from Los Picaros Road.

OVERALL PROJECT PHASING: The phasing descriptions on page 23, and the Phasing Map shown on page 24 generally remain valid. Phasing will actually follow the "takedown" of properties from the State Land Office. The lands actually bought at the takedown stage will become the first phase of the project and are the subject of this first Level B Plan. This area includes land both on the mesa-top and below the western escarpment in what are marked Phases I, II, and III. In general all but the two large blocks marked "Phase II" and "Phase III" south of Mesa Del Sol Boulevard will be included in the first phase. The UNM campuses and approximately two-thirds of the Employment District are not included in the first Phase.

TRANSPORTATION:

In their comments to the Planning Commission, the Department of Municipal Development (DMD) staff asked for refinement of the "comprehensive transportation system plan [including] studies supporting the plan". It was further requested that the applicant "specify land use proposals in terms of timing, location, quantity and types as assumptions underlying the travel demand estimates". The applicant did perform additional studies in response to DMD staff concerns to the satisfaction of the staff.

ALIGNMENT OF UNIVERSITY BOULEVARD: All the maps contained in the approved Plan and its associated Technical Appendices are based on aligning University Boulevard on a southeast axis prior to its entering Mesa Del Sol. Due to legal considerations this alignment has been modified to a north-south alignment along the east edge of the County Recreational Complex utilizing portions of the existing County Roadway. This modified alignment has also prompted concomitant adjustments to the orientation and specific location of land uses, but does not affect the acreages allocated to each land use district in Table 2.1. Ultimately it may prove preferable to move the road back to the mapped alignment. As with any master plan, minor adjustments are a time-to-time necessity of the planning process.

CLARIFICATION OF TABLE 2.1: This table represents only the developable acreages of each of the land use districts exclusive of major public open space, which category includes the County Rec Complex, La Semilla, and the Major Open Space areas labelled "escarpment". However, the overall number of units (37,500) is calculated on the 3 DU/acre density limitation of the "Reserve" area of the Comprehensive Plan applied to the gross acreage, thereby creating a Transfer of Development Right. Adjustment to the allocated acreage or use of any land use district in excess of a few percent is not anticipated. Note also that potential dormitory units on the campus lands are not listed in the table and, like accessory uses, are not factored into density calculations.

CORRECTION OF SECTION 2.3.1: The source of the parking reductions mentioned here is the Comprehensive Plan (Table II-83), not the City Zoning Code. Other "shared parking" and "mandatory reduction" policies of the Comprehensive Plan.

CLARIFICATION OF TABLE 7.1: This table outlines the comparable sections of the Comprehensive City Zoning Code that would be permissive in the various land use districts. There are, however, other specific land uses, such as fire and police stations and major public open space, that are generally allowed only in the SU-1 zone. Since these uses and others are discussed in the text of the Plan and are necessary to the development of a sustainable community, they are hereby incorporated in to the Plan as permissive uses. The same applies to certain "conditional" uses of the various zones - some are necessary to the development of a sustainable community, and some, like batch plants, should be allowed to be placed within Mesa Del Sol if only to avoid deleterious impacts of having such uses located off-site near other neighborhoods. These uses, at the discretion of the Planning Director, are also permissive within the area encompassed by the Plan.

CLARIFICATION OF TABLE 7.3: Where not otherwise specified, the parking requirements of the Comprehensive City Zoning Code or Table II-83 of the Comprehensive Plan shall serve as a norm.

- end of technical clarifications -

RESPONSE TO EPC CONDITIONS: Attached as Exhibit 1 is the complete text of a letter submitted to the City Council in response to the conditions imposed by the Environmental Planning Commission at their hearing on October 13, 2005.

ADDITIONAL MATERIALS REQUESTED BY COUNCIL: The following material is reiterated from the Mesa Del Sol Level B TIDD Agreement; its insertion has been requested by the City Council's TIDD Board:

A. Public School Facilities: Subject to approval of the school district the location and characteristics of public school facilities expected to be created, improved, rehabilitated or constructed within the Project, shall meet the following criteria:

Public schools are important centers of community life. Nearly all schools will be located near open space corridors, providing opportunities for environmental education, multi-purpose fields (park and school), as well as convenient and pleasant off-street pedestrian and bicycle access routes to schools. The anticipated school needs for the first Level "B" Plan Area (±3,082 acres) are three elementary schools, one middle school, and one high school, which may be a combined middle school/high school. Mesa Del Sol will dedicate the land for these public school facilities improved with infrastructure as would typically be provided for by a developer delivering a delivered "pad site", and additionally contribute \$3,000 per residential home or \$1,800 per multi-family dwelling unit dedicated to capital improvements for schools within the Project.

B. Transit Objectives. Mesa Del Sol is planned as a community where people can meet their daily needs in one location. Housing is located close to jobs and services and a "park once" strategy is pursued. This strategy involves locating retail uses, higher-density housing, transit, and public facilities in walkable, mixed-use centers that are easy to reach by car, transit, and bicycle, and easy to walk around in once there.

The transportation systems planned for Mesa Del Sol consist of facilities for vehicles, mass transit, pedestrian and bicycles. All of these modes of travel are considered to be integral to the truly multi-modal transportation system proposed within the Level "B" planning area of the greater Mesa Del Sol.

Mesa Del Sol is planned as a transit-oriented development, with sufficient right-of-way on major boulevards as identified in the first Level "B" Plan and to be further identified in future Level "B" Plans, to include dedicated transit ways that will provide the framework of a future mass transit system. Sufficient rights-of-way will be dedicated for managed lanes to facilitate higher than SOV traffic, including HOV/bus lanes, queue jumpers, or fixed-guide-way transit systems.

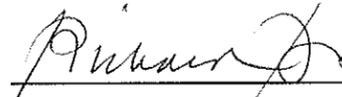
Mesa Del Sol transit service is likely to begin with bus service extensions from adjacent areas of the City's ABQ Ride system, and from the Bernalillo County/International Sunport Rail Runner Station.

It is anticipated that initially, transit service to Mesa Del Sol shall include low intensity scheduled route service, such as extending the current ABQ Ride Route 50 down University into Mesa Del Sol. As Mesa Del Sol development continues, additional scheduled route services will be added. Initial transit services shall also include a shuttle service to the Rail Runner station at Rio Bravo Boulevard. As employment and population increase, transit service will increase in intensity to include commuter bus service during the AM and PM peaks, culminating in full day service with appropriate headways.

Transit service will include either direct service to or service to the most direct transfer points for transit connections to other locations in the metropolitan area. The City and Mesa Del Sol will work with the Mid Region Transit District regarding regional transit services to Mesa Del Sol. Transit operations shall be provided by the City, at its expense, subject to the cost of such service being included within the No Net Expense analysis as provided herein.

- end of City Council additions -
- end of Addendum -

This Addendum is hereby accepted and the Level A Master Plan for Mesa Del Sol (Project #1004260) is hereby deemed complete and approved:


Richard Dineen AIA
Planning Director
City of Albuquerque

12/04/07
Date

DK
DENISH + KLINE ASSOCIATES

January 17, 2006

Mr. Martin Heinrich, District 6, President,
and,
Mr. Isaac Benton, Councillor, District 3
City Council of the City of Albuquerque
PO Box 1293
Albuquerque NM 87103

HAND-DELIVERED

re: Mesa Del Sol Level A Master Plan
Response to Conditions

Messieurs Heinrich and Benton:

In recommending the Level A Master Plan for Mesa Del Sol to the City Council for adoption, the Environmental Planning Commission attached nine conditions. The purpose of this letter is to address those conditions to the extent possible given that discussions with many of the agencies in question are on-going.

The Conditions are presented in order:

Condition #1: Address City Engineer/DMD comments; provide more clarification and detail regarding transportation and roadway standards.

The applicant asserts that all questions (starting on page 12 of the Council package) regarding cross sections, sight triangles, bike lanes, and other geometrical issues have been answered to the satisfaction of the City Engineer. With regard to Hydrology comments: the required certifications were made in the approval of the first Site Plan for Building Permit (Advent Solar) and the required letter from the State Engineer's office has been submitted to the Hydrologist

Exhibit 1
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Reply: Written comments from Kirtland Air Force Base were entered into the record at the Environmental Planning Commission of October 13 (page 101 of the Council package); no written reply has ever been made, and discussions with the Base Commander and Installation Engineer and other personnel are ongoing.

The applicant is sensitive to the light-pollution concerns in regard to the Starfire Optical Range. Managers of the Range had provided the applicant with a draft protocol for lighting, which has been reviewed by the applicant's electrical consultants, and we feel hopeful a protocol can be written that will satisfy the Range's needs as well as the lighting needs of the populace of Mesa Del Sol. A draft of a Lighting Master Plan was provided by the applicant to KAFB and SOR at a meeting on January 4, 2006, and discussions are expected to continue with the understanding that a Lighting Master Plan would be adopted at Level B.

Regarding overflights for any purpose: Throughout the 20 year history of Mesa Del Sol, the Base Commander has always been fully briefed. The applicant has always felt the Base could continue its missions over federal lands with little inconvenience. The applicant will provide a comprehensive disclosure document to all tenants and buyers of land of the proximity of the Base and airport and the existence of aerial and other activities which may have adverse impacts including reference to current testing activities in La Semilla.

Unexploded Ordinance: The USA Corp of Engineers, in an ongoing government program, has contracted with a local engineering company to formally study the issue. Their draft report just issued reveals no evidence of UXO's at Mesa Del Sol; their report is anticipated to be received early this summer. It should be noted that during Phase I environmental and Class II archaeological pedestrian surveys no such ordinance was observed.

Condition #5: Continue to address comments from the Pueblo of Isleta and work with the Pueblo government to resolve potential concerns.

Reply: Written comments were submitted by the Pueblo on September 28, 2005 (Council Packet pages 79-91 inclusive). A letter in response to those comments was submitted to the Planning Department on October 11, 2005 (Council Packet page 103).

Further discussions have been held since the Planning Commission hearings. A modified open-space buffer design is being promulgated for the south boundary which, while not as wide as originally requested, has been designed in a manner more consistent with the cultural interests of the Pueblo. As of this writing it is not known whether such a solution will be satisfactory. It is our understanding that the Pueblo is now in general agreement with the land uses proposed on the MDS western boundary.

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Condition #7: Create a plan for archeological field survey, possibly in conjunction with future Level B planning efforts (Planned Communities Criteria, Submittal Requirements, C.4)

Reply: A "Class I Literature Survey Report" starts on page 92 of the Council package; a Class 2 survey named "Island in the Sun: Mesa Del Sol Sample Survey" performed by the UNM Office of Contract Archeology in 1989 also exists but was not made part of the record. The applicant asserts that specific surveys will be made, and mitigations will be performed, in association with every Level C building permit. The exact methodology will be developed during the Level B process.

Condition #8: Address all PNM comments and concerns.

PNM issued two sets of comments during the EPC process; they are recorded in the Council package beginning on page 21. The applicant has no objections to the comments made on August 11, and the applicant's electrical consultant is working closely with PNM to develop a plan for service provision.

The applicant is less sanguine concerning the comments received for the October 13 hearing which amount to allowing the placement of electrical utilities to dictate urban design. While the applicant continues to negotiate with PNM regarding these issues, we are not hopeful of a speedy resolution.

Condition #9: The plan shall include a requirement that all construction be Night Sky compliant.

Reply: The applicant commits to compliance with all State and City regulations regarding "Night Sky" in addition to and in the framework of the standards being developed in cooperation with Kirtland Air Force Base.

Sincerely yours,

Lawrence Kline FAICP

cc: All Councillors
Ms. Laura Mason Esq.
Mr. Mike Daley

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Condition #2: Refine the comprehensive transportation system plan and include studies supporting the plan. Specify land use proposal in terms of timing, location, quantity, and type as assumptions underlying the travel demand estimates (Planned Communities Criteria, Submittal Requirements, B.1)

Reply: These comments have been the subject of considerable study since the EPC hearing and a draft revision of the Transportation Section of the Mesa Del Sol Level A Technical Appendix was submitted to the Transportation Development Division on Tuesday January 10. Among the actions taken in the revision:

- Modified or added points of connection to the surface street system at west boundary
- Expanded connection into Kirtland Air Force Base from the south
- Changed and re-modelled some Functional Road Classifications
- Re-modelled the "built-out scenario" resulting in the addition of roadway capacity connecting the Mesa Del Sol transportation network with the off-site transportation network including an interchange at Bobby Foster Road
- Studied a different configuration for University Boulevard where it enters Mesa Del Sol, providing three alternative means
- Established a modified phasing plan

It should be noted that all modelling for this project has been done using MRCOG's Travel Demand Model and are therefore consistent with modelling done throughout the City. The applicant has agreed with staff, as provided in the draft development agreement, that the transportation plan will be refined and agreed upon within six months of Level A Plan approval.

The applicant would like to re-emphasize that new-urbanist principles of jobs-housing balance are foremost in the Plan as evidenced by the fact that the first buildings constructed will be for employment, with housing to follow. Thus, Mesa Del Sol should not "export" as many vehicle trips as predicted by conventional models.

Condition #3: ABCWUA comments: A development agreement between the applicant and the ABCWUA is needed, as well as an expansion of the service area to serve Mesa Del Sol.

On December 21, 2005, the Water Utility Authority expanded the service area to include the Advent Solar site. A draft development agreement is under discussion, and will be entered into prior to Level B Plan approvals.

Condition #4: Comments from KAFB dated October 13 2005 have been received. A Level A Master Plan should address noise generated by military aircraft and other base activities, including unexploded ordinance that may affect or be affected by development of this Planned Community.

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As to the southern access, the Pueblo's land use consultant has confirmed that it is indeed in place. Research is on-going however and if it is subsequently determined that access rights do not exist at this location this issue may have to be reopened; however since development in the area is in a fairly remote future, this issue is not of immediate concern.

A hearing has been held with the Water utility Authority resulting in the extension of the service area to the first phase of construction. While a "water development agreement" has been submitted it has not yet been accepted by the Authority. Water will be supplied to Mesa Del Sol primarily through extensions of regular city services using the San Juan/Chama Agreement as a basis; although a well-field is shown in the Level A plan, it is not within one mile of the Isleta Boundary and would probably only be used for drought conditions or pumping supplemental to the City's system. Note too that grey-water re-use is a part of the long-term plan for water utilities.

In the main, storm waters are contained within the corpus of Mesa Del Sol in a closed-system or "physa" approach which replicates the natural system. Only water from the edge of the western escarpment and below would need to be conveyed to the river in accordance with city hydrology requirements - those flows will be treated with "best management practices" already in use throughout the City to minimize pollutants. All structures conveying the storm water flows will be periodically inspected and maintained as necessary.

The foregoing is the applicant's best representation of the state of ongoing discussions with the Pueblo and is not intended to preclude or overrule in any way further discussions with our neighbors.

Condition #6: Identification of depth to groundwater and proximity to production wells; documentation of physical and legal availability, quantity and quality (existing data) (Planned Communities Criteria, Submittal Requirements, C.6)

Reply: Ground water data for Mesa Del Sol exists from several sources. The most recent data is available from well testing performed when the Journal Pavilion water well was drilled in July of 1999. The water level during that test was approximately 438 feet below ground level. The aquifer capacity at that site, based on the well test data, was estimated to be just under 16 gallons per minute per foot of drawdown. This aquifer capacity suggests a well capacity of 1600 gallons per minute or more, suggesting a moderately productive field in the vicinity of Mesa Del Sol may be available.

A piezometer test well was completed in May 1997 within Mesa Del Sol. Water quality data at that site from sampling at various depths suggests that water treatment will be required to meet the new Drinking Water Arsenic Standard of 10 milligrams per liter. The site arsenic concentrations are typical of those found in many western areas of the Metropolitan Area. Other secondary water elements were found to be in borderline compliance with water quality standards.

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Executive Summary

Mesa del Sol is a community designed for Albuquerque's southeast mesa, south of the Sunport. Mesa del Sol will be a community where history and tradition meet the 21st Century. Combining job creation and sustainable urban community planning, Mesa del Sol will reflect a balance of environmental resources, economic objectives and social amenities in a community that is forward-looking with a highly defined sense of place.

Mesa del Sol's Level A Master Plan is different from past plans submitted to the City of Albuquerque, incorporating the principles of the City of Albuquerque's Planned Growth Strategy (PGS), complying with Albuquerque's Planned Communities Criteria and incorporating the most important planning movement of the 21st Century, New Urbanism. The project, pursuant to the Planned Communities Criteria and annexation agreement with the City of Albuquerque, will be developed at no net expense to the City. The plan reflects a practical approach to growth that offers convenience, economic development and a high quality of life.



Partnership

To design, develop and build a project of the scale envisioned for Mesa del Sol requires the cooperation of partnerships and extensive teamwork. Mesa del Sol will be a true public/private partnership from its funding, design, and the actual construction of offices, public buildings, homes and schools.

The project is funded through a major investment from Forest City Covington, a joint venture between Forest City Enterprises, an 80-year-old, \$7.2 billion real estate company, and Covington Capital, a major residential and industrial developer in the Southwest.

In addition to Forest City Covington, Mesa del Sol will be developed in conjunction with other partners, including the New Mexico State Land Office, the University of New Mexico (UNM), the City of Albuquerque, Bernalillo County and the State of New Mexico.

This joint venture is populated with individuals with the national and international expertise, as well as the knowledge and financial resources, coupled with extensive knowledge of the unique assets, challenges, customs and culture of New Mexico and the Albuquerque region to transform the mesa into a modern community complete with housing, employment centers, shops, entertainment, schools, parks and civic facilities.

Because of its national reputation for excellence and long-term perspective, Forest City has attracted a host of experts in sustainable development to the project. Forest City's highly regarded character and standing also provide the necessary confidence prospective employers require to locate here. This is crucial as the project's cornerstone is job creation. It is through this future job development and growth that the entire state of New Mexico will benefit from Mesa del Sol.

Overview

This Level A Plan is the overall master plan for the Mesa del Sol community. Mesa del Sol is the 12,900-acre plateau bounded generally on the north by the Tijeras Arroyo, on the east by Kirtland Air Force Base, on the south by the Isleta Pueblo and on the west by Broadway Boulevard. Mesa del Sol is located within the area designated by the Albuquerque/Bernalillo Comprehensive Plan as the Reserve Area. The Comprehensive Plan provides that the Reserve Areas are suitable for largely self-sufficient planned communities separated from the City by major open space.

The City has adopted the Planned Community Criteria as a policy element to the Comprehensive Plan to guide the planning and development of planned communities. The



Planned Community Criteria establishes a hierarchy of plans for planned communities: a Level A Plan which is the overall community master plan, Level B Plans, which might be plans for a village, a community center, an employment center or an urban center, and Level C Plans, which are plans for subdivisions or specific site developments. Therefore, this is the first step in the Mesa del Sol community planning process.

Level B Plans will be for portions of the property ranging from 650 to 1200 acres, and Level C Plans will be for smaller portions of the property which have received Level B approval. At each more detailed level of planning, specific design, location, and development issues will be refined in accordance with the higher level plan.

Most of Mesa del Sol is held by the State Land Office in trust for the University of New Mexico and the public schools. The University of New Mexico owns 480 acres within Mesa del Sol. The easterly ±2,700 acres of Mesa del Sol have been leased to the Department of Energy for passive and open space uses to create a buffer between Kirtland Air Force Base and the Mesa del Sol community; this area is known as La Semilla. The northwesterly ±630 acres of Mesa del Sol have been leased to Bernalillo County for a regional recreational facility within which the Journal Pavilion has been developed. The remaining ±9,500 acres have been leased by the State Land Office to Forest City Covington NM, LLC, a joint venture of Forest City Enterprises, Covington Capital and the University of New Mexico.

The development lease entered into with Forest City vests Forest City with the responsibility of planning and developing the Mesa del Sol community. Pursuant to the lease, Forest City will be acquiring title to 3,000 acres of Mesa del Sol, which will be the first area developed. All of the Mesa del Sol land is included within this plan.

Although not leased to Forest City, the County Recreational Area and La Semilla will be important elements of the Mesa del Sol community. In order to begin the development of the Recreational Area with the Journal Pavilion, the City gave the Recreational Area its land use approvals in advance of the Planned Community Criteria planning process. Similarly, in order to “jump start” the development of Mesa del Sol’s employment area, Forest City has asked the City to approve the zoning for the portion of the employment area in advance of the Level A Plan approval. This portion of the Mesa del Sol is included within this Level A Plan.

Many of the goals and policies of this plan have been drawn from Forest City’s experience with its project in Denver to redevelop the property formerly housing the Stapleton Airport and from the plan prepared by the State Land Office for Mesa del Sol and presented to the City’s Environmental Planning Commission in 1998. Both of these plans, as is being carried out at Stapleton, are “New Urbanist” developments, that is, walkable, mixed-use urban developments, in contrast to the automobile-dependant suburban model.

This Level A Plan establishes the framework for further planning and for the development of the Mesa del Sol community. This plan establishes the goals and policies for the

community, which form the basis for the creation of a transportation network, a land use plan, including a hierarchy of activity centers, a parks and open space plan and plans for public facilities and utilities to serve the community.

This plan then takes the first step towards implementation of these goals by creating certain specific development standards which will regulate further planning and development of the community. These development standards include: (a) the creation of project specific land use districts, or zoning categories, tailored for Mesa del Sol, (b) the mapping of these land use districts for Mesa del Sol, and (c) the adoption of certain infrastructure technical standards applicable to development within Mesa del Sol, which include: (i) storm water management suitable for a flat plateau, and (ii) street sections, off-street parking requirements and curb radius standards suitable to a “New Urbanist” development.

This plan is supplemented by technical appendices which provide technical explanation and support of the proposed transportation plan, utilities master plan, street and intersection design and parking standards. A draft development agreement will also be submitted for review and approval by the City Council. The Planned Community Criteria requires a development agreement to be entered into which generally allocates the responsibilities for construction, operation and management of the public infrastructure, services and facilities necessary to serve the planned community.

Scale

Mesa del Sol will be designed with villages, community centers, employment centers and other features within the boundaries of the City of Albuquerque. The Mesa del Sol master plan calls for a truly mixed-use development, incorporating industrial/commercial and offices, apartments, duplexes and single-family homes. It will have supporting retailers, and of course, defined open space, including La Semilla. In addition there will be large and small parks, the Bernalillo County Recreation complex, public and private schools and a college campus. Residents will have the luxury of short, convenient trips to work, via pedestrian-friendly bicycle paths, and will also be able to enjoy the many recreational areas and open spaces at Mesa del Sol.

Mesa del Sol will balance land use with infrastructure coordination in its creation of a sustainable community. It will be developed to maintain high air quality standards. The overall plans are to minimize vehicle traffic congestion while promoting transit-friendliness. The villages will feature housing diversity in a variety of price ranges.

Mesa del Sol will be structured as a series of villages and neighborhoods, each with an identifiable center and edge. Designated areas along I-25 and adjacent to the Tijeras Arroyo will accommodate a variety of types of employment along with supporting uses. Mixed-use centers will provide shopping, civic uses, higher-density forms of housing and public gathering spaces at highly accessible areas in the transportation system.

Mesa del Sol will be designed with villages, community centers, employment centers and other features within the boundaries of the City of Albuquerque. The Mesa del Sol master plan calls for a truly mixed-use development, incorporating industrial/commercial and offices, apartments, duplexes and single-family homes. It will have supporting retailers, and of course, defined open space, including La Semilla, an open space buffer. In addition there will be large and small parks, the Bernalillo County Recreation complex, public and private schools and a college campus. Residents will have the luxury of short, convenient trips to work, via pedestrian-friendly bicycle paths, and will also be able to enjoy the many recreational areas and open spaces at Mesa del Sol.



Mesa del Sol's location is a distinct advantage in the highly competitive national economic development arena. The Albuquerque International Airport's five-minute drive from Mesa del Sol holds appeal for firms interested in relocating to Albuquerque. Its proximity to I-25 is another benefit, as is the sheer amount of space to site a small, medium or large complex. In its effort to create new jobs, Mesa del Sol will work with its partners to plan and execute a national campaign to target out-of-state companies who will have a high probability of relocating to New Mexico.

Village and community centers will feature public gathering spaces such as plazas, schools and parks. Natural landforms, open space corridors and major roads will define neighborhood edges. Neighborhoods will be defined in part by their proximity to the nearest Village Center and schools, with each Village Center serving several neighborhoods.

Economic Development

Job creation is the cornerstone of Mesa del Sol with a range of employment-generating commercial uses planned for the development. Forest City has pledged an approach to development at Mesa del Sol that outlines "jobs first - housing second" as shown by the employment center identified in the earliest stages. This philosophy is the basis for creating good, new jobs by attracting new businesses, as well as by providing space for local companies to expand.

To demonstrate their commitment to job creation, Forest City will construct an office building for an as yet unnamed tenant. Construction on the "spec" building will begin in conjunction with the extension of University Boulevard. This building is sited in Mesa del Sol's planned employment center, a potential site to provide high quality jobs by tapping into the development of technology from the UNM, Sandia National Laboratories, Los Alamos National Laboratory and other high tech and research entities in the Rio Grande Corridor. The Employment Center is planned as a large-scale employment complex, designed to contain research and product development campuses.

Mesa del Sol's location is a distinct advantage in the highly competitive national economic development arena. The Albuquerque International Sunport's five-minute drive from Mesa del Sol holds appeal for firms interested in relocating to Albuquerque. Its proximity to I-25 is another benefit, as is the sheer amount of space to site a small, medium or large complex.

In its effort to create new jobs, Mesa del Sol will work with its partners to plan and execute a national campaign to target out-of-state companies who will have a high probability of relocating to New Mexico.

Developers anticipate that businesses will relocate and are currently targeting organizations in several major cities. Mesa del Sol will be attractive to manufacturing, warehousing and distribution uses, as well as regional commercial uses. The job creation at Mesa del Sol will be the engine to drive additional employment opportunities in Albuquerque and throughout the entire state of New Mexico.

Transportation

The transportation infrastructure will be built in phases as needed to serve the development. Paramount to the design will be the safety and comfort of people walking, bicycling and using public transit. A balanced transportation system is planned to meet the needs of drivers, public transportation users, bicyclists and pedestrians.

University Boulevard will serve as a major street for the development. In addition, Mesa del Sol Boulevard will be designed as a multi-functional road reflecting the concepts in the centers it supports. Unlike many of today's roads, it will include bicycle and traffic lanes with landscaped walkways. Like traditional streets, it will have lanes for through traffic with considerations for mass transit. Avenues, streets and smaller roads will all be designed to support local activities and pedestrian traffic.

Streets at Mesa del Sol will be designed to be amenable to future "high capacity transit" routes. The right-of-ways will be dedicated to accommodate light rail or other transit modes. Additionally, a commuter rail system is being implemented from Belen to Bernalillo that will have a planned stop in Albuquerque's South Valley. This would create the opportunity for an important regional transit link.

The transportation infrastructure of Mesa del Sol will make the development an accessible, visitor and resident-friendly community.

Sustainability

Sustainable development is a goal of Mesa del Sol, as well as Albuquerque's Planned Growth Strategy and Planned Communities Criteria. Mesa del Sol will be developed over





the next 35 to 50 years. Because of this long-term approach to growth, the planners and developers of Mesa del Sol will be able to fully incorporate the best practices in sustainable urban development. This includes planning communities for the next generation and even those beyond.

The Master Plan incorporates design elements to maximize water conservation; encourage walking, bicycling and transit use, thus reducing the need to use private automobiles; conserve natural areas and connections between them, in order to maintain viable habitat for native plants and animals; restore degraded natural areas to ecological health; and design buildings to minimize energy use, conserve water, and maximize the potential for the recovery and re-use of building elements in the future.

This pledge to sustainability is part of the Forest City value statement, which states, “We are committed to the principle of sustainability. We will strategically and competitively balance environmental resources, economic objectives and social systems as we operate our business and invest in new opportunities.”

New Urbanism

Throughout the Level A Master Plan, the term New Urbanism is used. New Urbanism is a planning movement that focuses on the restoration of urban centers and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of neighborhoods and diverse districts, the conservation of natural environments, and preservation and renewal of historic buildings, districts, and landscapes. Similar to traditional neighborhood development, it is a design philosophy intended to create a strong sense of community by incorporating features of traditional cities, towns and neighborhoods.

New Urbanism will be incorporated throughout Mesa del Sol from its emphasis on ways to maximize walking, bicycling and transit use, thus reducing the need to use private automobiles; to conserving natural areas and connections between them, in order to maintain viable habitat for native plants and animals; to designing buildings to minimize energy use and conserve water.

Mesa del Sol will encourage that this concept be used by the variety of residential builders who will construct the buildings and homes throughout the community. Detailed design guidelines and an architectural review board will also be established.

The overall goal is to create mixed-use communities that successfully weave together the communities’ needs and cultures with responsible urban planning.

Conclusion

This first Level A Plan submission is designed to set the parameters for the Mesa del Sol project. The components of Mesa del Sol and this Level A Plan are the outcome of goals that have been set by the community, the City of Albuquerque and Bernalillo County.

Through its commitment to economic development and sustainability, Mesa del Sol provides Albuquerque the opportunity to grow responsibly and create better paying jobs, allowing New Mexicans the opportunity to stay in New Mexico. The public/private partnership that is building Mesa del Sol is creating a project that will benefit the City of Albuquerque, the region and the State of New Mexico.

Throughout the Level A Master Plan, the term New Urbanism is used. New Urbanism is a planning movement that focuses on the restoration of urban centers and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of neighborhoods and diverse districts, the conservation of natural environments, and preservation and renewal of historic buildings, districts, and landscapes. Similar to traditional neighborhood development, it is a design philosophy intended to create a strong sense of community by incorporating features of traditional cities, towns and neighborhoods.



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A Team of Experts

Project Team

To design, develop and build a project of the scale envisioned for Mesa del Sol requires the cooperation of partnerships and extensive teamwork. Mesa del Sol will be a true public/private partnership.

The project is funded through a major investment from **Forest City Covington**, a joint venture between Forest City Enterprises, an 80-year-old, \$7.2 billion real estate company, and Covington Capital, a major residential and industrial developer in the Southwest. In addition to Forest City Covington, Mesa del Sol will be developed in conjunction with other partners, including the New Mexico State Land Office, the University of New Mexico (UNM), the City of Albuquerque, Bernalillo County and the State of New Mexico.

This joint venture is populated with individuals with the national and international expertise, as well as the knowledge and financial resources, to transform the mesa into a modern community complete with housing, employment centers, shops, entertainment, schools, parks and civic facilities.



Forest City Enterprises, Inc., was recently rated by Fortune Magazine as the top publicly-traded real estate company. Based in Cleveland, Ohio, Forest City is principally engaged in the ownership, development, acquisition and management of premier commercial and residential real estate throughout the U.S. Its portfolio includes interests in retail centers, apartment communities, office buildings and hotels in 19 states and the District of Columbia. Established in 1921, Forest City is committed to building superior, long-term value through a consistent strategic focus on projects in markets with high growth potential, such as the Stapleton Denver redevelopment and University Park at MIT. Forest City operates under three strategic business units: Commercial, Residential and Land Development.

Because of its national reputation for excellence and long-term perspective, Forest City has attracted a host of experts in sustainable development to the project. Forest City's highly regarded character and standing also provide the necessary confidence prospective employers require to locate here. This is crucial as the project's cornerstone is job creation. It is through this future job development and growth that the entire state of New Mexico will benefit from Mesa del Sol.

Mesa del Sol represents the power of Albuquerque's potential. With a world-class development partner such as Forest City Covington, which enjoys an international reputation as a collaborative master plan developer who understands how to construct the platforms businesses need for success, Mesa del Sol is poised to become a paradigm for large, mixed-use projects that earn the respect and financial support of the state's leaders.

As a unique team development project, Mesa del Sol is a true public/private partnership, with a major investment from Forest City Covington, working in conjunction with the state of New Mexico, the University of New Mexico, the City of Albuquerque, the State Land Office and Bernalillo County. These parties are working for the success of Mesa del Sol, reflecting New Mexico's progressive stance on economic development.

The Mesa del Sol project team includes experts in sustainable development from a variety of fields, combining internationally-renowned urban planners with Albuquerque-based expertise in planning, design, transportation, infrastructure and analysis.

Calthorpe Associates, Berkeley, California

Calthorpe Associates is internationally recognized for its innovative leadership in urban design, architecture, and regional planning. For nearly two decades the firm has assisted private and public clients in shaping new forms of growth and redevelopment – forms that help reestablish a sense of place, scale, history, and environmental balance within the built environment.

Calthorpe Associates' design philosophy focuses on creating communities that are diverse, mixed-use, and pedestrian friendly. The firm places a special emphasis on fostering neighborhoods that provide a range of housing in close proximity to shopping, jobs, recreation, and transit – walkable communities that offer realistic housing and transportation choices. Calthorpe Associates' projects range from urban infill and redevelopment plans to new towns and regional growth strategies.

The challenge of contemporary urban design is in synthesizing the diverse needs of modern households with the timeless need for human scale, civic identity, and ecological sustainability. In addressing this challenge, Calthorpe Associates has been a pioneer in developing the concepts of New Urbanism, Transit Oriented Development (TOD), Urban Villages, and Regional Cities. Firm principal Peter Calthorpe has published extensively on these topics and has authored several books, including *Sustainable Communities* with Sim Van der Ryn, *The Pedestrian Pocket Book* with Doug Kelbaugh, *The Next American Metropolis: Ecology, Community, and the American Dream*, and his most recent book with William Fulton, *The Regional City: New Urbanism and the End of Sprawl*.

Urban design and master planning now call for the integration of many complex factors, including market demands, environmental opportunities, community input, and technical efficiencies. Calthorpe Associates' comprehensive approach to each project seeks to integrate these factors into plans and designs that are appropriate to their place, financially rewarding, and socially progressive.

With an interdisciplinary staff of architects, landscape designers, and planners, Calthorpe Associates provides a full complement of planning, design, and implementation services. The firm's expertise ranges from individual buildings to regional plans, from housing and retail development to commercial and civic design. This wide-ranging experience provides a unique perspective and facilitates the development of mixed-use community plans that are grounded in a detailed knowledge of their elements.



Calthorpe Associates has been widely recognized both nationally and internationally for its innovative approach to projects in urban design, transit-oriented development, and regional planning. The firm's award-winning master plans include Stapleton Airport Redevelopment in Denver, Issaquah Highlands in Issaquah, Washington, the San Elijo Hills Village Center in San Marcos, California, and Northwest Landing in Dupont, Washington, as well as a host of smaller infill and neighborhood-scale projects, often on challenging urban infill and brownfield sites. Awards won by the firm and its projects include the two American Planning Association Daniel Burnham Awards, three Gold Nugget Awards, three Master Builders Association MAME Awards, the U.S. Conference of Mayors Award for Excellence, and the Stockholm Partnership for Sustainable Cities Award.





Dekker/Perich/Sabatini, Albuquerque

Dekker/Perich/Sabatini (DPS) provides comprehensive architecture, planning, landscape architecture, interiors, and structural engineering services to a variety of public and private clients. Founded in 1959, the firm has compiled a comprehensive portfolio earning a strong reputation for design excellence in the western half of the United States. Dekker/Perich/Sabatini has successfully completed nearly 3,000 projects valued in excess of \$1 billion and has been honored with more than 100 design awards and numerous publication features. The firm is represented by 190 people, including 90 licensed planners, architects, interior designers, landscape architects, and structural engineers. Dekker/Perich/Sabatini has three offices in the Southwest (Albuquerque, Las Vegas, and Amarillo, TX), which enables the firm to geographically diversify its work to respond to the ever-expanding demands of the region.

With a strong client-focused commitment, the firm utilizes a multi-disciplined, rational problem solving approach. The basic, fundamental focus of their approach is a search for design excellence where they organize and focus their entire team's efforts to design projects that are functionally based and user driven; respond to current and future technologies; strive to meet the highest standards of craftsmanship, code compliance, and building technology; are appropriate in image to time, place, and function; and, most important, meet their clients' budgets and schedules.

Dekker/Perich/Sabatini has had the opportunity to work on a wide variety of design and development projects over the years. This experience has allowed us to create a portfolio with a breadth of scope and a depth of expertise and has resulted in the development of a unique philosophy and rational design approach to urban and environment design:

Design excellence is not just about buildings – it's about people, about using the best practices to implement development that realizes financial and personal goals and about creating great places.

Integrated design places value on the firm's process and people. With a strong client-focused commitment, DPS utilizes a multi-disciplined, rational problem solving approach. Teams of experienced and creative professionals focus their efforts to design projects that are functionally-based and user-driven, respond to current and future technologies, meet the highest technical standards, are appropriate to time, place and function, and meet their client's budget and schedule. From the project kick-off through the final punch list,



the Landscape Architecture and Planning group brings a unique understanding of the interrelatedness of structures, land and people to each project that enriches the collaborative design of exterior spaces and places.

Best Practices are the current thoughts on the best solutions to design-related questions. DPS is always searching for better ways to help clients achieve their goals. For the planning and design of exterior places and spaces in the Southwest, best practices address a wide variety of issues including everything from soil health, water harvesting and the use of native plants, to multi-modal design, increasing multi-generational recreation and education opportunities, and respecting the unique cultural and environmental characteristics of the site.

Sustainability is the result of a holistic approach to planning and design that achieves an optimum balance among economics, society, environment, and art. DPS is committed to improving the quality of life in the communities in which it works, and the Landscape Architecture and Planning group is a vocal advocate for this broader vision of project success. To achieve this, the group works with clients to identify and revisit opportunities for sustainability that will serve their interests, and the interests of the larger community.

Bohannon Huston, Inc., Albuquerque

Beginning as a local civil engineering company in 1959, Bohannon Huston Inc. (BHI) has become a nationally-recognized service provider working with clients to visualize projects, optimize resources, and realize the best solutions. BHI serves both public and private clients, specializing in the fields of Engineering, Spatial Data, and Advanced Technology. Engineering specialties include civil, structural, mechanical, electrical and construction. Spatial data services include surveying and mapping. BHI's advanced technology group offer virtual reality imaging, software development, certified IT and MIS consulting, as well as web design and implementation. Currently, the firm has over 220 employees, with headquarters located in Albuquerque, New Mexico and branch offices in Las Cruces, New Mexico, Denver, Colorado, and Dallas, Texas.

URS, Albuquerque

URS is a multi-disciplinary, full-service consulting firm, offering a broad range of planning, engineering, transportation, design, and program and construction management services to both the public and private sectors. Major areas of expertise include infrastructure engineering and design, master planning and land development, transportation and transit planning and design, environmental planning, and water resources. URS has an employee base of over 25,000 professionals worldwide, located in 130 offices in major cities throughout the United States and abroad.

The URS Albuquerque operation originally started out in the land development business in 1961, offering surveying and civil engineering services to local land developers. Over the past four decades that business has grown and evolved from a local company with a single focus to a multi-disciplinary team that is part of the world's largest engineering company: URS. URS New Mexico has offices in Las Cruces, Los Alamos and Albuquerque, with over 85 employees in their New Mexico offices.

In addition to its original focus on land development, the Albuquerque office has strong core competencies in transportation, construction management, environmental, flood-plain analysis and mapping, water, and geotechnical services. URS has achieved its reputation by offering "client-oriented" engineering and planning solutions that create unique places and connect communities.

Hirst Córdova Public Relations, Albuquerque

Hirst Córdova Public Relations is a full-service public relations firm located in Albuquerque, New Mexico, serving clients with local, state, regional, national, and international interests. The firm provides a wide range of public relations services, emphasizing strategic planning and excellent writing. Composed of senior public relations professionals, the company has extensive experience in communications planning, crisis management, issues management, public participation, community relations, governmental affairs, and media relations.

The Hirst Company was founded in New York in 1968. The firm moved its operations to Albuquerque in 1971. In 1997, John Córdova purchased the company, changing its name to Hirst Córdova Public Relations.

Rick Johnson & Company, Inc.

Rick Johnson & Company, Inc. (RJC) is widely recognized as one of the leading marketing communications firms in the Western United States. Established in 1977, RJC is a full-service advertising agency with a staff of 50 professionals, offering a full complement of integrated marketing services including research, strategic marketing planning, creative development, interactive, media, public relations, broadcast and print production.

RJC's strengths include functioning as a true marketing partner to large, complex businesses over a long, multi-year relationship. RJC's client retention track record is significantly longer than industry averages. Many of the company's key clients have been with it more than 10 years.

RJC's client list includes several NYSE listed companies including McDonald's, Dean Foods, Giant Industries and PNM Resources. Other clients include State of New Mexico Tourism, Lyle Anderson Companies, Mescalero Apache – Inn of the Mountain Gods and many others.

RJC is New Mexico's exclusive shareholder member of Worldwide Partners, the world's largest network of independent advertising agencies. Part of WWP since 1985, RJC has partner agencies in 50 markets nationwide and 40 countries worldwide. WWP affords the firm the opportunity to offer clients global market access.

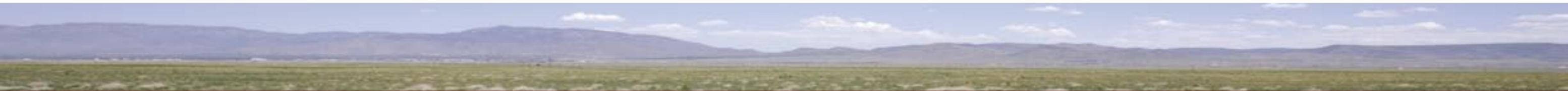
While RJC's foremost objective is to create messages that get results for its clients, RJC can be found among the winners of prestigious honors from the One Show, Cannes, Communication Arts, Archive, National AAF Addys, Adweek, Print, How, Step by Step and Shoot Magazine.

RJC actively contributes to many civic causes as well as a variety of community and non-profit organizations.



Abbreviations

ADT	Average Daily Traffic	LOS	Level of Service
AFRL	Air Force Research Laboratory	MCL	Maximum Concentration Levels
AMAFCA	Albuquerque Metropolitan Arroyo Flood Control Authority	MGD	Million Gallons Per Day
APS	Albuquerque Public Schools	MRCOG	Mid-Region Council of Governments
ASR	Aquifer Storage & Recovery	NMDOT	New Mexico Department of Transportation
BMP	Best Management Practices	NMSLO	New Mexico State Land Office
BNSF	Burlington Northern Santa Fe Railroad	NNSA	National Nuclear Security Administration
BRT	Bus Rapid Transit	NOx	Nitrogen Oxides
CFS	Cubic feet per second	PCC	Planned Communities Criteria
CO	Carbon Monoxide	PID	Public Improvement District
COA	City of Albuquerque	PM	Particulate matter
DMP	Drainage Management Plan	PNM	Public Service Company of New Mexico
DNL	Day and Night Average Sound Level	PSI	Pounds per square inch
DOE	U.S. Department of Energy	ROW	Right of Way
DPM	Development Process Manual	SEVDMP	Southeast Valley Drainage Management Plan
DRIP	Distributed Retention and Infiltration Pond	SNL	Sandia National Laboratories
DWP	San Juan-Chama Drinking Water Project	SOR	Starfire Optical Range
EPA	U.S. Environmental Protection Agency	TOD	Transit Oriented Development
FAA	Federal Aviation Administration	UNM	University of New Mexico
FEMA	Federal Emergency Management Agency	VMT	Vehicle Miles Traveled
FHWA	Federal Highway Administration	VPD	Vehicles Per Day
GPCD	Gallons per capita day	VPDPL	Vehicles Per Day Per Lane
GPM	Gallons per minute	WUA	Albuquerque Bernalillo County Water Utility Authority
HGL	Hydraulic grade line		
KAFB	Kirtland Air Force Base		



INTRODUCTION

LEVEL A PLAN : JUNE 2005

1



MESA DEL SOL

Meeting the Planned Communities Criteria

Introduction

This Level A Plan describes the character and organization of development proposed by Forest City Covington NM, LLC for Mesa del Sol, a new community on Albuquerque's southeast mesa, south of the Sunport. This plan is intended to fulfill the Level A Plan requirements of the Albuquerque Planned Communities Criteria (PCC) Policy Element. The Planned Communities Criteria provide goals, policies and criteria governing the size, configuration, land use mix, densities and other features of planned communities in the Comprehensive Plan's Rural and Reserve Areas.



1.1 Purpose and Organization of this Plan

The plan is organized into seven chapters covering each of the major areas of emphasis of the PCC. Following this introduction, the individual chapters discuss land use, transportation, environment and open space, utilities, public facilities and development standards. In some cases, the level of detail in this plan is greater than the minimum required for a Level A Plan, in order to more fully document and obtain City approval of certain critical elements that will shape the character of development at Mesa del Sol.

Given the long-range nature of planning for such a large area, a flexible approach is necessary to accommodate changing conditions, market demands, and the timing of infrastructure improvements. Accordingly, this Level A Plan will be followed by Level B and Level C Plans, each with a greater level of detail and, typically, a smaller geographic extent.

Additional background information is provided in the Technical Appendices. These include the full transportation and infrastructure master plans and additional supporting material on the proposed parking strategies, street designs, and intersection designs.

1.2 Goals for Community Building at Mesa del Sol

The Planned Communities Criteria are intended to address the interrelated issues of land use and infrastructure coordination; air quality and traffic congestion; transit-friendliness; housing diversity; and fiscal impacts. Development of Mesa del Sol will combine the human scale and regional traditions of Albuquerque's older neighborhoods and districts with state-of-the-art community design for sustainability, walkability, and transit-friendliness to address each of these goals.

Five principles of community building will be expressed: economic development; district and neighborhood structure; ecological sustainability and restoration; diversity and balance; and human scale.

1.2.1 Economic Development

Economic development is one of the essential factors that drive community quality. The central idea of the practice of economic development is that we have the power at the local level to design and shape the future economy of our communities. Economic development is the cornerstone of the strategic plan for Mesa del Sol. We see it as a process of creating and maintaining a viable economy for a well-balanced, sustainable community like Mesa del Sol. The creation of an economic base is required to create high-paying jobs for New Mexicans and grow existing businesses – a base that will sustain quality growth.

Building a new future economy by design requires a sustained effort (10-15 years) at attracting and growing high value economic base employers in targeted sectors. Forest City Covington will work in a coordinated effort with the City, regional and state economic developers to build a high value economic base for Mesa del Sol that will both sustain Mesa del Sol and also elevate the economy of the state and region in the process.

The first building on the site will be part of an employment center providing high quality jobs tapping into the development of technology from the University of New Mexico, Sandia National Laboratories (SNL), Los Alamos National Laboratory and other high tech and research entities in the Rio Grande Corridor. The immediate start of this planned employment district exemplifies the philosophy of jobs first, housing second at Mesa del Sol.

Ten percent of the total acreage at Mesa del Sol has been designated for an employment center. The employment center is a large-scale employment complex, which is designed to contain research and product development campuses. The employment center will be designed to stimulate economic development to improve the balance of jobs and housing and create options for living close to work. These jobs are defined as those such as highly paid science, engineering and other professionals – jobs that reflect a significant investment in education, skills and expertise.



Because of its national reputation for excellence and long-term perspective, Forest City has the ability to bring a host of experts in economic and sustainable development to the project for the benefit of Albuquerque and the entire state. A strong private sector investor developer team with the capital and expertise will allow Mesa del Sol to compete for, close and complete major economic development transactions. Forest City's investment in the community provides prospective employers the necessary confidence to locate here.

Mesa del Sol Advantages

The key elements that separate Mesa del Sol from others are land and location. First is the availability of large tracts of land at Mesa del Sol. The 1,400 acres designated for industrial, commercial and office development use is perhaps the largest contiguous area available for new development in the city. This portion of the mesa top is well suited to larger-scale employment requiring quality access, larger-format office and research capabilities and high-tech uses.

To meet the demands for these basic economic jobs, a well-planned, fully entitled 21st Century infrastructure must be in place. This infrastructure includes enough land to support a business or organization that needs symbiotic relationships such as a cluster relationship, as well as those that need "separateness" for security reasons.

Second, and equally important, is the employment district's convenient access to the Albuquerque International Sunport and I-25 via the Rio Bravo Interchange and University Boulevard/Rio Bravo Extension as well as a planned future interchange on I-25. Mesa del Sol's "close-in" location with proximity to I-25, Downtown Albuquerque, the Albuquerque International Sunport, SNL, Air Force Research Laboratory (AFRL), Kirtland Air Force Base (KAFB), and the University of New Mexico make it a very attractive location for future employers as well as residents.

With its close proximity to KAFB as well as the downtown area, an additional advantage of this location is the time and money saved to both employers and employees with reduced commutes and the opportunity to locate businesses closer to key business markets such as KAFB. Mesa del Sol is fortunate to have a back gate to KAFB, allowing for easy access without creating additional traffic congestion for the region. This easy access is a plus to attract out of state businesses that have in the past captured the business created from the work from KAFB partners.

The economic center will be adjacent to the existing 600-plus acre regional recreation center, providing employees close access to recreation, including team building sports and individual fitness opportunities, fulfilling one of the requirements of a sustainable community. It will be adjacent to the Journal Pavilion amphitheater, one of the finest outdoor concert venues in the Southwest, which has helped to fuel the tremendous



growth in Albuquerque's live music scene. It is also to be near the future community center, making the great variety of urban amenities immediately available for businesses and their employees located at Mesa del Sol.

High Security Employment

Because of their national defense and high technology missions, several aerospace and defense industry firms are seeking a location that is close to SNL and the AFRL, but with high security. Mesa del Sol can offer a High Security Employment Center of approximately 450 acres. In the mixed-use development, this area will feature a single entry gate, with access to the center from major roads away from residential areas.

Opportunities for Employers

A range of employment-generating commercial uses is planned for portions of Mesa del Sol. Attracting different industries to Mesa del Sol will be a priority to meet the goals and objectives outlined for the community. The Greater Albuquerque metro area already has the distinct components needed for several high tech industry clusters. Economic development experts point out that a cluster industry exists when several firms gather in one location and attract associated consultants, service firms, upstream component suppliers, downstream system integrators, educational or training institutions, trade associations, standards agencies, and other entities. This cluster allows each firm to share resources, for example a distribution route and accounting expertise, as well as a labor market of highly skilled, well-educated employees.

The key elements that separate Mesa del Sol from others are land and location. Mesa del Sol offers several advantages to businesses and organizations. First is the availability of large tracts of land at Mesa del Sol. Second, and equally important, is the employment district's convenient access to the Albuquerque International Sunport and I-25 via the Rio Bravo Interchange and University Boulevard/Rio Bravo Extension as well as a planned future interchange on I-25.





Neighborhood sizes will be governed by the walking distance to a neighborhood center, typically about a quarter mile, or a five-minute walk for a typical adult. Neighborhood Centers will feature public gathering spaces such as plazas, schools, and open space, as well as opportunities for neighborhood-scale services.

One cluster targeted for development at Mesa del Sol is renewable energy. The renewable energy segment of the economy is named as the fastest growing 21st Century industry and it is particularly well suited to New Mexico and Mesa del Sol. A benefit of a cluster industry is that these firms have the ability to band together and compete nationally and globally – as do, for example, the California wine and Wisconsin dairy industries or even Silicon Valley.

The current increase in fuel costs has placed the renewable energy industries in an extremely favorable position and increased the attention focused on renewable energy industries. It is widely agreed that there will be significant growth in this sector, including production and development of highly efficient hydrogen fuel cells, microturbines and photovoltaic cells.

Ancillary business support

In addition to the available land, Mesa del Sol will also have room for amenities and service businesses such as day care, restaurants, after hours entertainment, and retail. While not the major focus of the job development at Mesa del Sol, these businesses will provide jobs, as will a potential UNM campus.

The focus on economic development and the creation of jobs at many levels will help create a balanced traffic flow that may actually have more people flowing into the area for jobs than out of the area. This long-term plan for job growth is a key part of the sustainability of the project.

1.2.2 District and Neighborhood Structure

At nearly 13,000 acres, Mesa del Sol covers an area as large as Northeast Albuquerque from 1-25 to Wyoming Boulevard, between Central Avenue and Montgomery Boulevard. Such a large scale can defy comprehension unless carefully planned for with a logical and memorable structure of development, one that creates identifiable places well served by transportation within a larger framework of preserved open space.

In keeping with this principle, Mesa del Sol will be structured as a series of districts, villages and neighborhoods, each with an identifiable center and edge. Employment districts served by I-25 and the University Boulevard extension will accommodate a variety of types of employment along with supporting uses, and a hierarchy of mixed-use centers, on and below the mesa, will provide shopping, civic uses, higher-density forms of housing, and public gathering spaces at highly accessible nodes in the transportation system.

Neighborhood sizes will be governed by the walking distance to a neighborhood center, typically about a quarter mile, or a five-minute walk for a typical adult. Neighborhood centers will feature public gathering spaces such as plazas, schools, and open space, as well as opportunities for neighborhood-scale services. Neighborhood edges will be defined by natural landforms, open space corridors, and major roads. Residential areas will be

defined in part by their proximity to the nearest Village Center, with each Village Center serving several neighborhoods.

Regional identity will be established in part by the major landforms to be preserved, most notably the escarpment along the northern and western edges of the mesa and the playa in the southeastern part of the mesa and in La Semilla. A linear open space and trail along the escarpment edge will provide outstanding views of the Rio Grande Valley and of the City, helping residents and visitors to appreciate their place in the region. On the mesa top, linear open space corridors aligned to maximize view opportunities to the surrounding landscapes will connect neighborhoods with the preserved south playa, schools and other civic destinations, and major public parks, providing a network of off-street trail corridors as well as opportunities for sustainable stormwater management and community-serving recreational uses.

Chapter 2 of this plan, Land Use, and Chapter 3, Transportation, discuss the parameters that will be used to establish regional, district, and neighborhood structure at Mesa del Sol.

1.2.3 Ecological Sustainability, Conservation, and Restoration

Sustainable development is a goal of Mesa del Sol, as well as Albuquerque’s Planned Growth Strategy and Planned Communities Criteria. Mesa del Sol will be developed over the next 35 to 50 years. Because of this long-term approach to growth, the planners and developers of Mesa del Sol will be able to fully incorporate the best practices in sustainable urban development. This includes planning communities for the next generation and even those beyond.



The Master Plan incorporates design elements to maximize walking, bicycling and transit use, thus reducing the need to use private automobiles; conserving natural areas and connections between them, in order to maintain viable habitat for native plants and animals; restoring degraded natural areas to ecological health; and designing buildings to minimize energy use and conserve water, and maximize the potential for the recovery and re-use of building elements in the future.

This pledge to sustainability is part of the Forest City value statement, which states, “We are committed to the principal of sustainability. We will strategically and competitively balance environmental resources, economic objectives and social systems as we operate our business and invest in new opportunities.”

Chapter 4 of this Plan, Environment and Open Space, discusses the sustainability goals at Mesa del Sol and the means that will be used to achieve them.

1.2.4 Diversity and Balance

Achieving the PCC goals of reduced traffic congestion and improved air quality requires creating viable alternatives to the private automobile. Transit is an important alternative to driving, and the design of streets and blocks at Mesa del Sol will optimize the potential for transit service. Bicycling is well suited to shorter trips of up to a few miles, particularly given the mesa’s flat topography; the street system at Mesa del Sol will be designed to make bicycling safe, efficient, and pleasurable, with both on-street and off-street bicycle routes.

Walking, of course, is the most fundamental and sustainable form of transportation, and pleasant walking conditions are a key element to making transit use attractive as well. Making places where it is pleasant, safe, and convenient to walk requires diversity and balance of uses. For example, shopping, civic uses, parks, and many jobs can be integrated with housing into mixed-use centers, making everyday destinations a short, pleasant walk from the adjacent neighborhoods. Not everyone will live within walking distance of a mixed-use center, but a “park once” strategy will encourage even those who drive or take transit to a mixed-use center to walk between destinations once they have arrived.

At Mesa del Sol, a hierarchy of mixed-use centers will ensure diversity and balance of land uses. A mixed-use Urban Center adjacent to the proposed Mesa del Sol I-25 interchange will have the highest intensity of development, and a Community Center on the mesa top will form the linchpin between the Employment District, residential uses, and land to be retained by the University of New Mexico and reserved for future campus use. Several Village Centers will transform what could be ordinary shopping centers into mixed-use centers with retail, office, civic uses, and higher-density forms of housing. In keeping with the principles of diversity and balance, villages and neighborhoods will include a broad range of housing types with costs and ownership options to accommodate the needs of

diverse households at different stages of life. At the regional scale, Mesa del Sol includes a major Employment Center that will accommodate high-quality jobs, helping to improve the balance of jobs and housing in Southeast Albuquerque and creating options to live close to work.

Chapter 2 of this plan, Land Use, discusses the characteristics of each of the types of mixed-use centers and the overall land use patterns planned for Mesa del Sol.

1.2.5 Human Scale

Streets and buildings at Mesa del Sol will be designed to exhibit human scale detail and variation. The majority of street widths will be relatively narrow, to make pedestrian crossings safer and easier. Sidewalks, landscaping, building entries, and parallel parking will shelter and enhance the walking environment. Traffic calming features such as curb extensions and traffic circles will ensure that vehicular traffic is kept to speeds and volumes that are compatible with neighborhoods. Buildings will address the street and sidewalk with entries, balconies, porches, and patios. Orienting buildings to streets and public spaces will bring activities and visually interesting features closer to the pedestrian and provide safety through watchful eyes.



Streets and buildings at Mesa del Sol will be designed to exhibit human scale detail and variation. The majority of street widths will be relatively narrow, to make pedestrian crossings safer and easier. Sidewalks, street trees, building entries, and parallel parking will shelter and enhance the walking environment.





LAND USE

LEVEL A PLAN : JUNE 2005

2



MESA DEL SOL

A New Community on the Southeast Mesa

This chapter discusses the context of Mesa del Sol, the character of each of the land use designations in the master plan, and phasing strategies.

Land Use



2.1 Site Context

2.1.1 Regional Context

Mesa del Sol will be a new community on Albuquerque's southeast mesa. More than a master-planned community, Mesa del Sol is planned as a true extension of Albuquerque's urban fabric: a series of major employment centers, civic and institutional uses, walkable neighborhoods, and mixed-use centers linked by livable streets and a site-wide network of connected open space. As shown in Figure 2-1, Regional Context, Mesa del Sol's proximity to I 25, Downtown Albuquerque, the Albuquerque International Sunport, SNL, KAFB, and the UNM makes it a very attractive location for employment as well as residential uses.

The area covered by this Level A Plan is a 12,900-acre tract of vacant land annexed by the City of Albuquerque in 1993. The site is held in trust by the New Mexico State Land Office for the benefit of 21 beneficiaries, including the University of New Mexico and the New Mexico Public Schools. As the project is developed, these beneficiary institutions will have a stake in any economic benefits that result from development. The University will retain title to a portion of Mesa del Sol for future use. In a public bid process, the State Land Office awarded master development rights at Mesa del Sol to Forest City Covington New Mexico, LLC.

2.1.2 Natural Features

Development at Mesa del Sol will take full advantage of the sense of identity created by the site's rich context of natural features. To the east, the Manzanita Mountains form a dramatic backdrop. The Sandia and Manzano Mountains are also visible. The Jemez, Ladrone, Sangre de Cristo Mountains, and Petroglyph National Monument are visible in the distance, as is Mount Taylor, some 60 miles away. To the north, the vast Tijeras Arroyo includes a solid waste transfer facility and city-designated open space known as Montessa Park. The mesa itself is characterized by extremely flat topography and sparse vegetation, with an average of 15 percent of the soil covered by vegetation. The most notable natural feature on the mesa is the playa at the southeastern portion of the site. The core of this natural drainage basin will be preserved as natural open space.

The site's most dramatic feature is an escarpment on its western side. The escarpment landform slopes from the mesa top down toward the Rio Grande Valley and the cottonwood forest known as the Bosque. The escarpment within Mesa del Sol that includes the steepest slopes will be dedicated as major public open space to comply with the Albuquerque/Bernalillo County Comprehensive plans. From the escarpment edge, particularly at the northwestern edge, views of Downtown and city lights in the river valley provide an immediate sense of Mesa del Sol's place in the region.

2.1.3 Site Opportunities and Constraints

Figure 2-2 illustrates important opportunities and constraints at Mesa del Sol. Foremost among these are the natural open space preservation opportunities of the escarpment and certain playa areas. Additional opportunities include views of nearby mountain ranges and rock formations, Downtown Albuquerque, and distant peaks. Constraints on the site include the closed landfill, which is now open space, and a variety of existing leases and easements. Transportation opportunities and constraints are discussed in Chapter 3 and utility issues are discussed in Chapter 5.

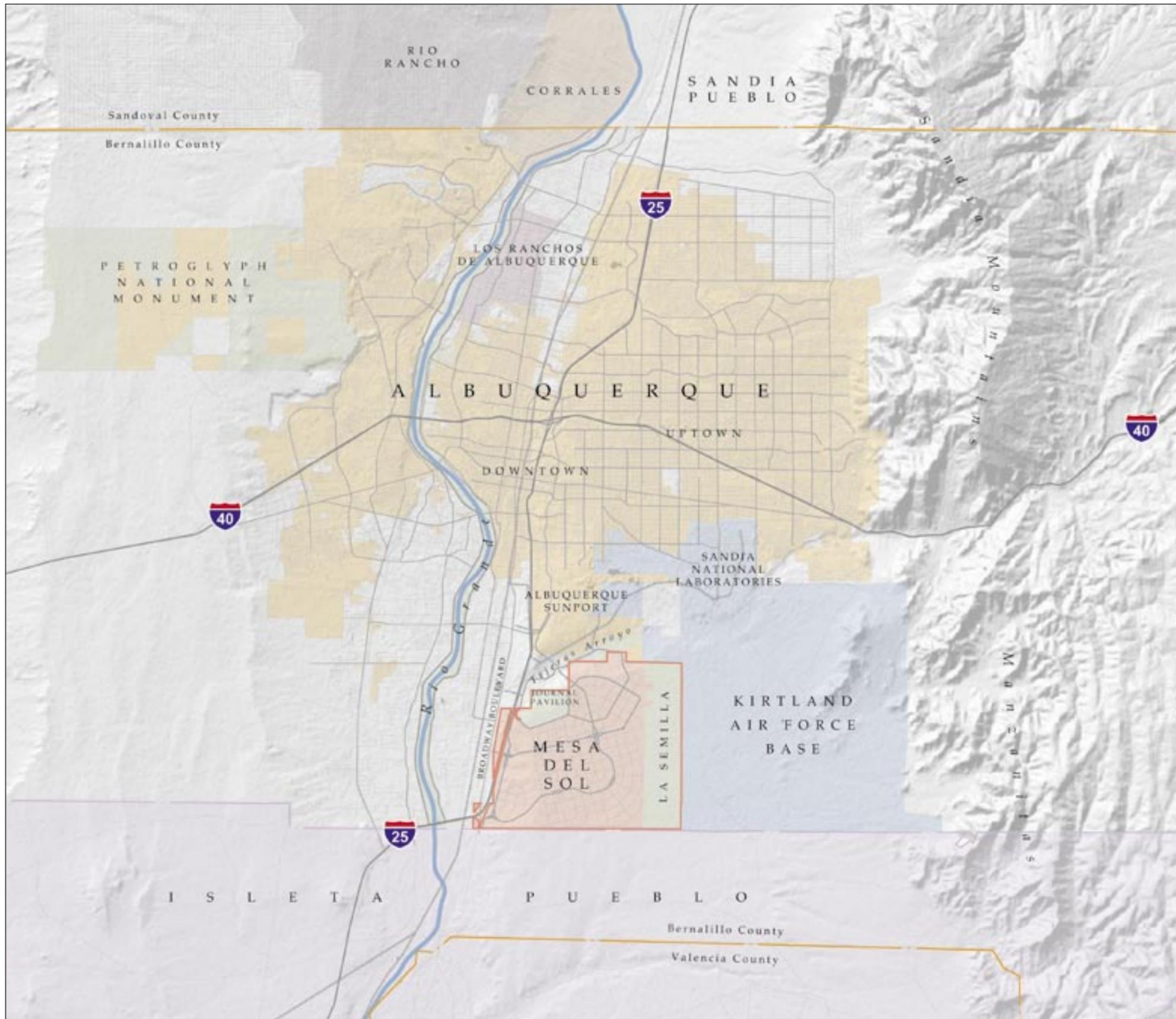
Additional opportunities include two important open space elements of Mesa del Sol: the Bernalillo County Recreation Complex and La Semilla.

a. Bernalillo County Recreation Complex/Journal Pavilion

The Regional Recreation Complex in the northwest portion of the tract is planned for a wide variety of active recreational uses, including 44 soccer fields, of which three are currently built and in use. In addition, the Journal Pavilion amphitheater, which opened in June 2000, is a popular venue for concerts. The Pavilion currently seats up to 12,000 concertgoers, with increased seating capacity possible when additional access is provided by the completion of the University Boulevard extension.

b. La Semilla

La Semilla is an approximately 2,700-acre nature refuge and environmental education campus planned for the one-mile wide strip of land between Mesa del Sol and KAFB. A master plan for La Semilla is being prepared by the New Mexico State Land Office (SLO). Under an agreement between KAFB and the Department of Energy (DOE), DOE controls



REGIONAL CONTEXT

Figure 2-1



OPPORTUNITIES AND CONSTRAINTS

Figure 2-2



the lease for this land, which provides a necessary buffer for base activities and will provide for substantial open space for the benefit of the residents of Mesa del Sol as well as citizens of Albuquerque and all of the region. The DOE has “call up” rights for the evacuation of humans from La Semilla for rare instances of testing on the rocket sled track. The DOE lease permits only minimal structures at La Semilla.

Forest City Covington, the SLO, UNM, Bernalillo County, and La Semilla Institute, a \$501 (C) (3) corporation, are collaborating on a program of native plant propagation and production in the hopes of providing native-grown plant material for use, where feasible, in landscaping at Mesa del Sol. Under the DOE/NMSLO 100-year lease arrangement, other uses are permitted at La Semilla. Proposed uses may include agricultural demonstration areas, environmental education, preservation of high desert grasslands as open space, recreational and interpretative trails, and renewable energy research. Public access to most of La Semilla is anticipated.

2.1.5 Adjacent Land Uses and Institutions

The following land uses and institutions are adjacent to Mesa del Sol:

a. Albuquerque International Sunport

Albuquerque’s international airport, known as the Albuquerque International Sunport, is located to the north of Mesa del Sol, across the Tijeras Arroyo. The Sunport has facilities to accommodate commercial airline activity, air cargo, and general aviation users. Commercial airline activities are conducted from the passenger terminal facilities located in the northwest quadrant of the airport. As of 2004, nine major commercial carriers operated from the Sunport and offered nonstop service to 28 cities. The airport’s passenger load has increased in recent years, from about five million total passengers in 1990 to more than six million in 2003.

There are currently four operational runways at Albuquerque International Sunport. The Sunport shares its runways with KAFB, which provides aircraft rescue and firefighting services for the airport. Primary access to the passenger terminal building is from Interstate 25 via Sunport Boulevard. Yale Boulevard and Girard Boulevard also provide access to the passenger terminal building.

The Airport Master Plan was completed in September 2002 and identifies anticipated airport facility needs through 2025. During this period, according to the Master Plan, airline passenger activity can reasonably be expected to grow at an average annual rate of between three and four percent. Normal growth of enplaned freight and mail tonnage should be between five and six percent annually. Annual aircraft operations, or take-offs and landings, can be reasonably anticipated to grow at an average annual rate of about two percent. Currently, the Sunport is undergoing approximately \$12 million in renovations to its security checkpoint at the main terminal. The work is scheduled to be

completed in fall of 2005. Long-term planning objectives include expanding the main terminal, building two additional gates, and extending Runway 3-21, the main runway that aligns southwest-northeast.

Air cargo traffic at the Albuquerque International Sunport is projected to increase from 95,000 tons in 2000 to a projected 335,000 tons in 2025. This cargo facility is an important asset to the nearby Employment Center of Mesa del Sol, which is anticipated to attract airport-related business. Much of the increased cargo traffic will be accommodated along Runway 3-21, the main runway that extends to the southwest. The Airport Master Plan calls for numerous upgrades to cargo facilities adjacent to this runway, including additional buildings, apron space, parking, and docks to process air cargo. This cargo area is accessed off of University Boulevard and Spirit Drive. To expand the cargo area, the airfield maintenance complex is slated for relocation to the south side of Runway 3-21.

From the outset of the Mesa del Sol planning effort, the importance has been recognized of avoiding conflicts between the airport and the proposed land uses at the project. There are relatively low noise impacts for Mesa del Sol from the northeast-southwest runway; the 65 DNL (day-night average sound level) noise contours are far to the north and west. The noise contours for the north-south runway, which is used only when weather conditions render use of the other runways unsafe, also do not present a problem for development at Mesa del Sol. The noise is in the 65 DNL range. This range complies with Federal Aviation Administration (FAA) land use compatibility analysis and is acceptable for all land uses. These noise contours, based on a FAA Integrated Noise Model, represent an average noise level that can be expected over a period of time. Individual noise events may or may not exceed these levels. In response to these concerns and requests by the City of Albuquerque, it was agreed that the northernmost areas of Mesa del Sol would not include significant residential uses. Mesa del Sol’s developer will assure that all end users are aware of their proximity to the airport and will employ appropriate noise insulation strategies.

b. Kirtland Air Force Base and Sandia National Laboratories.

KAFB lies to the north and east of Mesa del Sol. The KAFB area is an active Air Force training and operations center for military personnel. In addition, the military reservation is used for weapons testing and munitions storage. KAFB is the third largest installation in Air Force Materiel Command, covering 51,558 acres and employing more than 25,000 people, including more than 4,200 active duty and 1,000 National Guard, 3,200 part-time Reserve personnel, and more than 11,000 people in non-federal and civilian contractor positions.

East of Mesa del Sol are approximately 24,959 acres originally known collectively as the U.S. Army’s Sandia Base that are also under the control of the KAFB Base Commander. In 1971, Kirtland and Sandia merged into one base. Sandia National Laboratories (SNL)



Mesa del Sol will be a new community on Albuquerque's Southeast Mesa. More than a master-planned community, Mesa del Sol is planned as a true extension of Albuquerque's urban fabric: a series of major employment centers, civic and institutional uses, walkable neighborhoods, and mixed-use centers linked by livable streets and a site-wide network of connected open space.

is a government-owned, contractor operated facility on KAFB with about 7,690 employees. Lockheed Martin manages SNL for the U.S. Department of Energy's (DOE) National Nuclear Security Administration (NNSA). Research facilities located to the east of Mesa del Sol include a rocket sled track used for accelerating test objects to high speeds.

SNL's precursor was created in 1945 as the ordnance design, testing, and assembly arm of Los Alamos National Laboratory and moved in 1948 to Sandia Base in Albuquerque to be near an airfield and to work closely with the military. It became a national laboratory in 1979. In addition to its large laboratory and headquarters in Albuquerque, SNL's other primary facility is a smaller laboratory in Livermore, California. SNL programs support the needs of the NNSA the DOE, and other federal agencies.

Two Air Force Research Laboratory directorates are headquartered at KAFB. The Space Vehicles Directorate develops and transitions space technologies for military applications. Primary focus areas include radiation hardened electronics; space power; space structures and control; space based sensing; space environmental effects; autonomous maneuvering; and balloon and satellite flight experiments. The Directed Energy Directorate develops, integrates and transitions science and technology for directed energy, to include high power microwaves, lasers, adaptive optics, imaging and effects. It is the Air Force's center of excellence for high power microwave technology and Department of Defense's center of expertise for laser development, including semiconductor, gas, chemical and solid-state lasers. The Directed Energy Directorate also assesses potential applications and effects of systems using directed energy technologies.

The Starfire Optical Range (SOR), part of the Directed Energy Directorate, conducts theoretical and experimental research in advanced tracking, adaptive optics, atmospheric physics and imaging of objects in space using large ground-based telescopes. Its purpose is to develop and demonstrate optical wavefront control technologies for overcoming the "seeing" limitations of large optical telescopes. The SOR houses a 3.5 meter telescope, a 1.5 meter telescope, and a 1.0 meter beam director. In addition to its primary research charter, the SOR also supports field experiments by others within the research community.

Preserving dark skies at Mesa del Sol through the careful design and specification of streetlights and other sources of illumination, and the provision of La Semilla as an undeveloped buffer, is critical to the continued success of SOR's mission. In addition, the City of Albuquerque is considering proposed zoning amendments intended to dim light pollution, offer a better view of the night sky, cut energy costs, and limit unwanted light affecting residential neighborhoods. The proposed changes include a curfew on lighted signs and a requirement that most outdoor lights be directed downward.

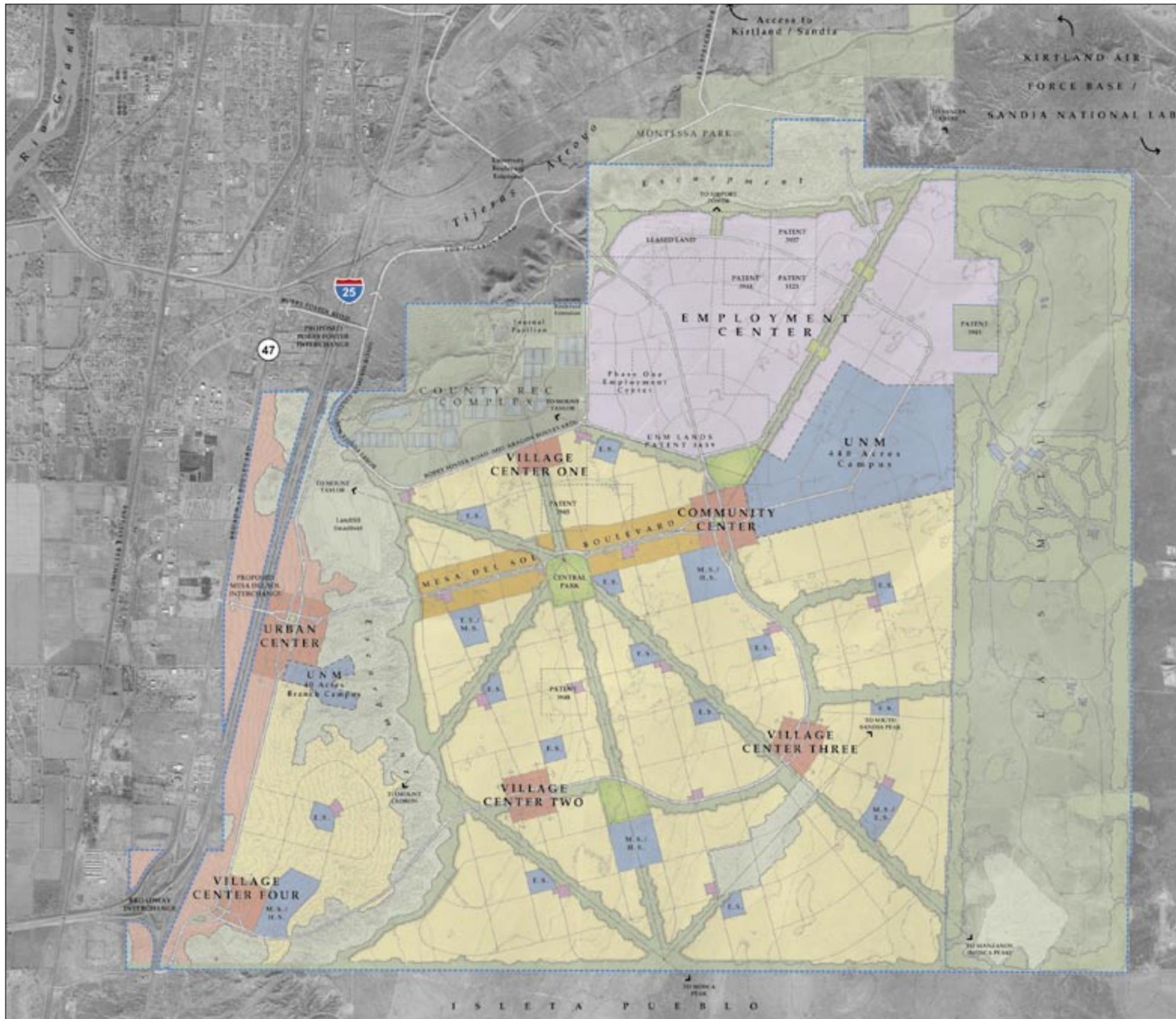
The entire KAFB area has a highly secured perimeter. The South Gate to KAFB is located to the north of Mesa del Sol, across the Tijeras Arroyo. New residential development at Mesa del Sol would provide opportunities for KAFB/Sandia employees and staff to live close to work. A potential secured employment area within the Mesa del Sol Employment Center could provide additional opportunities for high-security commercial, industrial, and research and development uses.

c. Isleta Pueblo.

Immediately to the south of Mesa del Sol lies the Pueblo of Isleta, which has been at its present location since long before Coronado first entered the area in the 1500's. The Isleta Pueblo is a southern Tiwa-speaking tribe related to the Sandia, Taos, and Picuris Native Americans. Isleta's current population is more than 3,166 (Census 2000 figures) and growing. Covering 211,002 acres, Isleta Pueblo's diverse terrain ranges from the forested Manzano Mountains on the east across the fertile Rio Grande Valley to the desert mesa lands of the Rio Puerco on the west.

Historically, agriculture was the main livelihood of the pueblo. Isleta now operates several business enterprises, including the Isleta Casino and Resort, a 300,000-square-foot casino complex which hosts five restaurants, big-name and local entertainment, alcohol service, a sports bar, and gift shop. The Pueblo also contains Isleta Eagle Golf Course, a championship 27-hole golf course with panoramic views and a convenience store. The golf course and other recreational uses at Isleta could provide needed recreational amenities for Mesa del Sol residents, reducing the need to build additional golf courses while providing the Isleta Eagle Golf Course with nearby customers.

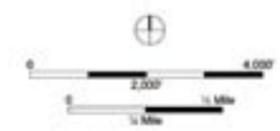
The portion of the Pueblo immediately adjacent to Mesa del Sol is used primarily for grazing. An open space buffer along the southern boundary of Mesa del Sol and careful stormwater and water-demand management, to minimize the use of groundwater sources, are key elements of the relationship between Mesa del Sol and Isleta Pueblo. Mesa del Sol will not develop production wells within one mile of the southern border of the property. Mesa del Sol is committed to establishing a 200-foot buffer along the southern boundary on the mesa top.



MASTER PLAN
Figure 2-3

Legend

- Mixed Use Centers
- Neighborhood Centers
- Commercial
- Schools & UNM Land
- Office / R&D
- Corridor Residential
- Residential
- Large Parks
- Trunk Open Space Network
- Steep Slopes & Playas





2.2 Development Program and Proposed Land Use Districts

Table 2-1 below summarizes the development program for Mesa del Sol, which is illustrated in Figure 2-3, Master Plan.

Table 2-1. Development Program

DISTRICT	Acres (gross)	Max. commercial sq. feet	Max. number of dwelling units ¹
Employment Center	1,485	9,056,124	1,485
Highway Commercial	385	4,000,000	-
Campus	480	2,500,000	-
Urban Center	92	1,500,000	828
Community Center	61	700,000	819
Village Center One	24	200,000	492
Village Center Two	40	200,000	660
Village Center Three	40	200,000	660
Village Center Four	40	200,000	660
Residential	4,704	50,000	31,896
TOTAL	7,351	18,606,124	37,500

Notes:

1. Accessory units shall not count toward the maximum number of dwelling units listed.

The overall plan will include a minimum of 25 percent open space area inclusive of La Semilla and the Bernalillo County Regional Recreational Complex.

The Mesa del Sol development standards include eight land use districts, which are generally located as follows:

Employment Center – the northernmost portion of the mesa top is planned as a major employment district.

Highway Commercial – portions of Mesa del Sol adjacent to Interstate 25 are planned for a variety of commercial and employment uses.

Urban Center – located below the escarpment near the future Mesa del Sol interchange, the Urban Center is planned as the most intense mixed-use center at Mesa del Sol.

Community Center – on the northeastern portion of the mesa, the Community Center will provide services and housing opportunities at the juncture of the Employment Center, Campus and Transit Corridors.

Village Centers – Typically anchored by a grocery store and located along a primary roadway, Village Centers will provide retail services to surrounding neighborhoods, as well as professional office space, civic uses, and higher-density forms of housing. Three Village Centers are planned on the mesa top, with an additional Village Center below the escarpment.

Residential Areas – The central and southern portions of the mesa are planned as residential areas with a broad range of housing types. Schools, parks and neighborhood centers will be included within Residential Areas.

Campus – Land being retained by the University of New Mexico for future campus uses is located at the northeastern portion of the mesa top, next to La Semilla and the Employment Center, as well as a separate, smaller area adjacent to the Urban Center.

Open Space – Mesa del Sol's extensive open space system includes the escarpment, south playa, and major parks and open space on the mesa, as well as La Semilla and the County Recreation Complex.

More detailed descriptions of the various land use types follow. See Figure 7-1 for the locations and extents of the proposed land use districts. District boundaries will be legally described in future submittals.

2.2.1 Employment Center

The northeastern portion of the mesa is planned as a major employment center. With convenient access to the Albuquerque International Sunport and I-25 via the Rio Bravo Interchange and University Boulevard/Rio Bravo Extension, this portion of the mesa top is well-suited to larger-scale employment requiring truck access, as well as larger-format office and research and development uses. Mesa del Sol is fortunate to have a back gate to KAFB, allowing for easy access without creating additional traffic congestion for the region. This easy access is a plus to attract out-of-state businesses that have in the past captured the business created from the work from KAFB partners. While a limited amount of supporting commercial and residential uses may also be developed within the Employment Center, the primary focus will be employment.

2.2.2 Highway Commercial

Portions of Mesa del Sol adjacent to I-25 are planned for a variety of employment-generating commercial uses. With good visibility from and future access to I-25, this area has the potential to attract manufacturing, warehousing, and distribution uses, as well as regional commercial uses.

2.2.3 Campus

The University of New Mexico will retain title to a total of 480 acres at Mesa del Sol for potential future campus use. A 40-acre parcel for a satellite campus will be located below the escarpment, adjacent to the Urban Center, along with a 440-acre tract on the mesa top.

2.2.4 Mixed-Use Centers

(Urban Center, Community Center, and Village Centers)

Planning for Mesa del Sol aims to coordinate the locations of retail uses, higher-density housing, transit, and public facilities in walkable, mixed-use centers that are easy to reach by car, transit, and bicycle and easy to walk around in once there. Walkable, mixed-use centers take the standard ingredients of development and arrange them in patterns that add up to more than the sum of their parts. Centers are focal points of services, jobs, housing, and retail that are located within walkable neighborhoods. Ideally, centers are memorable places that enrich the region's quality of life. They also help the region preserve its livability for future generations by making it easier to walk, bike, use transit, and make shorter and fewer auto trips. Mesa del Sol will have a range of centers that are desirable places to live, shop and do business because they are accessible, attractive and rich in amenities.

Centers are needed at a variety of scales. Smaller centers can place diverse housing choices within easy walking distance of parks, schools, and services and create a "park once and walk" environment for those who drive to a center. Larger centers can create synergies among civic, employment, retail, and residential uses, making places that are active throughout the day and evening and creating a market for high-quality transit service.

Connected street patterns encourage walking and bicycling within centers. Albuquerque neighborhoods built before 1945 typically had blocks of between three and five acres in size. Residents value the human scale and walkability of these older areas. New centers at Mesa del Sol will comply with the demands of the marketplace while recreating these valued qualities. The Urban and Community Centers may have larger-format retail and office uses that require larger blocks, but these can be balanced with residential areas that use smaller, human scale block sizes.

The following types of centers are proposed:

a. Urban Center

The Urban Center located at the base of the escarpment will be Mesa del Sol's largest and most concentrated walkable district of employment, housing, and retail. Designed to be served by a planned new I-25 interchange and a potential nearby commuter rail station, the Urban Center has the potential to attract people from all parts of the region. A 40-acre parcel adjacent to the Urban Center is being retained by the University of New Mexico for a potential branch campus.

The level of development contemplated for the Urban Center will require appropriate infrastructure, such as the interchange and access roads, parking structures, and high-quality transit service. Appropriate measures will be needed to manage auto traffic, including district-level parking strategies, the use of metered on-street parking to encourage turnover, traffic management strategies for events and an interconnected street system with continuous sidewalks, traffic calming measures and pedestrian facilities at intersections.

b. Community Center

The Community Center on the mesa will offer significant concentrations of jobs, housing and services in a walkable area that is served by, and visible from, several principal roadways and the primary transit boulevard. The Community Center will form a linchpin connecting Mesa del Sol's residential villages with the Employment Center and a potential UNM campus. The Community Center will incorporate retail uses, which may mean a community shopping center anchored by a supermarket, discount department store or large specialty/discount apparel store.

c. Village Centers

Village Centers will provide basic services to several surrounding neighborhoods and offer a range of housing choices concentrated around an existing or potential transit stop. To support viable retail services, they will typically require easy access and visibility from primary roadways. Mesa del Sol's Village Centers will provide focal points within a larger supporting area of predominantly single-family residential development, maximizing the opportunity for local destinations to be reachable by bicycle or a short auto trip. They are planned at intervals that provide a sufficient number of households to support a grocery



store. If a neighborhood is defined as an area within a quarter-mile of a park or other neighborhood center, typically four to six neighborhoods are needed to support one Village Center.

2.2.5 Residential Areas

Residential areas at Mesa del Sol will be designed to accommodate a diverse range of residential types, accessory units, and neighborhood parks and plazas. Within villages, housing will generally be oriented to streets as well as most public open spaces, promoting a walkable environment. Neighborhood edges will be defined by open space, major roadways, and adjacent uses.

Scattered throughout the residential areas are proposed sites for future elementary, middle, and high schools. These sites can also act as community gathering places and are intended to include open space and play fields for general community use.

Within residential areas there will also be neighborhood centers, focal points of neighborhood activity. They may include recreation facilities, open space, and limited amounts of neighborhood-serving commercial uses. Neighborhood centers will typically be located adjacent to elementary or middle schools.

A signature boulevard will run from the Urban Center adjacent to the future Mesa del Sol interchange up the escarpment to the Community Center. This boulevard will be designed to accommodate high-quality public transit service with the potential for a dedicated transit right of way. Multifamily, townhouses, and other higher-density residential uses are proposed for an area within about one-eighth of a mile on both sides of the transit boulevard. While some residential buildings along this corridor may incorporate ground-floor retail uses, the primary focus of the Transit Corridor will be residential uses in order to create sufficient density to support high levels of transit service in the future.

2.2.6 Open Space

Major public open space such as the escarpment and south playa, along with the County Recreation Complex, La Semilla and the larger public parks on the mesa top, are designated as open space. The open space system at Mesa Del Sol will comprise a minimum of 25 percent of the total site area. Distributed throughout the development, open space at Mesa Del Sol brings the beauty of the high desert into the community by establishing framed views of regional geographic landmarks, such as the valley and surrounding mountains, from the center of the development. Enjoyment of nature and views of the natural context will also be available from a broad band of open space that encompasses the escarpment and the north, east, and south perimeters of the development.

The open space system will be comprised of a variety of interconnected public spaces and natural areas providing residents and visitors opportunities for socializing, recreating and appreciating the beauty of the high desert. These open space components will also achieve several environmental objectives, including the preservation of the escarpment and several playas, the establishment of plant habitat and wildlife corridors throughout the development, and the natural treatment and infiltration of stormwater.

Open space types and functions are further described in Chapter Four, Environment and Open Space.

2.3 Off-Street Parking

At Mesa del Sol, standards for off-street parking will be similar to those of other walkable, mixed-use neighborhoods in Albuquerque. For non-residential uses, the City's standard parking requirements will apply, along with the standard reductions for shared parking in mixed-use areas and for areas served by transit.

Chapter 7, Development Standards, includes proposed parking standards for residential uses. All single-family dwellings at Mesa del Sol will have at least two off-street parking spaces. Since houses with rear garages served by alleys do not require curb cuts, on-street parking will be more plentiful on such streets than on typical streets with frequent driveways. In such neighborhoods, including many existing Albuquerque neighborhoods, the demand for visitor parking and for residential parking in excess of two spaces per dwelling unit can be accommodated by on-street parking. Appendix E includes analysis of the amount of on-street and apron parking that will be provided for the various housing types proposed at Mesa del Sol.

2.3.1 Parking Strategies in Mixed-Use Centers

Parking strategies are critical to the success of centers as multi-modal destinations. A reasonable supply of parking is important for market viability, but large surface parking lots located between buildings and streets discourage walking within centers by creating a visual environment that is hostile to pedestrians. Because of their mixed-use nature and high potential for transit service, development in Mesa del Sol's mixed-use centers will be designed to apply the mixed-use and transit corridor parking reductions permitted by the Albuquerque Zoning Code.

Mesa del Sol's Urban and Community Centers will be planned with flexible layouts that could accommodate structured parking in the future to help support the desired compact development patterns. In the Village Centers, structured parking may never be economically feasible, but surface parking lots can be designed in such a way that they contribute



to the desired pedestrian-friendly atmosphere. In general, parking areas for commercial and office uses should be located in the interior of blocks wherever possible so that buildings can be oriented to the street. Larger-footprint retail anchors may need to be located in the interior of blocks, but portions of the perimeter of the block can still be lined with street-facing buildings. The smaller “outpad” buildings that typically locate at the edges of retail parking lots, such as banks or restaurants, can also be designed to orient to the street while still providing easy access from the parking lot.

2.4 Phasing Strategy

The phasing strategy for Mesa del Sol recognizes the impacts of market conditions, existing area infrastructure planning, employment goals and the geographic constraints of its development location. Planned infrastructure projects, like the City’s University Boulevard extension project, and the proximity of available existing infrastructure play a large role in establishing an overall phasing plan. Market conditions and infrastructure funding issues may ultimately be the final factor in the phasing schemes and their timing. Accordingly, some flexibility for modifications to the development phasing must be retained.

2.4.1 Initial Mesa del Sol Phase (Phase I)

For many reasons, the initial construction phase of Mesa del Sol will occur in the northern and central zone of Mesa del Sol, as shown in Figure 2-4. Chief among the reasons is the City of Albuquerque’s plan to construct the University Boulevard roadway extension in 2005-2006. The terminus of this planned four-lane roadway occurs near the mid point of Mesa del Sol’s northern mesa top boundary, which is also the Journal Pavilions’ main parking and access point. With the construction of this roadway, a major access point is established to Mesa del Sol, along with the attendant master plan water and sewer lines.

The new University Boulevard terminus further coincides with the location of the main Employment Center of Mesa del Sol. As the early development of jobs is a central theme of Mesa del Sol, it is fortunate that the initial infrastructure construction occurs in this area, potentially permitting job-creating industrial or commercial construction activities as early as 2006. Further, with relatively short extensions of the roadway and utilities, a first residential neighborhood location becomes likely in 2007 near the southeast corner of the Bernalillo County Regional Recreational Complex.

Finally, unlike much of the remaining area of Mesa del Sol, the initial phase area can be served by gravity sewer, avoiding the early use of costly and maintenance-intensive sewage pump stations and force mains.

Phase I will also see the beginning of some commercial retail uses in Village Center One, in support of the initial residential and Employment Center development.

2.4.2 Intermediate Phase (Phase II)

Generally, continued residential development proceeds westerly and southerly from the Phase I residential lands. Phase II development may represent roughly a 15-year time-frame, beginning in approximately 2010.

From a non-residential perspective, mesa top development of the Employment Center will proceed easterly from Phase I. However, the proposed construction of the Interstate 25 interchange at Mesa del Sol Boulevard, possibly around 2010, will encourage commercial and light industrial activities in this westerly Mesa del Sol area as well.

Phase II will likely see the expansion of the water system to include Water Utility Authority onsite wells on the mesa top and the introduction of sewage pump stations (for the Interstate 25 development area and central/westerly mesa top lands). The Urban Center at Interstate 25 and the Community Center is also anticipated to come on the scene in Phase II.

2.4.3 Ultimate Buildout (Phase III)

Although difficult to predict, development of the remaining lands of Mesa del Sol are anticipated to occur beyond 2026. Development phasing will be keyed to the convenient access to Interstate 25 via Mesa del Sol Boulevard, but again seeking to remain as long as possible in the gravity sewer serviceable area.

Of note, Phase III will require the installation of the proposed water reclamation plant for sewage management, perhaps initiating greater levels of wastewater reuse and potentially beginning the aquifer recharge program.

Accordingly, development over the final years or decades of Mesa del Sol will occur in a southerly and easterly direction, extending roads, services and utilities with each new development effort.



Mesa del Sol’s Urban and Community Centers will be planned with flexible layouts that could accommodate structured parking in the future to help support the desired compact development patterns.



PHASING PLAN

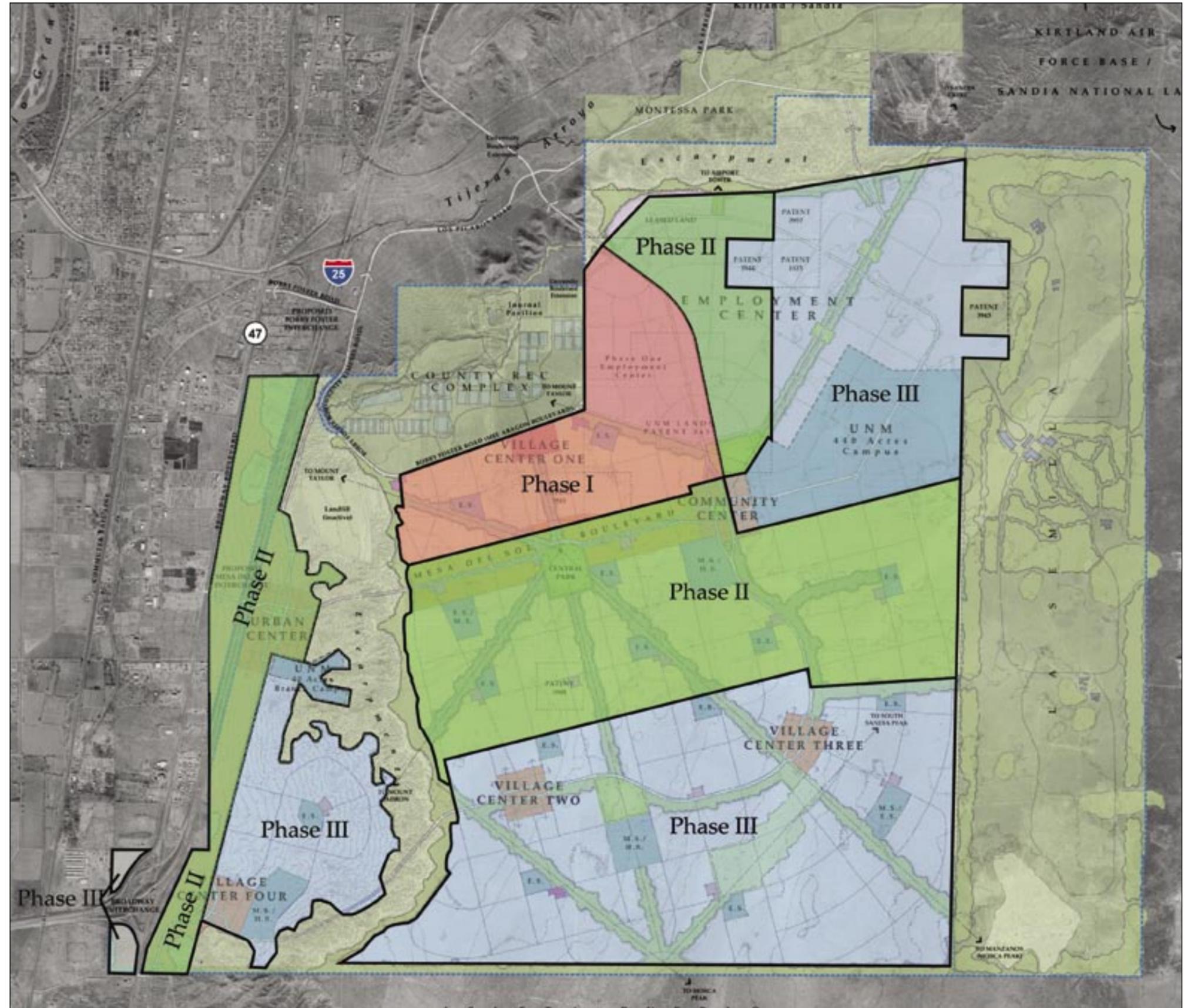
Figure 2-4

Notes

Phase lines are approximate only and subject to change based on market conditions, etc.

Legend

- Phase I
- Phase II
- Phase III





TRANSPORTATION

LEVEL A PLAN : JUNE 2005

3



MESA DEL SOL

A Multi-Modal System

Transportation

This chapter discusses the transportation system proposed for Mesa del Sol. Transportation infrastructure will be phased as needed to serve development, as substantiated by traffic impact analyses. In keeping with the sustainability concept, the safety and comfort of people walking, bicycling and using public transit will be paramount considerations in the design of the transportation system. This does not mean that automobile considerations will be neglected; in fact, the safe and efficient movement of automobiles is actually enhanced by the balanced, inter-modal transportation system proposed for Mesa del Sol.

The Mesa del Sol transportation system is planned to be truly multi-modal, reflecting the progressive values of the City of Albuquerque and the New Mexico Department of Transportation. The transportation system will balance the needs of motorists, transit users, bicyclists, and pedestrians and will integrate all of these systems into the major and minor transportation corridors proposed for the development.

3.1 Primary Road Types and Section

The primary roadway system is illustrated in Figure 3-1, Auto and Transit Circulation. The various roadway types are described below.

3.1.1 Mesa del Sol Boulevard

Mesa del Sol Boulevard, which will connect the two largest mixed-use centers, is a multi-functional roadway designed to match the mixed-use centers it supports. Like traditional boulevards, it has a central roadway for through traffic and transit, along with small-scale access roads, similar to frontage roads, to support local activity, on-street parking and a pedestrian environment at the edges. It is a place where cafes, small businesses, apartments, transit, parking, and through traffic all mingle in a simple and time-tested hierarchy.

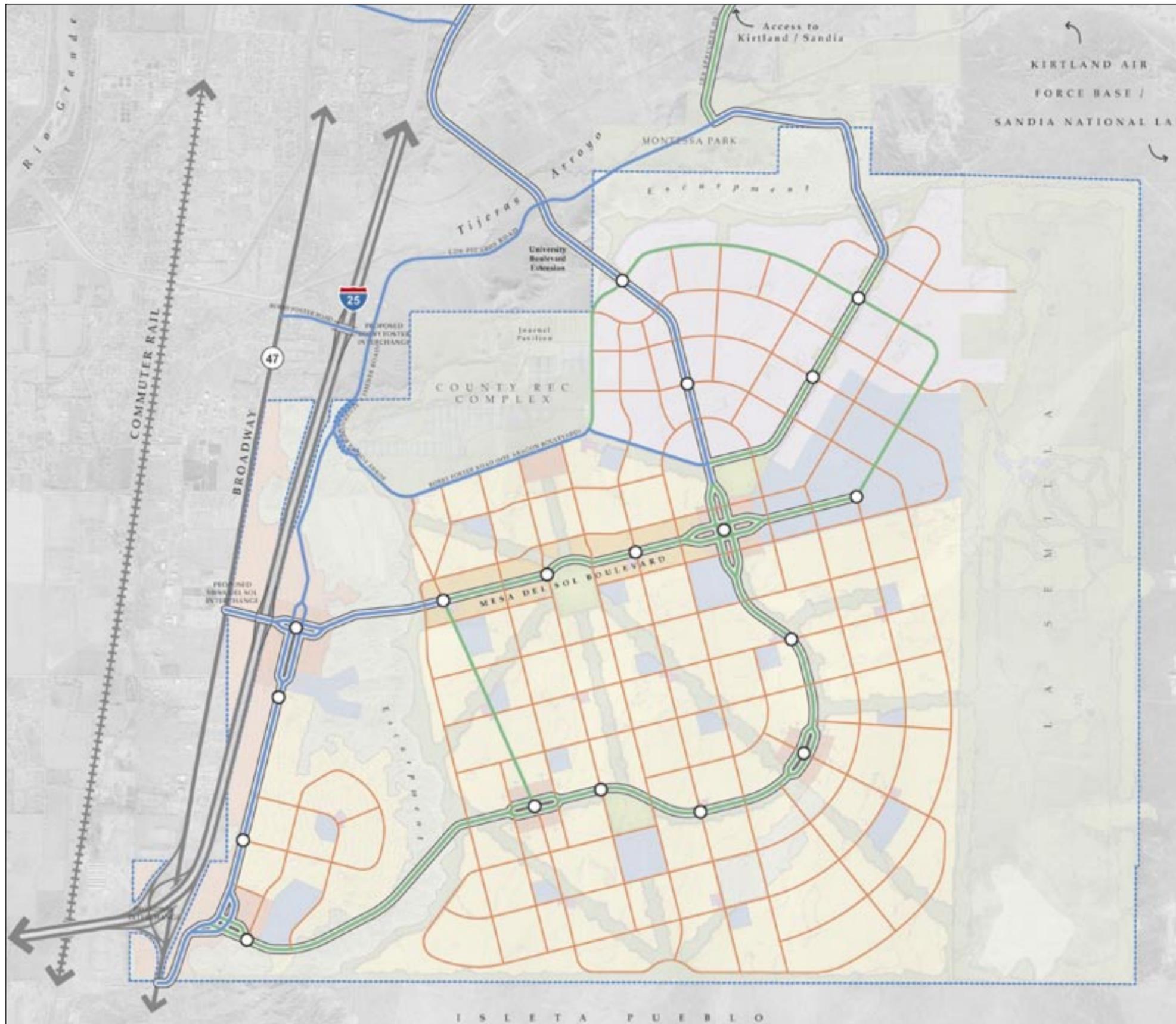
Mesa del Sol Boulevard may be lined with higher density development and will run through the most intense mixed-use centers at Mesa del Sol – the Urban Center and Community Center. It will continue on to serve the Employment Center, and connect, via the University Boulevard Extension and an interchange with I-25, to the rest of Albuquerque. The design of Mesa del Sol Boulevard will be compatible with the ABQ Ride's

preferred type of transit, which could be light rail, streetcars, or Bus Rapid Transit (BRT), with the potential for a dedicated transit right-of-way in the median.

Within the Urban and Community Centers, the boulevard will split into a one-way couplet (a pair of one-way streets one block apart), creating an urban grid of pedestrian-scaled streets for a few blocks, before transitioning back to a single right-of-way. In keeping with the concept of a sustainable, safe, pedestrian-friendly environment, no street at Mesa del Sol will contain more than three travel lanes in one direction, allowing pedestrian continuity without diverting auto capacity. In addition, the one-way couplet intersection treatment mentioned before eliminates left turn delays, actually decreasing travel time through the mixed-use centers. Mesa del Sol Boulevard will include bicycle lanes adjacent to the through traffic lanes. Parking lanes will be provided along the access road portion, with landscaped walkways adjacent to the parking lanes.

3.1.2 Avenues

Avenues are the major routes in addition to Mesa del Sol Boulevard that will connect Mesa del Sol's mixed-use centers to each other and to the rest of the region. Avenues will typically have four lanes. Within Mesa del Sol's mixed-use centers, avenues will



AUTO AND TRANSIT CIRCULATION

Figure 3-1

Legend

- Primary Transit Nodes 
- Trunk Transit Routes 
- Primary Roadways (Boulevards and Avenues)
 - 2 or 3 Lanes Each Direction 
 - 2 Lanes Each Direction 
- Connector Roads 

Note: these road configurations and lane totals are preliminary. The final transportation study will dictate actual laneage. Some roadways may have phased construction.



Table 3-1. Functional Classification of Mesa del Sol Cross Sections

Classification	Principal Function	Spacing	Maximum Volume (range)
Divided Arterials	Mobility	1 – 1 1/2 miles	10,000 – 11,000 vpdpl**
- 1A-2 Transit Boulevard Configuration A			40,000 – 44,000 vpd***
- 1B-2 Transit Boulevard Configuration B			40,000 – 44,000 vpd
- 1B-3 Transit Boulevard Configuration B			60,000 – 66,000 vpd
- 1C-2 Parkside Boulevard			40,000 – 44,000 vpd
- 1C-3 Parkside Boulevard			60,000 – 66,000 vpd
- 1D-3 Parkside Boulevard w/out Transitway			60,000 – 66,000 vpd
- Avenue A (Employment Center)			38,000 – 41,000 vpd
- Avenue B (Employment Center)			36,000 – 38,000 vpd
- 1E-2 Avenue with Transitway			36,000 – 38,000 vpd
- 1E-3 Avenue with Transitway			56,000 – 60,000 vpd
- 1F-2 Avenue w/out Transitway			36,000 – 38,000 vpd
- 1F-3 Avenue w/out Transitway			56,000 – 60,000 vpd
- 1G-2 Avenue on Slope			40,000 – 44,000 vpd
- 1G-3 Avenue on Slope			60,000 – 66,000 vpd
- 1H-3 Avenue on Slope w/out Transitway			60,000 – 66,000 vpd
- 1I-2 Avenue Interstate Bridge			40,000 – 44,000 vpd
- 1I-3 Avenue Interstate Bridge			60,000 – 66,000 vpd
- 1J-2 Avenue Open Space Frontage			40,000 – 44,000 vpd
- 1J-3 Avenue Open Space Frontage			60,000 – 66,000 vpd
- 1K-2 Avenue Open Space w/out Transit			40,000 – 44,000 vpd
- 1K-3 Avenue Open Space w/out Transit			60,000 – 66,000 vpd
- 1L Avenue Couplet w/ Transitway			18,000 – 19,800 vpd
- 1L Avenue Couplet w/ Transitway at Station			18,000 – 19,800 vpd
- 1M Avenue Couplet w/out Transitway			16,000 – 17,600 vpd
- 1L Avenue Couplet w/ Transitway			16,000 – 17,600 vpd
Connectors	50% Mobility, 50% Access	1/4 mile	6,000 – 6,600 vpdpl
- 2A Connector Main Street (Commercial)			12,000 – 13,200 vpd
- 2B Connector Residential w/ Median			12,000 – 13,200 vpd
- 2C Connector Residential			12,000 – 13,200 vpd
- 2D Connector Industrial			12,000 – 13,200 vpd
Locals	Access	180 – 700 feet	2,000 – 2,200 vpdpl
- 3A Local A			4,000 – 4,400 vpd
- 3B Local B Queueing			4,000 – 4,400 vpd
- 3C Local C Queueing			1,500 – 1,650 vpd
- 3D Local D One Way			2,000 – 2,200 vpd
- 3E Local E One Way by Open Space			2,000 – 2,200 vpd
- 3F Local F Queueing Restricted Parking			1,500 – 1,650 vpd
- 3G Local G Industrial R&D			4,000 – 4,400 vpd
- 3H Local H Alameda			4,000 – 4,400 vpd
Other	Access & Walking		
- 4A Alley			NA
- 4B Pedestrian Way			NA

Notes:
 * = One Way Street
 ** vpdpl = vehicles per day per lane
 *** vpd = vehicles per day

typically break into an urban couplet of no more than two-lane streets, similar to Mesa del Sol Boulevard. Between centers, avenues could have a parkway treatment lined by alley-loaded housing – as in the historic neighborhoods of many American cities.

3.1.3 Connector Streets

Connector streets form a finer grid of approximately one-quarter mile spacing within and between neighborhoods. These connections provide routes for direct access to local village and town centers, as well as neighborhood centers. Connector streets are more frequent and more continuous than standard collectors or local streets and therefore serve to disperse the traffic in such a way as to create livable environments along them. The connectedness of the connector street system also serves to relieve the avenues of local trips. Connector streets have two lanes and on-street parking. Depending on traffic volumes, bicycle lanes or routing may be provided.

3.1.4 Local Streets

Local streets are planned with sidewalks on both sides and pedestrian-scaled street lighting. Several local street sections have been developed for Mesa del Sol. In order to keep traffic speeds low while providing adequate emergency access, pavement widths for local streets are proposed to vary from 21 to 32 feet (curb-to-curb) for two-way traffic, with a 19- to 26-foot pavement section for one-way traffic. This is narrower than City of Albuquerque standards, which require a minimum of 36 to 40 feet of pavement for two-way streets with frequent on-street parking, subject to utility spacing and offset requirements as well. However, these narrower sections exist already in some of Albuquerque’s older neighborhoods and have been applied successfully in many other jurisdictions. The use of the various local street sections will depend on context and anticipated traffic volumes. (Refer to Appendix D, Street Design, for additional information, including case studies and contacts.)

3.1.5 Street Section Application

Table 3-1 (opposite) shows the functional classification and application by traffic volume of the Mesa del Sol typical sections. The higher classifications are designed for mobility and are spaced further apart than the lower classifications, which provide access to land uses and are spaced closer together. This table includes additional sections that are not shown with figures, but which would be further permutations of the general sections described above. The use and applications of the typical sections will be presented and discussed in more detail in future Level B reports.

The numbers provided as “Maximum Volumes” represent an estimate of the maximum total number of vehicles likely to be able to use the facility per day, i.e. the total average daily traffic (ADT). The actual maximum could vary by as much as 10 percent and will ultimately depend on auxiliary lanes, turning movements and intersection operations. A more detailed analysis of operations will be performed in subsequent Level B and C phases of planning.

Arterials are assumed to have a capacity of 10,000 vehicles per day per lane (vpdpl). A review of traffic volumes on arterial roadways in cities comparable to Albuquerque indicates a maximum of 12,000 vpdpl, but to be conservative, and taking the relatively low local tolerance for congestion into account, we are assuming 80 percent of this value. In addition, because of the impedance of maneuvers present with parking lanes, we have reduced the assumed capacity of lanes adjacent to parking to be 8,000 vpdpl.

Connectors are assumed to have a maximum volume of approximately 50 percent of the measured maximum of 12,000 vpdpl, which is consistent with their function (i.e. 50 percent mobility, 50 percent access). This volume (6,000 vpdpl) is consistent with findings from the similar Stapleton development in Denver, which also utilizes New Urbanist concepts.

Local roads are assumed to have a maximum volume of 2,000 vpdpl, which reflects the use of local roads primarily for local access. On local roads with queueing (i.e. one lane of travel for two directions), it is estimated that capacity will be reduced approximately 25% such that the maximum volume is 1,500 vpd. Applying the trip generation rules, it is unlikely that residential areas that use each local road will generate more traffic than this theoretical capacity, given the density of housing and the spacing of local roads.

3.2 Analysis of Network Performance

The transportation network planned for Mesa del Sol, based on the concepts of “New Urbanism,” consists in large part of an interconnected grid of small-scale streets that reduces reliance on a few arterials and instead, distributes the traffic over many “connector” streets. This concept is illustrated in Figure 3-1, Auto & Transit Circulation.

Primary boulevards and avenues (major and minor arterials) are still needed and used, as the key ingress and egress corridors connecting Mesa del Sol with the surrounding transportation system off-site. In addition, boulevards and avenues will also connect the urban and village centers to each other. Within the urban and village centers, the boulevards or avenues will be split directionally to form one-way couplets, which will be divided by large medians or city blocks. For general circulation within the site, the extensive system of connector roads provides a more than adequate network that evenly distributes traffic across a number of parallel facilities and thereby reduces capacity requirements on each one individually.

As an integral component of the transportation network, there is equal emphasis placed on multi-modal aspects of transportation, which in Mesa del Sol include transit provisions, bicycle trails and lanes, and sidewalks and trails for pedestrians. The focus of the following subsections will be on the roadway / street component of the transportation network.

3.2.1 Transportation System Performance in 2025

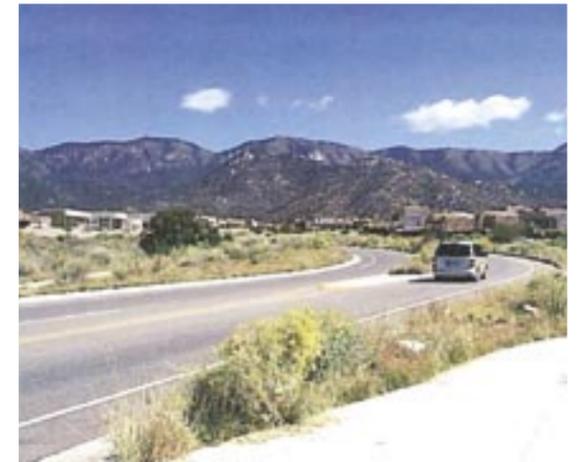
The proposed transportation network planned for 2025 consists of several major corridors, designated as boulevards and avenues as described in previous sections of this document.

The principal corridor that bisects Mesa del Sol east to west is referred to as Mesa del Sol Boulevard and is planned to serve as the primary access to the site from I-25. This roadway is expected to provide not only a vehicle connection to I-25 and Broadway, but also a transit connection to a possible Commuter Rail station. A new interchange is planned for Mesa del Sol Boulevard at I-25, with other connections to I-25 planned for build-out beyond 2025.

The extension of University Boulevard into the site, which will intersect with Mesa del Sol Boulevard, will serve as the primary north-south transportation corridor and is expected as the primary connection for transit service to the site from points north. In addition, the existing Bobby Foster Road on the north boundary of the site will be upgraded and provide another avenue to connect off-site locations from Broadway with new site development. Since the site is physically divided by the mesa terrain, the portion of the site along I-25 and below the mesa escarpment will be served by a separate north-south avenue that will connect to Broadway and NM 47 at the south, and with Mesa del Sol Boulevard and I-25 at its north end.

As an integral part of planning the transportation network, modeling of the network’s performance is necessary to assure that adequate roadway capacity is provided to meet future traffic needs. Travel demand modeling for Mesa del Sol has been accomplished using the existing regional travel demand computer model maintained by the Mid-Region Council of Governments (MRCOG). This model functions as MRCOG’s primary transportation planning tool for the Albuquerque metropolitan area. The model has been used to estimate traffic loads, capacity needs, and network impacts associated with the proposed Mesa del Sol development. Complete details of the travel demand modeling process and results will be included in Appendix F, Transportation, to be submitted separately.

Use of the travel demand model has demonstrated that the Mesa del Sol transportation network proposed in this Master Plan (on-site) is not only adequate to meet future traffic needs, but that the system has added capacity for faster traffic growth than is currently predicted for 2025. With few exceptions, almost all of the roadways planned for 2025 are projected to operate at high levels of service (LOS), LOS A or LOS B. The north-south avenue just east of I-25 connecting the Urban Center with Village Center Four will operate at LOS C. University Blvd. entering and exiting the site, is projected in the travel demand model to function at a greater level of traffic congestion, however, the modeled condition (refer to Appendix F) is not likely to materialize, since the introduction of high capacity transit into this corridor is expected to mitigate traffic congestion concerns. In general, the only capacity problems projected in 2025 occur off-site, on roadways that exhibit capacity problems in 2025 anyway, without the added traffic from Mesa del Sol. In summary, the transportation system proposed will meet the needs of site-generated traffic in 2025.



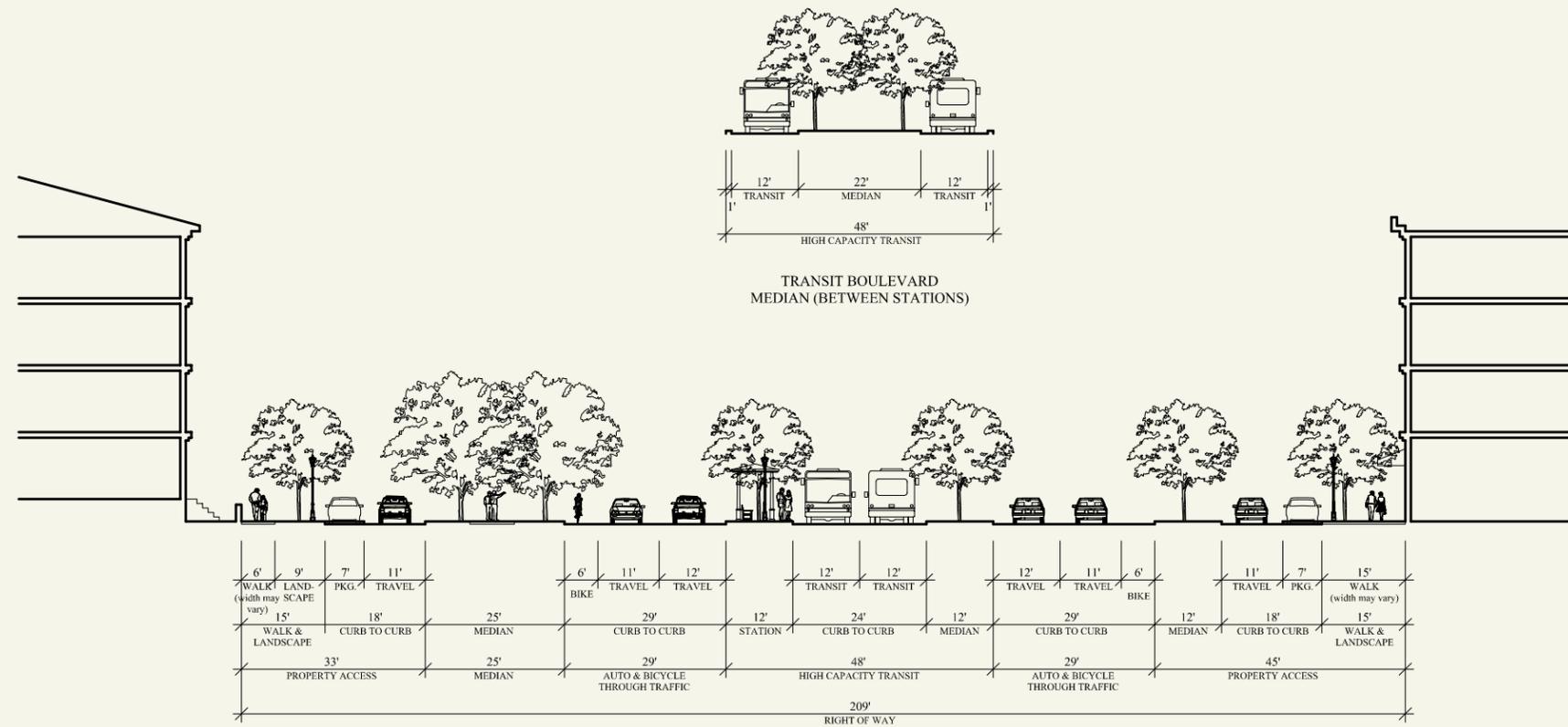
In keeping with the concept of a sustainable, safe, pedestrian-friendly environment, no street at Mesa del Sol will contain more than three travel lanes in one direction, allowing pedestrian continuity without diverting auto capacity. Mesa del Sol Boulevard will include bicycle lanes adjacent to the through traffic lanes. Parking lanes will be provided along the access road portion, with landscaped walkways adjacent to the parking lanes.



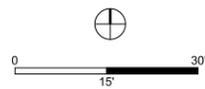
STREET SECTIONS

Boulevards 1

(Primary roadways with multi-roadway boulevard configurations)

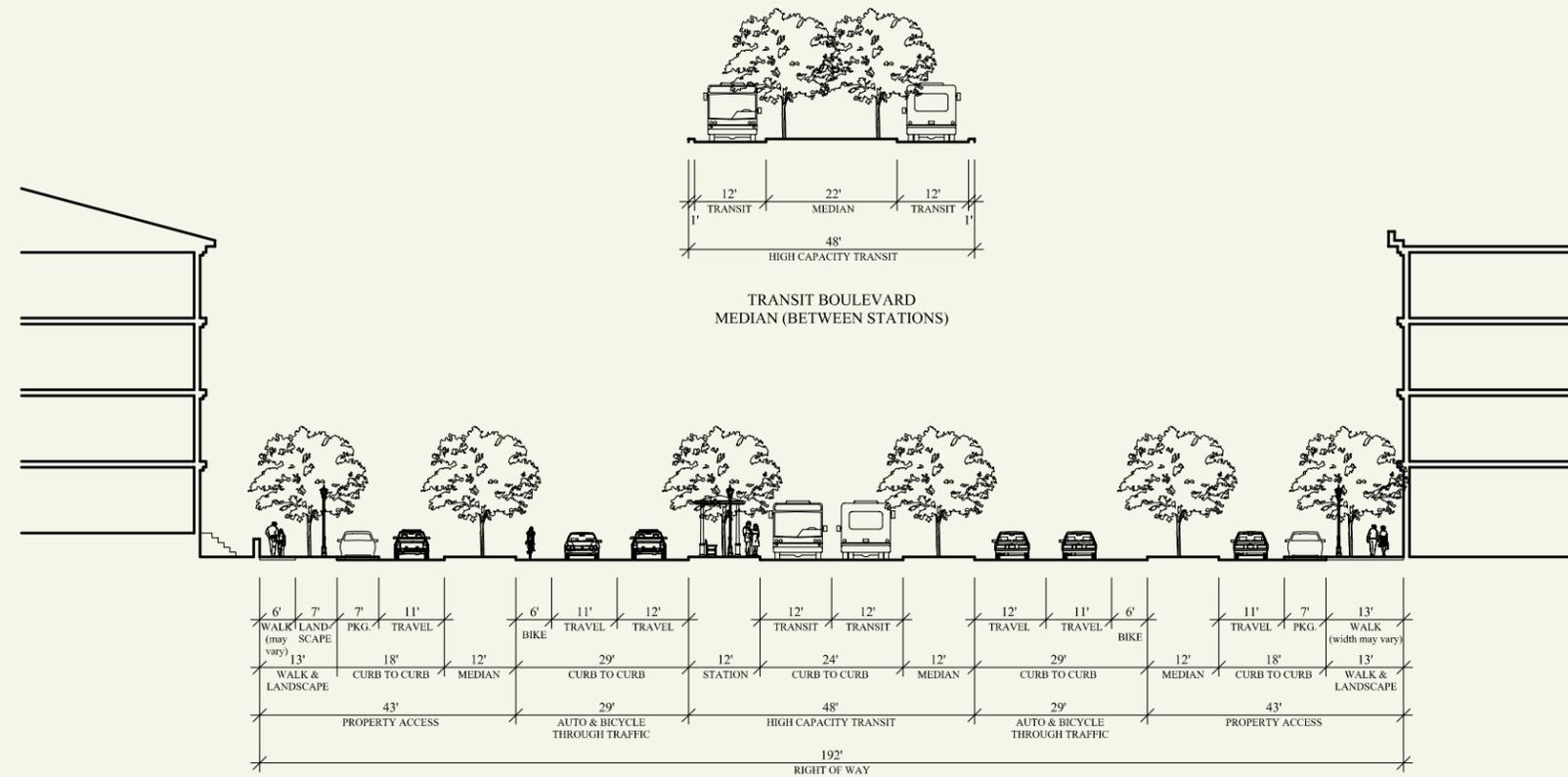


1A-2 TRANSIT BOULEVARD CONFIGURATION A
Two Through Lanes per Direction

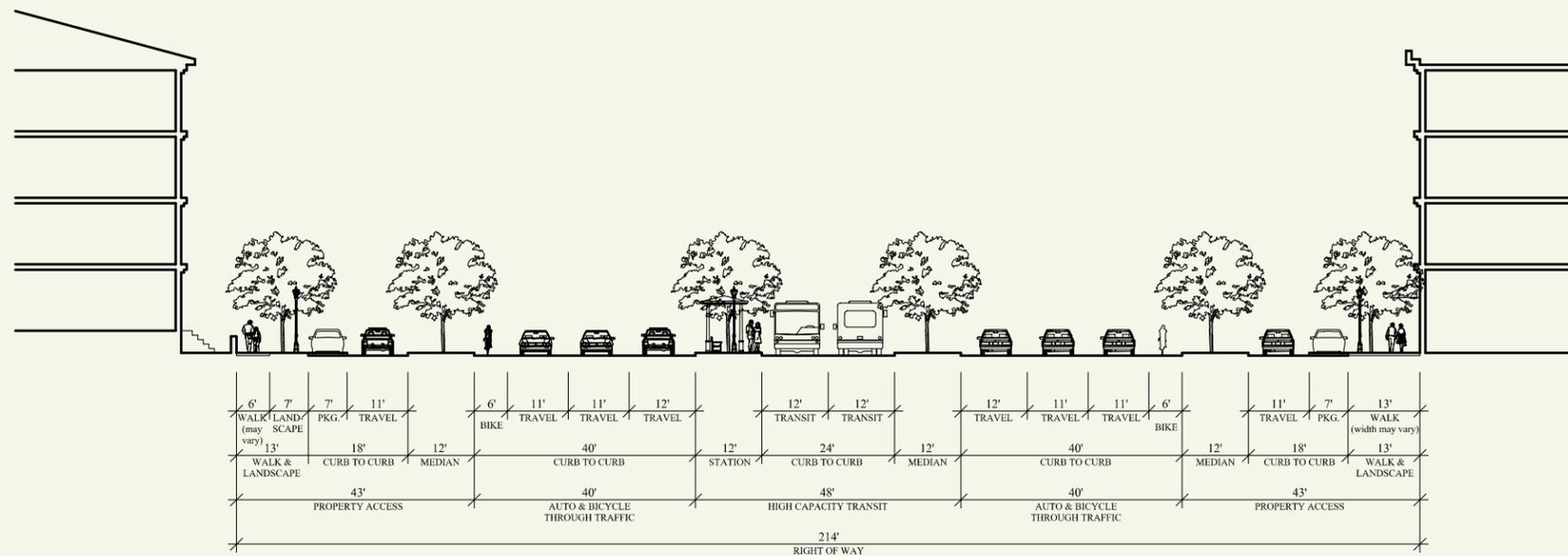


STREET SECTIONS

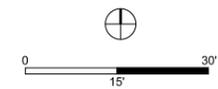
Boulevards 1
 (Primary roadways with multi-roadway boulevard configurations)



1B-2 TRANSIT BOULEVARD CONFIGURATION B
Two Through Lanes per Direction

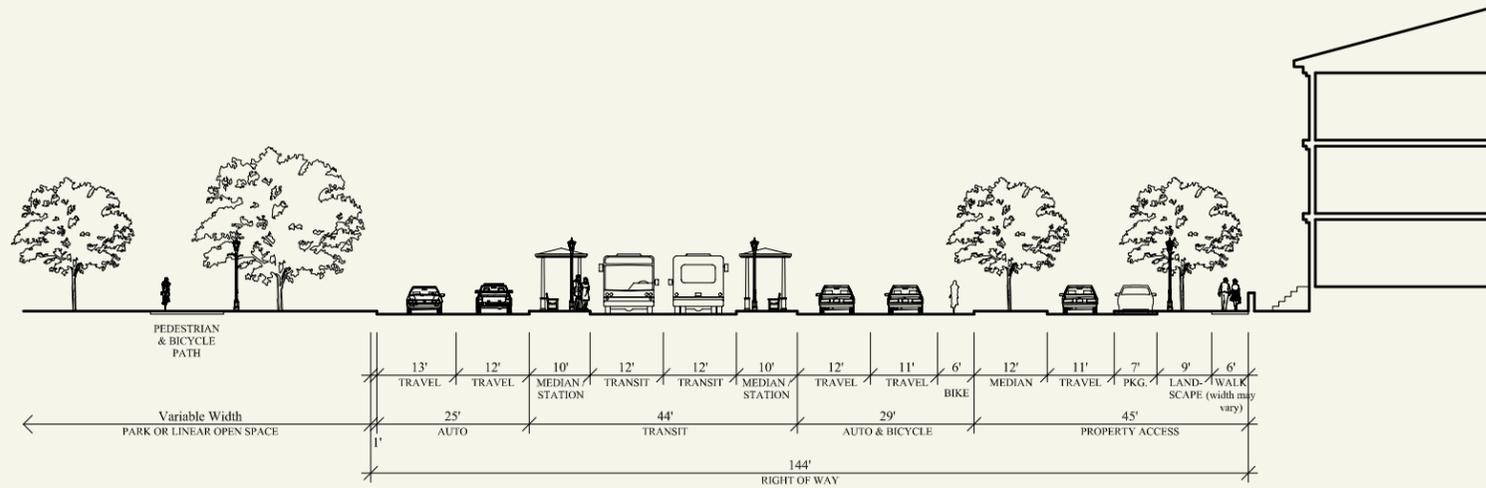


1B-3 TRANSIT BOULEVARD CONFIGURATION B
Three Through Lanes per Direction

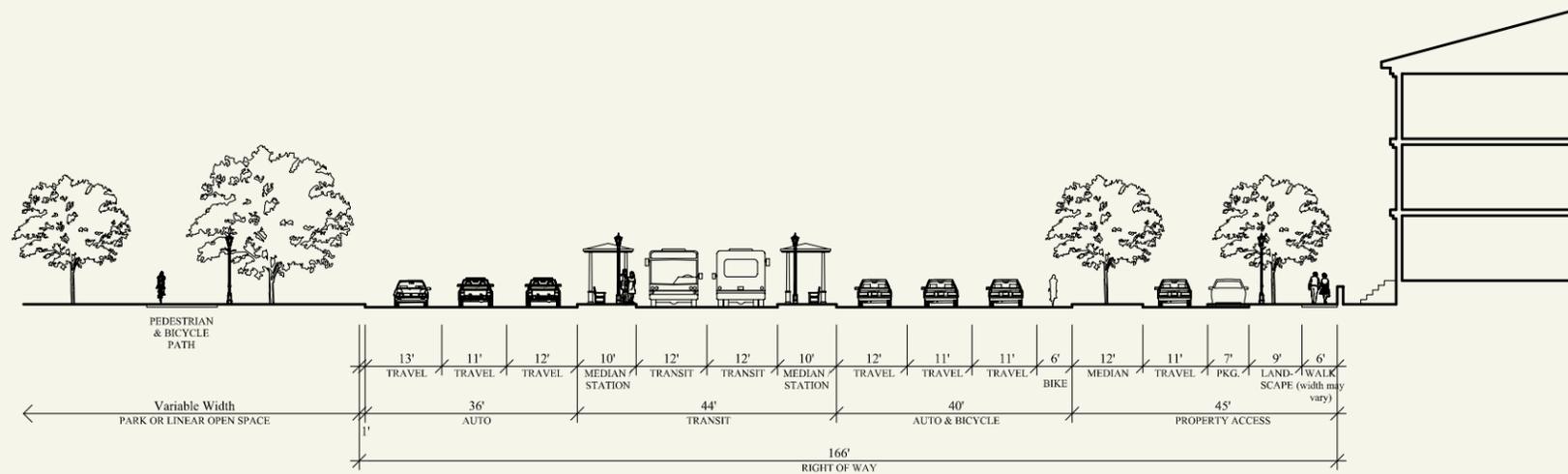


STREET SECTIONS

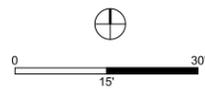
Boulevards 1
 (Primary roadways with multi-roadway boulevard configurations)



1C-2 PARKSIDE BOULEVARD
 Two Through Lanes per Direction

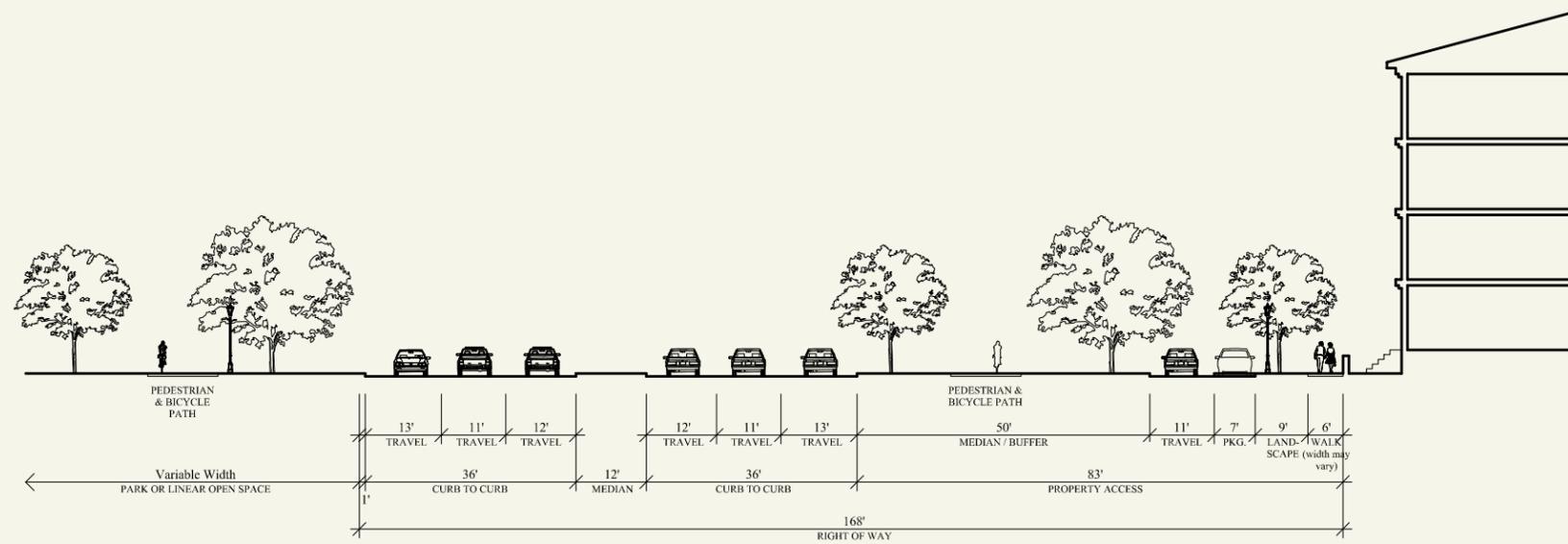


1C-3 PARKSIDE BOULEVARD
 Three Through Lanes per Direction

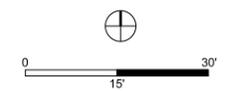


STREET SECTIONS

Boulevards 1
 (Primary roadways with multi-roadway boulevard configurations)



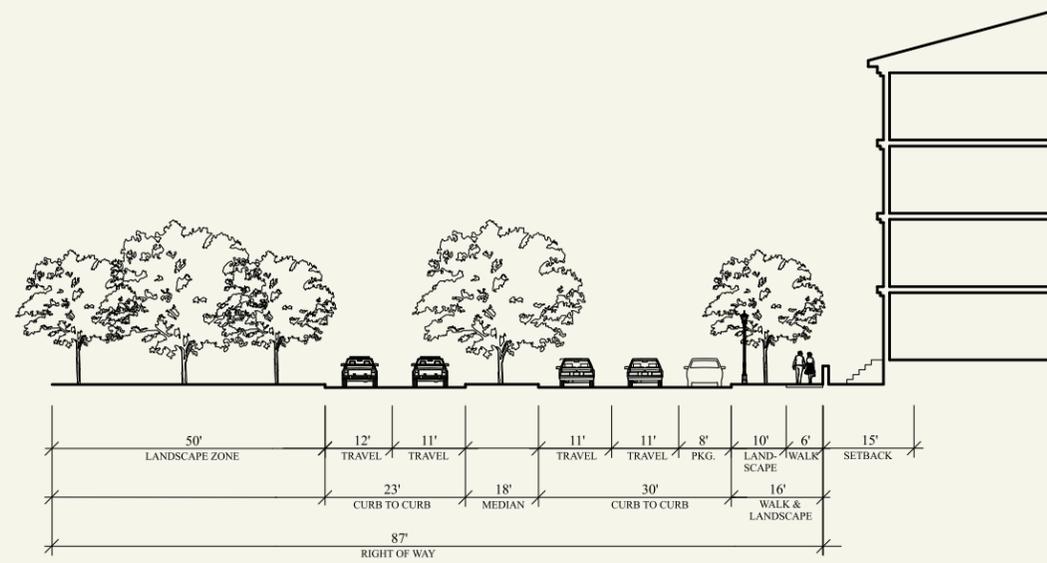
1D-3 PARKSIDE BOULEVARD WITHOUT TRANSITWAY
 Three Through Lanes per Direction



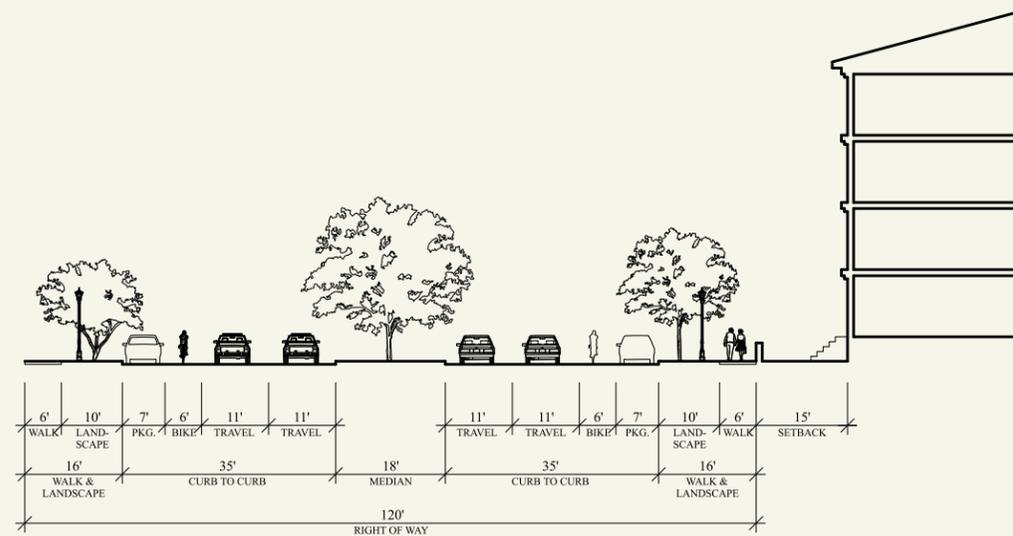
STREET SECTIONS

Avenues 1

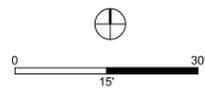
(Primary roadways without multi-roadway boulevard configurations)



"AVENUE A" (EMPLOYMENT CENTER)
Two Through Lanes per Direction

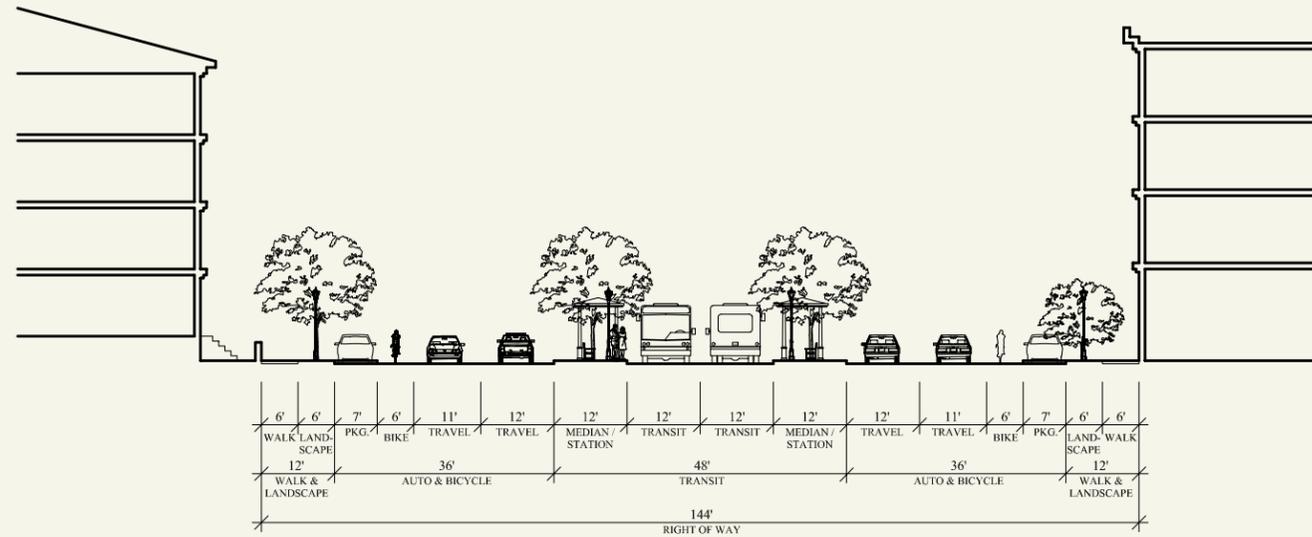


"AVENUE B" (EMPLOYMENT CENTER)
Two Through Lanes per Direction

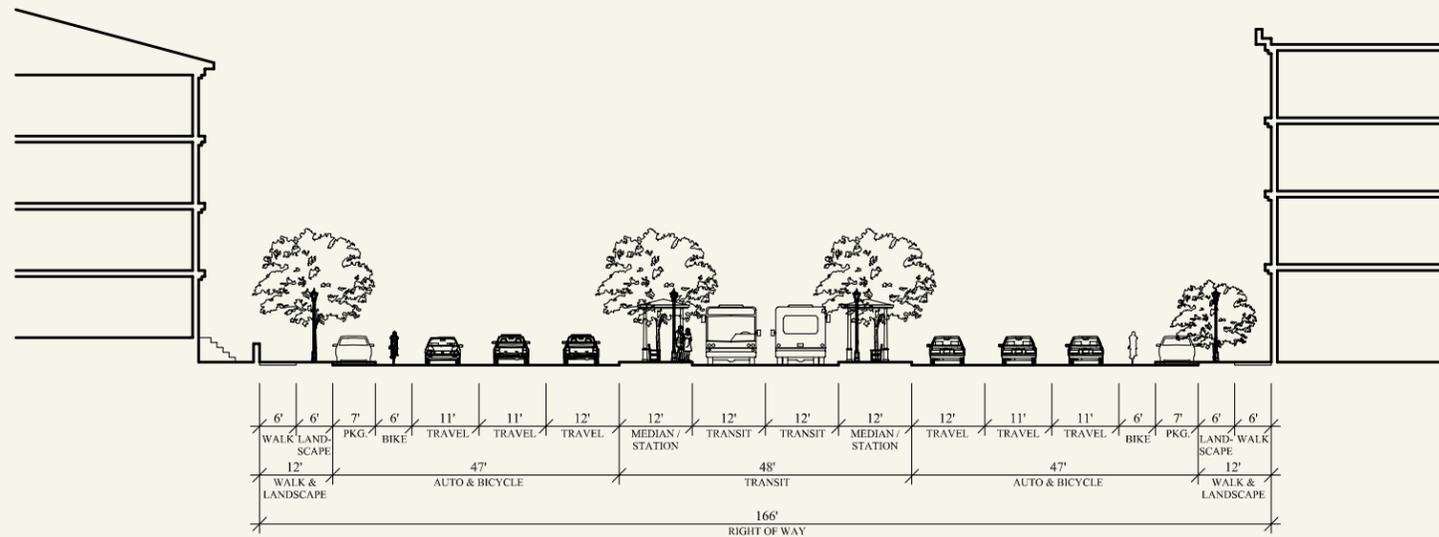


STREET SECTIONS

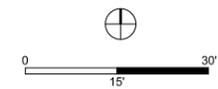
Avenues 1
(Primary roadways without multi-roadway boulevard configurations)



1E-2 AVENUE WITH TRANSITWAY
Two Through Lanes per Direction



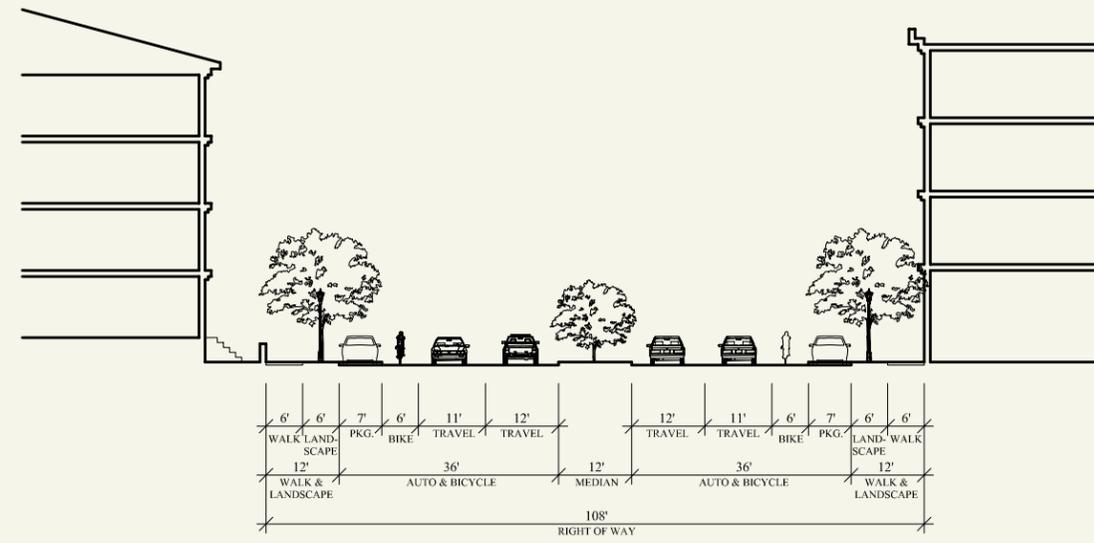
1E-3 AVENUE WITH TRANSITWAY
Three Through Lanes per Direction



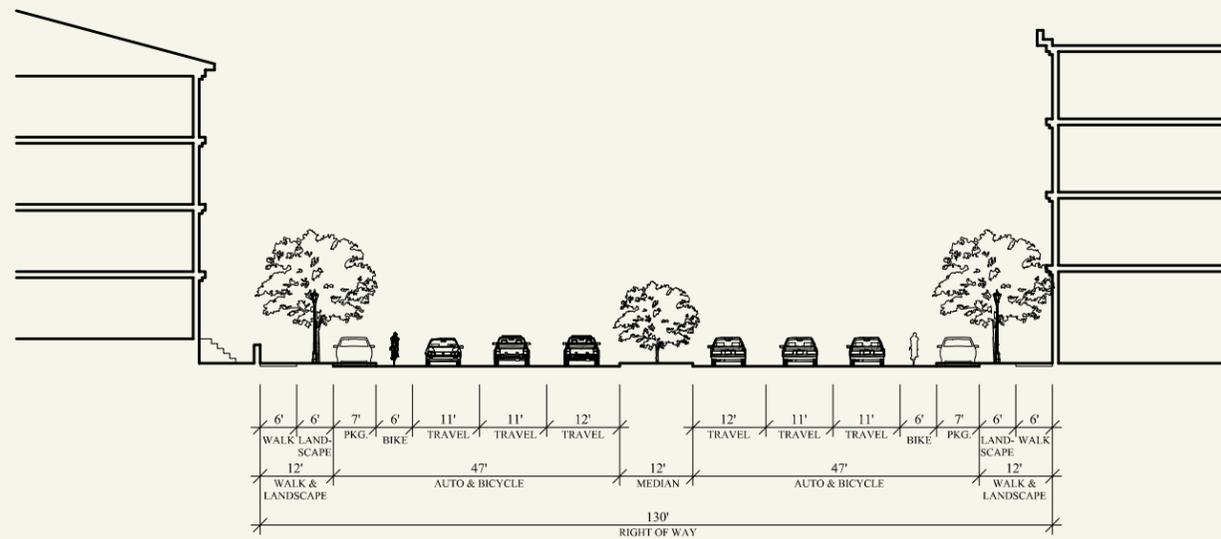
STREET SECTIONS

Avenues 1

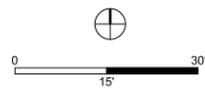
(Primary roadways without multi-roadway boulevard configurations)



1F-2 AVENUE WITHOUT TRANSITWAY
Two Through Lanes per Direction

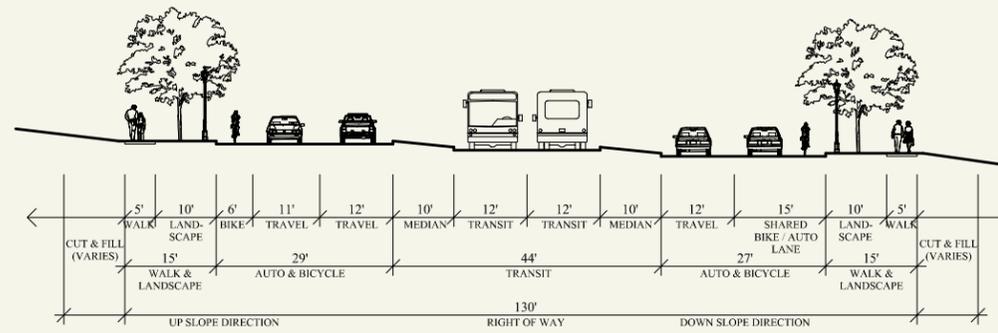


1F-3 AVENUE WITHOUT TRANSITWAY
Three Through Lanes per Direction

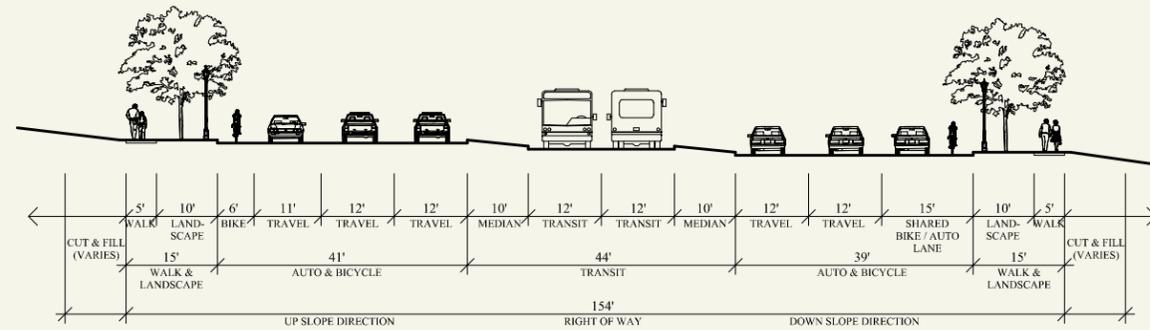


STREET SECTIONS

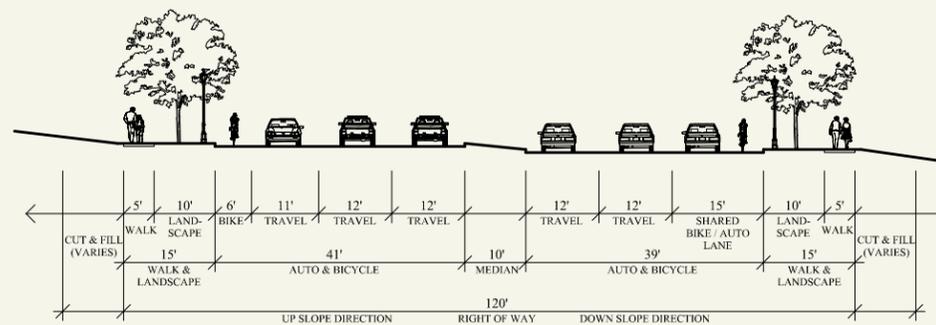
Avenues 1
(Primary roadways without multi-roadway boulevard configurations)



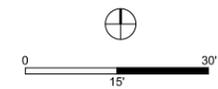
1G-2 AVENUE ON SLOPE
Two Through Lanes per Direction



1G-3 AVENUE ON SLOPE
Three Through Lanes per Direction



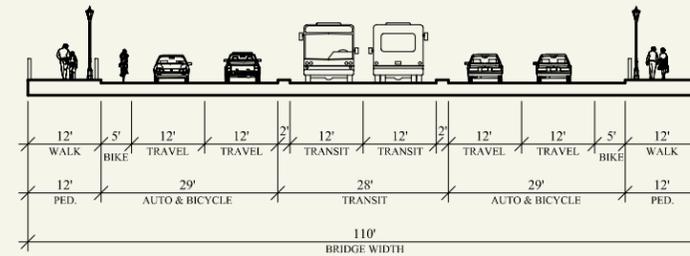
1H-3 AVENUE ON SLOPE
 WITHOUT TRANSITWAY
Three Through Lanes per Direction



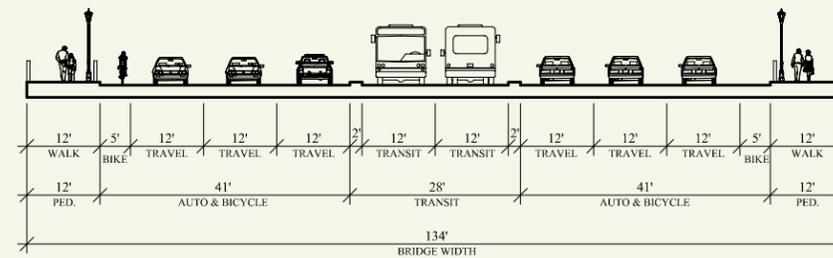
STREET SECTIONS

Avenues 1

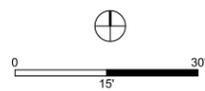
(Primary roadways without multi-roadway boulevard configurations)



1I-2 AVENUE INTERSTATE BRIDGE
Two Through Lanes per Direction

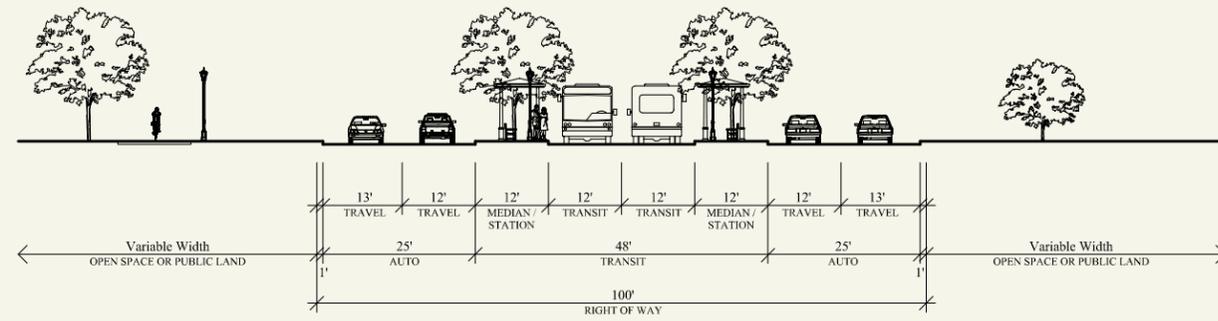


1I-3 AVENUE INTERSTATE BRIDGE
Three Through Lanes per Direction

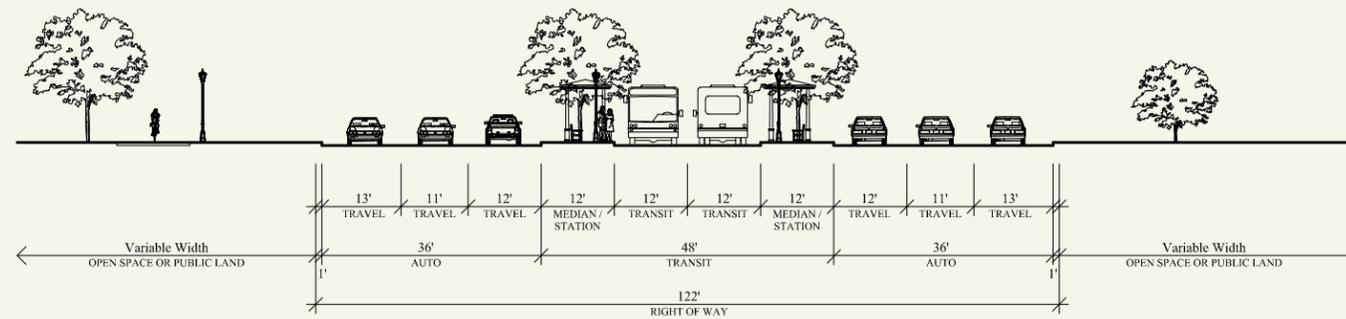


STREET SECTIONS

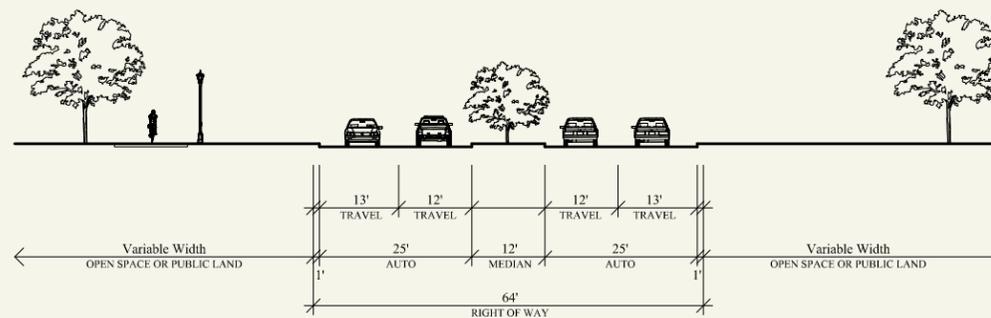
Avenues 1
 (Primary roadways without multi-roadway boulevard configurations)



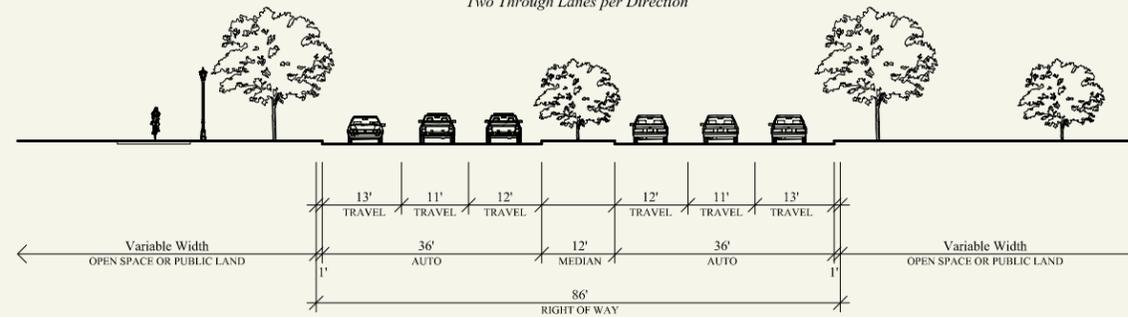
1J-2 AVENUE OPEN SPACE OR PUBLIC LAND FRONTAGE Two Through Lanes per Direction



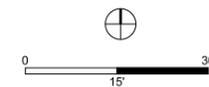
1J-3 AVENUE OPEN SPACE OR PUBLIC LAND FRONTAGE Three Through Lanes per Direction



1K-2 AVENUE OPEN SPACE OR PUBLIC LAND FRONTAGE NO TRANSITWAY Two Through Lanes per Direction

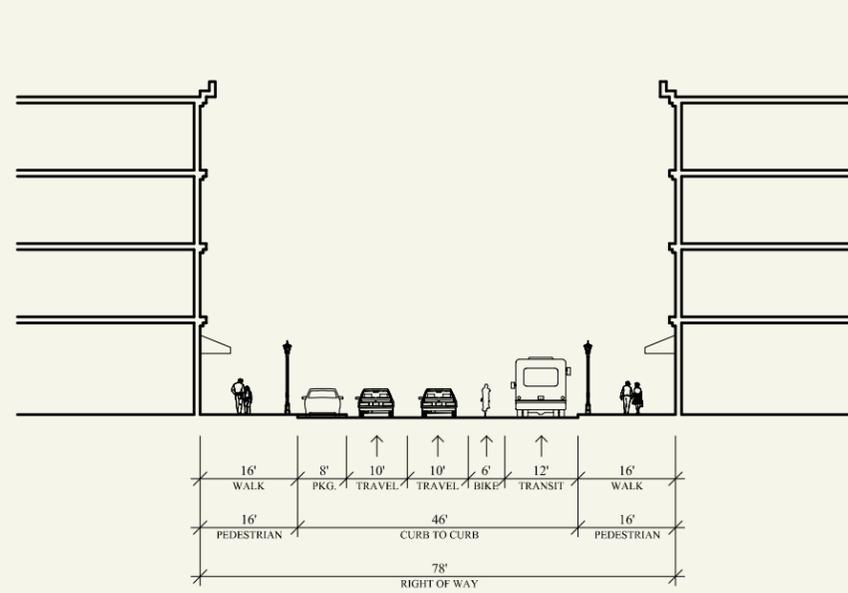


1K-3 AVENUE OPEN SPACE OR PUBLIC LAND FRONTAGE NO TRANSITWAY Three Through Lanes per Direction

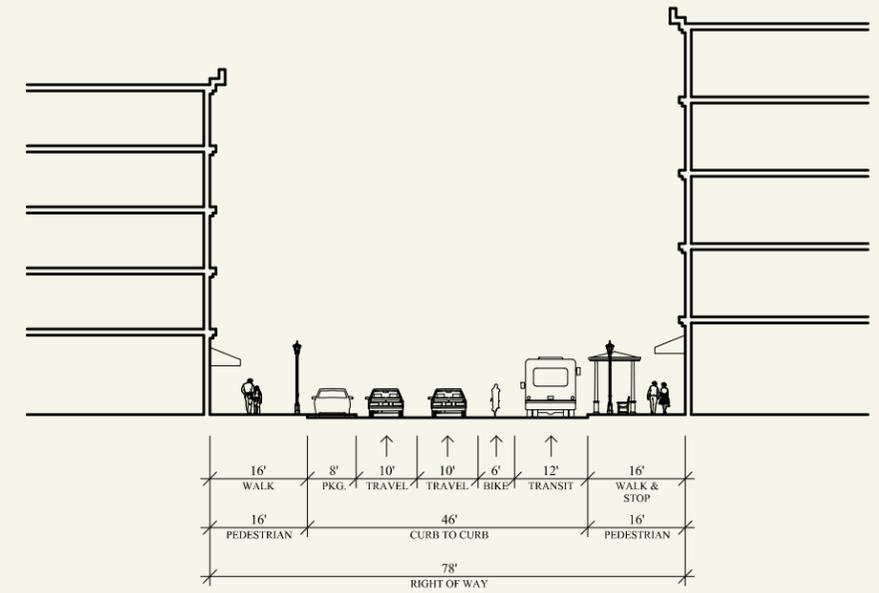


STREET SECTIONS

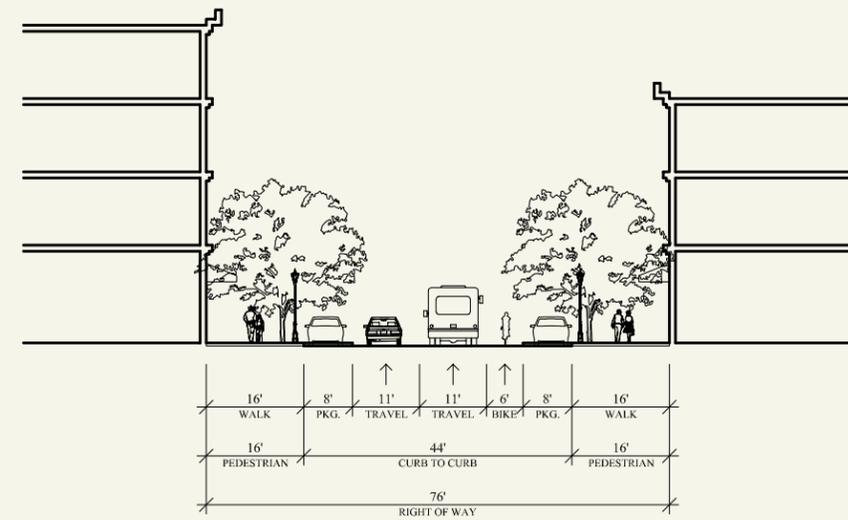
Avenues 1
(Primary roadways without multi-roadway boulevard configurations)



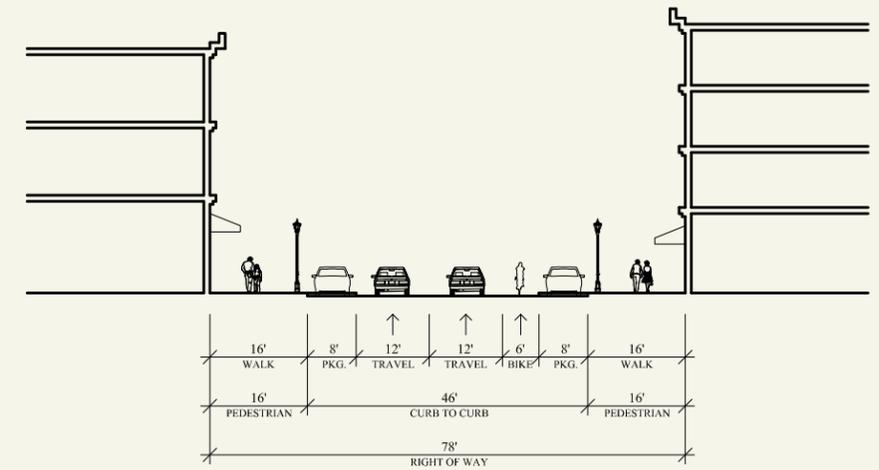
1L AVENUE COUPLET WITH TRANSITWAY



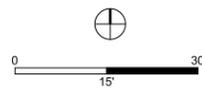
1L AVENUE COUPLET WITH TRANSITWAY AT STATION



1M AVENUE COUPLET WITHOUT TRANSITWAY

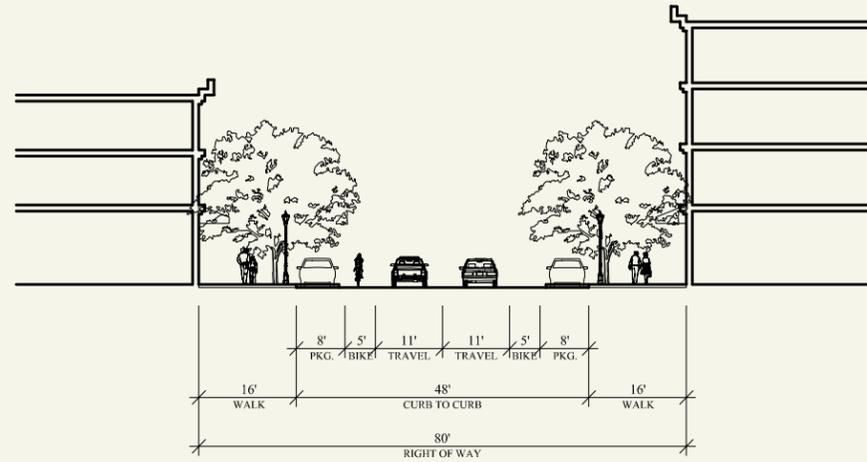


1L AVENUE COUPLET WITH TRANSITWAY Interim Configuration

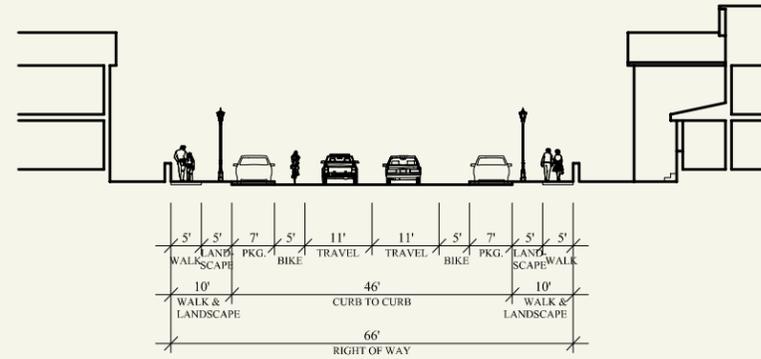


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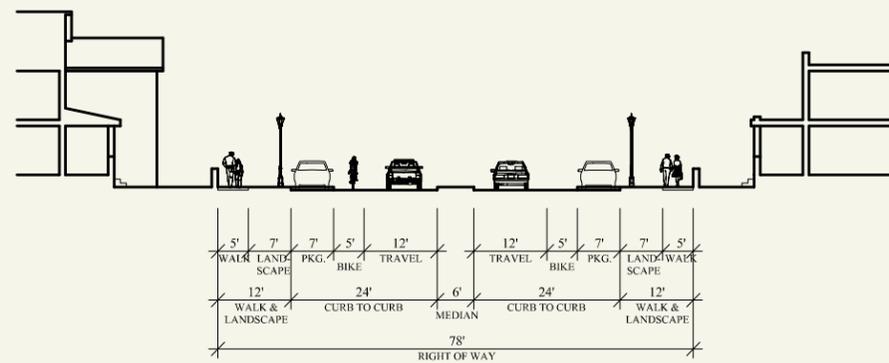
Connectors **2**



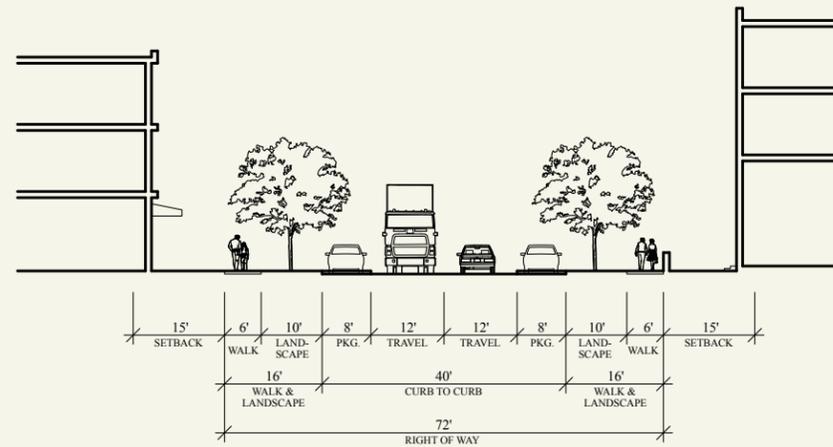
2A CONNECTOR MAIN STREET (COMMERCIAL)



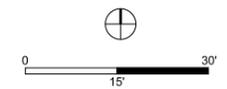
2C CONNECTOR RESIDENTIAL



2B CONNECTOR RESIDENTIAL WITH MEDIAN

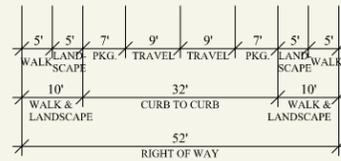
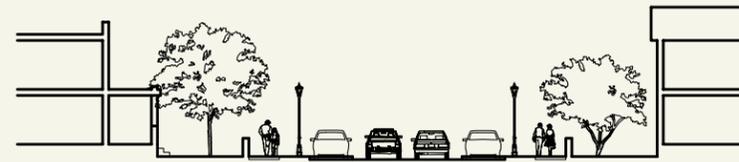


2D CONNECTOR INDUSTRIAL

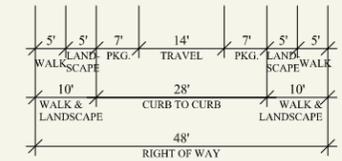
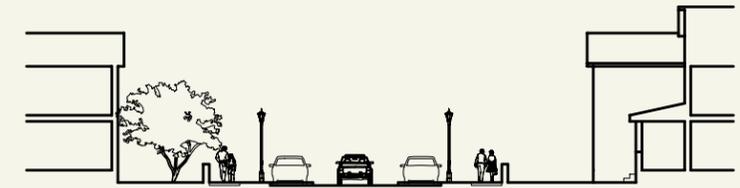


STREET SECTIONS

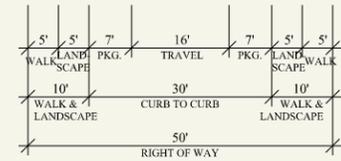
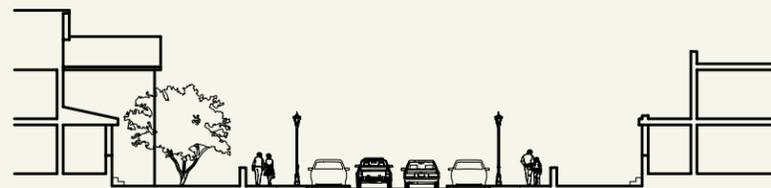
Locals **3**



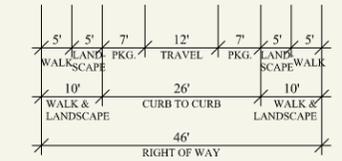
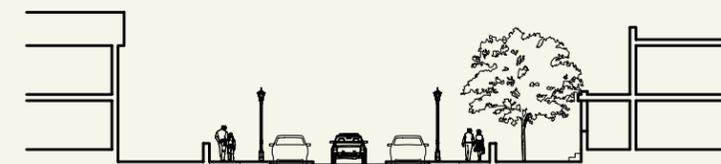
3A LOCAL A



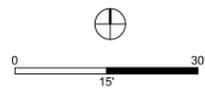
3C LOCAL C
Queuing



3B LOCAL B
Queuing

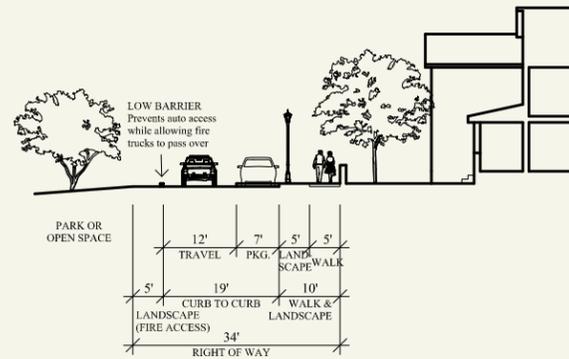


3D LOCAL D
One Way

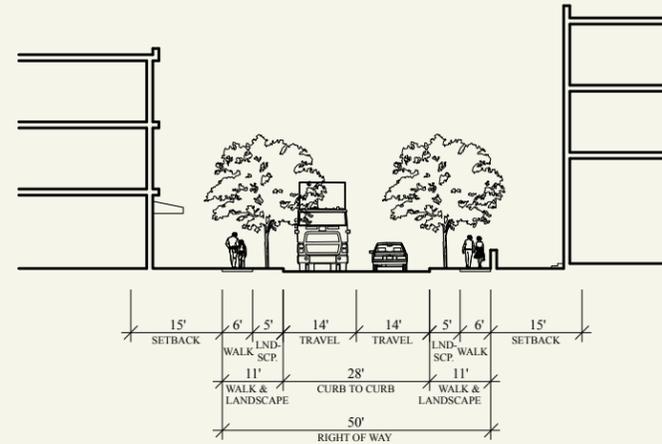


STREET SECTIONS

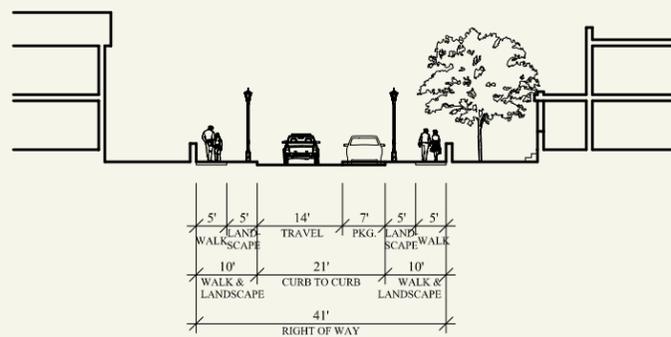
Locals **3**



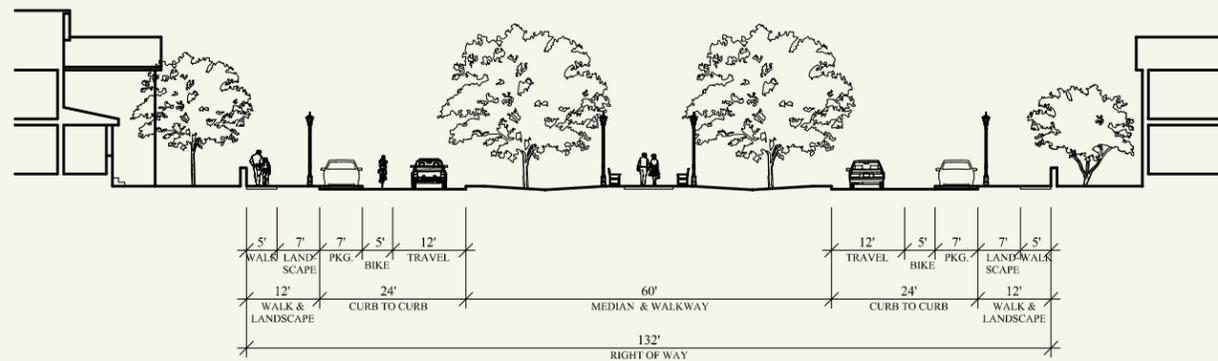
3E LOCAL E
One Way by Open Space or Park



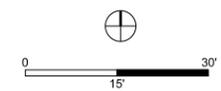
3G LOCAL G - Industrial / R&D



3F LOCAL F
Queuing, Restricted Parking

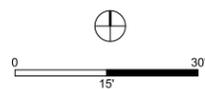
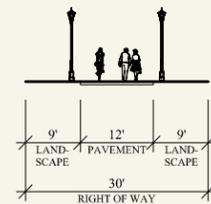
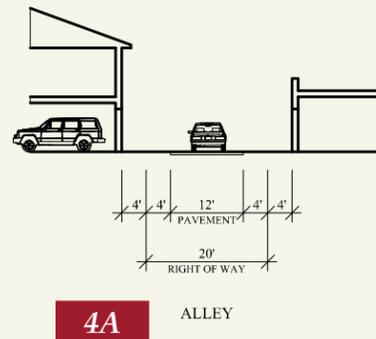


3H LOCAL H - Alameda
Median widens to 90' or narrows to 28' at Signalized Intersections for Staking & Clearing



STREET SECTIONS

Other **4**



3.2.2 Transportation System Performance at Build-Out

The proposed transportation network envisioned for Build-Out consists of the expansion of the initial system in place in 2025, with the continuation of both Mesa del Sol Boulevard to the east, and the continuation of University Boulevard to the south, tying in with Broadway and NM 47 at the southwest corner of the site. Another connection to I-25 will be provided with a new interchange to be constructed at the present overpass crossing of Bobby Foster Road. In addition, a system of frontage roads along I-25 between the Broadway and Rio Bravo interchanges is also proposed at build-out, and an expansion of the site itself with added connector roads.

Traffic has been modeled for the Build-Out scenario, as was done for the 2025 projection. However, the Build-Out scenario is likely to take place 25 to 50 years or more into the future, and the regional transportation network that would be in place at that time is unknown now. Because there is no better depiction of the transportation network beyond current planning horizons (2025 or 2030), the Build-Out traffic has been modeled on the 2025 network. This approach leads to inherent difficulties and indications of roadway capacity shortfalls that may not necessarily exist at that time. Without an accurate no-build transportation network at Build-Out, it becomes difficult to differentiate between traffic impacts from Mesa del Sol versus regional impacts.

On-site traffic volumes increase at Build-Out, but with the roadway sections planned, and the interconnected grid system of connector roads, most of the transportation network is still predicted to operate at acceptable levels of service, LOS B and LOS C. Segments of University Blvd., Bobby Foster Road and a few other short segments of other roadways are projected to operate at LOS D. In addition, a few short segments of primary boulevards and avenues on-site are likely to function with even greater levels of traffic congestion. Key roadways entering and exiting the site are also projected to operate with congested conditions. The addition of high capacity transit service is fully expected to mitigate most of these congested conditions. The model predictions indicate reduced levels of service off-site, however, these predictions do not have a high level of reliability due to the aforementioned difficulty in model representation of the future transportation network. More detailed traffic studies will be performed with each submittal of Level B and C plans. These studies will provide a more timely assessment of required transportation improvements.

3.3 Non-Auto Modes of Transportation

Transit, walking and bicycling are critical elements of Mesa del Sol's sustainability goals. The design of the community will encourage walking and biking from the outset and will encourage transit use as transit is extended to Mesa del Sol by making these modes safe, comfortable and convenient.

3.3.1 Transit

3.3.1.1 Current Status of Transit in the Vicinity of Mesa del Sol

The City of Albuquerque public transit system is known as ABQ Ride. This system consists

of on-street buses; both single unit local buses and articulated commuter buses, primarily operating in the immediate Albuquerque metropolitan area. There are currently two routes in the vicinity of Mesa del Sol. The Local / All Day Bus Route 51, Atrisco-Rio Bravo is currently in place on Rio Bravo Boulevard, with the south end of this route terminating at 2nd Street and Rio Bravo. The other line is Local / All Day Bus Route 50, Airport-Downtown, on Yale Boulevard, with the south end of this route terminating at the Albuquerque International Sunport (Airport).

Future planning for transit, as currently shown on the Long Range High Capacity Transit System map for the Albuquerque Metropolitan Planning Area, prepared by Middle Rio Grande Council of Governments (MRCOG), contains “possible corridors that have good potential for development.” There are two possible future “high capacity transit” routes in the vicinity of Mesa del Sol. A possible future route is shown on Isleta Blvd. terminating at Rio Bravo Boulevard, located west of the Rio Grande. Another possible future route is shown on Yale Boulevard, and as with present service, terminating at the Albuquerque International Sunport.

Mesa del Sol is generally located at the very southeast edge of existing transit service routes, and will likely require the extension of service from one of these existing routes, from either Rio Bravo Boulevard or Yale Boulevard, to provide service and connections to Mesa del Sol.

3.3.1.2 Transit at Mesa del Sol

The street network at Mesa del Sol is designed to smooth the progress of vehicles between centers of activity. In addition to Mesa del Sol Boulevard and University Boulevard, avenues and some connector streets will be designed with the expectation that they will become public transit routes as service is extended to Mesa del Sol. Public transit routes will be designed with street sections, intersection treatments, and streetscape elements that will support transit. Mesa del Sol Boulevard will be designed to accommodate a dedicated transit right-of-way. Technologies such as signal pre-emption, prepaid boarding, and boarding platforms at the level of the vehicle floor have great potential for improving the speed and convenience of transit service.

A commuter rail system is planned for implementation on existing BNSF Railway track between Belen and Bernalillo in late 2005. The commuter rail line will include a station stop in Albuquerque’s South Valley which would provide an important regional transit link. Transit vehicles could enter Mesa del Sol from the north via University Boulevard, cross the Employment Center and Community Center, pass through a Transit Corridor lined with higher-density residential uses, continue down the escarpment to the Urban Center, and continue on to the commuter rail station.

3.3.2 Bicycles

Bicycling is ideally suited to travel conditions within Mesa del Sol, particularly on the mesa with its flat topography, extensive open space corridors, and limited distances. At

a comfortable cycling speed of 15 miles per hour, a cyclist will be able reach any part of the mesa in less than 30 minutes. No home will be more than a mile and half from a Village Center, making daily destinations reachable by bicycle in ten minutes or less. This will give all residents opportunities to exercise while running simple errands. In particular, Mesa del Sol’s bicycle route system will give teenagers and young adults much greater independence by freeing parents from the need to drive them to every destination.

A range of bicycle routes will accommodate cyclists of all ages and abilities. Off-street paths in linear open space corridors will provide recreational cycling opportunities and safe routes for beginners. Avenues and boulevards, in keeping with City policies, will typically have dedicated bicycle lanes to accommodate more experienced cyclists, who tend to move at higher speeds and seek more direct routes. Bicycle routes at Mesa del Sol will be clearly marked and well-integrated with designated City bicycle routes.

The MRCOG has developed a Long Range Bikeway System map for the Albuquerque Urban Area. There is the potential for a connection from Mesa del Sol to the existing and future Albuquerque Bikeway System via a proposed trail along Los Picaros Road intersecting at Tijeras Arroyo (see Figure 3-3, Pedestrian and Bicycle Routes). The future trail from the Los Picaros/Tijeras Arroyo intersection would extend under I-25, connect with an existing trail along the South Diversion Channel, and then connect to the Bosque Trail along the Rio Grande. The Bosque trail is the major north-south spine of the Albuquerque trail system and it provides connections to many other trails and bike lanes in the City. Therefore, with the addition of the Los Picaros/Tijeras Arroyo trail and a connection to Mesa del Sol via University Boulevard extension, the Mesa del Sol bike system can connect to the entire City trail system.

3.3.3 Pedestrians

Fulfilling Mesa del Sol’s sustainability and community-building goals requires making walking safe, comfortable, and convenient. Public transit trips all begin with a walk to the transit stop. Schools, parks and other neighborhood destinations will be a short walk from many homes. Walking will be the primary means of circulation within the mixed-use centers. In keeping with the “park once” policy, even those who arrive by car will be encouraged to park once and walk between destinations within the center.

Features that will make walking comfortable at Mesa del Sol include narrow local streets, continuous sidewalks with planting strips, on-street parking, well-marked crosswalks, and innovative intersection treatments for higher-capacity streets such as splitting larger streets into one-way couplets. The couplet approach greatly reduces pedestrian crossing distances by eliminating the need for most dedicated turn lanes. Instead of crossing ten or more lanes at an arterial-arterial intersection, pedestrians navigating a couplet system will never cross more than three lanes of traffic at once.

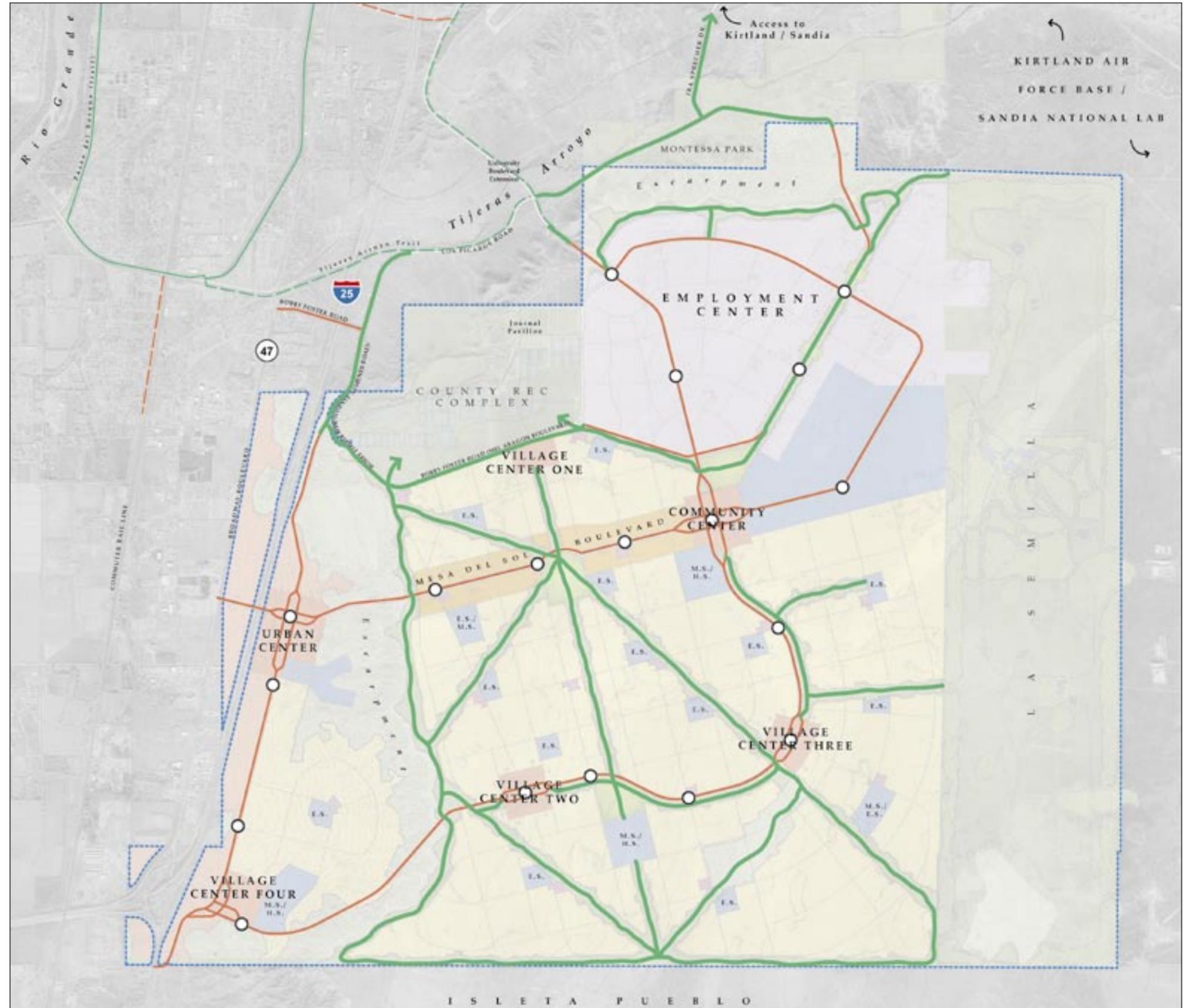


Bicycling is ideally suited to travel conditions within Mesa del Sol. At a comfortable cycling speed of 15 miles per hour, a cyclist will be able reach any part of the mesa in less than 30 minutes. Mesa del Sol’s bicycle route system will give teenagers and young adults much greater independence by freeing parents from the need to drive them to every destination.



PEDESTRIAN AND BICYCLE CIRCULATION

Figure 3-3





ENVIRONMENT AND OPEN SPACE

LEVEL A PLAN : JUNE 2005

4



MESA DEL SOL

Sustainable Development

Environment and Open Space



This chapter discusses the environmental and open space approaches proposed for Mesa del Sol, which are grounded in the concept of sustainability and comply with all city, state, and federal regulations.

4.1 Sustainability Concept

Sustainable development is the goal of Mesa del Sol. It has been adopted by Forest City Covington, the master developers of Mesa del Sol, in their quest to create a community that will stand the test of time – environmentally, economically and socially. Sustainable development is also a major goal of Albuquerque’s Planned Growth Strategy and Planned Communities Criteria. Sustainability is an approach that involves understanding and planning for the long-term viability of a community’s natural resources as well as its social and economic systems.

Forest City Covington’s goal is to create a community at Mesa del Sol that will enhance the quality of life for people today, and ensure that the needs of future generations are met. This concept is used for every step of the process, from planning to land use design, parks and open space preservation, lighting, residential and commercial buildings, transportation, water management and education. In addition, the developers consider energy conservation, use of alternative energy sources as well as recycling in the planning. Recycling is one of the most fundamental and familiar principles of sustainability. Mesa del Sol will promote and encourage an ongoing community commitment to recycling in homes, schools and at construction sites.

Mesa del Sol will be developed over the next 35 to 50 years. Because of this long-term approach to growth, the planners and developers of Mesa del Sol will be able to fully incorporate the best practices of sustainable urban development into their development.

The Master Plan incorporates design elements to maximize walking, bicycling and transit use, thus reducing the need to use private automobiles; conserving natural areas and connections between them, in order to maintain a viable habitat for native plants and animals; restoring degraded natural areas to ecological health; and designing buildings to minimize energy use and conserve water and maximize the potential for the recovery and re-use of building elements in the future. Mesa del Sol will provide naturalistic corridors for trails, water harvesting, and establishing plant and wildlife habitat.

This pledge to sustainability is part of the corporate culture for the development and is reinforced in Forest City’s adopted value statement, which states, “We are committed to

the principal of sustainability. We will strategically and competitively balance environmental resources, economic objectives and social systems as we operate our business and invest in new opportunities.”

At Mesa del Sol, sustainability ensures a practical approach, which will be used to define tactics and actions. It has measurable objectives that can and will be tracked and refined throughout the development process. Sustainability is not just a concept or building philosophy, but also the determination of the partners to transform the mesa and “do it right.”

Mesa del Sol will promote and encourage sustainable water system practices, including such innovative approaches as aggressive water conservation, high desert landscaping design, wastewater reuse plans and aquifer recharge programs that will ideally result in less water per capita than average for the rest of the City. Because it plans to retain stormwater runoff at the mesa, it will not contribute sediments to arroyos or the Rio Grande.

The Mesa del Sol sustainable land planning fosters a community that integrates the very best features of traditional urban life, including a vast network of open spaces, parks, homes, business and community centers. It will be designed to create connectivity throughout the community – from homes to office buildings to schools, shops, parks and restaurants. It promotes connectivity with this type of mixed-use zoning throughout the community.

At the same time, Mesa del Sol emphasizes site planning, building design and scale that creates a visually dynamic and inviting streetscape. Every home, office and street will be held to specific design standards that promote a sense of neighborhood, while at the same time encouraging architectural distinction. In the long term, this will ensure Mesa del Sol’s ability to meet the needs of the community and accommodate future growth.

The discussion of sustainability that follows is organized around ten elements of land development proposed by the Urban Land Institute as a common vocabulary for planning teams, developers, and policy makers to use in discussing the efficacy of proposed projects in meeting sustainability goals.¹

¹ Heid, Jim, “Green Reflections,” *Urban Land*, July 2004, 40-46.

The ten elements, described below, are:

- Economic viability
- Response to context and location
- Systems-based structure
- Resource efficiency
- Streets as public realm
- Fine-grained mixed use
- Infrastructure as asset
- Conscious materials choice
- Places, not projects
- Connect people and culture

4.1.1 Economic Viability

Along with ecological and social equity, economic viability is critical to achieving sustainability. Projects that meet environmental goals and also provide reasonable returns to their developers will provide better models for other projects and do a better job of influencing the prevailing development patterns. Development at Mesa del Sol will be planned to take advantage of market forces and channel that economic energy into creating sustainable places.

4.1.2 Response to Context and Location

The regional context of Mesa del Sol has influenced and will continue to influence the environmental and open space planning for the development. The open space configuration highlights Albuquerque's natural environment by framing views of the surrounding mountains and the river valley from the interior of the site and by providing large and contiguous natural areas.

The distribution of open space system components, such as parks, plazas, open space corridors, and preservation areas, is driven by the adjacent land uses, anticipated densities, and the location of natural landforms on and off the site.

4.1.3 Systems-Based Structure

Open space at Mesa del Sol will form a coordinated system. Major landforms will be preserved, most notably the escarpment along the northern and western edges of the mesa and the southern playa. On the mesa, linear open space corridors will connect neighborhoods with the preserved playa, schools and other civic destinations, and major public parks, providing opportunities for sustainable stormwater management and community-serving recreational uses.

4.1.4 Resource Efficiency

Resource efficiency encompasses a range of strategies, from the macro, or project-wide, scale of transportation – reducing vehicular dependence – to the micro, or site-level strategies for the efficient use of water and energy for habitable spaces.

At the macro level, the design of streets and blocks at Mesa del Sol will optimize the potential for public transit service, and the street system at Mesa del Sol will be designed to make bicycling safe, efficient, and pleasurable, with both on-street and off-street bicycle routes. Retail, civic uses, parks, and many jobs will be integrated with housing into mixed-use centers, making everyday destinations a short, pleasant walk from the adjacent neighborhoods. Not everyone will live within walking distance of a mixed-use center, but a “park once” strategy will encourage even those who drive or take public transit to a mixed-use center to walk between destinations once they have arrived.

The design of Mesa del Sol's open space system, including the locations, types, and sizes of natural areas and common area landscaping, reflects the use of water harvesting and reused water for irrigation. The open space system will include linear parkways and trails as part of a multi-modal transportation/circulation network.

Future submittals for Mesa del Sol will include detailed building design guidelines for a mixture of residential, commercial, employment, civic, and mixed-use building types. These guidelines will ensure regionally-appropriate architectural styles and design that responds to Albuquerque's climate.

4.1.5 Streets as Public Realm

In typical postwar suburban development, streets were increasingly relegated to a single role, that of moving auto traffic. Wide streets and on-street parking prohibitions, instituted in the name of motorist safety and emergency access, led to higher traffic speeds that resulted in more deadly collisions and less livable neighborhoods. The cul-de-sac addressed this problem by making through traffic impossible, but at the cost of a discontinuous street network that discourages walking and bicycling and increases auto travel unnecessarily.

During the past half-century, the conventional street hierarchy that became transportation engineers' default solution created a discontinuous public realm for everyone but motorists. Local streets led inexorably to collectors, which carried traffic volumes high enough to make them undesirable places to walk or bicycle and undesirable locations for homes. Collectors led to arterials, which although designed for longer-distance trips typically became the only through routes between most destinations and experienced unacceptable levels of congestion. Modeling has shown that, compared to a highly-connected street network, a conventional hierarchical street network actually increases auto travel by 10 to 15 percent, because of the out-of-direction travel typically required when a disconnected network has few options for multiple routes.



The design of Mesa del Sol's open space system, including the locations, types, and sizes of natural areas and common area landscaping, reflects the use of water harvesting and reused water for irrigation. The open space system will include linear parkways and trails as part of a multi-modal transportation/circulation network.





To preserve natural landforms, major public open space areas have been identified surrounding the escarpment and the south playa on the mesa. These landforms are part of the geologic history and identity of the site.

More recently, designers have returned the street to its role as the centerpiece of the public realm, the place where residents interact with their neighbors. Streets at Mesa del Sol will incorporate this concept. Key elements of livable streets include street networks that provide multiple routes among origins and destinations, small blocks, streets that are wide enough for only local traffic, sidewalks, on-street parking, and planting that creates texture, light, and shadow. Regulations will require building entries to be designed to face the street, and buildings must be close to the street, with parking to the rear.

4.1.6 Fine-grained Mixed Use

Before the 1920s, American cities and towns developed without rigid controls on building use or location. In central cities and small towns alike, the resulting mix of uses was fine-grained, with small shops and business intermingled with homes and apartments. Albuquerque was no exception, and a fine-grained mix of uses can still be seen in areas such as Old Town. The walkable mixed-use centers at Mesa del Sol will continue this tradition by clustering housing, jobs, shopping, civic uses, and public space, at a variety of scales. Neighborhood Centers will also blend civic uses, open space, and housing.

4.1.7 Infrastructure as Asset

Stormwater and wastewater are now recognized as important resources rather than nuisances to be piped away. At Mesa del Sol, neighborhood parks and open space corridors will incorporate stormwater management features that conserve water and create valuable habitat while also serving as community amenities.

4.1.8 Conscious Materials Choice

Traditional Southwestern building techniques used locally available materials and took advantage of natural ventilation. Today, a wide range of manufacturers offer lower-impact alternatives to conventional building materials. The sustainability program at Mesa del Sol will encourage the use of environmentally-conscious building materials and techniques wherever possible. Full-cost accounting of building material choices must consider energy used in producing, processing, and transporting material, as well as the raw materials consumed to make the product, its expected lifespan and maintenance needs, and how well it can be recycled or reused.

4.1.9 Places, not Projects

A community as large as Mesa del Sol should include many memorable places. Elements of community design that are important to place making include careful consideration of the mix of complementary uses; design of streets and public spaces for human scale; appropriate choices of building materials; and attitudes about color, light and transparency that reflect regional traditions. Designers will plan public spaces to make them true gathering places.

4.1.10 Connect People and Culture

Studies show that buyers increasingly place a premium on authenticity. Understanding the history of the site and the region is an important design principle at Mesa del Sol. The Middle Rio Grande Valley has been home to many cultures for hundreds of years. The open space system design for Mesa del Sol protects the historic character of the mesa by preserving large amounts of the mesa in its native state. The design also accommodates modern needs by providing public access to a variety of natural areas, parks, plazas, and recreation areas. Distribution of these open space components throughout the community provides opportunities for all residents to make physical and emotional connections to the high desert environment.

4.2 Open Space Types and Functions

The open space system is comprised of a hierarchy of natural and developed spaces to serve the various needs of the community. In addition to providing venues for gathering, recreating, and enjoying the natural landscape, the open space system provides connections between neighborhoods and town centers through the strategic placement of trails and paths within long, linear open space corridors and extensive open space buffers.

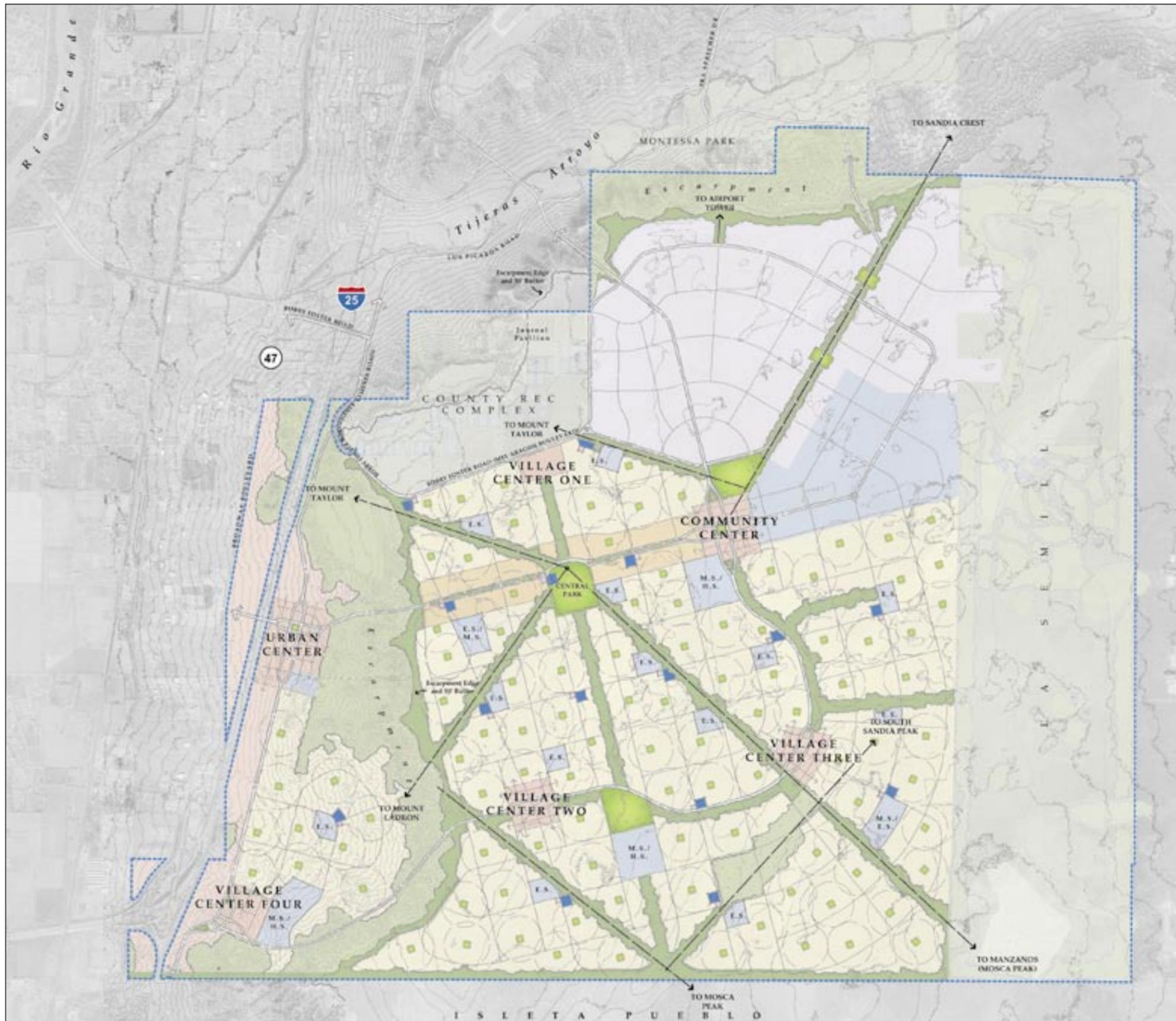
The open space system (shown in Figure 4-1) comprises the following types of open space:

4.2.1 Major Public Open Space

To preserve natural landforms, major public open space areas have been identified surrounding the escarpment and the south playa on the mesa. These landforms are part of the geologic history and identity of the site. Preservation of these natural landforms by encompassing and buffering them with open space ensures that they will endure and lend their special character to new development at Mesa del Sol.

4.2.2 La Semilla

The easternmost portion of Mesa del Sol is La Semilla, a 2,700-acre nature refuge and environmental education campus planned for the one-mile wide strip of land between Mesa del Sol and KAFB. The State Land Office prepared an internal master plan for La Semilla, which is part of the governance for the State Land Office lease to DOE. The DOE controls the lease for this land, which provides a necessary buffer for base activities and will provide for substantial open space for the benefit of the residents of Mesa del Sol as well as citizens of Albuquerque and all of the region. Forest City Covington, the New Mexico State Land Office (NMSLO), the University of New Mexico, Bernalillo County, and La Semilla Institute, a §501 (C) (3) corporation, are collaborating on a program of native plant propagation and production in the hopes of providing native-grown plant material for use, where feasible, in landscaping at Mesa del Sol. The DOE lease permits only minimal structures at La Semilla. Proposed uses may include agricultural demonstration areas, environmental education, preservation of high desert grasslands as open space, recreational and interpretative trails, and renewable energy research. Public access to most of La Semilla is anticipated.

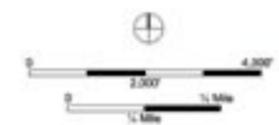


**OPEN SPACE
AND PARK SYSTEM**

Figure 4-1

Legend

- Neighborhood Centers / Pools 
- Neighborhood Parks (diagrammatic)
(shown with 1/8 mile radii) 
- Parks 
- Trunk Open Space Network 
- Steep Slopes & Playas 





Parks at Mesa del Sol reflect the anticipated uses and needs of the community. These amenities will serve more than just recreation needs. These spaces will provide social gathering opportunities that will bring neighborhoods together.

4.2.3 Bernalillo County Regional Recreation Complex

As discussed in Chapter 2, the Regional Recreation Complex in the northwest portion of the tract is planned for a wide variety of active recreational uses, including 44 soccer fields, of which three are currently built and in use. In addition, the Journal Pavilion amphitheater, which opened in June 2000, is a popular venue for concerts. The Pavilion currently seats up to 12,000 concertgoers, with increased seating capacity possible when additional access is provided by the completion of the University Boulevard extension.

4.2.4 Open Space Corridors

Open space at Mesa del Sol will include natural areas (existing or re-established) that provide visual and/or psychological relief. Open space corridors have been established throughout Mesa del Sol for several reasons.

- To bring the natural high desert environment into developed areas of the site: providing visual and psychological relief and reinforcing the sense of place.
- To frame views of surrounding natural landmarks from inside the site: several of the linear open space corridors are aligned with off-site natural landforms, enabling framed views of these features from inside the site.
- To buffer new development from adjacent properties.
- To provide naturalistic corridors for trails, water harvesting, and establishing plant and wildlife habitat.

4.2.5 Parks and Plazas

Parks at Mesa del Sol reflect the anticipated needs of the community. These amenities will serve more than just recreation needs. These spaces will provide social gathering opportunities that will bring neighborhoods together. Because it is anticipated that these spaces will be highly used, water use for irrigation, recreation, and enjoyment may be higher in these “oasis” areas. Many of these facilities will be located adjacent to or near open space/trail corridors to encourage pedestrian and bike transportation to the facilities. Planned parks include the following:

Major Urban Parks (15-30 acres)

These parks will be large landmark civic spaces designed to accommodate large numbers of people and a variety of passive and active activities. While the sizes may vary, the distinguishing characteristic of these parks is their diverse program and landmark/civic status.

Community Parks (5-15 acres)

The focus of a community park is active recreation. These parks accommodate large numbers of people and their presence in the community relieves some of the program stresses on

the school and neighborhoods parks. Facilities in community parks may include soccer, baseball and football fields, pools, tennis courts, and playgrounds.

School Parks (2-5 acres)

School parks are the outdoor recreation spaces developed in conjunction with public schools. In an era of limited resources, both financial and environmental, use of school parks as community amenities makes sense. Because public school sites are quite evenly distributed across the site, these parks will be convenient for a large part of the population. These parks will typically have multi-purpose fields and age appropriate play and/or exercise equipment.

Neighborhood Parks (0.5-5 acres)

Neighborhood parks are small parks that serve their immediate vicinity. These are often well-programmed spaces that may consist of play equipment, a small multi-purpose field and opportunities for walking. These parks provide ideal venues for neighbors to meet each other and can help to establish neighborhood identity.

Pocket Parks (0.25-0.5 acres)

Pocket parks are small parks that provide needed relief and services in densely developed urban areas or in transition zones such as trailheads.

Plazas (0.5-1.5 acres)

Plazas are a traditional feature of New Mexico’s towns. At Mesa del Sol, plazas will be used as organizing features and open space amenities in urban areas. Plazas will be designed to foster social gatherings and establish or reinforce the identity of the locale.

4.3 Natural and Cultural Resources

4.3.1 Natural Resources

The New Mexico Energy, Minerals and Natural Resources Department has not identified any rare or endangered species at Mesa del Sol. A wildlife study conducted in the 1990s found that Mesa del Sol is home to a limited number of kit foxes and badgers, in addition to the expected coyote and jackrabbit (and cottontail) populations. Under some conditions, animals from the surrounding mountains and open space areas make their way through the site into the adjacent urban area.

The Mesa del Sol master plan calls for extensive interconnected open space corridors. Within these corridors, vegetation will be encouraged which provides food, shelter, and protection for all the species which occupy the area. Residents and employees at Mesa del Sol will be encouraged to protect wildlife in the area and to adopt practices, particularly at the edge of development, which help residents and domesticated animals to coexist with wildlife. Mesa del Sol’s design will encourage its urban residents to relate appropriately to the natural world.

4.3.2 Cultural Resources

A Class II archeological field survey and inventory for 20 percent of the total area of Mesa del Sol, including La Semilla, was completed in 1988 (“Island in the Sun: The Mesa del Sol Sample Survey” by William H. Doleman, UNM Office of Contract Archeology). The 20 percent sample area located 32 sites, which by extrapolation would mean some 150 possible sites at Mesa del Sol. Some of the 32 sites were occupied more than once and reveal elements which include the following historic periods: Archaic, Anasazi, and historic Anglo. One site identified appears to have been a shrine.

Paleontological work has been conducted in the nearby Tijeras Arroyo where one significant fossil has been found. Seven known locations of paleontological material have been identified, and a mammoth skull found in 1983 on the western escarpment is one of the earliest mammoths found in the United States. Other finds include early horses and glyptodon.

Best practices for development in areas with significant cultural resources include surveys prior to development to identify and collect, as appropriate, significant resources and a monitoring program to identify resources encountered during development. These procedures do not present any constraint to development. On the contrary, development activities tend to increase erosion and therefore increase opportunities for uncovering fossil finds. Protected escarpment and playa areas will provide opportunities for future research in this area.

Throughout the planning and construction phases of development at Mesa del Sol, Forest City Covington NM, LLC will cooperate completely with the City of Albuquerque and the New Mexico Historic Preservation Division, Department of Cultural Affairs, to make certain that significant resources in this area are protected. If significant archeological, cultural, or paleontological resources were discovered during construction, work in the area would cease immediately until an in-field evaluation could be conducted.

4.4 Air Quality

The primary air quality problems Mesa del Sol faces are the same problems that face the City of Albuquerque. Vehicle traffic is the major source of pollution and contributes to emissions of carbon monoxide (CO) and particulate matter (PM). In addition, the emissions of nitrogen oxides (NOx) from vehicles in combination with other pollutants in the air cause the formation of ground level ozone. These three pollutants – CO, PM and ozone – are of particular concern for the Albuquerque area and Mesa del Sol.

Meteorological and physiographical conditions at Mesa del Sol are also the same as for the City of Albuquerque. Both are located within the Rio Grande Valley, which is subject to occasional wintertime temperature inversions that cause stagnant air. The local

geography of the Rio Grande Valley helps to perpetuate these temperature inversions since the mountains and high mesas that surround the valley prevent wind and other atmospheric activity from clearing out the stagnant air. Pollutants are trapped and concentrations increase until a weather system strong enough to overcome the local geography blows the pollutants away. Mesa del Sol will comply with all City air quality regulations, including no-burn days to reduce airborne particulates from wood smoke.

In the case of an inversion, as discussed above, winds are important for removing pollutants that have concentrated in the stagnant air mass. However, high winds can also be the cause of windblown dust, which contribute to PM emissions. During the construction of Mesa del Sol, windblown dust will be addressed by obtaining a fugitive dust permit from the City of Albuquerque. Recommended dust control measures will be implemented to reduce fugitive dust.

All three of the pollutants of concern will be addressed by the design of Mesa del Sol. As previously mentioned, Mesa del Sol is being designed to reduce the total vehicle miles traveled. In addition, these transportation design elements meet the intent of the City’s Planned Growth Strategy. The City’s Planned Growth Strategy encourages Transit Oriented Development (TOD) for new and existing development as a means to create communities that enable greater pedestrian and bicycle mobility. The Planned Growth Strategy estimates that TOD can reduce overall vehicle miles traveled (VMT) by up to 43 percent; several national studies have found more moderate, but still significant, reductions in VMT and vehicle trips due to TOD design factors such as density, diversity of uses, design for walkability, and accessibility to destinations in the region. As Mesa del Sol develops, the actual reduction in vehicle miles traveled and mode splits between auto, public transportation, pedestrian, and bicycle activity will be tracked and incorporated into future Level B and Level C submittals

Vehicle travel represents the most significant source of CO, PM, and ozone at Mesa del Sol. However, the basic design principle of Mesa del Sol is to minimize vehicle travel and encourage human powered transportation such as walking or biking. Air quality impacts from Mesa del Sol will be minimized because of the goal of the development to reduce vehicle travel and its relatively high accessibility to other parts of the region.



Plazas are a traditional feature of New Mexico’s towns. At Mesa del Sol, plazas will be used as organizing features and open space amenities in urban areas. Plazas will be designed to foster social gatherings and establish or reinforce the identity of the locale.





UTILITIES

LEVEL A PLAN : JUNE 2005

5



MESA DEL SOL

Planning for Sustainable Growth

Utility Infrastructure and Services

Mesa del Sol's unique terrain characteristics and geographic proximity to other communities in the region present special conditions for the provision of municipal infrastructure services, while at the same time providing unique opportunities for planned sustainable community growth.

5.1 Introduction

While Mesa del Sol is not currently served by municipal services and necessary infrastructure, the existing entertainment venue near the north border of Mesa del Sol, the Journal Pavilion, and the existing soccer field complex has some basic infrastructure serving that facility, primarily a water well, reservoir, and power infrastructure. However, this infrastructure does not provide the capacity for significant additional service area.

Careful planning and coordination among all stakeholders will provide Mesa del Sol with the necessary infrastructure and other municipal services to foster a healthy and thriving community. Prior to the development of this master plan and its infrastructure components, all utility providers who would be involved in Mesa del Sol were contacted for discussion and comment in a due diligence discovery period. The following utilities and governing agencies were contacted in this due diligence effort:

Stormwater Management (Drainage): City of Albuquerque, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), State Engineer Office

Water Supply: Albuquerque Bernalillo County Water Utility Authority

Sanitary Sewer (Wastewater) Service: Albuquerque Bernalillo County Water Utility Authority

Reclaimed Wastewater/Reuse: Albuquerque Bernalillo County Water Utility Authority

Dry Utilities (Power, Gas, Communications, Cable): Public Service Company of New Mexico, Qwest Communications, Comcast.

5.1.1 Existing Conditions

Currently, there is no existing infrastructure that provides pre-development utility service of sufficient capacity to the annexed lands of Mesa del Sol. However, some minor infrastructure services have reached the vicinity of Mesa del Sol.

The Journal Pavilion and adjacent soccer fields currently represent the nearest existing municipal infrastructure to Mesa del Sol. This amphitheatre is immediately adjacent to and west of Mesa del Sol, lying near the northwestern mesa top lands.

Accessibility for municipal service extension to Mesa del Sol is also limited. KAFB to the east and Isleta Pueblo lands to the south form practical barriers to municipal infrastructure provision from these directions, especially as no available municipal infrastructure exists within their borders today.

In an effort to improve access and start utility services to Mesa del Sol, the City of Albuquerque proposes to begin construction of University Boulevard from Rio Bravo to the northeast corner of the Journal Pavilion parking lot sometime in mid-2005. This roadway project will also carry the initial water and sanitary sewer infrastructure to the Mesa del Sol area.

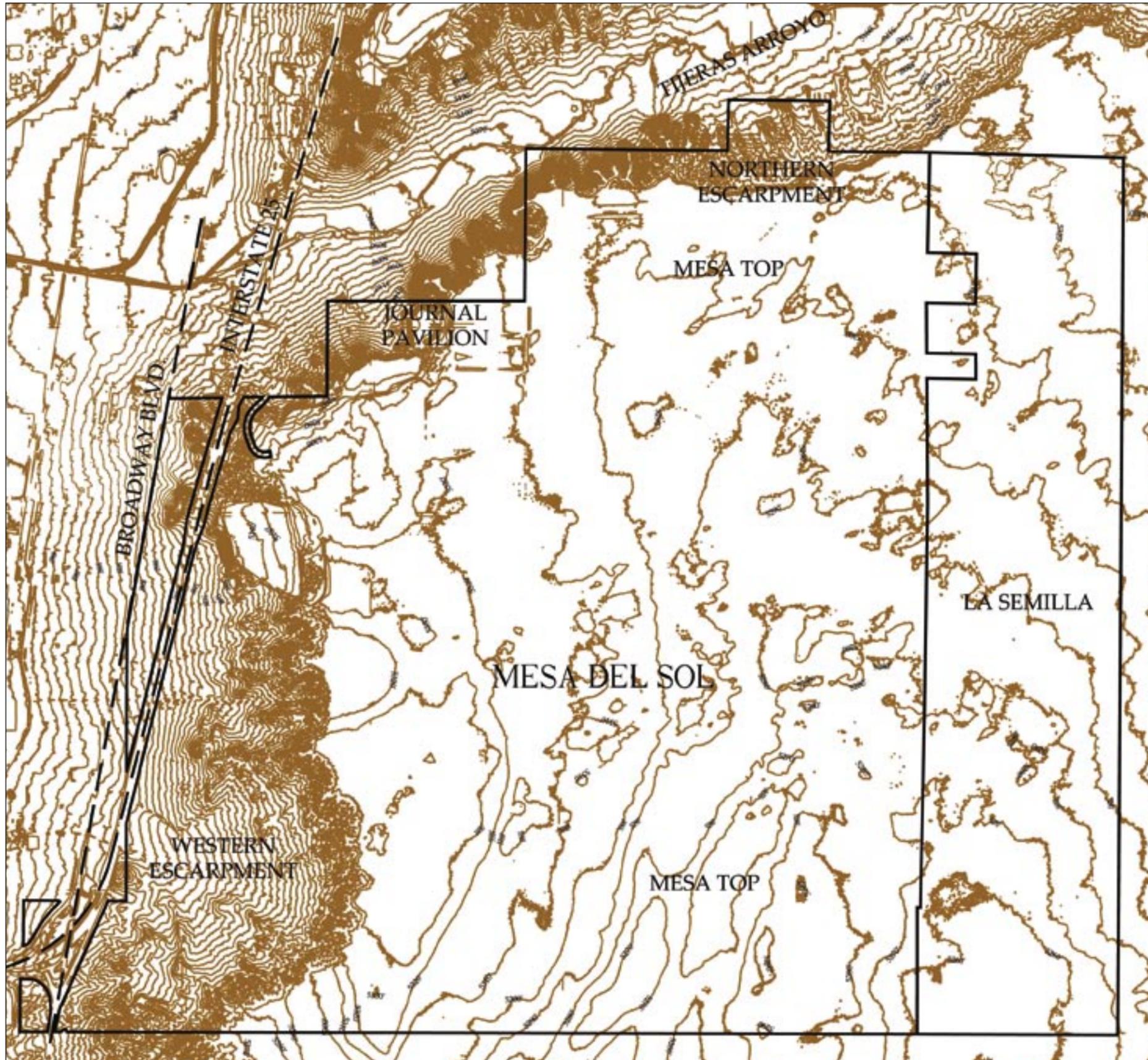
From the perspective of utility services, Mesa del Sol can be characterized by two primary physical terrain features that are important to the provision of standard municipal services – first, the vast area of relatively flat lands of the mesa top and, secondly, the western escarpment slope. Existing site topography is shown in Figure 5-1, and existing soil conditions are shown in Figure 5-2.

a. Mesa Top Lands

The mesa top lands comprise the bulk of the Mesa del Sol property, lying on the eastern side of the property and comprising approximately 8000 acres. The relatively flat slope conditions lead to challenging design for the storm drainage and sanitary sewer infrastructure. Moreover, because of unique geological features, the natural slopes do not drain toward the Rio Grande nor toward the existing infrastructure, but to natural low areas in the southeastern portion of the master plan area. Further, utility extensions into the heart of these Mesa del Sol lands must reach far from their initial connections with the existing municipal system.

b. Western Escarpment Slope

The western escarpment slope is a rugged and beautiful landform that lies on the western side of Mesa del Sol. Great care to protect this extraordinary feature from unnecessary utility trenching and unsightly drainage management techniques is essential. The right-of-way and roadway of Interstate 25 is also an existing constraint in this area that must be considered in planning. Utility and drainage crossings under I-25 must be minimized because of their great cost and potential traffic disruption. This infrastructure must be



TOPOGRAPHICAL MAP

Figure 5-1

Notes

10' contour interval is shown.



**SOIL MAP
BERNALILLO COUNTY,
SOIL CONSERVATION SERVICE**

Figure 5-2

Soil Descriptions

BCC Bluepoint loamy fine sand, 1 to 9 percent slopes.

Runoff is slow, and the hazard of soil blowing is severe.

BKD Bluepoint-Kokan association, hilly, 5 to 40 percent slopes.

On both soils, runoff is slow and the hazard of water erosion is moderate or severe.

LtB Latene sandy loam, 1 to 5 percent slopes.

Runoff is medium, and the hazards of water erosion and soil blowing are moderate.

MaB Madurez loamy fine sand, 1 to 5 percent slopes.

Runoff is slow, and the hazard of soil blowing is severe.

MWA Madurez-Wink association, gently sloping, 1 to 7 percent slopes.

Runoff is slow, and the hazard of soil blowing is moderate to severe.

PAC Pajarito loamy fine sand, 1 to 9 percent slopes.

Runoff is slow, and the hazard of soil blowing is severe.

To Tome very fine sandy loam, 0 to 2 percent slopes.

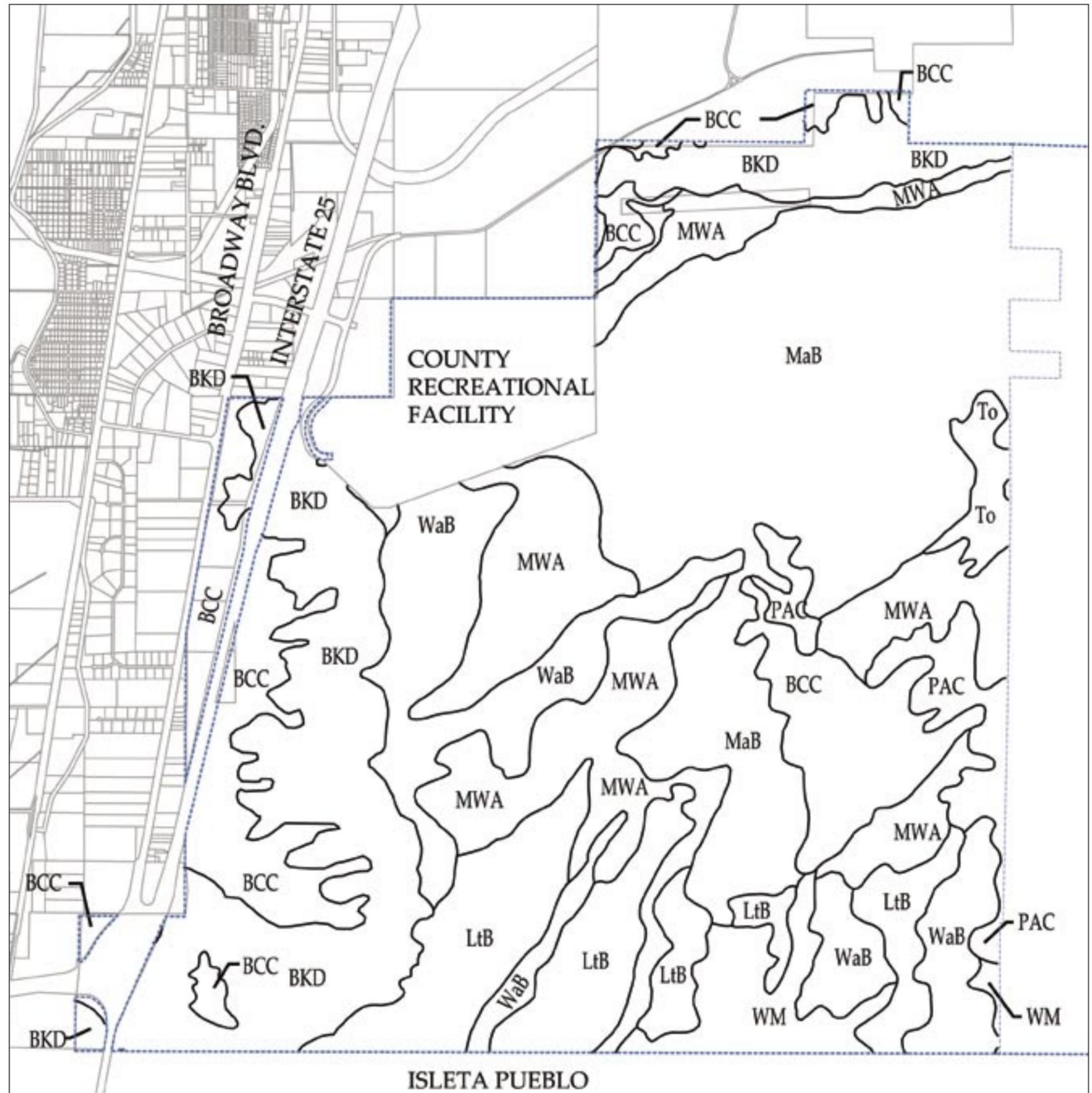
Runoff is medium, and the hazard of water erosion is moderate.

WaB Wink fine sandy loam, 0 to 5 percent slopes.

Runoff is medium. The hazard of water erosion is slight to moderate and the hazard of soil blowing is moderate.

WM Wink-Madurez association, 1 to 7 percent slopes.

The nearly level to moderately sloping Wink soil is in slightly convex areas where runoff is medium and the hazard of soil blowing is severe.



carefully located to serve large areas of upstream land, as possible. While natural drainage patterns on the escarpment slopes flow westerly to the valley below, there are no existing stormwater facilities to manage and convey these flows all the way to the Rio Grande. Finally, relative to water and sanitary sewer infrastructure concerns for development of the western slope lands, there are significant distances to cover to reach existing municipal infrastructure and line extensions would occur though developed semi-rural conditions.

c. Northern Escarpment Slopes

A less significant area, but still very unique, is the northern escarpment slope that exists along Mesa del Sol's north boundary, facing the Tijeras Arroyo. However, little new impact is planned for this escarpment slope.

An additional infrastructure planning condition is our significant and large landowner neighbors to the east and south of Mesa del Sol. The proximity of Mesa del Sol lands to KAFB and to Isleta Pueblo requires that sensitive planning and broad coordination must occur should utility infrastructure planning affect these adjacent land owners.

The following sections specifically address the utility infrastructure and solid waste planning for Mesa del Sol.

5.2 Stormwater Management Plan

5.2.1 Introduction

The Mesa del Sol project is located adjacent to and south of the Tijeras Arroyo, one of the most prominent drainage features in the Albuquerque area. However, Mesa del Sol's development will have little impact on the Tijeras Arroyo as the majority of the planned development area is located within a large natural depression on the mesa top, forming what is called a playa basin. In a playa basin, no surface water escapes to the Tijeras arroyo or any other arroyo or watercourse, and the playa basin therefore is defined as a "closed basin." Areas within a playa basin typically consist of very slight slopes.

Areas outside of the playa basin, such as the west escarpment area, are more typical to Albuquerque in that most of the contributing drainage basins slope toward the Rio Grande or the Tijeras Arroyo. The western escarpment slopes are very unique, consisting of very steep slopes and mostly undevelopable areas. Special attention will be given to development improvements considered in the vicinity of the escarpment. The drainage management planning must respect the intrinsic natural value of the extreme and unique landscape.

5.2.2 Existing Hydrologic Conditions

Currently, there are no improved drainage facilities serving the planned Mesa del Sol development. As mentioned, a substantial portion of Mesa del Sol is a closed basin (hereafter referred to as the mesa top). These areas consist of existing natural ground slopes

ranging from mild to extremely flat. In the existing undeveloped site condition, the 100-year storm event does not generate a stormwater runoff volume greater than the playa volumetric capacity, including off-site flows. The result then being that no stormwater runoff escapes the Mesa del Sol project site and it is all retained on site.

Other portions of Mesa del Sol drain from the site to the south, north, and west. Some small areas along the south boundary historically drain to the south onto the Isleta Pueblo lands. These areas consist mostly of mild to extremely flat slopes.

The northern escarpment located along the north boundary of the project historically drains to the north through private property ultimately discharging to the Tijeras Arroyo. Slopes in this area range from extremely flat to extremely steep.

Portions of the project slope to the west and discharge storm runoff to the west. Stormwater runoff from these areas pass through the existing drainage culverts under I-25 that are intended and designed to serve historic runoff conditions only. Once runoff passes I-25, there are no improved downstream drainage structures to convey developed or undeveloped runoff to the Rio Grande. Slopes in this area range from mild to extremely steep.

Portions of Mesa del Sol are located west of I-25 between I-25 and Broadway Boulevard. These areas consist predominately of steep to relative flat terrain. As stated above for the western escarpment slopes, no significant downstream storm drainage facilities currently exist to serve this area.

Off-site drainage basins to the east of Mesa el Sol, including large areas of KAFB, generate stormwater runoff that drains across La Semilla and reaches Mesa del Sol.

5.2.3 Proposed Developed Hydrologic Conditions

Each of the described areas of Mesa del Sol will require different management concepts depending largely on the outfall available or lack thereof. Within the "mesa top" area, containment onsite will be the principal stormwater management strategy. Areas that have positive drainage outfalls available will use more conventional storm drain management systems. Please refer to Figure 5-3.

a. Mesa Top Area

The majority of Mesa del Sol is part of a unique hydrologic area for Albuquerque consisting today mostly of many small playas and several large playas. Preserving this historic theme, Mesa del Sol's undeveloped and developed runoff is proposed to be retained on the mesa top. It is recommended within the master plan that on-site retention ponds be used as the primary stormwater management method for the mesa-top area. The proposed system would consist of an engineered system of many retention ponds strategically located throughout the development.

The majority of Mesa del Sol is part of a unique hydrologic area for Albuquerque consisting today mostly of many small playas and several large playas. Preserving this historic theme, Mesa del Sol's undeveloped and developed runoff is proposed to be retained on the mesa top.



Both the City and the State Engineer normally require release of flows to the Rio Grande; however, both agencies typically are assuming man-made structures exist in an environment that naturally outfalls to the river. The State Engineer's Office has stated that playas are recognized and as such in cases involving playas, the State will not require the stormwater to be drained to the River.

The existing FEMA floodplains, located over the playas, will not be impacted by Mesa del Sol development until possibly the middle stages of development. However, when proposed development threatens to disturb the floodplains, appropriate design and administrative procedures to remove the floodplains from FEMA maps will be required.

In review, the unique characteristics of the mesa top, the State Engineer's recognition of the role of playas, and the playas themselves demand a non-typical drainage management solution. Such solutions include on-site containment of all stormwater runoff by means of an engineered retention pond system that consists of many retention ponds strategically located throughout the development. The Distributed Retention and Infiltration Pond (DRIP) system is proposed for the mesa-top areas.

Retention Pond Design (DRIP) Concepts

Large-scale and aesthetically pleasing retention ponds are proposed to be the primary stormwater management concept. The retention ponds generally will be large, regional drainage facilities planned to be strategically located within large public open spaces or parks. Multi-use facilities are often planned for these areas to serve as public open space, parks, ball fields, playing fields and other recreational use areas. The non-drainage uses will be designed to consider the drainage function.

The DRIP stormwater system, or Distributed Retention and Infiltration Ponding system, is conceptually proposed to consist of a multi-stage system made up of several smaller storm drain components contained within a larger storage pond. In basic structure, the system will consist of the upstream collection system, an inlet structure, an energy dissipation features, a water quality facility (forebay pond), the main ponding and stormwater storage area and an infiltration basin. In addition to providing the required ponding capacity, the ponds will use a collection and infiltration feature to infiltrate stormwater. The infiltration measures are an extra step in the overall system that accomplishes several critical goals:

- Minimizes nuisance ponding,
- Assists in the ultimate evacuation of the ponded water,
- Lessens the potential for creating a mosquito habitat, and
- Reduces the impact of ponding water on the proposed recreation and open space uses.

b. Western Escarpment Area

The escarpment and the areas to the west are proposed to be served by conventional storm drain systems. This area currently lacks significant downstream storm drain infrastructure but is a part of the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) Southeast Valley Drainage Management Plan area. In this study, AMAFCA identified a system of channels and storm drains that would collect developed runoff from the region including all of the west escarpment area of Mesa del Sol then convey and discharge the stormwater runoff to the Rio Grande. Mesa del Sol proposes working with AMAFCA to develop a regional drainage plan that further details and refines the Southeast Valley Drainage Management Plan (SEVDMP) to include Mesa del Sol's planned improvements (not currently in the SEVDMP).

Mesa del Sol plans to use conventional storm drain improvements consisting of retention ponds, detention ponds, surge ponds, and storm drain sewers to collect, hold, detain, and release developed stormwater runoff to the SEVDMP's planned facilities. Mesa del Sol will also participate with AMAFCA in the planning, design, funding, and construction of the outfall storm drain facilities necessary to convey stormwater to the Rio Grande.

c. Northern Escarpment Area

Steeply sloped areas located along the north boundary of Mesa del Sol historically drain to the north through private or municipal property, ultimately discharging to the Tijeras Arroyo. These areas are relatively small and represent a negligible portion of Mesa del Sol. Because of sensitive steep slopes, this area will not be developed, and accordingly, drainage patterns will continue as they always have occurred.

d. La Semilla

The easternmost section of Mesa del Sol is the one-mile wide La Semilla property. La Semilla is a reserve where little or no development is planned. La Semilla and the remainder of Mesa del Sol share playas that cross into both areas. Large, off-site basins originating on KAFB to the east drain across La Semilla onto Mesa del Sol. The possibility of using La Semilla to intercept and pond stormwater before it reaches Mesa del Sol is anticipated and will be studied further.

5.3 Water Supply

5.3.1 General

Mesa del Sol will promote and encourage sustainable water system practices, including such innovative approaches as aggressive water conservation, high desert landscaping design, wastewater reuse plans and aquifer recharge programs that will ideally result in less water per capita than average for the rest of the City.

Mesa del Sol lies to the south and east of the existing City of Albuquerque water system. The closest major plant facilities to the area are the Miles Pump Station, situated on



Mesa del Sol will promote and encourage sustainable water system practices, including such innovative approaches as aggressive water conservation, high desert landscaping design, wastewater reuse plans and aquifer recharge programs that will ideally result in less water per capita than average for the rest of the City.



The City of Albuquerque has instituted an aggressive water conservation program which consists of education in water use plus water irrigation time restrictions, mandated use of low water use fixtures in new housing, and incentive programs to change out high use fixtures to low use fixtures in existing homes. The Mesa del Sol water supply and distribution system will conform to the City of Albuquerque Water Resources Management Strategy goals and policies.

University Boulevard approximately one mile east of Yale Boulevard, and Burton Reservoir situated on Carlisle Boulevard at San Rafael Road. Service is now provided from Burton Reservoir to the Ethicon Plant, located immediately east of I-25 and north of Rio Bravo Boulevard. The Mountain View addition, located west of Second Street and south of Rio Bravo Boulevard, is now serviced by means of a transmission line in University Boulevard and two pressure reducing stations which then continue west on Rio Bravo Boulevard, west of I-25. There is one well and a reservoir that presently serve Montessa Park and an on-site well and reservoir on the Journal Pavilion site for service to that facility.

The Mesa del Sol water supply will be designed to conform to the City of Albuquerque Water Resources Management Strategy.

5.3.2 Water Demand Characteristics

One of the essential elements of water system design and configuration is that of water demands. The development at full build-out will contain a mix of residential, industrial, commercial, and recreational facilities in addition to several urban centers. The major development in terms of land use will be residential development, which will constitute the majority of water system demand with the exception of irrigated parks and playing fields both targeted to use reuse water.

The City of Albuquerque has instituted an aggressive water conservation program which consists of education in water use plus water irrigation time restrictions, mandated use of low water use fixtures in new housing, and incentive programs to change out high use fixtures to low use fixtures in existing homes. The result of that program is that per capita use has dropped from nearly 250 gallons per day average to under 180 gallons per day with an achievable target of 150 gallons per capita day (gpcd).

The Mesa del Sol water supply and distribution system will conform to the City of Albuquerque Water Resources Management Strategy goals and policies.

5.3.3 Proposed Water System Configuration and Phasing

The proposed water system comprises elevated storage reservoirs and future onsite wells for Mesa del Sol. This system shown in Figure 5-4. The initial phasing of this overall system consists of a 24-inch single feed transmission line extension along University Boulevard, as planned with the City's University Blvd extension project in 2005. As development exceeds system capacity of this single feed, on-site primary ground storage and a pump station would then be provided in the system. Beyond that, a phased well field system and onsite or offsite storage reservoirs would be required for the continued development of Mesa del Sol.

As stated, once development approaches the capacity of transmission line transport to Mesa del Sol, on-site production begins. Onsite groundwater supply must eventually augment surface water supply from the University Boulevard water line.

The typical WUA water system configuration is based on providing gravity water service directly from service storage facilities, or water reservoirs, to the users. However, the highest existing ground elevation in the Mesa del Sol boundary is 5,337 feet, while the lowest elevation is 4,910 feet. Since these elevations do not provide an onsite location for a ground storage reservoir that can provide gravity service, alternatives must be considered to achieve a storage location solution with the minimum required high water elevation to serve this area of 5,452 feet.

5.3.4 Proposed System Storage Approach

Three options were considered for the location of the required system service storage in water reservoirs. Each option provides opportunities and has requirements vastly different than the other options so each is addressed more thoroughly in Appendix A, Water Service. The proposed approach, elevated storage within the Mesa del Sol boundaries, is considered herein.

For the option of elevated storage, multiple sites within Mesa del Sol are possible. In fact, the optimum location of on-site elevated storage would be in the designated Employment Center area in the northeast quadrant of Mesa del Sol, where the higher elevations would minimize the height of the elevated storage reservoir and provide maximum system pressures. This location would minimize visual impact on the larger residential community of Mesa del Sol lying well to the south.

5.4 Sanitary Sewer (Wastewater)

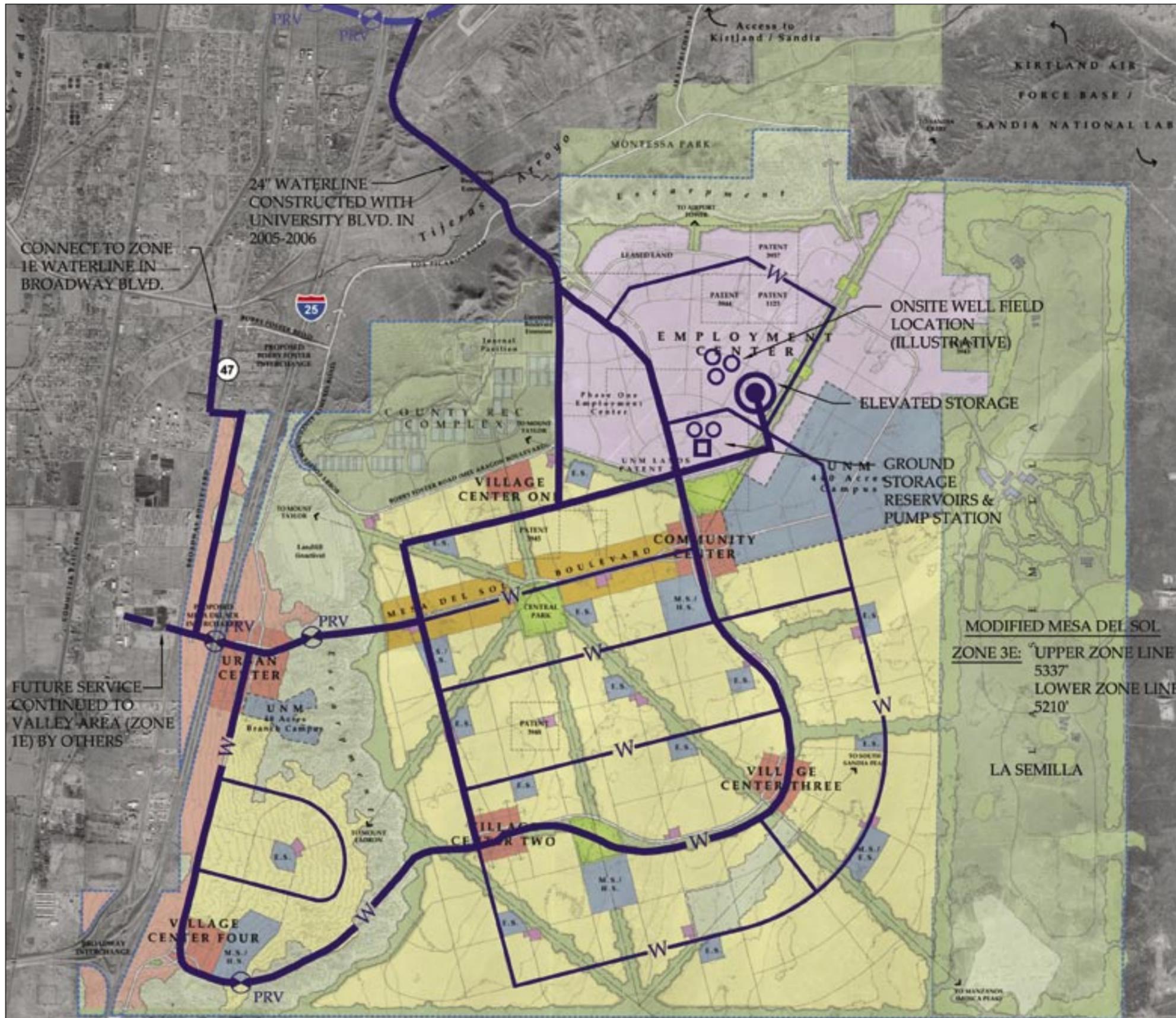
5.4.1 General Service Strategy

The Mesa del Sol sanitary sewer system is proposed to become a portion of the WUA system with operation and maintenance performed by the Water Authority.

A phased expansion of the system is anticipated utilizing a combination of gravity service from the existing City system, pump stations to serve areas for which gravity service is not available, and, ultimately, a water reclamation plant that will treat a portion of Mesa del Sol flow to re-use and reinjection standards. The portion of treated wastewater that is applied to re-use water will be pumped into the Water Authority's re-use water system for irrigation of public areas. Rather than fully treat the sewage at the new treatment plant, a waste side stream will be pumped to the gravity system and thence to the Water Authority's Southside Water Reclamation Plant. Reuse water will be utilized from the reuse system for irrigation of public landscaped areas. Initially the reuse system will be extended into Mesa del Sol from the existing reuse system expansions being planned by the Water Authority for the southeast area of Albuquerque.

5.4.2 Existing City System

The Water Authority's Southside Water Reclamation Plant, which provides treatment of all sewage in the City, is approximately two miles northwest of Mesa del Sol. Just north



WATER MASTER PLAN

Figure 5-4

Notes

- PROPOSED MUNICIPAL WATER SUPPLY PROVIDES ONSITE WELLS, PUMP STATIONS, GROUND STORAGE, AND ELEVATED RESERVOIRS.
- PRIMARY WATER FACILITY LOCATIONS ARE SHOWN ILLUSTRATIVELY ONLY.

Legend

-  WATERLINES
-  PRESSURE REDUCING VALVE



of Mesa del Sol, on the north side of the Tijeras Arroyo, runs the 42- to 54-inch sewer portion of the Tijeras Interceptor. The Tijeras Interceptor, which drains ultimately to the Southside Water Reclamation Plant, is one of the main sewer interceptor lines in the system and serves a large portion of eastern Albuquerque, Kirtland Air Force Base and Sandia National Laboratories. Gravity trunk sewer capacity does not exist immediately west of Mesa del Sol.

5.4.3 Satellite Treatment Plants — General Strategy

The City anticipates over time a limitation of future expansion at the Southside Water Reclamation Plant. Consideration is being given by Water Authority staff to a modified approach for the City of Albuquerque that would construct new satellite water reclamation plants closer to new development and closer to areas of high water irrigation use. These new strategically distributed plants would treat the liquid waste to reuse quality for local landscaping applications. After initial treatment at such plants, the remaining sewage in the form of thickened liquid waste side stream would then be sent on to the Southside Water Reclamation Plant for final treatment.

5.4.5 Reuse Concepts

The Water Authority is in the process of constructing additional treatment facilities at the Southside Water Reclamation Plant to provide reuse water. Pipelines are then to be built from the Southside Water Reclamation Plant to distribute this reuse water to large irrigated areas in the southeast area of the City. One such planned reuse (purple) pipe will run east along Rio Bravo to University Boulevard and then south toward Mesa del Sol. An extension of a reuse line toward the County's Regional Recreational Complex at Mesa del Sol is anticipated with the City's University Boulevard project in 2005-2006.

5.4.6 Interceptor Capacity

The Water Authority's Wastewater Facilities Plan had indicated problems in past years with the capacity of the Tijeras Interceptor. After review of as-built drawings, record drawing pipe slopes are considerably higher for the problem sections than the slope shown in the Facilities Plan. Therefore, it appears that the Tijeras Interceptor has significantly more capacity than previously calculated in the Facilities Plan and capacity of the Tijeras Interceptor is not seen as a problem.

5.4.7 Wastewater Generation

Sanitary sewer systems are typically designed to the City of Albuquerque's/Water Authority's DPM criteria. However, this criteria was developed when higher water usage was typical and lower flow rates should now be considered. Mesa del Sol will be designed with a significant emphasis on water conservation, which will decrease the sanitary sewer flows. The City has a goal to reduce the water usage from 250 gpcd to 150 gpcd, a 40 percent

reduction. This goal involves total water demand, both water that is discharged to the sewer system and the water that is not. No similar specific goal has been developed for water usage within the home that would be discharged to the sewer system. However, per capita sewer demand will decrease as water conservation continues to be a way of life and water efficient plumbing fixtures, dishwashers, and washing machines become standard.

Peak and average flow rates will generally follow the DPM criteria. Therefore, an average flow of 85 gallons per capita day (GPCD) is proposed, inclusive of commercial and industrial flows. This is a 23 percent reduction when compared to the DPM standard of 110 GPCD.

For reference, total sewage generation from Mesa del Sol is estimated at approximate 7 MGD (million gallons per day). Of that total projected flow, approximately 4-5 MGD will ultimately be treated at the proposed Water Reclamation Plant.

5.4.8 Primary System Components and Phasing Overview

The sanitary sewer system, shown in Figure 5-5, consists of four primary components:

- A Gravity Interceptor sewer line to the Tijeras Interceptor
- Gravity service areas
- Pumped service areas
- Water Reclamation Plant

a. Gravity Interceptor

The gravity interceptor is required for service to the entire site and will therefore be the first installed component of the sanitary sewer system. The interceptor will run along the extension of University Boulevard to the mesa top and will be constructed when the University Boulevard extension takes place. The interceptor will tie to Tijeras Interceptor on the north side of the Tijeras Arroyo where the extension of University Boulevard crosses the Tijeras Interceptor. The gravity interceptor will cross the Tijeras Arroyo utilizing an underground siphon structure. This solution maintains the aesthetics of the roadway and bridge crossing of the Tijeras Arroyo.

Upon reaching the mesa top immediately south of the Tijeras Arroyo, the gravity interceptor will be run south at a flat slope with relatively deep grades to maximize the gravity service area.

b. Gravity Service Areas

Gravity service will be provided from the gravity sewer interceptor to the maximum possible area. Gravity service areas will tend to develop first because of the lower cost of the infrastructure. Generally, gravity service is available to the west mesa top and north mesa top portions of Mesa del Sol.



SANITARY SEWER MASTER PLAN

Figure 5-5

Notes

Major facility locations are illustrative only.

Legend

-  Gravity Sewer Line
-  Force Main
-  Lift Station / Pump Station





Large irrigated areas such as community parks, boulevard medians, etc., will ultimately be served with reuse water.

c. Pumped Service Areas

Existing site topography dictates that gravity service is not available to the southwest portion of Mesa del Sol. Pumping to the mesa top gravity sewer interceptor is therefore required. Two distinct pumping service areas are anticipated:

- A portion of the mesa top does not have gravity service. Generally this is the east and south mesa top portions of Mesa del Sol. Some of this area will drain directly to the future Water Reclamation Plant, to be used subsequently for reuse and reinjection purposes at Mesa del Sol. The final collection and pumping system design for these areas will be complex and depend in large part of detailed design efforts at the time of development or in Level B planning. Development and infrastructure phasing issues and strategies will be key to this future design effort as well. It is likely that several pumping stations will be required over the life of Mesa del Sol.
- The western escarpment slope portion of Mesa del Sol (from the mesa top to Broadway Boulevard) is below the mesa top and therefore cannot gravity drain to the gravity interceptor to be extended from the Tijeras Interceptor. While this area is above the Southside Water Reclamation Plant, no gravity service is currently available to the west for a significant distance. Future expansion of the Water Authority's sanitary system may provide a gravity service option in the future, but this time frame is highly uncertain. For initial development of Mesa del Sol in this area, service would be provided by installation of a "temporary" pump station and force main to the east that will discharge to the gravity interceptor on the mesa top. Because this pump station would be removed if gravity service were made available in the future, a "temporary" pump station is proposed.

d. Proposed Water Reclamation Plant

Future phases in the south and east mesa top portions would be served by a Water Reclamation Plant. Areas that flowed to the temporary mesa top pump station could be re-directed to an on-site water reclamation plant, thereby generating sufficient flows for the start of an on-site liquid waste operation. Liquid waste would be treated to re-use levels. A thickened liquid waste side stream from the primary and secondary treatment processes of the Water Reclamation Plant would be pumped to gravity interceptor and thence to the Water Authority's Southside Wastewater Reclamation Plant for final treatment and solids handling. The waste side stream remains primarily liquid in form and is estimated at 5-10 percent of the original total flow to the Water Reclamation Plant.

The proposed Water Reclamation Plant for Mesa del Sol would be operated by the Water Authority. The bulk of the sewage effluent treated by the Water Reclamation Plant will be used on Mesa del Sol for either reuse irrigation water or for reinjection back into the local groundwater basin.

5.4.9 Aquifer Storage and Recovery

Treated effluent for reinjection will typically be disposed into the groundwater through specially designed wells. This reinjection process is called Aquifer Storage & Recovery (ASR). If ASR is not yet in place or otherwise unavailable, then wastewater will be provided to the Water Authority's wastewater reuse system that is proposed for Mesa del Sol. Finally, disposal of treated effluent to the Southside Water Reclamation Plant through the gravity interceptor should be considered as a backup for times the ASR wells are not available or during low irrigation periods (winter periods typically).

Water Authority staff has stated a preference for the use of ASR at Mesa del Sol, along with reuse irrigation. ASR may be feasible and potentially could provide substantial benefits by countering groundwater impacts of the proposed Mesa del Sol drinking water wells. Sewage would be treated to drinking water standards and injected via wells. The well locations are anticipated to be along the north and middle portions of Mesa del Sol; however, the well locations must be carefully studied and must be permitted by the State of New Mexico.

5.4.10 Reuse System

Large irrigated areas such as community parks, boulevard medians, etc., will ultimately be served with reuse water. Initially, the reuse water will be provided from the off-site Southside Water Reclamation Plant Water Reuse System. The main line from the Southside Water Reclamation Plant will run east to University Boulevard from Rio Bravo. A reuse line is proposed along the extension of University Boulevard to Mesa del Sol. A non-looped reuse system will be extended within Mesa del Sol to irrigate large public areas. The proposed Water Reclamation Plant will ultimately provide another significant source of reuse water feeding into the same reuse transmission/distribution system and providing increased capacity and dependability to the Mesa del Sol reuse water system.

5.5 Solid Waste

Solid Waste services will be provided by the City of Albuquerque. An existing City solid waste transfer station exists just north of the Mesa del Sol master planned community, and is accessed by the paved Los Picaros Road.

5.6 Dry Utilities

5.6.1 Existing Conditions

a. Existing Power Facilities

PNM is the local electric distribution utility in the Albuquerque area. PNM has facilities in the area of the Tijeras Arroyo, each with limitations and infrastructure needed for utilization in the Mesa del Sol development. The nearest power plant is located just north

west of the project at Broadway Boulevard and Rio Bravo Boulevard (at Electric Avenue), called the Pearson Generation Station. This station feeds several substations that form the transmission ties nearest to the site.

Along the Tijeras Arroyo, PNM has an overhead 345kV transmission line, running east west just north of Los Picaros Road. At the northern end of the Tijeras Arroyo also running east west is an overhead 115kV transmission line. Running parallel to the 115kV transmission line is a 15kV distribution line that currently feeds the County Recreation Complex and the Journal Pavilion. PNM also has another 115kV transmission line running north and south along the west ROW of I-25 in proximity of the future planned Mesa del Sol interchange of I-25.

b. Existing Gas Facilities

PNM is also the local gas distribution utility in Albuquerque. PNM has gas facilities with sufficient pressure located at the Pearson Generation Station, north west of the project.

c. Existing Telecommunications/Fiber Facilities

Qwest is the franchise utility for telecommunications distribution within Albuquerque and in the area of the project. Qwest has an existing fiber line within Los Picaros Road that extends overhead with the PNM distribution line to the Journal Pavilion. Qwest also has a four-way duct bank under the future intersection of Rio Bravo Boulevard and University extension.

c. Existing Broadband Facilities

Comcast has the franchise rights to distribute television and internet services within Albuquerque and in the area of Mesa del Sol. Comcast's nearest fiber plant is located north of the project at University Boulevard and Gibson Boulevard. Comcast has researched at least two alternate routes to bring services down University to the intersection of Clark Carr Road. Both routes utilize existing overhead poles and underground conduit banks.

5.6.2 Utility Development

The outline provided next is preliminary site data regarding utilities. Mesa del Sol will investigate other alternatives to bring services to the site, including renewable energy alternatives.

As previously stated, PNM has three services available to this first development in the proximity of the site. Following is a description of each of these services and limitations.

a. Electrical

Existing 15kv Distribution

The existing distribution line that serves the County Recreation Complex and the Journal Pavilion has limited capacity remaining at the substations upstream of this line. At the date of this report, the existing overhead system running up the north face of the

escarpment has enough capacity to serve as an initial distribution feed to the site. Further services will need to be brought onto the site to continue build out.

Electrical Transmission

By 2007-2008 an electrical substation will need to be installed in Mesa del Sol to continue to feed the site. This substation will be fed from an overhead transmission line that will be tied to the existing 115kV line in the Tijeras Arroyo at a new switching station. The location of the switching station and the routing of the transmission line will need to be determined by off-site easement availability, costs and aesthetic considerations. Based on build out load requirements additional substations will be brought online. After the second substation is brought online PNM will complete the loop to another new switching station near the future Mesa del Sol interchange of I-25. The electrical distribution system will feed out of the substations underground in a looping pattern tying the electrical users to the substations in a joint trench with the Gas, Telecommunications and Television/Internet services.

The transmission system requires the following space (easements):

Transmission line = 50'. This can be split with 25 feet over the right of way (ROW) and 25 feet behind the ROW in an actual easement. If a transmission line does not parallel a ROW then a 50 foot easement is required.

Substation = 200'x200'. PNM suggests that these fall into a commercial zone. The easement needs access (either direct or by additional easement) to a public ROW. This location will be the terminus of a transmission line, and therefore will have one incoming line and one outgoing line to an adjacent substation.

The main electrical distribution system requires the following space (easements):

Distribution feeder = Within ROW. However, PNM will ask for an additional easement behind the ROW to secure their installation.

Switch Cabinets = Within ROW. Each cabinet is approximately 7'x7'x4' and requires at least 23'x13' easement or clear space for access to the doors.

Transformer = Easement by transformer size. Transformers are usually installed on the property and require easements for access and feed.

b. Gas

PNM will be installing two different gas systems. The first will be a transmission system operated at 175 pounds pressure from the Pearson Station in the University Boulevard extension. This gas installation will be utilizing both new University bridges as part of their installation to the site. The second will be a distribution system operated at 60 pounds pressure to bring services to the initial development as well as the remainder of the site.



This initial construction will require a Gas Regulator station on Mesa del Sol to bring useable gas pressure to the building sites.

The transmission system requires the following space (easements):

Transmission line = Within ROW. However, PNM will ask for an additional easement behind the ROW to secure their installation.

Gas Regulator "Reg" Station = 50' x 100'.

The gas distribution system feeds from the regulator station to each user through a series of distribution lines.

Distribution feeder = Within ROW. However, PNM will ask for an additional easement behind the ROW to secure their installation.

c. Telecommunications & Television/Internet

Both Qwest and Comcast will be extending their services from the future intersection of Rio Bravo and University Boulevards for both the initial feed to the site and the continued feed to the site.

Even though Qwest does have an existing fiber feed to the Journal Pavilion, Qwest stated that the services for Mesa Del Sol and the Journal Pavilion would be fed from separate Central Offices. This means that Qwest will only utilize the existing Journal service within Mesa del Sol if timing of service requires a temporary feed, rather than waiting for the permanent feed.

Qwest

Qwest will be extending a four-way duct bank from the future intersection of Rio Bravo and University down the University Boulevard extension into the project. Qwest will be utilizing a conduit structure on both University bridges as part of their installation to the site. Qwest will bring fiber to the site in this four-way duct bank and will require a remote terminal (RT) site in the first phases of the development to distribute copper facilities to users.

Qwest distribution facilities are installed within the ROW. However, Qwest's RT site does require an easement of 20 feet by 30 feet. Each RT site serves approximately 400 residential users and these sites will be frequent within the development of MDS. Remote terminal locations need access to the ROW either by adjacency or additional easement. Planning with Qwest will determine all approvable locations for an easement.

Comcast

Comcast will be extending a duct structure from University and Clark Carr Road down the University Boulevards extension into Mesa del Sol. Comcast will be utilizing a conduit structure on both University bridges as part of their installation to the site. Comcast will be bringing fiber to the site in their duct system and will need to install a Node in the first phases of the development to distribute copper facilities to users.

Comcast's distribution facilities are also installed within the ROW. Comcast can install their Node location within the ROW. Either by easement or free working space the Comcast node is a 10 foot x 10 foot space and such nodes will be frequent within the development of Mesa del Sol.



PUBLIC FACILITIES

LEVEL A PLAN : JUNE 2005

6



MESA DEL SOL

Community Services

This chapter discusses planning and design considerations for the public facilities proposed for Mesa del Sol. Parks and recreation facilities are also discussed in Chapter 4, Environment and Open Space.

Public Facilities



6.1 Public Schools

Public schools will be important centers of community life at Mesa del Sol. The schools needed to serve Mesa del Sol's population will be sited prominently and designed as civic landmarks. It is proposed that portions of school buildings available for community use, such as auditoriums and meeting rooms, will be designed to form a "front door" to the school in a highly visible and accessible location.

Most school sites will be adjacent to joint use park sites with multi-purpose fields. Elementary schools will help to anchor neighborhood centers, along with swimming pools, plazas, and opportunities for neighborhood-scale retail shops. To the extent that phasing considerations allow, middle schools at Mesa del Sol will typically be co-located with either an elementary school or a high school in order to create opportunities for shared athletic and other facilities. High schools and combination middle/high schools will typically be located near mixed-use centers. Nearly all schools will be located adjacent to open space corridors, providing opportunities for environmental education as well as convenient and pleasant off-street pedestrian and bicycle access routes to schools.

Albuquerque Public Schools (APS) planning guidelines call for a maximum of 500 to 600 students per elementary school, 900 students per middle school, and 2,200 students per high school. Using student generation rates calculated from the 2000 Census and APS enrollment figures, this translates to approximately one elementary school per 2,500 dwelling units, one middle school per 7,900 dwelling units, and one high school per 14,800 dwelling units. At buildout, with around 37,500 units, Mesa del Sol could have as many as 14 or 15 elementary schools, four to five middle schools, and two or three high schools. Forest City Covington NM, LLC will work with APS, as well as interested private school providers, to ensure that school sites are located and designed as community focal points.

6.2 Police Facilities

There are three police substations in the Albuquerque area. None of these are located in the general vicinity of Mesa del Sol. Currently there are no formal standards for planning police services and facilities in Mesa del Sol. Forest City Covington NM, LLC will work

with the Albuquerque Police Department to ensure that police station sites are located appropriately and designed as community focal points.

6.3 Fire Protection

There are currently no Albuquerque Fire Department stations in the immediate vicinity of Mesa del Sol. A county volunteer substation is located one mile north of Mesa del Sol. There are no formal planning criteria for the specific location and sizing of Albuquerque fire stations other than the performance criteria of a four-minute response time to any given service area. The type of land use and transportation network proposed for Mesa del Sol will therefore be the major determinant in fire station sizing and location. In general, the mixed-use centers are designed to be sited at the intersection of major roads, making them highly accessible potential locations for fire stations. Forest City Covington NM, LLC will work with the Albuquerque Fire Department to ensure that fire station sites are located appropriately and designed as community focal points.

6.4 Libraries

The nearest Albuquerque/Bernalillo County Library branch to Mesa del Sol, the South Valley Branch at Isleta Boulevard and Camino del Valle, is more than five miles from Mesa del Sol. Forest City Covington NM, LLC will work with the City to accommodate a branch library or libraries at Mesa del Sol. A library could be located in the Community Center or one or more Village Centers.



DEVELOPMENT STANDARDS

LEVEL A PLAN : JUNE 2005

7



MESA DEL SOL

This chapter defines the proposed development standards for Mesa del Sol.

Development Standards

7.1 Description of Land Use Districts

Eight land use districts are proposed for Mesa del Sol, as shown in Figure 7-1. Each category encompasses a different mix and intensity of uses. The categories and their general locations are as follows:

Urban Center – below the escarpment near the future Mesa del Sol interchange.

Community Center – on the northeastern portion of the mesa, at the juncture of the Employment Center, Campus, and Transit Corridor.

Village Centers – at the junction of four to six neighborhoods, along a primary roadway. Three Village Centers are planned on the mesa top, with an additional Village Center possible below the escarpment.

Residential – central and southern portions of the mesa.

Employment Center – the northernmost portion of the mesa.

Highway Commercial – adjacent to Interstate 25.

Campus – at the northeastern portion of the mesa top, adjacent to the Employment District, Community Center, and La Semilla.

Open Space – the northern and western escarpments, a buffer on the southern boundary and the south playa.

Further description of the proposed land uses is provided in the Chapter 2, Land Use. Open Space uses are discussed further in Chapter 4, Environment and Open Space.

7.2 Permissive Uses

Table 7-1 summarizes the types of uses that are permissive in each of the proposed land use designations.

In the Open Space District, only minimal structures such as community recreation facilities and interpretive centers are permissive.

7.2.1 Additional Permissive Use

In addition to the permissive uses in the indicated City of Albuquerque Zoning Districts, the following additional use is permissive:

a) Accessory Units.

Up to 50 percent of detached single-family dwellings in the Residential District may have an accessory unit. “Accessory unit” means a second dwelling unit on a single-family lot, consisting of not more than 750 square feet and not more than one bedroom, and incorporating separate bath and kitchen facilities and a separate entrance from the outdoors. Accessory units may be attached to or detached from the main dwelling unit.

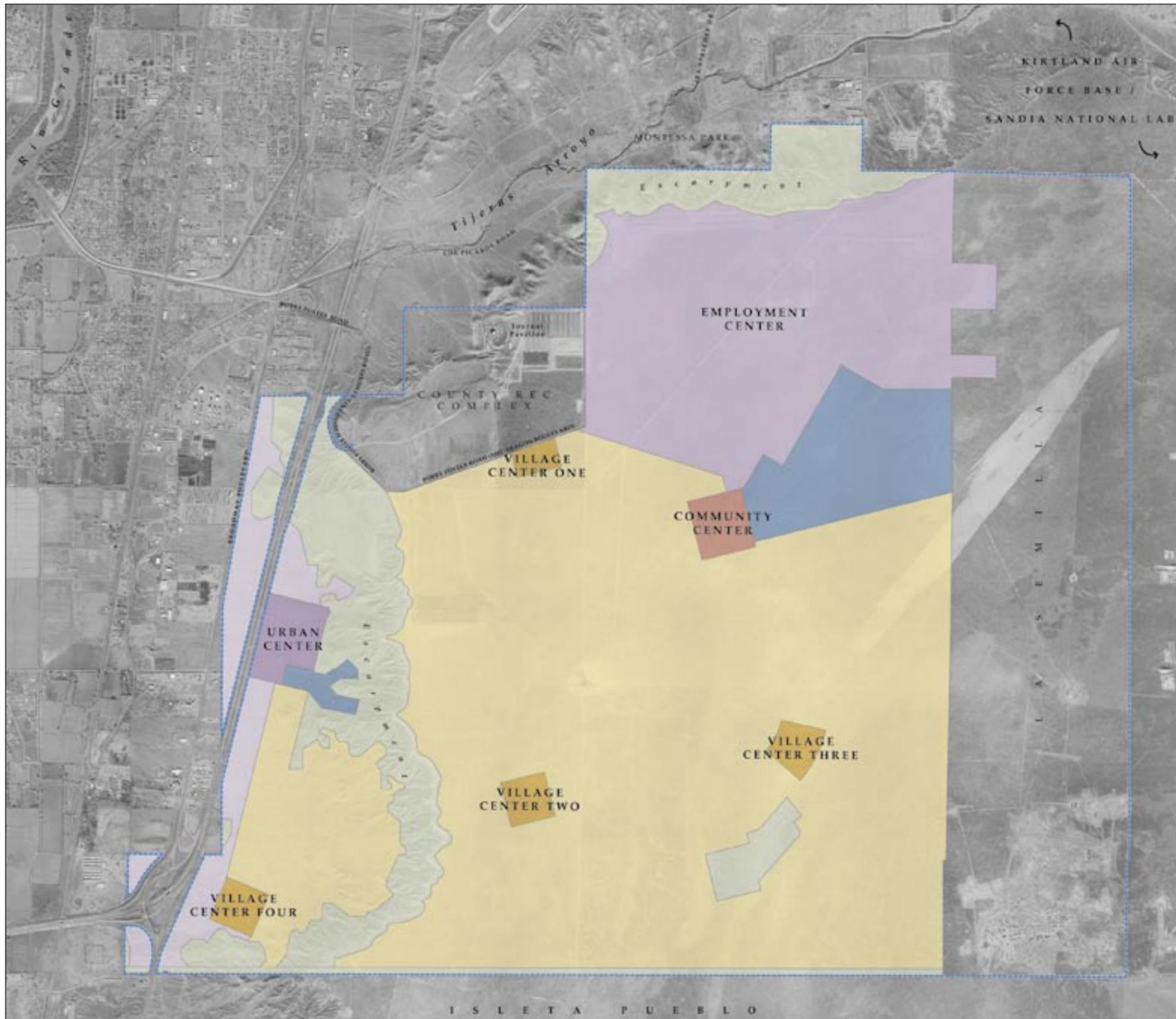
7.3 Development Standards

The maximum development program and permitted intensities for each land use district (subject to traffic analysis) are shown in Table 7-2 below. Setbacks will be defined in future submittals.

The project design will include a minimum of 25 percent open space including La Semilla and The Bernalillo Recreation Complex. As the design and review process continues, the applicant will identify the amount of open space per phase and may allocate a proportionate share of the adjacent open space areas to the planning area being reviewed. The planning area must include a minimum of 12.5 percent open space within its boundaries.

7.4 Off-Street Parking

Standards for off-street parking for residential uses at Mesa del Sol are shown in Table 7-3 below. Parking requirements for non-residential uses will be in accordance with the City of Albuquerque Zoning Code. Parking strategies are discussed in Section 2.3 of the Level A Plan, and supporting material is provided in the technical appendices.



LAND USE DESIGNATIONS

Figure 7-1

Legend

- Urban Center
- Community Center
- Village Centers
- Campus
- Employment District
- Highway Commercial
- Residential Villages
- Open Space

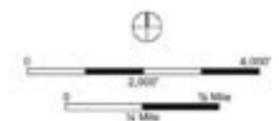


Table 7-1. Permissive Uses by Land Use District

X = Uses permissive in the Zone District(s) indicated shall be permissive within the indicated Mesa del Sol Land Use District, subject to the development program limits in Table 7-2.

CITY OF ALBUQUERQUE ZONING DISTRICT	MESA DEL SOL LAND USE DISTRICT						
	Employment Center	Highway Commercial	Urban Center	Community Center	Village Centers	Residential	Campus
R-1 Residential						X	
R-T Residential		X	X	X	X	X	
R-G Residential		X	X	X	X	X	
R-2 Residential		X	X	X	X	X	
R-3 Residential	X	X	X	X	X	X	
RC Residential/Commercial	X	X	X	X	X	X	
O-1 Office and Institution	X	X	X	X	X		X
C-1 Neighborhood Commercial	X	X	X	X	X	X	
C-2 Community Commercial	X	X	X	X			
C-3 Heavy Commercial	X	X	X				
M-1 Light Manufacturing	X	X					
IP Industrial Park	X	X					

Table 7-2. Development Standards

ZONE	Acres (gross)	Max. commercial SF	Max. comm. avg. FAR (1)	Max. FAR (2)	Max. height (feet)	Max. DU	Max. avg. gross du/ac (1)	Max. net density (2)
Employment Center	1,485	9,056,124	0.14	4.0	80	1,485	1	30
Highway Commercial	385	4,000,000	0.24	2.0	40	-	-	-
Campus	480	2,500,000	0.12	2.0	60	-	-	-
Urban Center	92	1,500,000	0.37	4.0	60	828	9	60
Community Center	61	700,000	0.24	2.0	40	819	13	40
Village Center One	24	200,000	0.19	1.0	35	492	21	35
Village Center Two	40	200,000	0.11	1.0	35	660	17	35
Village Center Three	40	200,000	0.11	1.0	35	660	17	35
Village Center Four	40	200,000	0.11	1.0	35	660	17	35
Residential Villages	4,704	50,000	-	N/A	35	31,896	7	35
TOTAL	7,351	18,606,124				37,500		

Notes:

1. Maximum average gross density/FAR of entire acreage of district or center, regardless of use.
2. Maximum net density of any residential parcel, block or project.
3. Accessory units shall not count toward the maximum number of dwelling units listed.

Table 7-3. Residential Off-Street Parking Requirements

Apartments or condominiums	2 spaces for units with 3 or more bedrooms
	1.5 spaces for units with 2 bedrooms
	1 space for units with 1 bedroom or studio units
House or townhouse	2 covered spaces per unit
Accessory unit	0 spaces per unit

7-4. Curb Radii

Standards for curb radii at Mesa del Sol are shown in Table 7-4 below. Supporting material is provided in the technical appendices.

Proposed Maximums

	Boulevard (primary roadway)	Boulevard (access roadway)	Avenue	Connector	Local Residential	Local Ind/Comm	Alley
Boulevard (primary roadway)	25' effective maximum, 25' actual maximum						
Boulevard (access roadway)	10' maximum	10' maximum					
Avenue	25' effective maximum, 15' actual maximum	10' maximum	25' effective maximum, 15' actual maximum				
Connector	25' effective maximum, 15' actual maximum	10' maximum	25' effective maximum, 15' actual maximum (2)	25' effective maximum, 10' actual maximum (2)			
Local Residential	25' effective maximum, 10' actual maximum	10' maximum	25' effective maximum, 10' actual maximum	25' effective maximum, 10' actual maximum	15' effective maximum, 10' actual maximum		
Local Ind/Comm.	30' effective maximum, 15' actual maximum (2)	10' maximum	30' effective maximum, 15' actual maximum (2)	30' effective maximum, 15' actual maximum (2)	15' effective maximum, 15' actual maximum	30' effective maximum	
Alley	n/a	3' maximum	22' effective maximum, 5' actual maximum	22' effective maximum, 5' actual maximum	3' maximum	22' effective maximum, 15' actual maximum	22' maximum

Notes:

1. In cases where bulbouts are used, "actual maximum" is defined as a curb configuration that covers all of the area of the intersection that would be covered by a curb with the stated maximum radius which extended (without bulbouts) directly to the intersection from the flowlines.
2. Actual radius equals effective radius where on-street parking not provided.



Table 7-5. Functional Classification of Mesa del Sol Cross Sections

Classification	Principal Function	Spacing	Maximum Volume (range)
Divided Arterials	Mobility	1 – 1 1/2 miles	10,000 – 11,000 vpdpl**
- 1A-2 Transit Boulevard Configuration A			40,000 – 44,000 vpd***
- 1B-2 Transit Boulevard Configuration B			40,000 – 44,000 vpd
- 1B-3 Transit Boulevard Configuration B			60,000 – 66,000 vpd
- 1C-2 Parkside Boulevard			40,000 – 44,000 vpd
- 1C-3 Parkside Boulevard			60,000 – 66,000 vpd
- 1D-3 Parkside Boulevard w/out Transitway			60,000 – 66,000 vpd
- Avenue A (Employment Center)			38,000 – 41,000 vpd
- Avenue B (Employment Center)			36,000 – 38,000 vpd
- 1E-2 Avenue with Transitway			36,000 – 38,000 vpd
- 1E-3 Avenue with Transitway			56,000 – 60,000 vpd
- 1F-2 Avenue w/out Transitway			36,000 – 38,000 vpd
- 1F-3 Avenue w/out Transitway			56,000 – 60,000 vpd
- 1G-2 Avenue on Slope			40,000 – 44,000 vpd
- 1G-3 Avenue on Slope			60,000 – 66,000 vpd
- 1H-3 Avenue on Slope w/out Transitway			60,000 – 66,000 vpd
- 1I-2 Avenue Interstate Bridge			40,000 – 44,000 vpd
- 1I-3 Avenue Interstate Bridge			60,000 – 66,000 vpd
- 1J-2 Avenue Open Space Frontage			40,000 – 44,000 vpd
- 1J-3 Avenue Open Space Frontage			60,000 – 66,000 vpd
- 1K-2 Avenue Open Space w/out Transit			40,000 – 44,000 vpd
- 1K-3 Avenue Open Space w/out Transit			60,000 – 66,000 vpd
- 1L Avenue Couplet w/ Transitway			18,000 – 19,800 vpd
- 1L Avenue Couplet w/ Transitway at Station			18,000 – 19,800 vpd
- 1M Avenue Couplet w/out Transitway			16,000 – 17,600 vpd
- 1L Avenue Couplet w/ Transitway			16,000 – 17,600 vpd
Connectors	50% Mobility, 50% Access	1/4 mile	6,000 – 6,600 vpdpl
- 2A Connector Main Street (Commercial)			12,000 – 13,200 vpd
- 2B Connector Residential w/ Median			12,000 – 13,200 vpd
- 2C Connector Residential			12,000 – 13,200 vpd
- 2D Connector Industrial			12,000 – 13,200 vpd
Locals	Access	180 – 700 feet	2,000 – 2,200 vpdpl
- 3A Local A			4,000 – 4,400 vpd
- 3B Local B Queueing			4,000 – 4,400 vpd
- 3C Local C Queueing			1,500 – 1,650 vpd
- 3D Local D One Way			2,000 – 2,200 vpd
- 3E Local E One Way by Open Space			2,000 – 2,200 vpd
- 3F Local F Queueing Restricted Parking			1,500 – 1,650 vpd
- 3G Local G Industrial R&D			4,000 – 4,400 vpd
- 3H Local H Alameda			4,000 – 4,400 vpd
Other	Access & Walking		
- 4A Alley			NA
- 4B Pedestrian Way			NA

Notes:
 * = One Way Street
 ** vpdpl = vehicles per day per lane
 *** vpd = vehicles per day

7.6 Street Sections

The street network as described in Chapter 3 is the standard for Mesa del Sol. Table 7-5 (at left) shows the functional classification and application by traffic volume of the Mesa del Sol typical sections. The higher classifications are designed for mobility and are spaced further apart than the lower classifications, which provide access to land uses and are spaced closer together. This table includes additional sections that are not shown with figures, but which would be further permutations of the general sections described above. The use and applications of the typical sections will be presented and discussed in more detail in future Level B reports.

The numbers provided as “Maximum Volumes” represent an estimate of the maximum total number of vehicles likely to be able to use the facility per day, i.e. the total average daily traffic (ADT). The actual maximum could vary by as much as 10 percent and will ultimately depend on auxiliary lanes, turning movements and intersection operations. A more detailed analysis of operations will be performed in subsequent Level B and C phases of planning.

Arterials are assumed to have a capacity of 10,000 vehicles per day per lane (vpdpl). A review of traffic volumes on arterial roadways in cities comparable to Albuquerque indicates a maximum of 12,000 vpdpl, but to be conservative, and taking the relatively low local tolerance to congestion into account, we are assuming 80 percent of this value. In addition, because of the impedance of maneuvers present with parking lanes, we have reduced the assumed capacity of lanes adjacent to parking to be 8,000 vpdpl.

Collectors are assumed to have a maximum volume of approximately 50 percent of the measured maximum of 12,000 vpdpl, which is consistent with their function (i.e. 50 percent mobility, 50 percent access). This volume (6,000 vpdpl) is consistent with findings from the similar Stapleton development in Denver, which also utilizes New Urbanist concepts.

Local roads are assumed to have a maximum volume of 2,000 vpdpl, which reflects the use of local roads primarily for local access. On local roads with queueing (i.e. one lane of travel for two directions), it is estimated that capacity will be reduced approximately 25 percent such that the maximum volume is 1,500 vpd. Applying the trip generation rules, it is unlikely that residential areas that use each local road will generate more traffic than this theoretical capacity, given the density of housing and the spacing of local roads.

7.7 Stormwater Management Concept

The mesa top lands of Mesa Del Sol have been identified as playa basins. This means that all stormwater runoff is retained on the mesa top in large storm events and there is no discharge to the Rio Grande River. Accordingly, the mesa top lands will employ a drainage management scheme wherein containment of stormwater onsite will be the principal strategy.

The City of Albuquerque design criteria established by the drainage ordinance and the Design Process Manual (DPM) do not adequately address drainage management requirements for the playa conditions atop the mesa. The DPM considers terrain that has slope and a conveyance to the Rio Grande, either natural or manmade. The DPM requires that all water to drain within 24 hours, and therefore requires a release of stormwater to downstream areas. As the mesa playas do not have an outlet, the detention ponding and the flow rate design criteria of the DPM are inadequate for these areas. Similar to what has been done for valley areas in Albuquerque, it is clear that an exception to the DPM will have to be granted in order to address the playa condition.

The State Engineer also has jurisdiction over stormwater runoff and also requires release of flows to the Rio Grande. However, for the unique conditions of Mesa del Sol, the State Engineer's Office has stated in recent discussion that playa basins are recognized as historically having no outlet to the River, and as such, they will permit full retention of stormwater onsite.

Due to the flat slopes that characterize the mesa, collecting and containing runoff onsite is the most practical approach to stormwater management, as opposed to conveying all runoff to a single ponding area. The proposed system is an on-site, engineered retention pond system that consists of many retention ponds strategically located throughout the development.

The retention ponds generally will be large, regional drainage facilities planned to be located within large public open spaces or parks. Each pond will be a retention pond or a system of retention ponds, self contained and not necessarily connected to any other ponding areas. Multi-use facilities are often planned for these areas, such as public open space, parks, ball fields, playing fields and other recreational use areas. The non-drainage uses will be designed to consider the drainage aspect.

The Distributed Retention and Infiltration Pond (DRIP) system is proposed and will basically consist of a multi-stage system, made up of several smaller storm drain components contained within a large pond. These include a collection system, an inlet structure, an energy dissipater structure, a diversion structure to divert water to a water quality facility, a water quality facility, a main ponding area, and an infiltration basin, all of which are contained within the larger retention pond.

The design storm should be appropriately designed for a storm event that considers the lack of an over-flow outfall and the potential for property damage should the storm event exceed the capacity of the facility. The design standard is proposed to be the 100-year 10-day storm event (as defined by the City DPM).



