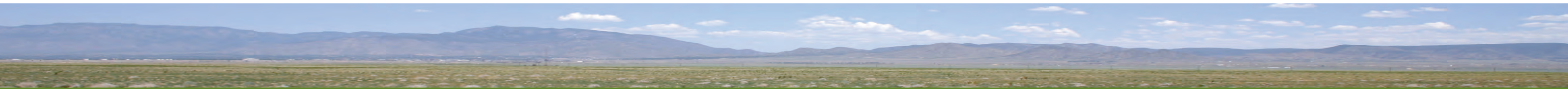


## **15 APPROVED MASTER PLAN**



# COMMUNITY MASTER PLAN

LEVEL B PLAN: AS APPROVED BY DEVELOPMENT REVIEW BOARD FEBRUARY 2008

REVISED SEPTEMBER 2012

Submitted by:

Forest City Covington New Mexico, LLC  
Albuquerque

Prepared by:

Calthorpe Associates

In collaboration with:

Community Design + Architecture

Dekker/Perich/Sabatini

Bohannon Huston

URS Corporation

M-E Engineers

Vaughn Wedeen Creative

Thomas Leatherwood Associates

Earthwrights Designs

Denish + Kline Associates

Mesa del Sol

PROJECT NUMBER: 1004075

Case Number 06EPC-01444  
Mesa del Sol Level B Master Plan

I certify that the area of this plan is zoned PC (Planned Community) and that this plan is consistent with the Level B Plan (Project No. 1004075) approved by the Environmental Planning Commission on January 11, 2007 and is consistent with the Mesa del Sol Level A Master Plan (Project No. 1004260) which was recommended by the Environmental Planning Commission (Case No. 05EPC-00987) on October 13, 2005 and adopted by the City Council (R-05-4) on December 5, 2005.

DRB LEVEL B SIGN OFF

  
Traffic Engineering, Transportation Division

2-13-08  
Date

  
ABCWUA

2-13-08  
Date

  
Parks and Recreation Department

2/13/08  
Date

  
City Engineer

2/13/08  
Date

  
DRB Chairperson, Planning Department

2/13/08  
Date

# *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. This Level B Plan covers a 3,151-acre area comprising the initial phases of Mesa del Sol.

Mesa del Sol's Master Plan documents are 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.



Table of Contents

CHAPTER 1: INTRODUCTION

1.1	Overview	2
1.2	Recapturing Urbanism: The Level A Master Plan Vision	4
1.3	Sustainability	4

CHAPTER 2: LAND USE

2.1	Proposed Land Use Districts	14
2.2	Employment Districts	16
2.3	Mixed-Use Centers	20
2.4	Residential Villages	24
2.5	Landscape Design Standards	32
2.6	Open Space and Parks	36
2.7	Development Phasing	40
2.8	Art and Signage	42

CHAPTER 3: TRANSPORTATION

3.1	Proposed Street Network	45
3.2	Traffic Analysis	49
3.3	Access	53
3.4	Transit	54
3.5	Pedestrian and Bicycle Facilities	56
3.6	Transportation Demand Management	58

CHAPTER 4: ENVIRONMENT AND OPEN SPACE

4.1	Introduction	64
4.2	Biological Resources	64
4.3	Archeological Resources	65
4.4	Air Quality and Noise	67
4.5	Stormwater Management	69

CHAPTER 5: UTILITY INFRASTRUCTURE AND SERVICE

5.1	Water Supply	80
5.2	Sanitary Sewer – Water Reclamation Component	83
5.3	Dry Utilities	86
5.4	Lighting (Summary)	93

CHAPTER 6: PUBLIC UTILITIES

6.1	Schools	100
6.2	Police Facilities	101
6.3	Fire Protection	101
6.4	Solid Waste	101

CHAPTER 7: APPROVALS PROCESS

7.1	Process Overview	104
7.2	Level C Approval Process	104

ADDENDUM: AMENDMENTS TO LEVEL B TECHNICAL APPENDICES	107
---	-----

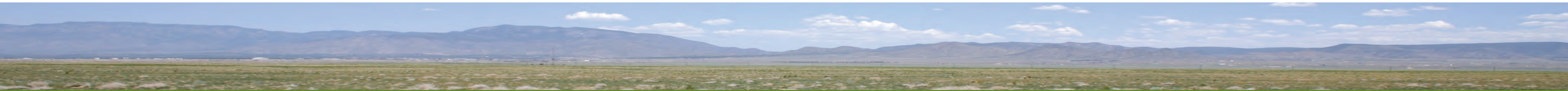
FIGURES

1-1	Level B Plan Area	3
2-1	Land Use Designations	15
2-2	Regional Parks and Trunk Open Space	37
2-3	Level B Overall Phasing Plan	41
3-1	Auto and Transit Circulation, Build-out Network	47
3-2	Auto and Transit Circulation, Level B Plan Area	48
3-3	Roadway Phasing: Roadways Needed by 2015	51
3-4	Roadway Phasing: Roadways Needed by 2025	52
3-5	Transit System: Combination Local Bus Circulation and BRT / Streetcar Scenario	57
3-6	Pedestrian and Bicycle Circulation	59
4-1	Topographical Map	71
4-2	Slope Map	72
4-3	Soils Map	73
4-4	Overall Stormwater Plan	74
4-5	Open Space Pond and Section Detail	77
5-1	Preferred Water System: Trunk Infrastructure Plan	81
5-2	Sanitary Sewer Master Plan Including Level A Area	85
5-3	Utility Corridor Street Sections	87
5-4	Dry Utilities Coordination: Typical Installation Details	88
5-5	Transmission Line Routing	91
5-6	Gas Line Routing	92
5-7	Lighting Zone Map	95
7-1	Approvals Process	106

TABLES

2-1	Site Development Standards	31
4-1	Protected Animal Species Potentially Occurring in the Project Area	65
7-1	Approvals Matrix	105





# INTRODUCTION

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

1

Mesa del Sol

# Meeting the Planned Communities Criteria

## Introduction



This Level B Plan is the principal plan regulating development proposed by Forest City Covington NM, LLC (FCC) for a 3,151-acre area comprising the initial phases of Mesa del Sol, a new community on Albuquerque's south-east mesa, south of the Sunport. This document refines land planning for the Level B area in a manner consistent with and supportive of the goals and policies of the Mesa del Sol Level A Plan, the Planned Communities Criteria, the Albuquerque/Bernalillo County Comprehensive Plan and the Planned Growth Strategy.

### 1.1 Overview

Mesa del Sol is a community designed for Albuquerque's southeast mesa, on an approximately 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 includes approximately 630 acres leased to Bernalillo County for the development of a recreation area, as well as La Semilla, a one-mile wide strip adjacent to Kirtland Air Force Base on Mesa del Sol's eastern boundary that has been leased to the Department of Energy for passive open space uses, environmental education, and renewable energy uses.

The approximately 9,000-acre development lease between the New Mexico State Land Office and Forest City Covington NM, LLC (FCC) a joint venture of Forest City Enterprises, Covington Capital and the University of New Mexico, vests FCC with the responsibility of planning and developing the Mesa del Sol community in accordance with the City of Albuquerque's Planned Communities Criteria. On January 14, 2006, the Albuquerque City Council adopted the Level A Master Plan and Technical Appendices for Mesa del Sol and an associated Level A Development Agreement.

In the interests of economic development, the City of Albuquerque has expedited the approvals of several key employment projects at Mesa del Sol in advance of the Level B and Level C stages of the Planned Communities Criteria approvals process. These include site plan approvals and building permits for several key employers, including a research, development and manufacturing plant for Advent Solar, Inc. and a film studio campus to be known as Albuquerque Studios. FCC gratefully acknowledges the City's assistance in expediting these approvals. These base economic projects demonstrate FCC's commitment

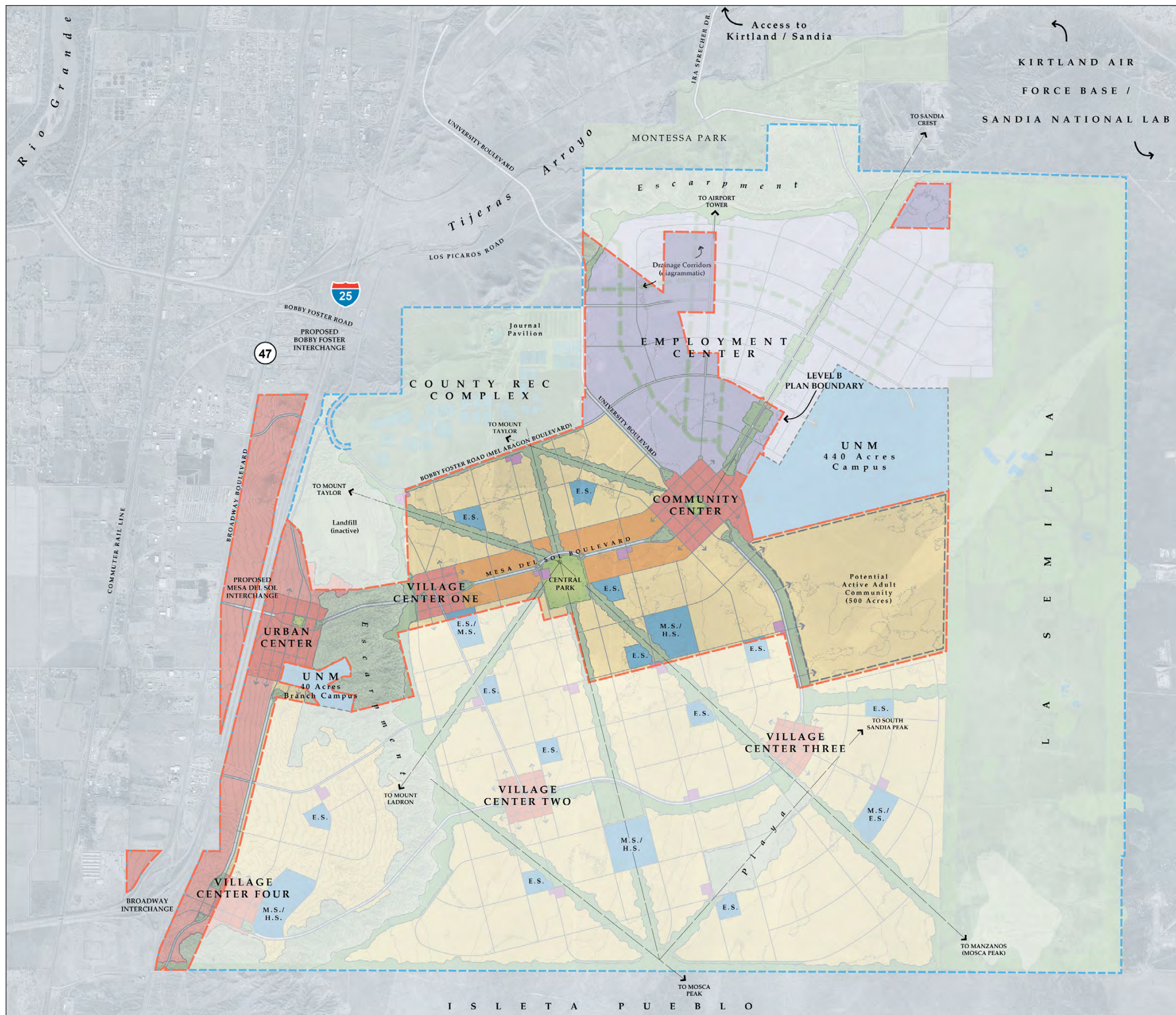
to creating jobs and balancing residential development with employment opportunities.

This Level B Plan covers a 3,151-acre area comprising the initial phases of Mesa del Sol. The Technical Appendices submitted with this plan are hereby incorporated in their entirety and made part of this Level B Master Plan. The Level B Master Plan area (Figure 1-1) includes the land held in fee by FCC and an additional 40 acre area on the northern escarpment that is planned for a secure employment area. Table 1-1 below summarizes the anticipated development program for this Level B Plan. The land use districts are described in Chapter Two.

**Table 1-1 Development Program**

DISTRICT	Acres (gross)	Max. commercial sq. feet	Max. number of dwelling units
Employment Center	626	5,050,350	533
Highway Commercial	411	3,775,000	
Urban Center	92	1,500,000	828
Community Center	88	700,000	819
Village Center	44	200,000	660
Residential Villages (net of linear open space)	1,492	10,554	10,444
<b>TOTAL DEVELOPED AREA</b>	<b>2,753</b>	<b>11,235,904</b>	<b>13,284</b>
Steep Slopes (>10%)	185		
Linear Open Space	173		
Major Urban Park	40		
<b>TOTAL AREA</b>	<b>3,151</b>		





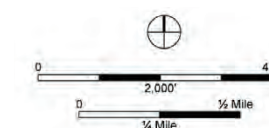
## LEVEL B PLAN AREA

Figure 1-1

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

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





---

## 1.2 Recapturing Urbanism: The Level A Master Plan Vision

The recent history of urban planning abounds with attempts to reconnect people’s social needs to their built environment. The end of the Second World War, and the introduction of automobiles in unprecedented numbers, changed urban landscapes based on seaports and railroads—focused forms of transportation—to sprawling suburbs characterized by free access to and from all land uses, with little regard for the logic or functionality of the city as a whole. Many believed that the car and electronic means of communication would create a new form of urban fabric, but even as these technologies opened new avenues for rapid transportation and communication, social connectivity was lost. The loss of the ability to interact with the landscape, and of the face-to-face interaction afforded by density and open forms of travel such as transit, bicycling and walking, was a net detriment to the social energy on which the very concept of a City is based.

Over the last two decades, the desire to reconnect people with the urban landscape has taken many forms—infill, New Urbanism, Smart Growth, and Transit-Oriented Development are all names for techniques to recapture the social life of cities. There has also been a growing awareness that our current city-building methods are profligate in the use of all our resources: land, water, energy, air, people, and time—a tendency being countered by the concept of sustainability. When resources are used efficiently, we are able to meet the needs of the present without compromising the ability of future generations to meet their own needs.

Most standard building practices use non-renewable resources with minimal regard to the damage that is being done to the environment or consideration of what will happen when these resources are exhausted. Mesa del Sol takes these factors into consideration and is designed to use resources more efficiently than the conventional suburban model.

The Mesa del Sol Level A Plan created a framework for compact, mixed-use development that encourages the conservation of resources through elements such as walkability, water harvesting and energy conservation.

“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 recovery and re-use of building elements in the future.”

## 1.3 Sustainability

### 1.3.1 Overview of Sustainable Principles

Sustainability is a core principle of Mesa del Sol, woven carefully into the fabric of the community. The individual systems and components of the Level B Plan contain descriptions of specific design and construction measures, all meant to support the creation of a healthy and lasting place to live, learn, work, and play. This section highlights and assembles these integrated sustainability goals and strategies in order to demonstrate the breadth and depth of FCC’s commitment and the process Mesa del Sol will use to implement the various strategies.

A truly sustainable community is more than just the sum of its parts. It is more than a collection of green buildings or a checklist of new technologies. A truly sustainable community incorporates not only environmental but social and economic well-being for all of its citizens. It looks to the past to honor and utilize the strategies of simpler times. It looks to the future to anticipate and plan for potential stresses—be they changing resource supplies, changing climate or changing economic conditions. And it looks to the natural setting in which it exists, protecting and emulating the natural processes occurring on the site. A sustainable community brings people out of their homes and cars, encouraging them to be active, healthy and connected to their environment and each other.

The New Urbanist design principles on which the plan is based do much to integrate sustainability into the fabric of the community. The compact, diverse, pedestrian-oriented land use pattern reduces infrastructure demands, uses land efficiently, protects open space, and reduces the need for single occupant vehicle trips. Beyond the basic land use pattern, FCC is rethinking every component needed to create a modern town—water use and stormwater management, energy use and generation, road design, park design, school locations, building design standards, etc. In the design of every system, FCC is questioning assumptions and imagining how to move towards regenerative systems—systems that replenish rather than deplete the earth.

This Level B Plan provides diverse strategies for implementing the key sustainability principles outlined in the Level A Plan:

- Economic viability
- Response to context and location
- Resource efficiency



Mesa del Sol has adopted a process that will produce industry-leading energy and environmental performance within the context of market realities. Mesa del Sol will be developed over multiple decades. Therefore, it is critical that the design standards developed in the early stages do not tie the hands of future development and prevent it from going even farther and using resources even more wisely than it can today.

**1.3.2 Economic Viability**

*A. Marketability*

As a leader in sustainable community development, Mesa del Sol must succeed by all measures—environmental, social and economic. The goal is not only to create an excellent community, but to transform the way that development is done. FCC will endeavor to find the most cost-effective strategies to ensure that they do not burden homebuilders, employers and future residents with excessive costs or decrease the affordability of dwelling units. Each design strategy will be reviewed for its environmental benefits, capital cost, return on investment and cash flow, as well as marketability.



While all buildings built within Mesa del Sol will meet a minimum green building performance standard, a percentage of buildings from early phases will be selected for more aggressive measures, such as photovoltaics or alternative structural systems (see the Sustainability Overlay Zone section below). These buildings will be monitored for both performance and buyer satisfaction, and successful measures will then be more broadly incorporated into future phases. This iterative strategy will provide an opportunity to optimize sustainability features without exposing buyers and tenants to high levels of risk in terms of either cost or performance.

*B. Local Economy*

Beyond becoming economically successful as a project, Mesa del Sol will enhance the economic vitality of the local area. A key goal in the land-use allocation for the project is creating a jobs-housing balance. Attracting high-salary industries to the area, such as Advent Solar and Albuquerque Studios, will provide jobs for local residents and increase the local tax base. Locating these industries in close proximity to residences will decrease the need for car-based transportation, saving residents money on fuel expenses and provide businesses with an added incentive for prospective employees: short commute times. Mesa del Sol’s land use balance will encourage people to live, learn, work and play in the same areas, leading to a vibrant, diverse and resilient local economy.

*C. Stability through Diversity*

A vibrant community must accommodate a wide range of services, and therefore a wide range of wage-earners, within its own boundaries. Far too often in American cities, communities are segregated by income level, resulting in a poor distribution of public resources and inequitable quality of life. Instead Mesa del Sol will have a diverse mix of housing types within each neighborhood, enabling people from a broad spectrum of occupations and financial conditions to live in the same neighborhoods, and 10% of the dwelling units will designated as workforce housing (affordable housing). The Level B plan integrates live-work units, accessory units and other rental units to provide home owners with additional sources of revenue to make their homes more affordable or provide independent living quarters for family members\*. In addition to the diversity of housing types, the community will contain a diversity of employment opportunities at a range of incomes to promote a diverse, robust and self sufficient economy.

\*Residential areas with access controlled gates for vehicles (eg gated subdivisions) while allowed shall be limited only to “age restricted” (active adult communities) as defined in Federal Law. Streets within such subdivisions shall be private.







### 1.3.3 Response to context and location

#### A. Open Space

Development at Mesa del Sol will take full advantage of the sense of identity created by the site's rich context of natural features. Open space corridors have been oriented in alignment with mountain vistas in order to preserve the connection to the natural setting, as shown on Figure 2-2 and discussed in section 2.6.1. The plant palette will be carefully selected to emphasize native and xeric non-native plants (see Appendix 2C) in order to provide habitat, use minimal water and reflect the natural community of the area. The park areas within the community are structured in corridors to increase connectivity of both habitat and people, and to allow the natural ecosystems to penetrate into the built environment (see Section 2.6, Open Space and Parks). The open space in Mesa del Sol serves multiple functions—it serves as an integral part of the stormwater management system to mimic natural flows, it provides habitat for local species, and it provides people with recreational opportunities and a connection to the specific natural context in which they live.

#### B. Dark Skies

Because of its proximity to natural communities and Kirtland Air Force Base, as well as its desire to promote a connection between people and the natural world, Mesa del Sol has adopted specific standards for lighting that minimize light pollution. The design standards include specific guidelines to minimize light pollution and trespass, increase energy efficiency, and provide optimal nighttime visibility for safety (see Section 5.4, Lighting, and Appendix 5D, Allowable Lighting Fixtures and Light Levels).

#### C. Air Quality

The most significant source of air pollutants at Mesa del Sol will be from vehicle emissions. Emissions are influenced by both the number of times vehicles are started and the distance of travel. Therefore the land use plan, based on a "park once" concept, is designed to minimize the number of auto trips within the project as well as the length of trips. Other measures to protect air quality include specific guidelines for dust generation during construction, emissions limit for paints and other building materials to protect indoor air quality, and strict emissions limits for any on-site energy generation systems such as micro-turbines. These emissions limits will be developed more specifically in Level C submittals to ensure that they adequately address the specific designs and technologies to be implemented.

#### D. Global Systems

Planning and design at Mesa del Sol is being informed by both micro and macro scale systems, including climate, renewable energy, water resources, and the global economy. Infrastructure, landscaping, and buildings will be designed to reduce the impact of greenhouse gasses and heat island effects. For example, transit-oriented development, renewable energy projects and multi-modal transportation networks will reduce carbon dioxide emissions associated with transportation. By combining energy efficiency requirements, alternative energy sources and alternative transportation networks, the goal is to make Mesa del Sol as close to climate neutral as practical.







#### E. Heat Island

Heat island effect refers to the phenomena of elevated day and nighttime temperatures in an urban, built environment as compared to surrounding, undeveloped terrain. With the intense solar gain and high summer temperatures, the heat island effect in the southwest is of concern. This impact will be minimized, where appropriate through reductions in paved surface area, the use of lighter colored paving wherever practical, the use of pervious paving materials, intelligent landscape design to shade paved surfaces, and where practical the use of light colored or reflective roofs on commercial buildings. The ability to abate the heat island effect will be dependent upon cooperation from the City and other public agencies especially with regard to water budgets and landscaping.

### 1.3.4 Resource efficiency

#### A. Land Use

The best way to achieve resource efficiency is to eliminate or reduce the demand for the resource. At Mesa del Sol, there is a built-in reduction to resource demand for energy associated with transportation. Planning for Mesa del Sol aims to coordinate the location and density of land uses into a compact and integrated community design that promotes walkability and multi-modal transportation opportunities.

This clustering of uses reduces travel distance and time and mitigates against air quality deterioration. The pedestrian mode of travel is facilitated through a human scale of architecture, attractive signage and facades, and shaded sidewalks. The use of transit is encouraged through street design that includes regular transit and bicycle routes, convenient stops, and pedestrian connections to stops.

#### B. Transportation

The transportation systems planned for Mesa del Sol consist of facilities for vehicles, mass transit, pedestrians 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 Plan area and for the greater Mesa del Sol. Concepts introduced for multi-modal transportation facilities in the Level A Community Master Plan have evolved in this Level B document, with more details provided regarding the transportation network, street characteristics, intersection operation, access, phasing of street construction, transit, and pedestrian / bicycle facilities (see Chapter 3, Transportation). A comprehensive network of pedestrian and bicycle trails for both transportation and recreation is planned. Key segments of these trails are included in the Level B Plan area, with connections to the off-site University Boulevard trail, the Paseo Bosque trail and the planned Tijeras Arroyo trails.

Significant effort has been dedicated to the careful planning of the transportation network to minimize traffic volumes on both major and minor roadways, including the boulevards, avenues and connectors that make up the street network. This effort has included the addition of a number of major roadways that connect the Mesa del Sol transportation network with the off-site transportation network. Based on travel demand models developed for the overall site and the Level B planning area, traffic volume is distributed among more roadways, thus reducing volumes on individual roadways such as Mesa del Sol Boulevard. Although Mesa del Sol Boulevard will function as a major spine of the transportation network, the volumes predicted have been reduced from those shown in the Level A Plan, resulting in a more pedestrian and user friendly environment. This same concept holds true for the smaller scale connector roadways, which have been laid out in a traditional grid pattern, providing numerous parallel routes for travel, minimizing traffic volumes on any one street.

Mesa del Sol is planned as a transit-oriented development, with sufficient right of way on the major boulevards to include dedicated transitways that will provide the framework of a future mass transit system. A separate study of Mesa del Sol Transit Concepts and Scenarios has been undertaken by the developer, with excerpts from that study that present a viable transit implementation scenario included in this Level B document. Mesa del Sol transit service is likely to begin as bus service extensions from adjacent areas of the City's ABQ Ride system, but is foreseen as a robust transit system that will enable future travelers in Mesa del Sol to leave their cars behind.





### C. Water

The Mesa del Sol plan features a systems approach to the responsible and intelligent use and re-use of water resources, with a goal of minimizing the consumption of potable water. Wastewater and runoff are viewed as valuable resources that should be retained and reused. The goals of Mesa del Sol's water conservation program are to:

- Consider all water (including stormwater and waste water) as a precious resource
- Capture water falling on the site where possible (either for use or infiltration)
- Minimize water demand indoors and out
- Use potable water only when absolutely necessary
- Use water as many times as possible before it leaves the site
- Ensure any water leaving the site is treated
- Minimize indirect uses of water, particularly by conserving energy



Mesa del Sol will incorporate all of the measures developed by City of Albuquerque's comprehensive water conservation program, including educational programs that promote good habits and practices in water usage; water conserving appliances; low-flow toilets and showerheads; restrictions on outdoor watering; and water-conserving landscape design based on xeriscaping techniques. In addition, where possible and practical, Mesa del Sol will establish methods and systems for the careful and judicious use of the following sources of water:

- Potable water: Potable water should be used almost exclusively for indoor needs. Under some conditions, potable water may be directed to outdoor uses. The City-County Water Utility has established a daily water allocation of 75 gallons per person at Mesa del Sol. This allocation will be used to implement a household water budget and drive the specification of low-flow fixtures as well as Energy Star rated dishwashers and washing machines.
- Greywater: Water that has been used indoors—primarily for bathing and washing clothes, and excluding water from the kitchen sink and toilets—can be re-used for landscape irrigation. The Mesa del Sol team will work with the City to ensure these systems function well with minimal maintenance.
- Reclaimed water: Mesa del Sol will participate in the use of "purple pipe" for return of tertiary treated effluent from the City's treatment facility to Mesa del Sol for use in irrigation of roadways, median, recreational facilities, parks, and other public spaces to the extent that it is available from the Water Authority. This source of water may also be appropriate for toilet flushing in non-residential buildings.
- Rainwater: The capture and re-use of stormwater through both passive and active water harvesting is a central element of Mesa del Sol's sustainability strategy. Rainwater can be captured and stored in cisterns to provide water for both residential and non-residential landscape irrigation where practical and economically feasible. Rainwater cisterns will be sized and located at a range of locations, and specific requirements regarding these systems will be included in the design standards in order to encourage active rainwater collection, storage and use. In addition, the design standards will be developed to include strategies for infiltrating stormwater, including stormwater features, such as swales, and soil amendments, such as mulch, to retain water in the landscape.
- Energy/Water Linkage: Mesa del Sol is taking an integrated approach to sustainability, which means recognizing the linkages between resources. The production of electricity uses significant amounts of water, primarily for cooling the generating equipment. Similarly, water treatment and pumping plants use significant amounts of energy. Mesa del Sol is committed to saving water by saving energy and saving energy by saving water. Therefore, all of the strategies listed in the section relating to energy can be considered indirect water saving strategies, and vice versa.





In order for Mesa del Sol's water conservation plan to be most successful, cooperation from multiple agencies will be required. In some cases, it may be appropriate to revisit local codes and requirements so that the use of potable water can be minimized, for example, by using reclaimed water for residential irrigation and domestic plumbing in non-residential buildings. Some of the water conservation strategies at Mesa del Sol will have associated capital costs that must be balanced with their benefits.

#### *D. Stormwater*

Mesa del Sol plans on taking an innovative, progressive approach to stormwater management based on mimicking natural systems. The goal is to treat stormwater as a resource, maintain it on site, reuse it where possible, infiltrate it into the ground water, and ensure that any runoff that does occur has been treated to remove pollutants.

Unlike traditional urban stormwater management systems, which are based on fast, concentrated evacuation of stormwater, the proposed system at Mesa del Sol will instead slow, spread and infiltrate stormwater into the ground. This approach seeks to promote infiltration by minimizing impervious surfaces and using features such as swales, mulched landscape areas and infiltration ponds. Discharge of stormwater occurs through soil recharge (infiltration), evaporation and plant transpiration.

This approach of frequent infiltration and evapo-transpiration reduces flow volumes, minimizes conventional piping systems, replenishes shallow groundwater storage and eliminates pollutant discharge to natural watercourses. At Mesa del Sol, a balance will be achieved between collection of stormwater in conventional systems and the location and frequency of retention and infiltration ponds in order to ensure both that water is retained and treated and that sufficient flood control measures are in place to handle large storm events.

Consistent with the Level A Master Plan, a Level B Stormwater Master Plan has been created for Mesa del Sol (see Section 4.4). The general concept for Level B stormwater management remains Distributive Retention and Infiltration Ponding (DRIP) for the mesa top area and traditional conveyance for the escarpment area west of the mesa top basin. Numerous strategic retention ponds are proposed to manage the runoff within the mesa top playa basin. The DRIP scheme is intended to be multi-use, where ponds serve as drainage areas that are also aesthetically pleasing and may include open space trails, recreational areas, sitting areas, xeriscaping, and wildlife habitat. The DRIP system that is proposed for the mesa top area closely resembles the existing drainage situation present in this area. This approach is modular and scalable, allowing ponds to be easily located anywhere phasing needs dictate and sized to meet the local design runoff volume for the contributing area.

Stormwater quality continues to be a national, state and local concern. The DRIP facilities will incorporate distinctive water quality and water storage features. Stormwater will first be sent through a water quality forebay, which will collect the "first flush" of storm runoff, which contains the majority of the pollutants. Then stormwater will flow to the primary ponding area, which will provide storage of the design storm and allow for on-site infiltration. When not being used for flood control, the pond area will have other functions, such as expanding park areas, playing fields and open space. Throughout the system, stormwater will be infiltrated through into pervious surfaces and soils where it will either be removed by evaporation and evapo-transpiration or will recharge the ground water. The infiltration system will include constructed facilities that act under passive hydrostatic pressure "to inject" stormwater into the subsurface soils. The sizing and details for the system will be highly dependant on the infiltration capacity of the sub soils, which will be determined on an individual site basis.



#### *E. Energy*

Mesa del Sol recognizes the importance of energy conservation at the local, regional and global scales and is committed to being a model community for energy conservation. Our energy goals are:

- Decrease the total energy used by the community
- Protect air quality and reduce emissions
- Minimize contributions to global warming
- Increase environmentally responsible on-site distributed energy generation to promote energy independence
- Advance the market for renewable energy sources
- Optimize savings of both energy and water

Mesa del Sol will study the technological, economic, and environmental feasibility of alternative energy technologies to meet the project's goals and objectives. The technologies evaluated may include on-site renewable power production, on-site generation and cogeneration (fuel cells, micro turbines, and gas turbines) and on-site energy storage.



FCC will work with Public Service Company of New Mexico (PNM) to encourage photovoltaic installations on residential and commercial buildings. PNM has an existing Solar PV program that provides incentives to help defray the cost of installing photovoltaic panels on homes and businesses. FCC will also work with PNM to provide incentives for energy efficiency rebates on appliances and high performance insulation.

Based on this analysis, Mesa del Sol will develop an energy plan that combines both passive and active strategies at the building, neighborhood and community scales. The climate and current building practices in Albuquerque make the use of passive strategies for meeting energy needs the best place to start. To the extent possible, landscaping will be used to shade buildings to reduce heating loads. However, landscaping for passive cooling will have to be carefully balanced with water conservation goals, and a detailed modeling approach will be used in order to balance community water savings goals with energy performance improvements.

Active strategies, such as the use of high performance HVAC systems, glazing and hot water systems, will be encouraged, and all appliances will be required to meet Energy Star Standards. Commercial buildings will be required to have high efficiency systems, to use “cool roofs” and to perform significantly better than the applicable energy code, ASHRAE 90.1. In some areas, homes may be required to be Energy Star Certified, while in others FCC may develop additional standards. Energy saving homes could be developed to the point where they produce as much energy through photovoltaic panels and solar hot water systems as they consume. The particular mix of energy design criteria for buildings will be more fully developed in Level C submittals and in particular in the Sustainable Development Overlays (see the Sustainability Overlay District description below).

Because of the significant solar resources available on the site, photovoltaic systems will be an important part of Mesa del Sol's alternative energy options. The industry continues to improve the efficiency, aesthetics, installation techniques, and cost of the systems, making them attractive alternatives for small scale electric generation. In fact, the first tenant in Mesa del Sol's employment center is a photovoltaic manufacturing company, Advent Solar, Inc. Their presence, combined with the vast potential for solar production in the Albuquerque area, should work to increase the incorporation of this renewable energy source.

Where significant savings can be recognized over time for the home buyer or building operator, these savings will be incorporated into marketing materials to help people understand and maximize the value of these features. In addition, FCC will investigate the feasibility of offering “green mortgages,” which provide incentives for green building and energy-efficient building techniques. Mesa del Sol will encourage the use of photovoltaics and other solar applications, but will regulate the design and placement of these solar collectors.



Mesa del Sol is committed to working closely with the City and local utilities to develop a comprehensive energy plan for the community that will identify the optimal path for the creation of a resilient and responsible community energy infrastructure.

*F. Environmentally Preferable Materials*

The field of environmentally preferable materials has grown dramatically in recent years, with both environmentalists and manufactures making a wide array of claims about either the dangers or benefits of materials. This field is complicated by the vast number of materials, the environmental tradeoffs that sometimes occur and the lack of region-specific data. However, there are many well-proven materials and strategies for their use that can have real environmental benefit and protect the health of building occupants. Some of these materials may include: sustainably harvested wood, formaldehyde-free wood products, products with high percentage of recycled materials and reflective roofing materials.

Mesa del Sol will take steps to encourage environmentally preferable materials that have clear environmental advantages in this particular region. Some green building materials will need special consideration from the City as they may not be addressed in local codes. Mesa del Sol will work closely with building officials to determine whether any alternative design standards are required in order to facilitate alternative strategies.

**1.3.5 Approach and Implementation**

While sustainability has already been woven into the core of the community at the most fundamental level, there are still many decisions left to be made as the plan is implemented. A systematic approach is needed to navigate through the various strategies, their associated costs, potential deviation from City standards, marketability and performance over time. Therefore FCC has developed a three-part process to incorporate sustainability into the community in a way that is highly innovative, measurable and adaptable. The process includes a quantitative analysis of the community to compare sustainability strategies, the selective use of established rating systems to ensure high levels of sustainability at the project level, and a strategy for testing, validating and implementing alternative design standards into the zoning and permitting process of the City.

*1. Quantitative Analysis*

While most people agree that sustainability is an important goal, there is still controversy over the best way to meet it. There are many emerging technologies, but there is still a dearth of clear comparative data on the effectiveness, cost or environmental performance of such strategies. Mesa del Sol will take an analytical approach to sustainable design in order to parse out the most promising strategies as they apply specifically in this context. This will enable a better quantification of the alternative strategies being employed in terms of transportation, stormwater management strategies, energy efficiency measures, on-site and renewable energy generation, landscaping palette, irrigation technologies, road design, etc.



*2. Rating Systems*

Rather than letting the design of the community be dictated by an outside checklist approach, Mesa del Sol will incorporate a broad suite of sustainability strategies that have the most environmental benefit within the local context. In order to help identify measure and validate sustainable design practices, Mesa del Sol will examine the different green building, energy and development certification programs that are currently on the market or are emerging within the near future to determine which system, if any, will make the most sense for Mesa del Sol. Potential rating systems to be considered will include Energy Star, LEED for Neighborhood Development and LEED for New Construction, as well as others. If it is determined that none of the available systems will fit well within the context of the development, Mesa del Sol will develop a custom green rating system that more precisely reflects the climate, site constraints and opportunities, and market conditions of the Albuquerque area. MdS will continue to evaluate measurement standards over time as they continue to progress and evolve. The goal is to encourage the incorporation and verification of sustainable design strategies that have the most environmental, social and economic value for the community.





Throughout the remainder of this document, sustainable elements of the Plan are noted with this symbol.

### 3. Sustainable Development Overlay

The overall Level B Plan demonstrates a commitment to sustainability that goes beyond existing City standards, as described above. This demonstrates Mesa del Sol's commitment to sustainability and its desire to help the City meet its sustainability goals as articulated in the Planned Communities Criteria, the Planned Growth Strategy, and the Sustainability Report. There are, however, some City policies, particularly in the Development Process Manual, that create roadblocks to making further progress towards sustainability. The design criteria in the DPM are based upon accepted City and engineering practices that have proven successful and maintain public safety. Alternative design concepts in civil engineering and land development have to have a proven track record before they can replace existing standards and be adopted by municipalities.

Mesa del Sol is committed to providing a testing ground for new technologies and strategies that promote sustainability. In order for this to happen, new systems must first be implemented cautiously and on a more limited scale in order to offset the potential risks for all parties involved. For this reason, Mesa del Sol is proposing a Sustainable Development Overlay ("Overlay"). This Overlay will function essentially as an alternative compliance path for limited areas within the larger plan and will function essentially as living laboratories for more aggressive sustainability strategies.

Due to conflicts with existing City standards and policies, a Level C submittal with an Overlay would merit EPC review and approval. Once the project is built, Mesa del Sol will track and evaluate the success of the techniques employed. Measures of "success" would be agreed upon by both the City and Mesa del Sol. If certain techniques prove successful, future Level C submittals with these same sustainability features could be reviewed administratively, even if they did not conform to currently accepted City practices and design standards. In other words, both the City and Mesa del Sol would agree that these new techniques worked and were worth adopting.

The goal of the Overlay is to promote innovative applications of land development techniques in the arrangement and construction of buildings, roads, drainage, and underground improvements and the use of water. The desired end result is increased efficiency in water and energy use, reduced capital costs, and reduced operations and maintenance costs for public and private infrastructure.

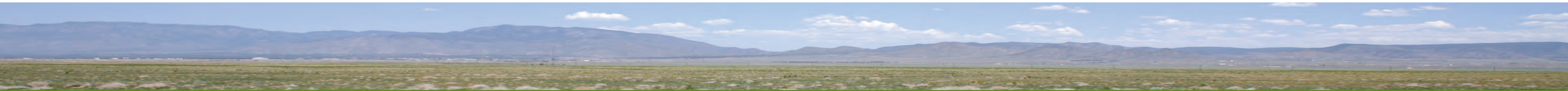
Creation and implementation of a Sustainable Development Overlay will require collaboration and coordination between the City and Mesa del Sol. Below is a listing of some of the activities that must take place in order for this innovative planning approach to be successful.

- Evaluation Criteria: Mesa del Sol will create a Sustainable Development Evaluation System that identifies and applies values to development practices that affect sustainability. The Evaluation System will be tied to existing City standards and objectives for improvements in areas like water consumption and energy use. Mesa del Sol will establish benchmarks for improvements over existing City standards based on environmental benefits, operational performance, durability and return on investment.
- Implementation and Review: Test application of the Overlay, within private development guidelines following Level C approval, will be implemented in order for the Master Developer to test and learn how this approach impacts the quantity and quality of development of various project types. Results of the Overlay application will be tracked and analyzed in order to make the overlay more effective in encouraging quality development. Testing may take from one to three years from Level B approval. Revisions to the Overlay language will be implemented in response to test results.

No sustainability technique is perfect and new ideas and products are brought to the marketplace every day. There needs to be a way to experiment with methods and materials to test their effectiveness, longevity and practicality both in new installations and as "retrofits". At this time it is impossible to predict where or under what circumstances a sustainable development overlay zone would be appropriate. When proposed, the project will be submitted to the Environmental Planning Commission for review. If test results of the Sustainability Overlay proved successful, the City would agree to reductions in City criteria for the proven element of infrastructure such as stormwater detention volumes, road widths, parking requirements, sanitary sewer sizing, and non-potable water applications. Adoption of the adjusted design criteria would not require an overall revision of the Design Process Manual but would be applied administratively to the Mesa del Sol Sustainability Overlay.

#### 1.3.6 Conclusion

Ultimately Mesa del Sol will be measured not by how many kilowatt-hours of energy or gallons of water it consumes, but on its ability to foster relationships between community members and the place where they live, to replenish the natural community around and within it, and to withstand the stresses of change over time. The process that Mesa del Sol proposes ensures a broad and rigorous approach to optimizing sustainability efforts. In order for this process to be most successful, it must be iterative, interdisciplinary, and collaborative. Mesa del Sol is committed to working closely with the City, the utilities and others to create a truly great place to live, learn, work and play.



# LAND USE

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

2

# *A New Community on the Southeast Mesa*

## Land Use

This chapter discusses the character of each of the land use districts in the Level B Plan. These standards address development intensity, height, building bulk, setbacks, and other quantitative standards, but are not intended to address architectural design of buildings.



Diversity of Uses



Public Open Space

The intent of Mesa del Sol is to create a cohesive built environment that emphasizes the use of quality materials and creates a human scale setting. Such cohesion is best achieved if initial review of all projects is managed by the owner. To achieve this intent, Mesa del Sol will create an Architectural Review Committee (ARC) consisting of:

- The Chief Operating Officer of Forest City Covington NM, LLC (FCC) or his/her designated representative
- A Registered Professional Engineer of the State of New Mexico
- A practicing member of the American Institute of Architects
- A practicing member of the American Institute of Certified Planners
- A practicing member of the American Society of Landscape Architects
- An admitted member of the New Mexico Bar Association specializing in land use matters.

The Architectural Review Committee (ARC) will review building and site designs prior to submittal to the City and verify that the submittal meets FCC's architectural standards.

### 2.1 Proposed Land Use Districts

The Level B Plan area includes seven of the eight land use districts described in the Level A Plan, 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 planned Mesa del Sol interchange, the Urban Center is planned as a major mixed-use center with a significant regional retail component.

*Community Center* – in the central portion of the mesa, the Community Center will provide services including retail, civic, and housing opportunities at the juncture of the Employment Center, Campus and Transit Corridor.

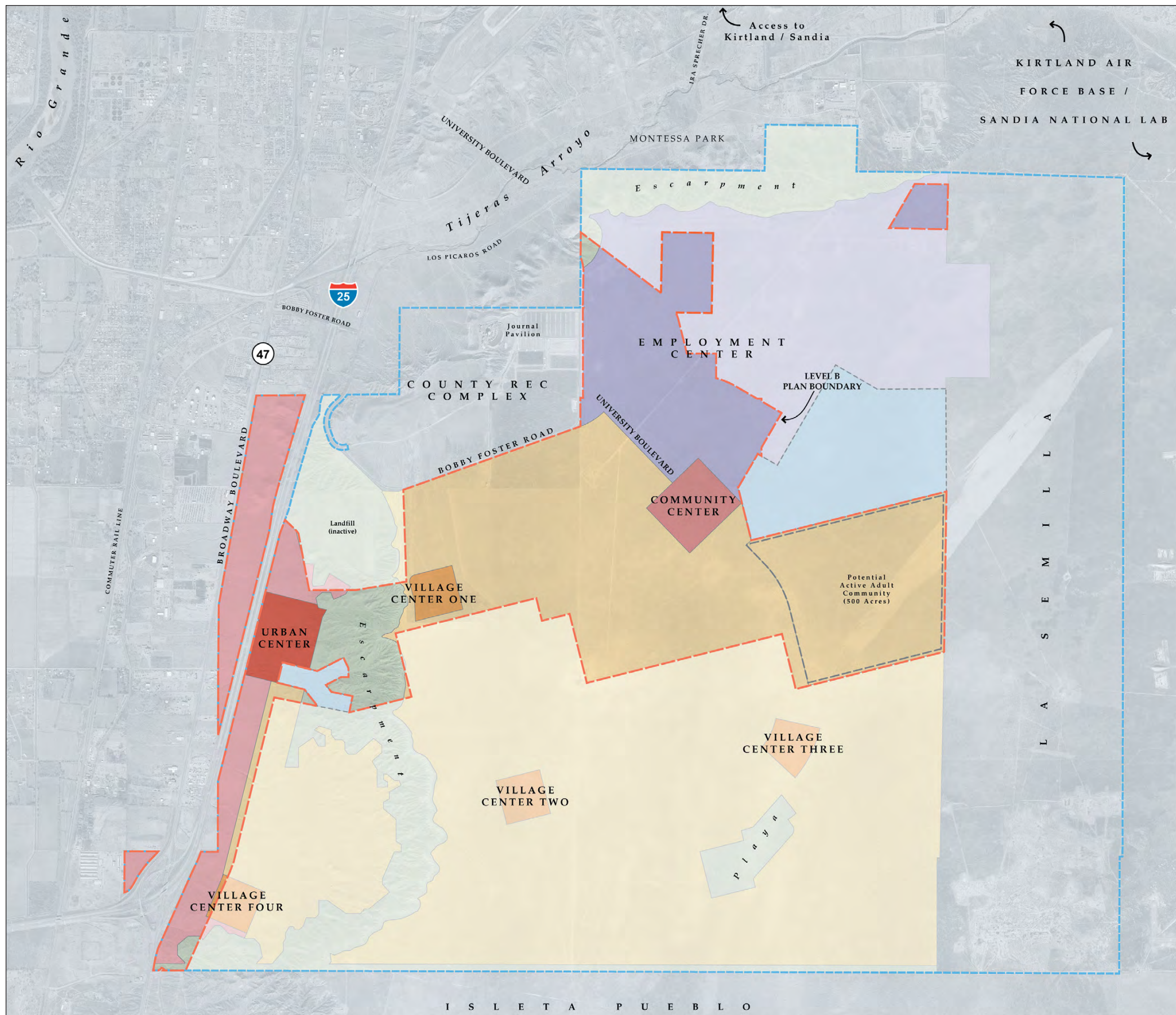
*Village Centers* – Typically anchored by a grocery store and located along a primary roadway, Village Centers will provide retail services to surrounding neighborhoods, as well as professional office space, police and fire stations and other civic uses, and higher-density forms of housing.

*Residential Villages* – The central and southeastern portions of the Level B Plan area are planned as residential areas with a broad range of housing types. Open space, parks, schools, civic facilities, and neighborhood centers will be included within Residential Villages. A portion of the residential district identified in the Level A plan is being reserved for a potential active adult community.

*Open Space* – The escarpment within the Level B Plan area will be designated as Major Public Open Space. Other land use districts will also contain open space, including natural open space corridors, a central park, neighborhood parks, urban plazas, and stormwater management areas in the Employment Center.

More detailed descriptions of the various land use types follow. See Figure 2-1, Land Use Designations, for the locations and extents of the proposed land use districts. See Table 2-1 for a summary of land use standards subject to City review.





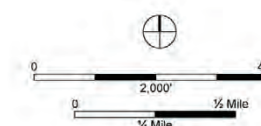
## LAND USE DESIGNATIONS

Figure 2-1

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

- Employment Center District
- Highway Commercial District
- Urban Center District
- Community Center District
- Village Centers District
- Residential Villages District
- Open Space
- UNM Land (all outside Level B)







## 2.2 Employment Districts

Two districts of Mesa del Sol are oriented to employment-generating uses.

*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. While a limited amount of supporting commercial and residential uses may also be developed within the Employment Center, the primary focus will be employment.

The Ira Sprecher Gate on the south side of Kirtland Air Force Base currently provides access to the base during shift changes. The expanded operation of this entrance north of Los Picaros Road will help attract KAFB related businesses to Mesa del Sol. A separate 40 acre site at the northern escarpment is included in this Level B Plan to accommodate tenants requiring high security. This secure site will have interim access from the existing Los Picaros Road until the mesa top roadway system is extended to this area.

*Highway Commercial District:* Portions of Mesa del Sol adjacent to I-25 are planned for a variety of employment-generating commercial uses. With good visibility from and access to I-25, this area is expected to attract manufacturing, warehousing, and distribution uses, as well as regional commercial uses.

### 2.2.1 Goals and Objectives for Employment Center and Highway Commercial Districts

Mesa del Sol's employment districts emphasize the "jobs first, housing second" approach to development that is a hallmark of Mesa del Sol. The employment districts' strategic location, accessibility, and ample land supply will offer unique opportunities to new employers from out of state, as well as providing space for local businesses to expand. The overall themes of timeless quality, innovation and sustainability that characterize Mesa del Sol will be emphasized in the design of buildings and sites in the employment districts, as well as the design of signage and other identity elements.

The development standards in this chapter emphasize high-quality materials and encourage buildings to face their more active elements, such as entrances, onto the street, so that the comings and goings of employees and visitors can contribute to the public realm and make bicycling and walking safer and more pleasant. Combined with the landscape and water and energy conservation standards elsewhere in this plan, these development standards pursue the sustainability emphasis found throughout Mesa del Sol while at the same time accommodating contemporary employers' requirements for truck access, flexible site design and security.

At strategic locations within and adjacent to the employment districts, "nodes" of mixed use will provide supportive commercial services, as well as opportunities for live-work units, lofts, and other appropriate forms of higher-density housing compatible with the employment districts. These mixed-use nodes, which can allow employees to accomplish simple errands or get something to eat without having to get into a car, will also be designed to function as transit access points, creating pockets of pedestrian environment within the larger fabric of the employment districts.



Pedestrian-Oriented Environment

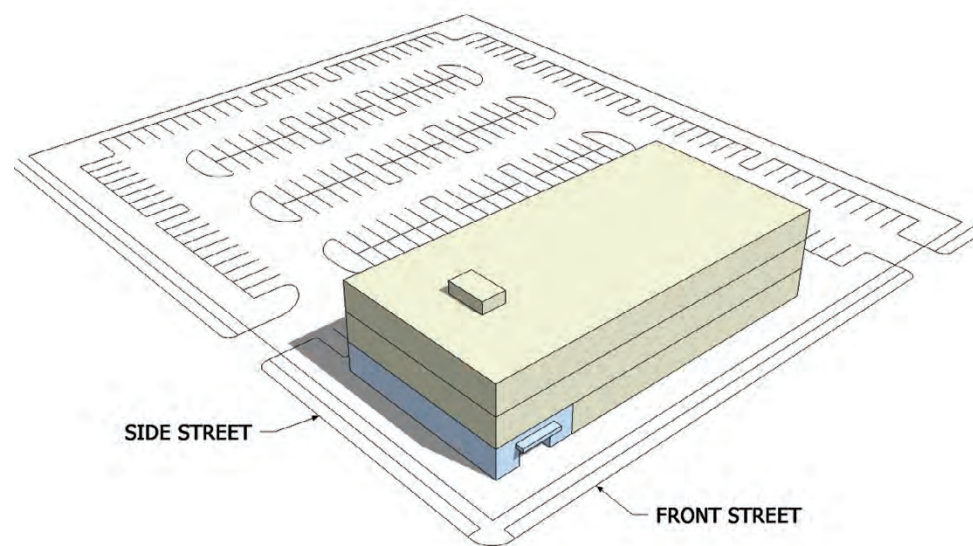
•

Water & Energy Conservation

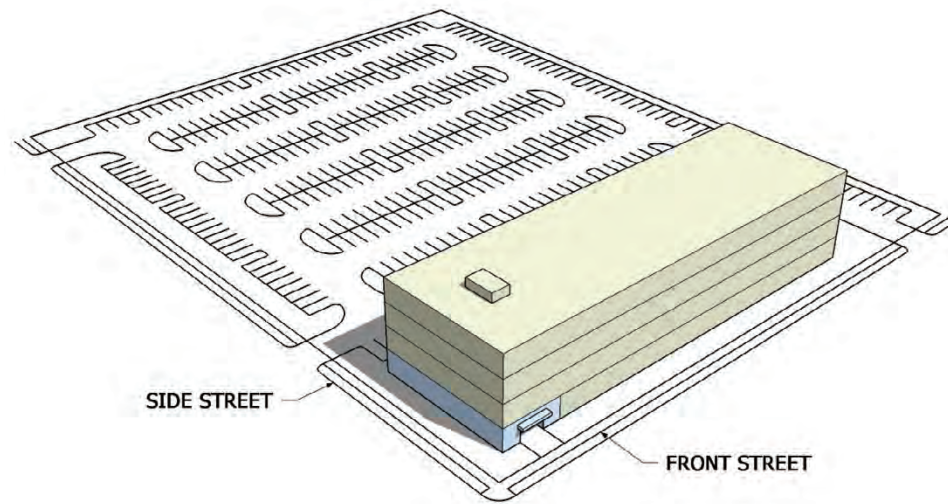
•

Vehicle Trip Reduction

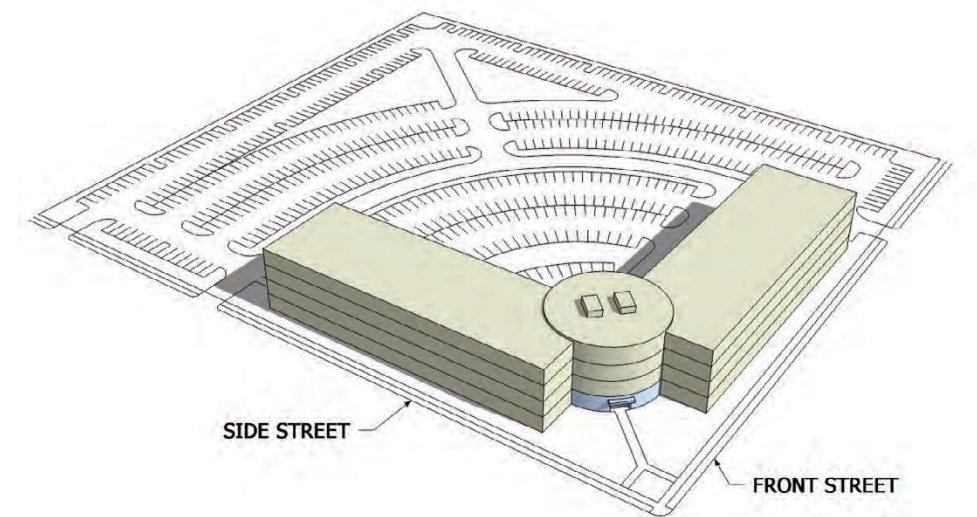




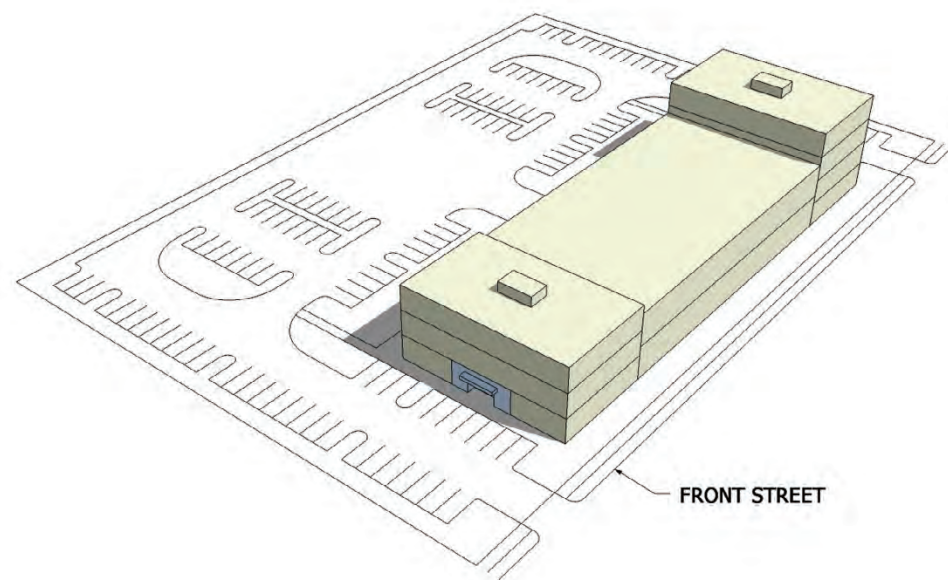
**Prototype for 50,000 square foot office building**



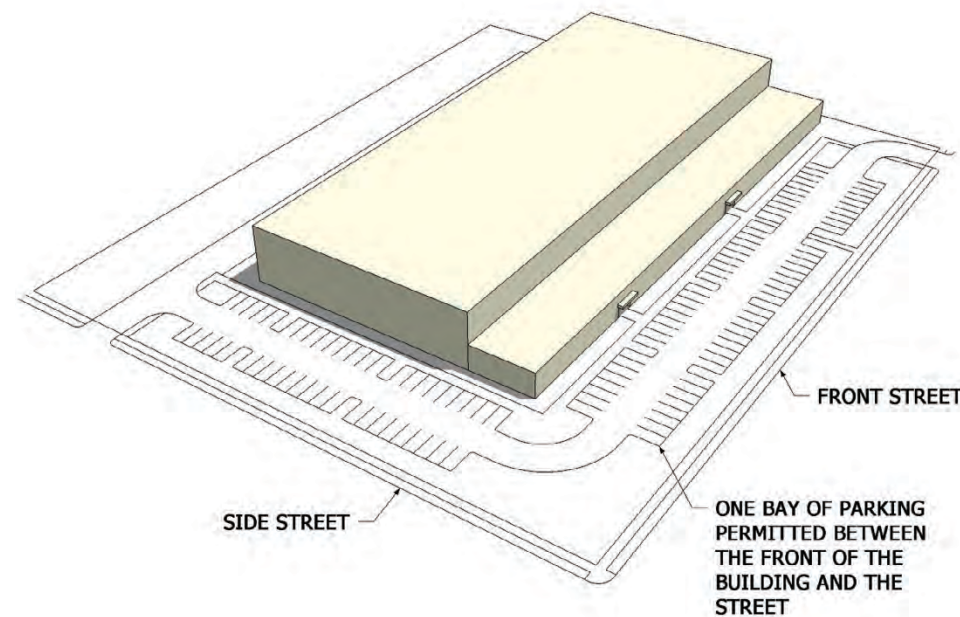
**Prototype for 100,000 square foot office building**



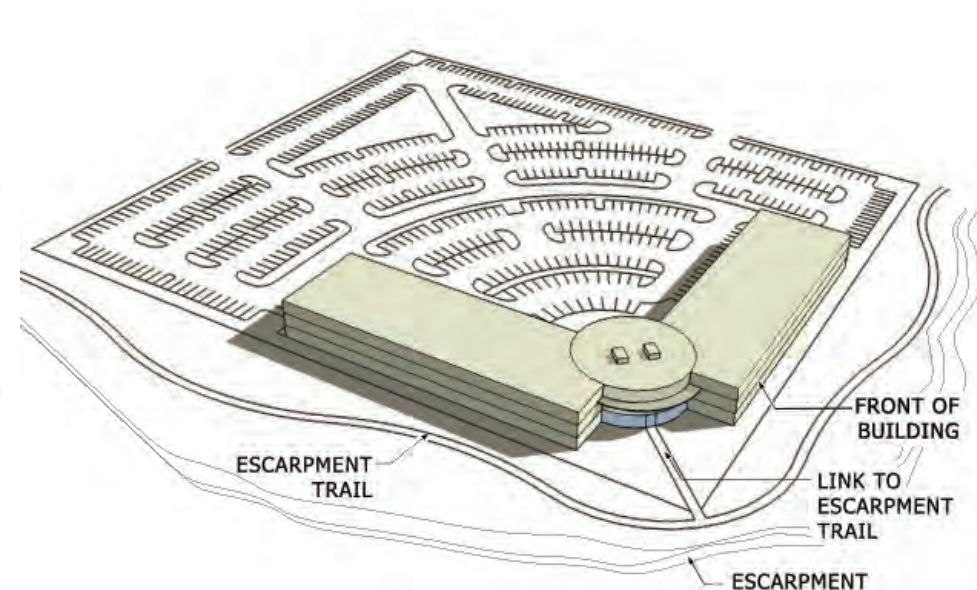
**Prototype for 200,000 square foot office building**



**Prototype for R&D building**



**Prototype for industrial building**



**Prototype for large office complex along escarpment**





Surface water harvesting

## 2.2.2 Development Standards – Employment Center

Note: To the extent that inconsistencies between the standards of the 210 acre “Employment Center Phase One” and the standards of the Level B Plan exist, the Level B Plan will take precedence.

- a) Maximum Development Program for District: 5,050,350 sq. ft commercial, 533 dwelling units.
- b) Permissive Uses: uses that are permissive and conditional in the following City of Albuquerque Zoning Districts: R-3 Residential, O-1 Office and Institution, C-1 Neighborhood Commercial, C-2 Community Commercial, C-3 Heavy Commercial, M-1 Light Manufacturing, IP Industrial Park, subject to the density, FAR and review requirements of Table 2-1.
- c) Maximum site FAR: 4.0
- d) Maximum site density: 100 du/ac
- e) Maximum building height: 80 feet (exception: elevated water storage facilities may exceed 80 feet in height, subject to FAA regulations)
- f) Setback requirements:
  1. Front: 0 foot min.
  2. Side: 10 feet min.
  3. Rear: 10 feet min.
- g) Off-street parking requirements:
  1. Nonresidential uses: per the City of Albuquerque Zoning Code, with reductions for mixed-use shared parking and transit proximity per the City of Albuquerque Comprehensive Plan Table II-83, and with the following exceptions:
    - i. Fifty percent of on-street parking spaces on the property’s side of public streets which abut a property shall be counted towards the parking requirements of the property. This credit shall be as a matter of right and shall not require public notice, public comment, or approval of the Traffic Engineer.
    - ii. A maximum of one bay of parking (one drive aisle parked on both sides) is permitted between the front of the building and the street. All other parking shall be located at the rear and sides of buildings.
    - iii. No single parking area shall exceed 150 spaces unless divided into smaller sub-areas by a building, internal landscaped street or shaded landscaped pedestrian way with trees planted 30 feet on center.
    - iv. Large truck parking shall be separated from automobile parking. Large truck parking shall be screened from view from the public right-of-way.

v. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.

2. Residential uses: 2 spaces for units with 3 or more bedrooms, 1.5 spaces for units with 2 bedrooms, 1 space for units with one bedroom or studio units.

h) Public space shall be provided in accordance with Zoning Code § 14.16.3.18(4).

## 2.2.3 Development Standards – Highway Commercial

- a) Maximum Development Program for District: 3,775,000 square feet.
- b) Permissive Uses: uses that are permissive in the following City of Albuquerque Zoning Districts: O-1 Office and Institution, C-1 Neighborhood Commercial, C-2 Community Commercial, C-3 Heavy Commercial, M-1 Light Manufacturing, IP Industrial Park, subject to the density, FAR and review requirements of Table 2-1.
- c) Maximum site FAR: 2.0
- d) Maximum building height: 50 feet
- e) Setback requirements:
  1. Front setback: 15 feet min.
  2. Side street setback: 0 feet min.
  3. Rear setback: 5 feet min.
  4. Setback along 1-25: minimum 50 feet Landscape Setback except in circumstances where there is a frontage road.
- f) Off-street parking requirements: Parking is per the City of Albuquerque Zoning Code, with reductions for mixed-use shared parking and transit proximity per the City of Albuquerque Comprehensive Plan Table II-83, and with the following exceptions:
  1. Fifty percent of on-street parking spaces on the property’s side of public streets which abut a property shall be counted towards the parking requirements of the property. This credit shall be as a matter of right and shall not require public notice, public comment, or approval of the Traffic Engineer.
  2. No single parking area shall exceed 150 spaces unless divided into smaller sub-areas by a building, internal landscaped street or shaded landscaped pedestrian way with trees planted 30 feet on center.
  3. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.



#### 2.2.4 Site Design Standards for Employment Center and Highway Commercial Districts

Site design standards are per the City of Albuquerque Zoning Code with the following exceptions and additions:

- a) Pedestrian crossings:
  - 1. Sites shall be designed to minimize conflicts between automobiles, trucks, bikes and pedestrians to create an organized system of entrances, driveways, parking lots and delivery areas.
  - 2. Use of curb cuts, curb returns and drive pads that reduce the continuity of walks or result in sidewalk grade changes shall be minimized and ADA compliant.
- b) Service locations:
  - 1. Service areas and storage area shall not front onto public streets and open spaces.
  - 2. Service areas shall be visually screened from view of public streets or open space.
  - 3. Service and emergency service lanes shall be designed as part of the site circulation and shall not use dedicated lanes that add impervious surface.
- c) Outdoor storage: Outdoor storage areas shall be screened.
- d) Fences and walls:
  - 1. Walls and fences shall comply with the intent of the City's design manual for subdivision access and perimeter walls.
  - 2. Chain link fencing is not permitted.
  - 3. Walls and fences exceeding four feet in height that are located within the setback area adjoining a public street shall provide variety and articulation at intervals not exceeding 30 feet through either changes in plane or expression of structure, such as a post, column, or pilaster.
  - 4. The design and materials for walls and fences shall coordinate with the design and materials of the principal buildings in terms of color, quality, scale and detail.

#### 2.2.5 Building Design Standards for Employment Center and Highway Commercial Districts:

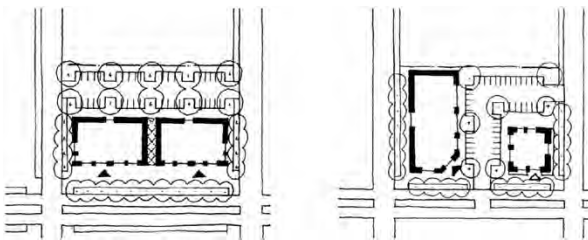
Prior to submittal to the City, the ARC will review and verify that proposed projects meet FCC architectural standards.

- a) Building Design Principles: The following principles will guide the architectural styles to be reviewed by the Mesa del Sol Architectural Review Committee (ARC) at Level C:
  - 1. Buildings shall be designed to provide human scale, interest and variety.
  - 2. Variation in building form, such as recessed or projected bays, expression of architectural or structural modules or detail; diversity of window size, shape or pattern that relates to interior functions; emphasis on building entries through projected

or recessed forms, detail, color or materials; variation of materials, material modules and surface relief, color and texture to break up large building forms and wall surfaces; use of open courtyard designs to form transitions between parking areas and buildings.

- b) Entry location and treatment:
  - 1. Building entrances shall be oriented to the primary street frontage. No development shall be permitted to place or orient buildings on a lot in such a way so as to treat the primary street frontages as a rear/side lot line.
  - 2. Building massing shall highlight the location of building entries. Primary pedestrian entries shall be clearly expressed.
- c) Exterior façade treatment:
  - 1. Buildings shall be designed to relate directly to and reinforce the pedestrian scale and quality of street, civic and open space.
  - 2. All building facades even if they are not visible from the public right-of-way shall have architectural treatment similar, but not necessarily identical to, the primary building façade and shall completely screen all building service and loading areas.
  - 3. Large buildings over 30,000 square feet shall be designed to minimize the effects of scale. Featureless unarticulated walls over 80 feet in length are prohibited.
- d) Permitted Building Materials:
  - 1. All building facades shall use materials that are durable and of a quality that will retain their appearance over time.
  - 2. Materials that are visibly simulated or prefabricated are prohibited. Scored plywood is prohibited.
  - 3. Generic "trade dress" (generic franchise architecture) is not permitted. Each franchise building shall be required to respond to its context through massing, color, and material.
  - 4. Glass shall be transparent; no reflective glazing is allowed unless the ARC makes an exception for a unique situation.
- e) Accessory buildings shall be similar in design and materials to the primary buildings.
- f) All screening enclosures shall be integrated with building architecture and utilize the same materials as the primary building.
  - 1. Rooftop equipment shall be screened from view from public streets and open space by architecturally integrated screening elements.
  - 2. Ground mounted utilities shall be screened from view from public right-of-way and open space.





*Buildings should be sited along street edges with their parking lots located behind to increase visual interest, activity and definition.*



*Massing should vary to create pedestrian-scaled public spaces.*



**Multi-modal Street Design**

### 2.3 Mixed-Use 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. Three types of centers – urban, community, and village – are contemplated in this plan as 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 will be balanced with residential areas that use smaller, human scale block sizes.

#### 2.3.1 Goals and Objectives for Mixed-Use Centers

The following principles will guide the development of Mixed-Use Centers at Mesa del Sol:

##### a) Mix of Uses

Integrating as many different uses as possible into Mixed-Use Centers ensures that they will be stimulating public places throughout the day. Placing shopping destinations alongside or underneath residential units increases pedestrian traffic and brings a sense of focus to the neighborhood. Sidewalks become activated by pedestrian traffic, which in turn increases safety, attracts strong retail uses, and fosters a sense of community centered in one place instead of spread thinly across neighborhoods.

##### b) Building Orientation and Setbacks

Buildings shall be sited close to streets, with doors and windows facing the street. Parking lots along street frontages should be minimized. Building placement standards attempt

to create spatial definition and enliven sidewalks for streets and public spaces, since sidewalks lined with parking lots or large landscaped areas often lack visual interest, activity, and definition.

Building placement that reinforces the public area through detailing, building transparency, and entry emphasis is especially important for uses typical in mixed-use centers, such as multi-family, mixed use, and commercial buildings. These standards also complement parking location standards, which generally call for parking to be behind, rather than in front of buildings.

##### c) Scale and Definition

Careful placement of buildings close to the sidewalk defines the edges of the public space more clearly. This slows automobile traffic, increases interaction between pedestrians and the buildings (window shopping, dining al fresco), and helps to create a sense of an outdoor ‘room’ with the building facades and landscape acting as walls.

While busy commercial streets are designed to facilitate automobile traffic, in order for them to be truly successful spaces they must also welcome pedestrians by creating a suitably scaled environment. For example, supermarket parking lots can be very unwelcoming to people who have parked their cars and are walking. Pedestrian scaled sidewalks are active spaces, with benches, window displays, awnings, outdoor dining, bulb-outs at intersections, street trees, and often interesting paving stones.

##### d) Hierarchy of Sites

Certain parcels within the mixed-use centers require special treatment. Buildings that house government functions often use a specific architecture to communicate their importance. Similarly, buildings on parcels in important locations shall be built in ways that call attention to the significance of these places. Corners at main intersections, for example, often should have towers or higher buildings so that they effectively mark the center of the commercial area. Likewise, buildings along the street at the outer fringe of the commercial district should incorporate architecture that emphasizes the gateway aspect of their location.

##### e) Multi-Modal Streets

Just as it is important to make commercial streets attractive destinations for cars and pedestrians, it is also critical to design streets that are conducive to all modes of transportation: cars, bicyclists, transit, and pedestrians. These different modes all require easy access to the center, and each has special considerations to make these modes comfortable and pleasant. Bicycles benefit from bike lanes and stands for locking, buses require carefully placed stops with information and shelters, and pedestrians need bulb-outs, crosswalks, benches and street trees or portals for shade.



2.3.2 Development Standards – 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. The Urban Center will be immediately adjacent to a 40-acre parcel that is not part of this Level B submittal which 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 the establishment of appropriate parking ratios, 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.

- a) Maximum Development Program for District: 1,500,000 square feet commercial, 828 dwelling units.
- b) Permissive Uses: uses that are permissive in the following City of Albuquerque Zoning Districts: R-T, R-G, R-2, and R-3 Residential, RC Residential/Commercial, O-1 Office and Institution, C-1 Neighborhood Commercial, C-2 Community Commercial, and C-3 Heavy Commercial, subject to the density, FAR and review requirements of Table 2-1. Police and fire stations and Major Public Open Space are also permissive within the district.
- c) Maximum site FAR: 4.0
- d) Maximum site density: 100 du/acre
- e) Height:
  - 1. Minimum – Street-facing buildings must be at least 20 feet high along the street-facing façade. Minimum building height is measured relative to the finished grade, and is measured to the highest point of the roof, excluding minor lengths of parapets, cupolas, or other discontinuous projecting features. Continuous parapets or false fronts and peaked or sloped roofs qualify towards meeting the minimum height.
  - 2. Maximum – The maximum allowable building height is 60 feet, measured at the tallest part of the building. Minor projections and special architectural features such as clock towers, bell towers, cupolas, and ornamental portions of parapet walls may extend up to 10 feet above the maximum building height, provided they are no more than 30 feet in width and make up no more than one third of the length of the building’s façade.

- f) Setback requirements:
  - 1. Front setback: 0 feet min.
  - 2. Side street setback: 0 feet min.
  - 3. Rear setback: 5 feet min.
- g) Off-street parking standards:
  - 1. No minimum parking requirement. Parking will be provided based on market demand, taking into account the mixed-use nature and transit accessibility of the Urban Center.
  - 2. Off-street parking lots must be carefully designed to be compatible with pedestrian-oriented places. Buildings provide streets with activity and visual interest, which is easily negated by prominent garage doors, parking lots, and curb cuts. Additionally, open parking lots along street fronts create the sense of walking in a void and encourage drivers to exceed the speed limit since there is no sense of enclosure, both of which decrease pedestrian safety and comfort. The following standards apply to parking in mixed-use centers at Mesa del Sol:
    - a) On-Street Parking – With the exception of roads where parallel parking operations would adversely impact traffic flow, all street improvements will include provision for on-street parking. One hundred percent of on-street parking spaces on the property’s side of public streets which abut a property shall be counted towards the parking requirements of the property. This credit shall be as a matter of right and shall not require public notice, public comment, or approval of the Traffic Engineer.
    - b.) Bicycle Parking – Bicycle parking must be provided in easily-accessible locations from the street. One bicycle space shall be provided for every 10,000 square feet of building net floor area. Bicycle parking must be visible from storefronts or office building front doors in order to improve security for parked bicycles.
    - c.) Parking Area Design – No single parking area shall exceed 150 spaces unless divided into smaller sub-areas by a building, internal landscaped street or landscaped pedestrian way. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.
    - d.) Water harvesting area for surface run off shall be consistent with the concepts of the Level A and Level B Plans, which have been approved by the State Engineer and City Hydrologist. Water that is harvested in the parking lot need not in its entirety be used on the immediate site but can be distributed elsewhere.

### 2.3.3 Development Standards – 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 the potential UNM campus. The Community Center will incorporate retail uses, which could include a community shopping center anchored by a supermarket, a discount department store or a large specialty/discount apparel store. The Community Center will include Mesa del Sol's main plaza, which will serve as a gathering place for the entire community, and a range of other public and private spaces, such as smaller courtyards and plazas.

- a) Maximum Development Program for District: 700,000 square feet commercial, 819 dwelling units.
- b) Permissive Uses: uses that are permissive in the following City of Albuquerque Zoning Districts: R-T, R-G, R-2, and R-3 Residential, RC Residential/Commercial, O-1 Office and Institution, C-1 Neighborhood Commercial, and C-2 Community Commercial, subject to the density, FAR and review requirements of Table 2-1. Police and fire stations and Major Public Open Space are also permissive within the district.
- c) Maximum site FAR: 2.0
- d) Maximum site density: 80 du/acre
- e) Height:
  - 1. Minimum – Street-facing buildings must be at least 20 feet high along the street-facing façade. Minimum building height is measured relative to the finished grade, and is measured to the highest point of the roof, excluding minor lengths of parapets, cupolas, or other discontinuous projecting features. Continuous parapets or false fronts and peaked or sloped roofs qualify towards meeting the minimum height.
  - 2. Maximum – The maximum allowable building height is 60 feet, measured at the tallest part of the building. Minor projections and special architectural features such as clock towers, bell towers, cupolas, and ornamental portions of parapet walls may extend up to 10 feet above the maximum building height, provided they are no more than 30 feet in width and make up no more than one third of the length of the building's façade.

- f) Setback requirements:
  - 1. Front setback: 0 feet min., 5 feet max.
  - 2. Side street setback: 0 feet min., 10 feet max.
  - 3. Rear setback: 5 feet min.
- g) Off-street parking standards: No minimum parking requirement. Parking will be provided based on market demand, taking into account the mixed-use nature and transit accessibility of the Community Center.
- h) Off-street parking lots must be carefully designed to be compatible with pedestrian-oriented places. Buildings provide streets with activity and visual interest, which is easily negated by prominent garage doors, parking lots, and curb cuts. Additionally, open parking lots along street fronts create the sense of walking in a void and encourage drivers to exceed the speed limit since there is no sense of enclosure, both of which decrease pedestrian safety and comfort. The following standards apply to parking in mixed-use centers at Mesa del Sol:
  - 1. On-Street Parking – With the exception of roads where parallel parking operations would adversely impact traffic flow, all street improvements will include provision for on-street parking. One hundred percent of on-street parking spaces on the property's side of public streets which abut a property shall be counted towards the parking requirements of the property. This credit shall be as a matter of right and shall not require public notice, public comment, or approval of the Traffic Engineer.
  - 2. Bicycle Parking – Bicycle parking must be provided in easily-accessible locations from the street. One bicycle space shall be provided for every 10,000 square feet of building net floor area. Bicycle parking must be visible from storefronts or office building front doors in order to improve security for parked bicycles.
  - 3. Parking Area Design – No single parking area shall exceed 150 spaces unless divided into smaller sub-areas by a building, internal landscaped street or landscaped pedestrian way. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.
  - 4. Water harvesting area for surface run off shall be consistent with the concepts of the Level A and Level B Plans, which have been approved by the State Engineer and City Hydrologist. Water that is harvested in the parking lot need not in its entirety be used on the immediate site but can be distributed elsewhere.

### 2.3.4 Development Standards – Village Centers

Village Centers 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 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.

A Village Center is planned at the western edge of the mesa where Mesa del Sol Boulevard ascends the escarpment. In addition, a small strip of land designated for Village Center use near the Broadway I-25 interchange falls within the Level B Plan area; this Village Center will be addressed in its entirety in future Level B Plans.

The following typical requirements apply to each Village Center.

- a) Maximum Development Program for each Village Center: 200,000 square feet commercial, 660 dwelling units.
- b) Permissive Uses: uses that are permissive in the following City of Albuquerque Zoning Districts: R-T, R-G, R-2, and R-3 Residential, RC Residential/Commercial, O-1 Office and Institution, and C-1 Neighborhood Commercial, subject to the density, FAR and review requirements of Table 2-1. Police and fire stations and Major Public Open Space are also permissive within the district.
- c) Maximum site FAR: 1.0
- d) Maximum site density: 60 du/acre
- e) Height:

All building height restrictions are defined by total building height and include a maximum story height of 15 feet.

  - 1. Minimum – Street-facing buildings must be at least 20 feet high along the street-facing façade. Minimum building height is measured relative to the finished grade, and is measured to the highest point of the roof, excluding minor lengths of parapets, cupolas, or other discontinuous projecting features. Continuous parapets or false fronts and peaked or sloped roofs qualify towards meeting the minimum height.

- 2. Maximum – The maximum allowable building height is 35 feet, measured at the tallest part of the building. Minor projections and special architectural features such as clock towers, bell towers, cupolas, and ornamental portions of parapet walls may extend up to 10 feet above the maximum building height, provided they are no more than 30 feet in width and make up no more than one third of the length of the building's façade.

- f) Setback requirements:
  - 1. Front setback: 0 feet min., 5 feet max.
  - 2. Side street setback: 0 feet min., 10 feet max.
  - 3. Rear setback: 5 feet min.
- g) Off-street parking standards: No minimum parking requirement. Parking will be provided based on market demand, taking into account the mixed-use nature and transit accessibility of the Village Centers.
- h) Off-street parking lots must be carefully designed to be compatible with pedestrian-oriented places. Buildings provide streets with activity and visual interest, which is easily negated by prominent garage doors, parking lots, and curb cuts. Additionally, open parking lots along street fronts create the sense of walking in a void and encourage drivers to exceed the speed limit since there is no sense of enclosure, both of which decrease pedestrian safety and comfort. The following standards apply to parking in mixed-use centers at Mesa del Sol:
  - 1. On-Street Parking – With the exception of roads where parallel parking operations would adversely impact traffic flow, all street improvements will include provision for on-street parking. One hundred percent of on-street parking spaces on the property's side of public streets which abut a property shall be counted towards the parking requirements of the property. This credit shall be as a matter of right and shall not require public notice, public comment, or approval of the Traffic Engineer.
  - 2. Bicycle Parking – Bicycle parking must be provided in easily-accessible locations from the street. One bicycle space shall be provided for every 10,000 square feet of building net floor area. Bicycle parking must be visible from storefronts or office building front doors in order to improve security for parked bicycles.
  - 3. Parking Area Design – No single parking area shall exceed 150 spaces unless divided into smaller sub-areas by a building, internal landscaped street or landscaped pedestrian way. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.
  - 4. Water harvesting area for surface run off shall be consistent with the concepts of the Level A and Level B Plans, which have been approved by the State Engineer and City Hydrologist. Water that is harvested in the parking lot need not in its entirety be used on the immediate site but can be distributed elsewhere.



Vehicle Trip Reduction Design



**Bicycle Parking**

•

**Diversity of Housing Types**

## **2.4 Residential Villages**

Residential villages 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.

### **2.4.1 Goals and Objectives for Residential Villages**

Residential Villages at Mesa del Sol will be designed to accommodate the following elements within the Residential Village district:

#### *a) Corridor Residential*

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.

#### *b) Residential Neighborhoods*

The central and southeastern portions of the Level B Plan area are planned as residential areas with a broad range of housing types. Open space, parks, schools, civic facilities, and neighborhood centers will be included within Residential Areas.

#### *c) Neighborhood Centers*

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

#### *d) Schools*

Integrated within 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. The use of school playfields for stormwater retention is anticipated. School campuses will typically be designed with streets on all sides, allowing on-street parking to help meet visitor parking demand.

#### *e) Active Adult*

A 500-acre portion of the Residential district, adjacent to La Semilla at the eastern edge of the Level B planning area, is being reserved for a potential active adult community. Such a development would be age-restricted (55 and over). A minimum of 12.5% of the gross acreage of the Active Adult development will be open space. The same stormwater management strategies used throughout Mesa del Sol would apply to the active adult community. An active adult community would typically have a dedicated on-site civic, fitness and recreation center serving its residents and their guests. Given Mesa del Sol's proximity to the Isleta Eagle and UNM Championship golf courses, and its focus on sustainable water management, no golf course is planned at Mesa del Sol.



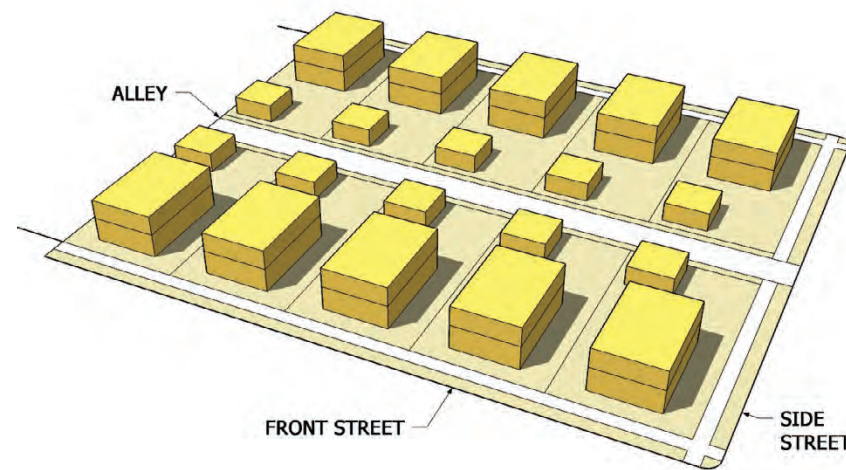
#### 2.4.2 Development Standards – Residential Village

- a) Maximum Development Program for District: 10,444 du
- b) Permissive Uses: uses that are permissive in the following City of Albuquerque Zoning Districts: R-1, R-T, R-G, R-2, and R-3 Residential, RC Residential/Commercial, and C-1 Neighborhood Commercial, subject to the density, FAR and review requirements of Table 7.2-1. Police and fire stations and Major Public Open Space are also permissive within the district.
- c) Maximum site FAR: no requirement
- d) Maximum site density: 35 du/acre (exception: 50 du/ac for Corridor Residential within 1/8 mile of Mesa del Sol Boulevard)
- e) Maximum building height: 35 feet (exception: 50 feet for Corridor Residential within 1/8 mile of Mesa del Sol Boulevard)
- f) Off-street parking requirements:
  1. Non-residential uses: per City of Albuquerque Zoning Code requirements, with reductions for shared parking and transit proximity per the City of Albuquerque Comprehensive Plan Table II-83 and credit for on-street parking provided toward the requirement.
  2. 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 one bedroom or studio units.
  3. House or townhouse: 2 covered spaces per unit. The ARC can allow a minimum of one covered space per unit, though two covered spaces are not prohibited.
  4. Accessory unit: 0 spaces per unit
- g) Water harvesting area for surface run off shall be consistent with the concepts of the Level A and Level B Plans, which have been approved by the State Engineer and City Hydrologist. Water that is harvested in the parking lot need not in its entirety be used on the immediate site but can be distributed elsewhere. Water harvesting areas for surface runoff shall be provided in parking lots for multi-family developments. Permeable paving can be counted toward this requirement.
- h) On-Street Parking – With the exception of roads where parallel parking operations would adversely impact traffic flow, all street improvements will include provision for on-street parking. Fifty percent of on-street parking spaces on the property's side of public streets which abut a property shall be counted towards the parking requirements of the property. This credit shall be as a matter of right and shall not require public notice, public comment, or approval of the Traffic Engineer.
- i) Fences and walls shall be compatible with building architecture.

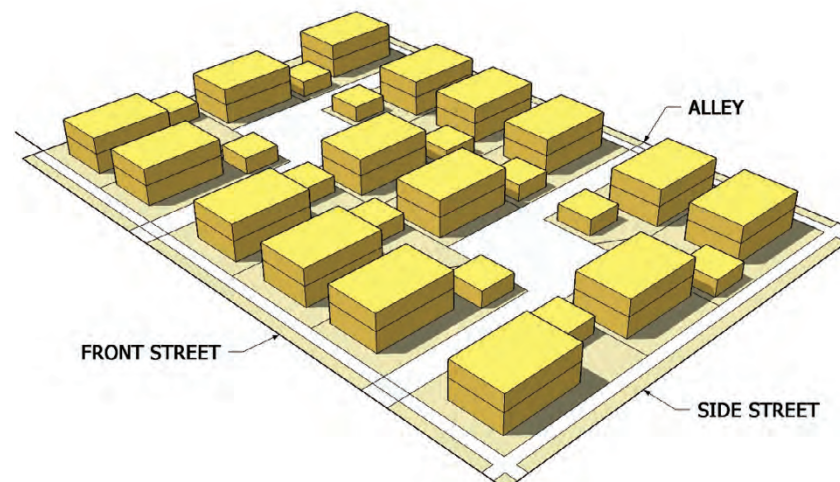
#### 2.4.3 Housing Typologies

The following basic housing typologies are planned for use in Mesa del Sol. These typologies represent a range of housing types. Depending on market conditions, other types may be added as consumer preferences change and evolve. Exhibits illustrate the typologies with setbacks, heights, and other key design characteristics on prototypical residential lots; however, these illustrations are prototypical, and other configurations that meet the standards are also allowed. The development standards subject to City review are also summarized in Table 2-1.

- a) Single family detached:
  1. Standard Street-facing:  
One or more lot edges adjacent to a street



2. Compounds / Courts:  
Grouping of single family homes around a courtyard, paseo, or other shared common space; some homes will not have direct adjacency to the public right of way but will instead have vehicular access from alleys or driveways and pedestrian access from shared open spaces that connect to a public street.



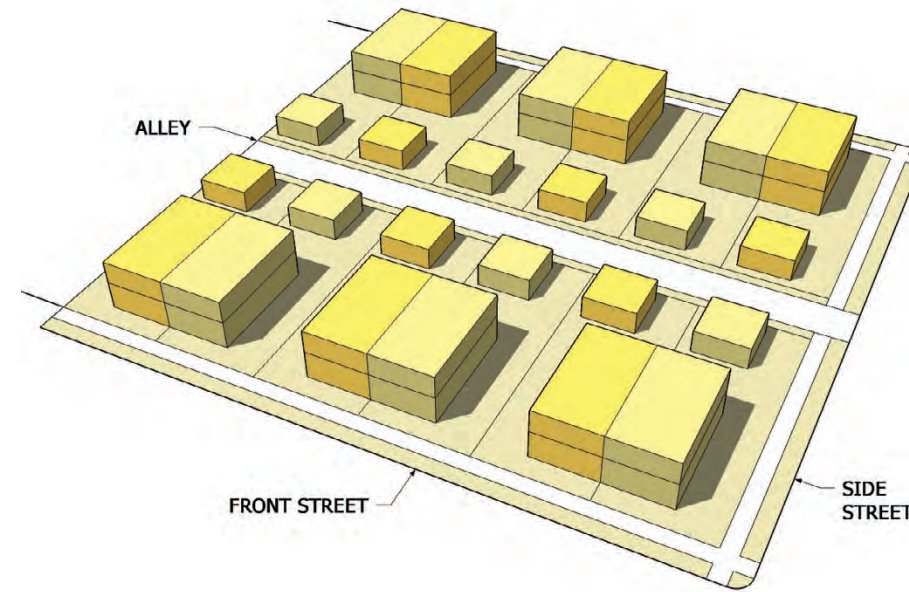




b) Single family attached:

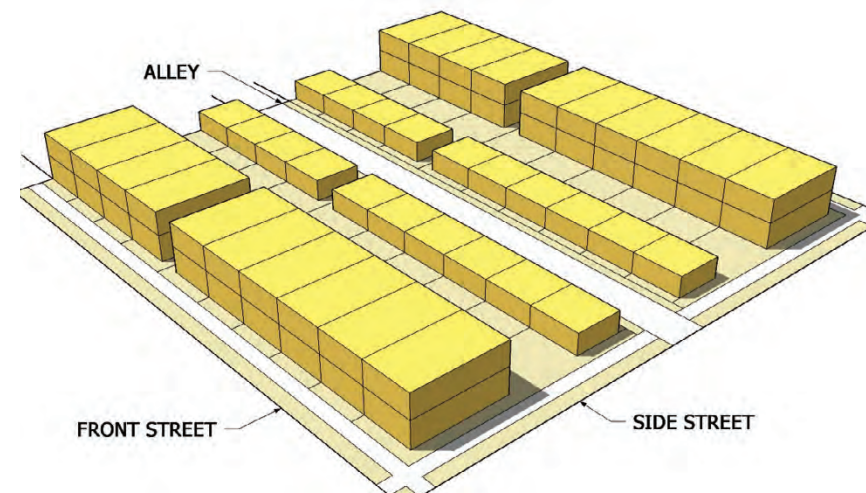
1. Duplex:

With one or more walls connected to an adjacent home



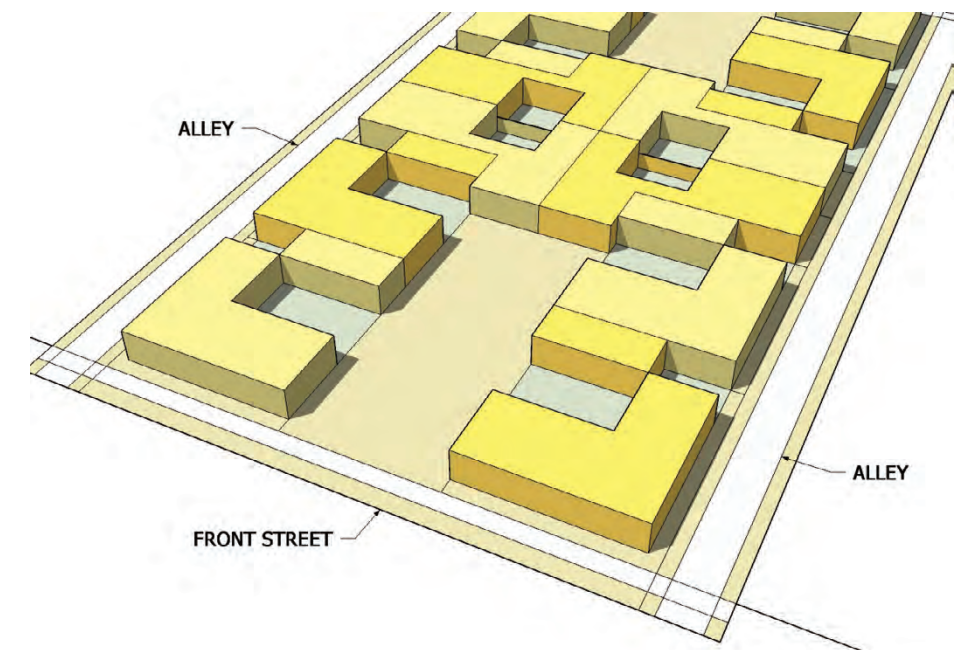
2. Townhouse:

Part of a set of three or more homes adjacent to one another, typically in a row



3. Compounds / Courts:

Grouping of single-family homes, duplexes, or townhomes around a courtyard, paseo or other shared common space; some homes will not have direct adjacency to the public right of way but will instead have vehicular access from alleys or driveways and pedestrian access from shared open spaces that connect to a public street.



c) Multifamily:

1. A building with multiple units.

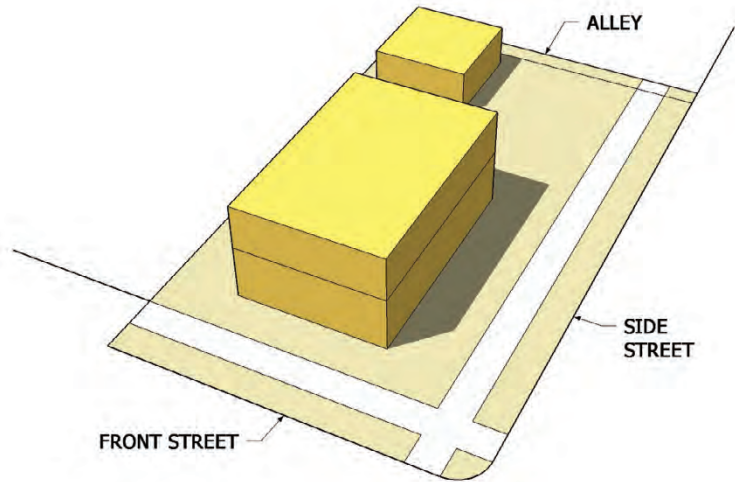
d) Mixed Use:

1. A building with both residential and office and/or retail uses.

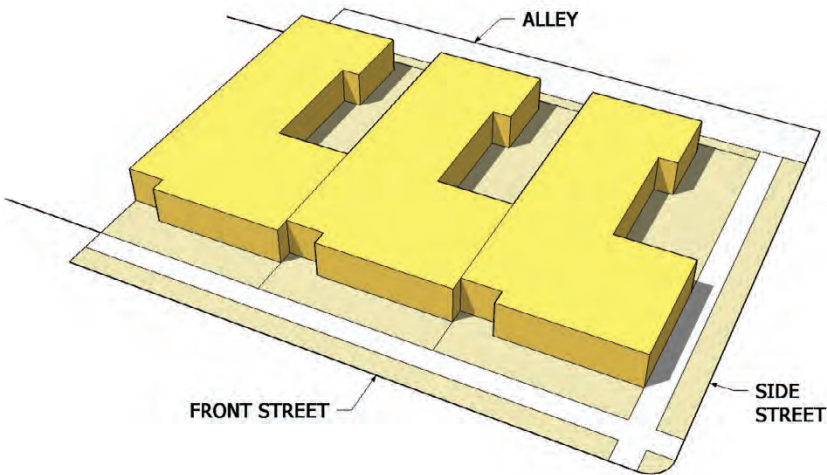
2.4.4 Housing Design Standards

The following are design standards for residential buildings at Mesa del Sol. In some cases, setbacks for walls and gates will be different than for buildings, in order to allow for the unique character of residences within the Southwest and the Albuquerque area. More specific standards for homebuilders will be developed and applied by the Architectural Review Committee to be established by the developer.

- a) Setbacks
- 1. Front:
    - i. Vary between 5 and 20 feet from street right of way, depending on building typology, lot type, and context (see Table 2-1).
    - ii. Buildings with live/work component and mixed use buildings may use zero setback.
  - 2. Side Street (“front” versus “side street” designation to be determined by Architectural Review Committee at the time of Level C submittal):
    - i. Vary between 5 and 10 feet from street right of way, depending on building typology, lot type, and context.
    - ii. Buildings with live/work component and mixed use buildings may use zero setback.



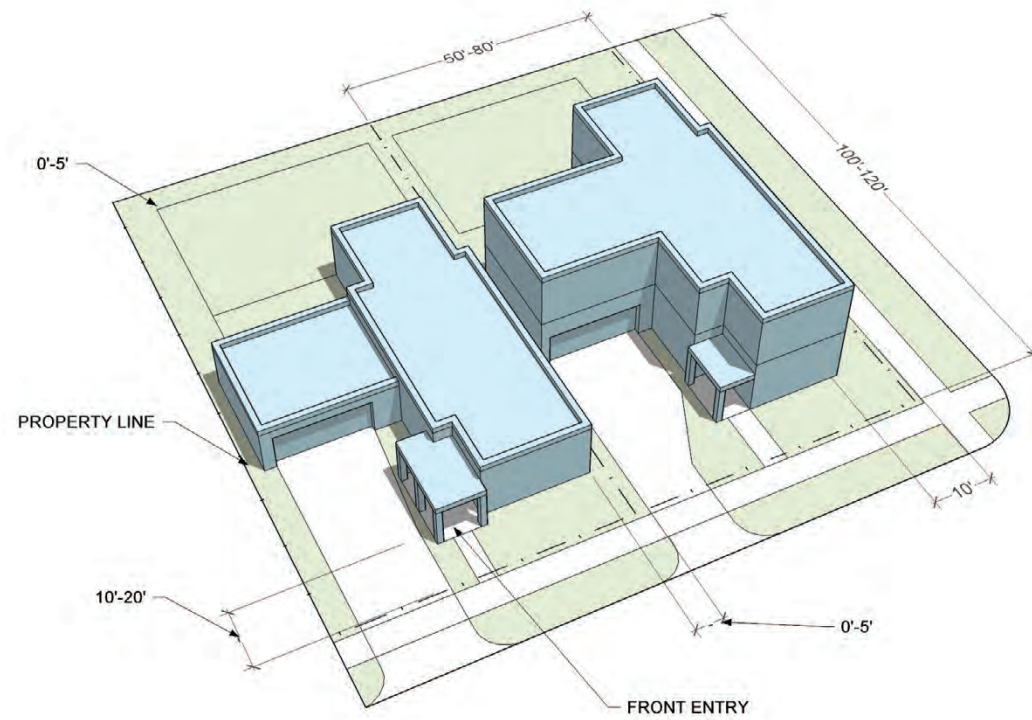
- 3. Side:
  - i. Minimum 0 feet. Mesa del Sol will include a variety of housing types, many of which will be based on traditional New Mexico building types which often use zero lot lines. In some cases buildings will have a 8 to 10 foot distance requirement between buildings, regardless of the buildings’ distances from the property line.



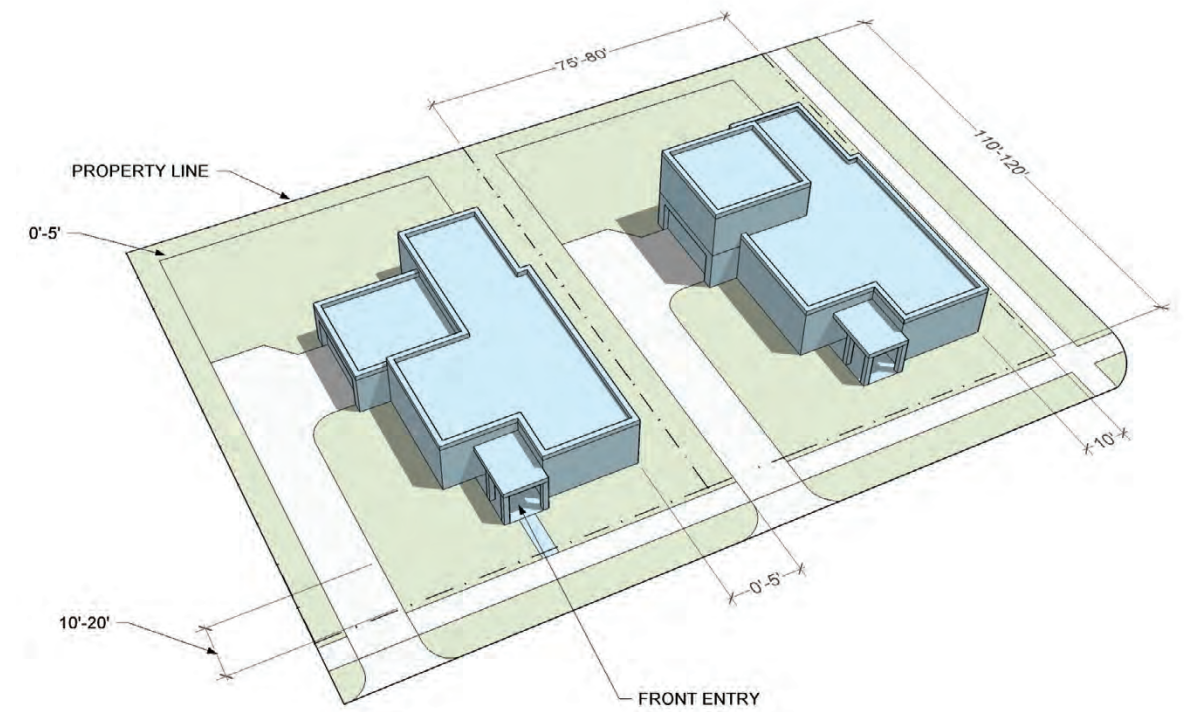
- 4. Rear:
  - i. Minimum rear setbacks vary between 0 and 5 feet, depending on building typology, lot type and presence or absence of alley.
- 5. Compounds / Courts:
  - i. Minimum 0 to 5 feet and maximum 5 to 10 feet setback from common open space, depending on building typology, lot type and presence or absence of alley (see Table 2-1).
- 6. Porches, patios and decks – encroachment:
  - i. Porches, patios and decks may encroach into any setback up to the right of way line, subject to utility requirements



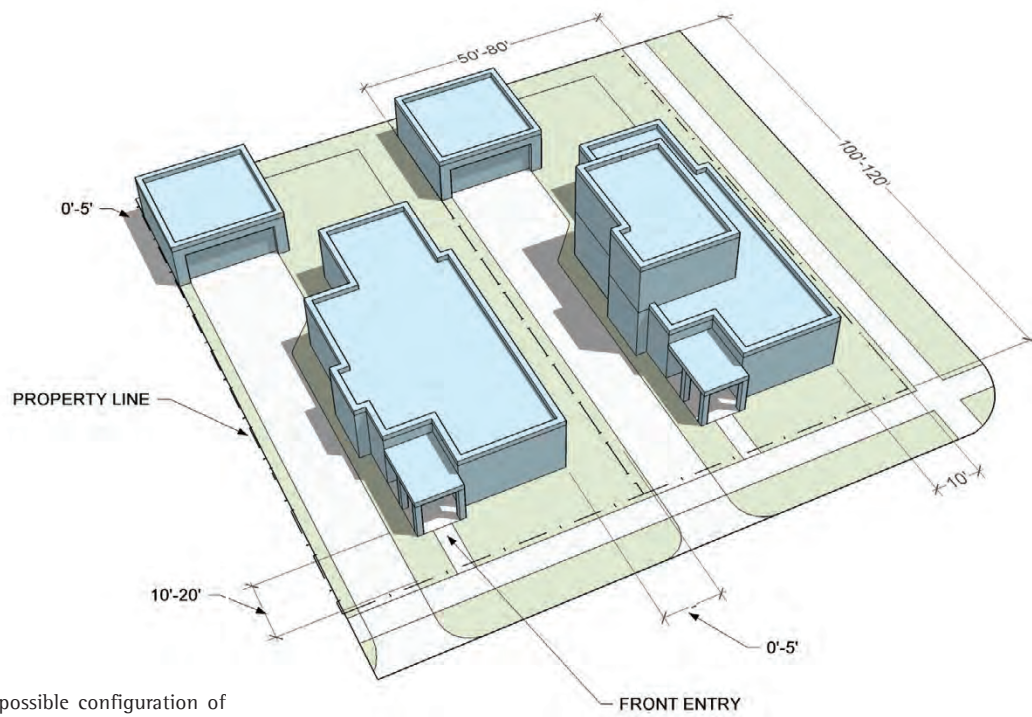




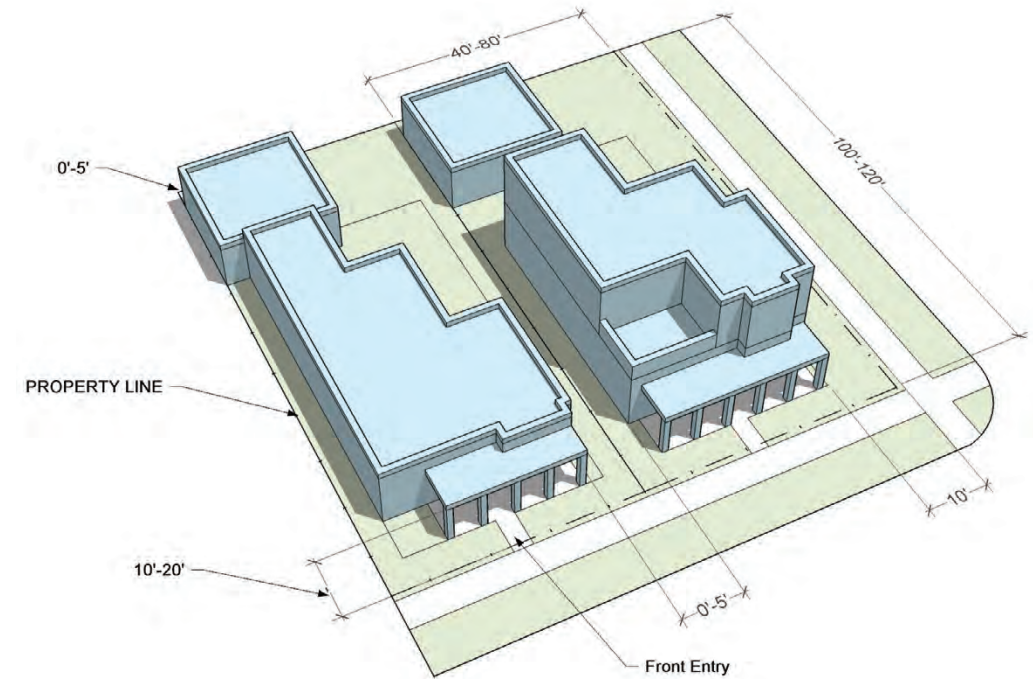
**Front load garage treatment**



**Turned garage treatment**



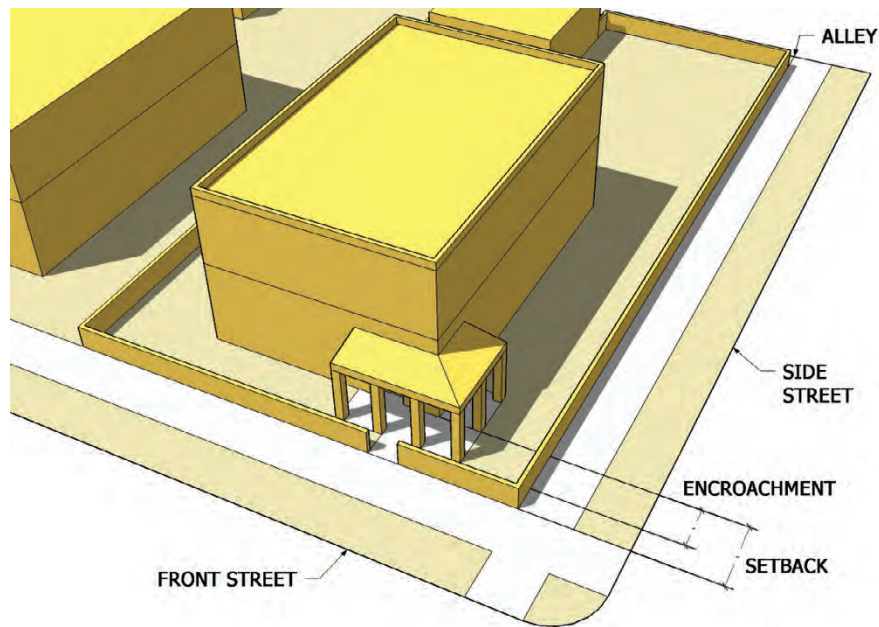
**Side drive garage treatment**



**Alley load garage treatment**

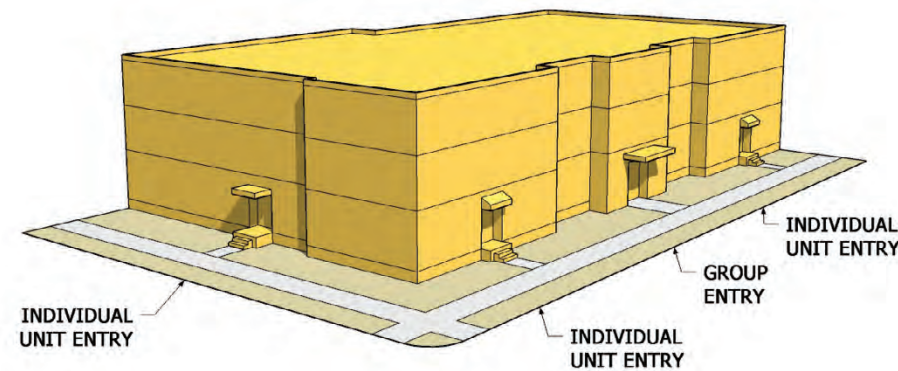
General note: these illustrations cannot cover every possible configuration of garage access, but placement of a residential garage (not including parking structures) directly on a front setback line from a public street is not permitted.





#### d) Building Bulk

Buildings may occupy 100% of the three-dimensional envelope created by the allowable height and the minimum setbacks, provided the usable open space requirement is met (see Section 2.5.2, Landscape and Open Space Standards). Mesa del Sol will include a wide variety of building types, many of which are based on New Mexico vernacular types that traditionally filled the majority of the parcel.



#### b) Garage Treatments

Allowed treatments and setbacks to vary depending on lot width and depth and presence or absence of alley.

##### 1. Front load:

- Garage door face set back 20 feet minimum from street right of way.
- Driveway width at street right of way 16 feet maximum.

##### 2. Turned Garage:

- Garage door face set back 10 feet minimum from street right of way.
- Driveway width at street right of way 8 feet maximum.

##### 3. Side Drive:

- Driveway width at street right of way 8 feet maximum.

##### 4. Alley load:

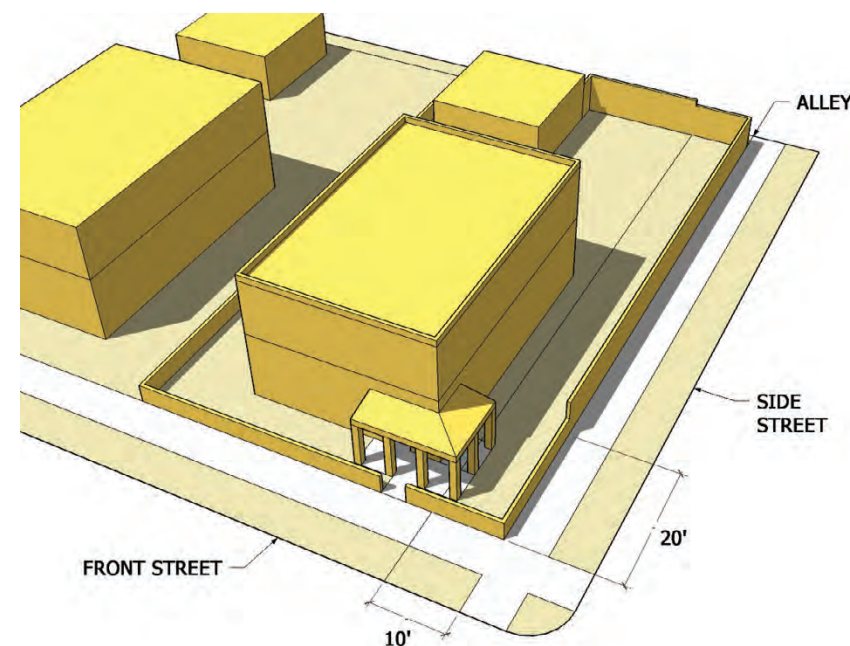
- Garage door faces 0 to 5 feet from alley right of way.

#### c) Primary Entrance Locations

- Single family units adjacent to street right of way shall have primary entrance visible from street right of way.
- Multifamily units may have direct unit entrances from street right of way.
- Paseo/compound/cluster units shall have primary entrance visible from street right of way and/or from common open space.

#### e) Fences / Walls

Fences and walls up to 6 feet in height may encroach into any setback up to the right of way line, subject to utility requirements. Exception: lamps, posts and gateways may exceed 6 feet in height. (Note: See Level A Appendix D, Intersection Design, for Mesa del Sol standards for sight triangles).







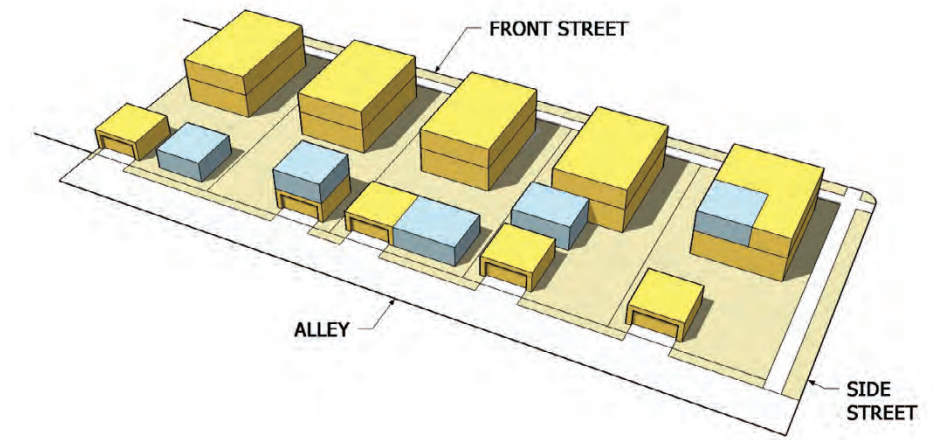
f) Live / Work Units

As part of the Mesa del Sol plan for a fine-grained mix of uses, some units may be designated live/work units. These will typically be fee-simple units with a ground-floor work space accessible directly from the street, independent of the residential unit.

1. No parking is required for the commercial component of live/work units; typical Mesa del Sol residential parking requirements apply to the residential portion.
2. The commercial component may occupy up to 600 square feet of the unit.
3. Live-work occupancies may include both home occupations and commercial uses permissive within the land use district, except for the following:
  - i. Auto parts and supply.
  - ii. Gasoline, oil, liquefied petroleum gas, including outside sales.
  - iii. Car washing.
  - iv. Dry cleaning, laundry, clothes pressing
  - v. Parking lot
  - vi. Small animal clinic
  - vii. Taxidermy

g) Accessory Units

As stated in the Mesa del Sol Level A plan, up to 50% of single family detached residential units within a particular Level C Plan in the residential land use 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.



1. Setback requirements for accessory units are equal to the overall setback requirements for the parcel.
2. An accessory unit may be detached, attached to or above garage, or attached to or above primary unit.
3. Space for an accessory unit may be built without plumbing to provide the opportunity for future conversion to a conforming accessory unit.
4. An accessory unit must have access from a street or alley independent of primary unit access.
5. No off-street parking is required for accessory units.
6. Accessory units may be rented and/or occupied by persons unrelated to the occupants of the primary residence.

Table 2-1 Site Development Standards

	Building Envelope			Open Space		Setbacks (feet) (5)					Off-Street Parking (12)	
	Max. site FAR (1)	Max. site du/ac (2)	Max. height (ft)	Min. % landscape area (3)	Min. % usable open space (6)	Front	Side street	Side	Rear	Other	Non-res	Residential
<b>Employment Districts:</b>												
Employment Center	4.0	100	80 (4)	15% of net lot area per COA Zoning Code	n/a	0 min.	0 min.	10 min.	10 min.		per zoning code, credit for on-street, max. one bay in front of bldg	2 per 3+ BR, 1.5 per 2BR, 1 per 1BR/studio Multifamily: 1 per unit
Highway Commercial	2.0	n/a	50	15% of net lot area per COA Zoning Code	n/a	15 min.	0 min.	0 min.	5 min.	50’ landscape set-back along 1-25 (except frontage road)	per zoning code, credit for on-street	n/a
<b>Mixed-Use Centers:</b>												
Urban Center	4.0	100	20 min., 60 max	no min. except 15% of surface parking	15% unless within ¼ mile of park/OS	0 min.	0 min.	0 min.	5 min.		no requirement	2 per 3+ BR, 1.5 per 2BR, 1 per 1BR/studio Multifamily: 1 per unit
Community Center	2.0	80	20 min., 60 max	no min. except 15% of surface parking	15% unless within ¼ mile of park/OS	0 min., 5 max.	0 min.	0 min., 10 max.	5 min.		no requirement	no requirement
Village Centers	1.0	60	20 min., 35 max	no min. except 15% of surface parking	15% unless within ¼ mile of park/OS	0 min., 5 max.	0 min.	0 min., 10 max.	5 min.		no requirement	no requirement
<b>Residential Villages</b>												
Corridor Residential (w/in 1/8 mile of Mesa del Sol Blvd.)	no requirement	50	50	no min. except 15% of surface parking	15% unless within ¼ mile of park/OS	varies by lot type – see below					no requirement	2 per 3+ BR, 1.5 per 2BR, 1 per 1BR/studio; 2 covered per SF house/TH Multifamily: 1 per unit
General Residential	no requirement	35	35	[blank]	15% unless within ¼ mile of park/OS	varies by lot type – see below					no requirement	2 per 3+ BR, 1.5 per 2BR, 1 per 1BR/studio; 2 covered per SF house/TH Multifamily: 1 per unit
				<b>Varying setbacks by lot type:</b>		<b>Front (8)</b>	<b>Side street</b>	<b>Side (10)</b>	<b>Rear (7)</b>	<b>Other Walls (9)</b>		
				Single-Family Standard Lot		10 min., 20 max.	10 min.	10 min. btw bldgs (no min. to prop line)	4 min.			2 covered spaces
				Attached Compound		5 min., 10 max.	5 min.	0 min.	0-5 min.	Courtyard – 0 min., 5 max.		2 covered spaces
				Detached Compound/Courts		5 min., 10 max.	5 min.	8 min. btw bldgs (no min. to prop line)	0-5 min.	Paseo – 5 min., 10 max.		2 covered spaces
				Duplex		10 min., 15 max.	10 min.	10 min. btw bldgs (no min. to prop line)	4 min.			2 covered spaces
				Townhouse: Greater than 1 BDRM		5 min., 10 max.	5 min.	0 min.	24 min.			2 covered spaces
				Multifamily/Townhouse 1 BDRM		6 min., 16 max.	6 min.	10 min. btw bldgs (no min. to prop line)	4 min.			1 per unit

- Notes:
1. Site FAR: Maximum FAR on any individual parcel
  2. Site du/ac: Maximum du/ac on any individual parcel
  3. Site coverage: percentage of the site covered by buildings or structures
  4. Exception for water storage tanks
  5. Setback variance less than 10% may be granted through the ARC review process.

6. Required usable open space may be aggregated into common open space areas and other recreational facilities within 1/4 mile of the site.
7. Garages: 4’ min. setback at rear.
8. Front yard setback along University: 10’ min.
9. Wall height of 6’ max. (9’ 6” max. at entries) is allowed. Wall heights and placement determined by the MdS ARC. Level B wall standards take precedence over COA standards.
10. Sideyard use easements allowed.

11. Wireless Telecommunications Facilities (“WTFs”): A maximum height of 120’ shall be allowed for Primary WTFs. A maximum height of 60’ shall be allowed for Secondary WTFs (see Appendix B, pages 108 and 109).
12. ARC can make allowance for one covered space per unit.
13. Setbacks are measured from the edge of the street right-of-way.





Native, Drought-Tolerant Landscaping

•

Water Conservation Strategies

## 2.5 Landscape Planning and Design

### 2.5.1 Goals and Objectives for Landscape Design

The goal of the landscape design at Mesa del Sol is to express the character and spirit of the existing high desert grassland and create an inviting environment. To achieve this, four elements of sustainable and context-driven landscape design will guide future design at Mesa del Sol:

#### *Native and Regional Plants are the First Choice*

Mesa Del Sol is located in the Middle Rio Grande Valley within the upper edge of the Chihuahuan Desert ecoregion, with influences from nearby Colorado Plateau and Southern Plains ecoregions. Depending on soil type and solar exposure, specific vegetation associations occur including Mesa Sand Scrub and Desert Grassland. A plant palette based on those natural environments is more likely to succeed with sensible maintenance, given local climate and soil conditions. Regionally native plants will become established faster, will help to establish native wildlife habitat, and in the long term will require less water, fertilizer and maintenance than non-native plants. Contract growing of hard-to-find native plants will help bridge availability challenges. Through this commitment to using regionally native plants as a first choice, Mesa Del Sol will have a richly textured, aesthetically appealing and environmentally appropriate desert landscape.

#### *Re-create and Celebrate the Desert Landscape*

Today, visitors to Mesa del Sol see a high desert grassland dominated by Galleta Grass and with only a handful of One-seed Juniper trees. There is an elegant and pure simplicity to the expansive grassland landscape. Grasses grow well here, and their seasonal interest, texture and grace will serve as a gentle, attractive transition between native landscapes and the urban development. Regionally native grasses will be used throughout developed areas and the internal open space corridors of Mesa del Sol to preserve that link to the land.

#### *Use of Trees will be Optimized*

The existing landscape is relatively free of trees and shrubs, with the Junipers mentioned above, and four-wing saltbush, apache plume, chamisa, Mormon Tea and snakeweed located in mostly disturbed or depressed areas. The horizontality of the Mesa is accentuated by this low landscape, particularly when observed against the broad, tall backdrop of the Manzano Mountains. However, in our sunny, high desert climate, shade is a necessity for comfortable and safe enjoyment of the outdoors.

At Mesa del Sol, we will contrast the horizontal grassland aesthetic of the open space, with the vertical aesthetic created by formal plantings of trees to create a more hospitable pedestrian environment in urban and residential areas. Selective use of taller tree species in common areas like urban parks, plazas and on selected streets will create hospitable, comfortable places and set these spaces apart while preserving the horizontality of the remaining landscape. Boulevards, avenues and connector streets lined with taller street trees will create a network of green shady corridors that will mesh with the trunk open space network of wide open desert grassland landscapes. In parks, use of the taller trees will create shady, inviting oasis zones which, with the schools, will become the social centers of their neighborhoods. Trees and other shading devices will be used to produce shade wherever it is possible within the constraints of the water budget. Multi-trunk trees shall be used with the approval of the City Forester.

In urban areas like the Community and Village Centers, taller buildings and portals will provide the shade, scale transition and street edge that is often accomplished with street trees. In situations where sidewalks are not shaded by architectural portals, trees can be used to fill this gap and should be located to maximize shade, optimize scale transitions, accentuate the street edge and create a rhythm similar to that of the building columns. Since it will take years for trees to become established, shade structures, arbors, and other means will be employed to create shade at the outset of development.

### 2.5.2 Landscape and Open Space Standards

#### *Water is Precious*

Landscaping in developed areas of Mesa del Sol will require water for establishment and maintenance. Desert environments are fragile—plants are typically found in low densities and are extremely sensitive to the soil compaction and trampling that can accompany development and increased use. At Mesa del Sol, the goal is to create great community spaces, and to do it in a sustainable way.

In addition to the guiding landscape design concepts noted above, specific landscape standards will be applied to each Mesa del Sol District and to the design of streets and medians. The intent of these quantitative standards is to convey the intended image and extent of landscaping for these areas.

In all areas the following landscape design strategies shall apply:

- a) Focus planning and design on applying the right type of water to the right kind of use—with landscape irrigation being one of the most important uses of water for creating a livable community. The use of reclaimed water, greywater, roofwater and surface stormwater for landscape irrigation rather than potable water will be the primary objective. (The use of reclaimed water and/or grey water shall be subject to (i) the review of the Albuquerque Bernalillo County Water Utility Authority (“ABCWUA”), and (ii) financial constraints potentially resulting from the need to fund acquisition of additional water rights as a result of water not returning to the river.)
- b) Irrigation systems in parks and common areas shall be designed to accommodate non-potable water.
- c) Passive water harvesting will be utilized wherever possible to supplement irrigation.
- d) The use of mulches appropriate to planting type is encouraged to reduce soil moisture loss.
- e) A plant palette will be chosen that is heavy with regionally native plants to create colorful, inviting desert environments that use little water.
- f) The hierarchy of parks, plazas and developed open space will be strategically placed to bring efficiency to the site plan. By centrally locating facilities like playing fields, and equally distributing and designing other public spaces with water conservation in mind, the level of service is optimized while reducing anticipated water demand.
- g) Tree planter areas shall be a minimum of 64 square feet in area. Horizontal planting strips shall be allowed with the minimum dimension of 4 feet by 9 feet.

In general, the expectations of density and character for each District as described in the site and building standards is carried through to the landscape standards for each District including the streets and medians. To varying degrees, based on the District, landscaping will be used to create hospitable spaces and pedestrian corridors, subdivide and shade parking lots, shade buildings, reinforce the street edge and provide scale, color, texture and contrast in the landscape. Landscaping will also be used to comfortably link Districts and establish a memorable aesthetic for the development.

*Employment Districts – Employment Center and Highway Commercial*

Planning and landscape design standards shall be per the City of Albuquerque Zoning Code and Development Process Manual, with the following exceptions:

- a) Landscape Area Requirements: 15% per COA Zoning Code.
- b) Standard Landscape Buffers:
  - 1. Front Landscape Buffer: A minimum landscape strip of ten feet shall be maintained between parking areas and the primary street right of way except where inconsistent with the intention of the Level A and B Plans.
  - 2. Side/Rear: A minimum landscaped strip of 6 feet shall be maintained between parking areas and adjacent lots, regardless of site size.
  - 3. Special Buffer Landscaping/Screening between Residential and Non-Residential: per COA Zoning Code.
- c) Off-street Landscaping requirements: per COA Zoning Code, with the following exceptions:
  - 1. Landscape requirements apply to surface parking only.
  - 2. Required parking area trees may be of a deciduous or evergreen species.
  - 3. Landscape coverage: 50% of all tree canopies shall count towards the requirement that 60% of landscape areas be covered with living, vegetative materials.
  - 4. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.

*Urban Center*

Planning and landscape design standards shall be per the City of Albuquerque Zoning Code and Development Process Manual, with the following exceptions:

- a) Landscape Area Requirements: In order to encourage density, there are no minimum landscape area requirements for this District, except for:
  - 1. All surface parking areas, which shall meet the 15% required per COA Zoning Code.
  - 2. Usable open space



Structure Shading

•

Public Open Space

•

Surface Water Harvesting





- i. Usable open space shall be provided in an amount equivalent to 15% of the net site area as defined in the zoning code.
  - ii. Usable open space must be a minimum of eight feet wide not including the sidewalks.
  - iii. Required Usable Open Space may be aggregated into common open space areas within a one quarter mile radius of the site creating the requirements.
3. Landscape requirements for public rights-of-way, as indicated below.
- b) Open Space Area Requirements: In order to encourage the creation of usable open space in high density residential development areas:
  1. 15% of the site area must be designated for usable open space in such forms as patios, plazas, courtyards or widened sidewalk areas.
  2. Usable open space must be a minimum of 8 feet wide.
  3. 15% usable open space is not required if the property in question is within ¼ mile walking distance of a designated park, plaza or usable open space that is accessible to the public.
- c) Standard Landscape Buffers:
  1. Front Landscape Buffer: Where parking areas front on the primary street right of way, a minimum landscape strip of ten feet, or a six foot landscaped area with a 4 foot high screen wall, shall be maintained between the parking area and the street.
  2. Side/Rear: A minimum landscaped strip of 6 feet shall be maintained between parking areas and adjacent lots, regardless of site size.
  3. Special Buffer Landscaping/Screening between Residential and Non-Residential: No special screening is required between residential and non-residential uses in the Urban Center.
  4. Off-street Landscaping requirements: per COA Zoning Code, with the following exceptions:
    - i. Landscape requirements apply to surface parking only.
    - ii. Required parking area trees may be of a deciduous or evergreen species.
    - iii. Landscape coverage: Tree canopy shall count towards the requirement that 75% of landscape areas be covered with living, vegetative materials.
    - iv. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.

#### *Community Center*

Planning and landscape design standards shall be per the City of Albuquerque Zoning Code and Development Process Manual, with the following exceptions:

- a) Landscape Area Requirements: In order to encourage density, there are no minimum landscape area requirements for this District, except for:
  1. All surface parking areas, which shall meet the 15% required per COA Zoning Code.
  2. Usable open space
    - i. Usable open space shall be provided in an amount equivalent to 15% of the net site area as defined in the zoning code.
    - ii. Usable open space must be a minimum of eight feet wide not including the sidewalks.
    - iii. Required Usable Open Space may be aggregated into common open space areas within a one quarter mile radius of the site creating the requirements.
  3. Landscape requirements for public rights-of-way, as indicated below.
- b) Open Space Area Requirements: In order to encourage the creation of usable open space in high density residential development areas:
  1. 15% of the site area must be designated for usable open space in such forms as patios, plazas, courtyards or widened sidewalk areas.
  2. Usable open space must be a minimum of 8 feet wide.
  3. 15% usable open space is not required if the property in question is within ¼ mile walking distance of a designated park, plaza or usable open space that is accessible to the public.
- c) Standard Landscape Buffers:
  1. Front Landscape Buffer: Where parking areas front on the primary street right of way, a minimum landscape strip of ten feet, or a six foot landscaped area with a 4 foot high screen wall, shall be maintained between the parking area and the street, regardless of site size.
  2. Side/Rear: A minimum landscaped strip of 6 feet shall be maintained between parking areas and adjacent lots, regardless of site size.
  3. Special Buffer Landscaping/Screening between Residential and Non-Residential: No special screening is required between residential and non-residential uses in the Community Center.
- d) Off-street Landscaping requirements: per COA Zoning Code, with the following exceptions:
  1. Landscape requirements apply to surface parking only.
  2. Required parking area trees may be of a deciduous or evergreen species.
  3. Landscape coverage: Tree canopy shall count towards the requirement that 75% of landscape areas be covered with living, vegetative materials.
  4. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.

*Village Center*

Planning and landscape design standards shall be per the City of Albuquerque Zoning Code and Development Process Manual, with the following exceptions:

- a) Landscape Area Requirements: In order to encourage density, there are no minimum landscape area requirements for this District, except for:
  - 1. All surface parking areas, which shall meet the 15% required per COA Zoning Code.
  - 2. Usable open space
    - i. Usable open space shall be provided in an amount equivalent to 15% of the net site area as defined in the zoning code.
    - ii. Usable open space must be a minimum of eight feet wide not including the sidewalks.
    - iii. Required Usable Open Space may be aggregated into common open space areas within a one quarter mile radius of the site creating the requirements.
  - 3. Landscape requirements for public rights-of-way, as indicated below.
- b) Open Space Area Requirements: In order to encourage the creation of usable open space in high density residential development areas:
  - 1. 15% of the site area must be designated for usable open space in such forms as patios, plazas, courtyards or widened sidewalk areas.
  - 2. Usable open space must be a minimum of 8 feet wide.
  - 3. 15% usable open space is not required if the property in question is within ¼ mile walking distance of a designated park, plaza or usable open space that is accessible to the public.
- c) Standard Landscape Buffers:
  - 1. Front Landscape Buffer: Where parking areas front on the primary street right of way, a minimum landscape strip of ten feet, or a six foot landscaped area with a 4 foot high screen wall, shall be maintained between the parking area and the street, regardless of site size.
  - 2. Side/Rear: A minimum landscaped strip of 6 feet shall be maintained between parking areas and adjacent lots, regardless of site size.
  - 3. Special Buffer Landscaping/Screening between Residential and Non-Residential: No special screening is required between residential and non-residential uses in Village Centers.

- d) Off-street Landscaping requirements: per COA Zoning Code, with the following exceptions:
  - 1. Landscape requirements apply to surface parking only.
  - 2. Required parking area trees may be of a deciduous or evergreen species.
  - 3. Landscape coverage: Tree canopy shall count towards the requirement that 75% of landscape areas be covered with living, vegetative materials.
  - 4. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.

*Residential Villages*

Planning and landscape design standards shall be per the City of Albuquerque Zoning Code and Development Process Manual, with the following exceptions:

- a) Landscape Area Requirements: In order to encourage density, there are no minimum landscape area requirements for this District, except for:
  - 1. All surface parking areas, which shall meet the 15% required per COA Zoning Code.
  - 2. Usable open space
    - i. Usable open space shall be provided in an amount equivalent to 15% of the net site area as defined in the zoning code.
    - ii. Usable open space must be a minimum of eight feet wide not including the sidewalks.
    - iii. Required Usable Open Space may be aggregated into common open space areas within a one quarter mile radius of the site creating the requirements.
  - 3. Landscape requirements for public rights-of-way, as indicated below.
- b) Usable Open Space Area Requirements: In order to encourage the creation of usable open space in high density residential development areas:
  - 1. 15% of the site area must be designated for usable open space in such forms as patios, plazas, courtyards or widened sidewalk areas.
  - 2. Usable open space must be a minimum of 8 feet wide.
  - 3. 15% usable open space is not required if the property in question is within ¼ mile walking distance of a designated park, plaza or usable open space that is accessible to the public.



**Public Open Space**

•

**Surface Water Harvesting**

•

**Water Conservation**





c) Standard Landscape Buffers:

1. Front Landscape Buffer: Where parking areas front on the primary street right of way, a minimum landscape strip of ten feet shall be maintained between the parking area and the street, regardless of site size except where inconsistent with the intention of the Level A and B Plans.
2. Side/Rear: A minimum landscaped strip of 6 feet shall be maintained between parking areas and adjacent lots, regardless of site size.
3. Special Buffer Landscaping/Screening between Residential and Non-Residential: per COA Zoning Code.



d) Off-street Landscaping requirements: per COA Zoning Code, with the following exceptions:

1. Landscape requirements apply to surface parking only.
2. Required parking area trees may be of a deciduous or evergreen species.
3. Landscape coverage: 50% of all tree canopies shall count towards the requirement that 60% of landscape areas be covered with living, vegetative materials.
4. Water harvesting areas for surface runoff shall be provided in parking lots. Permeable paving can be counted toward this requirement.

*Streets and Medians*

Planning and landscape design standards for streets and medians may vary based upon maintenance responsibilities. In instances where the City of Albuquerque is or will be responsible for maintenance of streets and/or medians, the facility must be designed to meet City expectations for design and construction based on their maintenance capabilities and their recent completion of several median prototypes. There are no current written City of Albuquerque standards for landscaping in public medians. If street and median landscaping is developed and maintained by Mesa del Sol, the installation shall meet City of Albuquerque expectations for design, with the following exceptions:

a) Drainage Considerations in Design

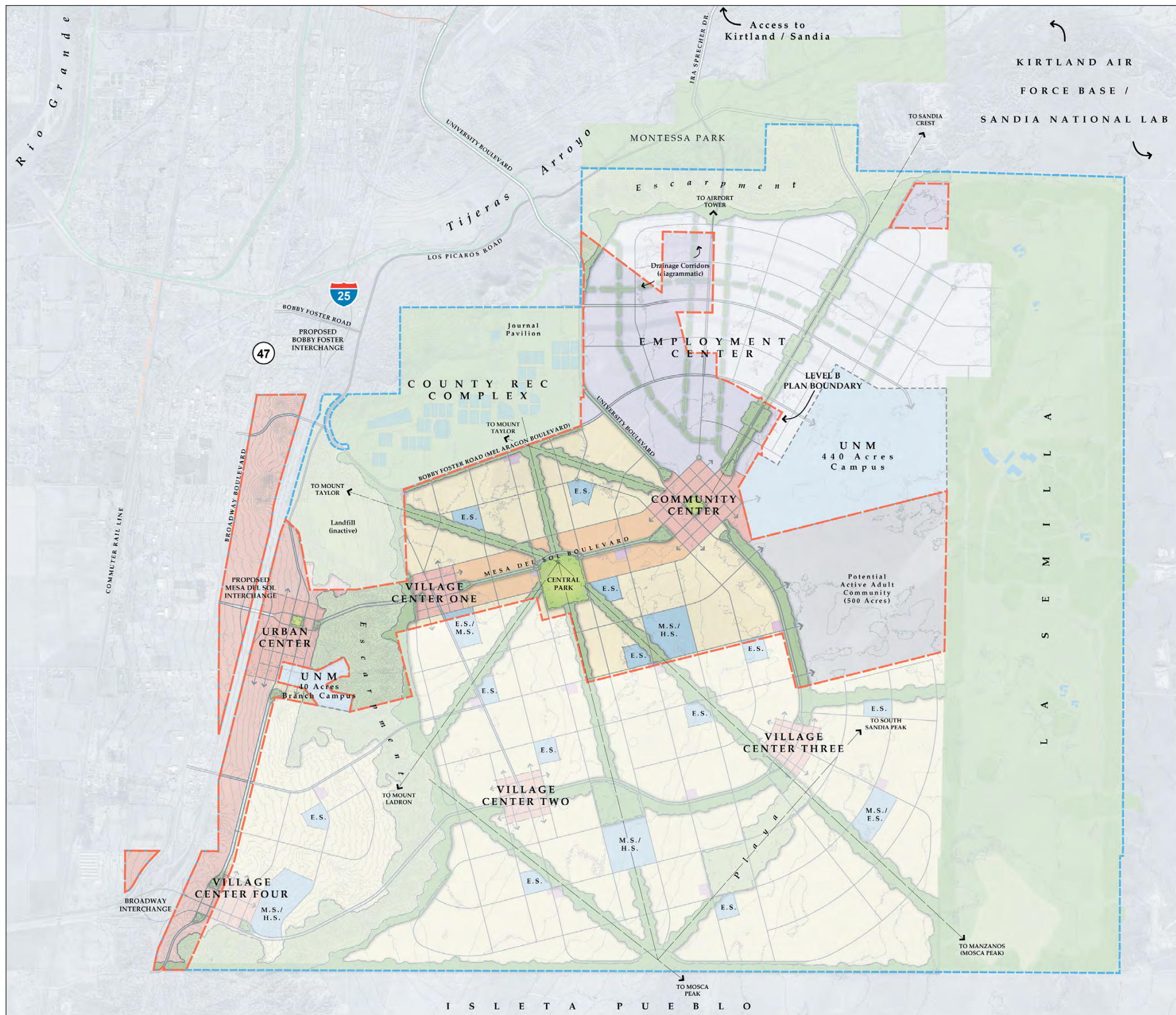
1. Water harvesting of street surface runoff shall be allowed in the medians and in landscape strips along the street. Water harvesting designs must address concerns about water flow, maintenance, potential traffic interference, and protection of road structure and foundation.

b) Curb cuts may be used to direct storm water into on-street water harvesting areas.

c) Irrigation:

1. Low angle spray irrigation in the medians is allowed for native seed areas only. Design and head placement shall minimize overspray.





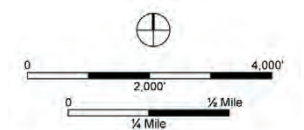
## MAJOR URBAN PARKS, LINEAR PARK CORRIDORS AND MAJOR PUBLIC OPEN SPACE

Figure 2-2

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

- Major Urban Parks
- Linear Park Corridors
- Proposed Major Public Open Space







**Natural Open Space**  
•  
**Stormwater Management  
and Groundwater  
Infiltration and Recharge**

Additional landscape standards will include:

- a) Irrigation: All irrigation systems shall be designed to accommodate non-potable irrigation.
- b) Installation/Minimum Plant Sizes: Planting sizes will vary by genus and species and availability.
  - 1. Trees: Single trunk broadleaf trees shall have a minimum caliper of 2½". Multi-trunk trees shall have a minimum container size of 24" box. All non-broadleaf evergreen trees shall be a minimum of 6'-0" tall.
  - 2. Shrubs and Accents: Native shrubs shall have a minimum container size of 1 gallon. Non-native shrubs shall have a minimum container size of 2 gallons.
  - 3. Grasses: All grasses shall have a minimum container size of 1 gallon. Use of sod or plugs rather than seed is encouraged for turf areas.
  - 4. Perennials: Perennial ground covers planted in masses shall have a minimum pot size of 4". Perennials planted in small groups and individually shall have a minimum container size of 1 gallon.

*Open Space/Parks*

Chapter 2.6 Open Space and Parks describes the characteristics of the variety of open space facilities at Mesa del Sol. Refer to this chapter for details on location, acreage, service area and potential program elements.

*Plant Palette*

For description and list of selected plants, see Appendix 2C.

**2.6 Open Space and Parks**

**2.6.1 Delineation of Open Space and Parks**

The open space and parks at Mesa del Sol illustrate a systems planning approach to recreation development, with a comprehensive, interconnected system of parks, plazas, open space and trails. The system will foster community by increasing connectivity between neighborhoods and by providing opportunities for interaction, recreation and enjoyment of the natural environment.

The open space system at Mesa del Sol includes a hierarchy of natural and developed spaces. The Level A Plan designates a minimum 25% of its overall development as open space, which includes La Semilla, the Bernalillo County Regional Recreation Complex, areas of the Escarpment and the South Playa designated as Major Public Open Space by the Comprehensive Plan, and internal (either public or private) Linear Park Corridors. As shown in Figure 2-2, Regional Parks and Trunk Open Space, this Level B Plan designates approximately 398 acres of open space, including escarpment major public open space, linear parks, and a major urban park. Future Level C plans will provide dedication of this open space as they are approved. It is possible that individual Level C plans for certain smaller tracts may not dedicate any open space; however, the intent is that with the full build out of the Level B area, the approximate acreage of open space designated by this Plan will be dedicated through the overall Level C plan approval process.

The park system developed with this Level B plan will reflect the anticipated uses and needs of the community through a range of park types. The parks will serve recreation needs and provide social gathering opportunities for the community. They will be well distributed and designed to optimize the use of water to create shared green spaces that benefit the community as a whole. This includes creating shared facilities for active recreation uses such as soccer, baseball, and football fields.

Based on the Developer's past experience, knowledge of the market, and desire to create a healthy, livable community, the following types of facilities are anticipated within the Level B area:

Major Public Open Space

The Albuquerque/Bernalillo County Comprehensive Plan (2002) proposes that the escarpment along Mesa del Sol become part of the larger regional open space network. In Figure 2-2, Regional Parks and Trunk Open Space, the escarpment is defined as areas with a slope of 10% or greater along the northern and western edges of the mesa top. Dedicating this area as Major Public Open Space will preserve natural areas and provide visual and aesthetic relief from future development. The roadway and trail connections across the escarpment needed to provide access to the mesa will be designed to minimize their visual and environmental impact on the open space while creating views of the natural environment. Public access to these areas will need to be controlled—enabling residents and visitors to appreciate the natural environment in a sustainable manner.

- a) Estimated Acreage: Approximately 185 acres
- b) Service Area: City
- c) Locations: Escarpment, La Semilla, Playa, perimeter areas
- d) Details: Trails and trailheads, interpretive signage, fencing/access control

Linear Park Corridors

These large linear park areas serve several purposes at Mesa del Sol. They receive stormwater and serve as recharge or infiltration zones. They serve as plant and wildlife corridors. They provide opportunities for off-road trails that increase pedestrian and bike connectivity between neighborhoods and parks. They may include small neighborhood parks and trailheads, providing recreation and community meeting opportunities for residents in a well-distributed manner. Finally, they serve as view corridors on the Mesa—visually linking Mesa del Sol with surrounding natural features and landmarks.

- a) Estimated Acreage: Approximately 165 acres
- b) Service Area: Mesa del Sol
- c) Details: Typically 200’-250’ in width, with trails, trailheads, infiltration areas, native plant and wildlife habitat, small neighborhood parks with play structures, seating, lighting, and off site parking. Minimum vegetative coverage shall be 33%, not including tree canopies.
- d) Maintenance: Corridors which function primarily as drainage facilities with ponding functions shall be maintained by the Property Owners Associations or by Special Districts. In Corridors where drainage is secondary, parks and recreational facilities shall be maintained by the City.

(See illustrative detail in Figure 4-5 on page 77.)

Major Urban Park

A large public park can serve the recreation and civic needs of an entire community and may include elements found in both neighborhood and community parks. The large centrally located park on Mesa del Sol Boulevard will serve as a site for active and passive recreation, provide a large comfortable site for large-scale civic events, and serve as a node for trails and open space corridors.

- a) Estimated Acreage: 40 acres
- b) Service Area: Mesa del Sol
- c) Details: multi-purpose fields, baseball/softball fields, playing courts, sidewalks, hard-scape, tables, seating, fountains, art, play structures, performance space, landscaping, vendors, lighting, programmed events and on and off site parking. Minimum vegetative coverage shall be 60% of which 25% of tree canopies can be counted.

Table 2.6-1 Proposed Responsibilities for Parks and Open Space

Type	Estimated Area	Capital Costs	O and M Costs
Major Public Open Space	245 acres	CoA	CoA
Linear Park Corridor	179 acres	Special District/Developer	CoA/Special District/POA
Major Urban Parks	40 acres	CoA/Special District/Developer	CoA/Special District/POA
Neighborhood Parks	.5-5 acres each	Special District/Developer	Special District/CoA/POA
School Parks	5 + acres each	APS/Special District/Developer	APS/CoA
Urban Plazas/Pocket Parks	.5 acre (or less)	Special District/Developer	Special District/POA
Streetscapes and Medians	NA	Special District/Developer	CoA/Special District/POA





*Neighborhood Parks*

These parks are the social center and focus of their surrounding neighborhoods. These spaces provide opportunities for neighbors to meet in an open comfortable setting. At Mesa del Sol, these facilities might include community pools, community centers, and larger park facilities heavily programmed for active recreation. These parks may also serve as a location for multi-use stormwater infiltration areas.

- a) Estimated Acreage: .5 – 5 acres per park (total acreage to be determined)
- b) Service Area: typically ¼-mile radius
- c) Details: multi-purpose fields, sidewalks, tables, seating, play surfacing and play structures, landscaping, lighting and off-site parking.
- d) Maintenance: Neighborhood Parks over 2 acres in size shall be maintained by the City. Neighborhood Parks under 2 acres in size and major drainage facilities within neighborhood parks, if any, shall be maintained by the Property Owners Associations or the Special Districts.

*School Parks*

In order to make the most efficient use of money, water and resources, school facilities and school parks will belong to the community and be available for community use. These centrally located facilities are the potential sites for community centers. This would allow Mesa del Sol to avoid creating redundant services for large groups of neighborhoods.

- a) Estimated Acreage: 5+ acres per site, depending on the type of school
- b) Service Area: ½-mile radius
- c) Details: multi-purpose fields, baseball/softball fields, playing courts, play structures, sidewalks, seating, landscaping, lighting and shared on site and off-site parking.

*Pocket Parks*

These parks provide relief and services in densely developed areas or in transition zones such as trailheads.

- a) Estimated Acreage: 0.25-0.5 acres per park, depending on location
- b) Service Area: as needed
- c) Details: typically with hardscape, tables, seating, play structures, landscaping, lighting and off site parking.
- d) Maintenance: Pocket Parks shall be maintained by the Property Owners Associations or Special Districts.

*Urban Plazas*

Plazas have a long history as economic and social centers in New Mexico, and some may serve in a similar capacity at Mesa del Sol. These public spaces will come in a variety of shapes and sizes and will be located in higher density centers. Ideally each of these spaces will have a unique design and character that contributes to the complexity, identity and experience of the center. It is anticipated that each village or community center may have one primary Plaza that serves as that area’s civic center.

- a) Service Area: ¾-mile radius
- b) Details: typically less than ¼ acre in size, with sidewalks, hardscape, tables, seating, fountains, art, landscaping, vendors, lighting, programmed events and off site parking.
- c) Maintenance: Urban Plazas shall be maintained by the Property Owners Associations or Special Districts.

**2.6.2 Propose Ownership, Management and Maintenance**

Development and ownership of parks and open space will be finalized as part of the Level B Development Agreement. The table below illustrates Mesa del Sol’s assumption regarding construction, operation, and maintenance of the facilities noted below. Special District refers to anticipated Public Improvement District and/or Tax Increment Financing.

Note: Determination of whether drainage purposes are primary or secondary to park purposes shall be determined on a case by case basis, in consultation with City Parks staff. Such determination shall be made considering the size of ponding versus park area, usable park area, types of planned park uses, and other factors.

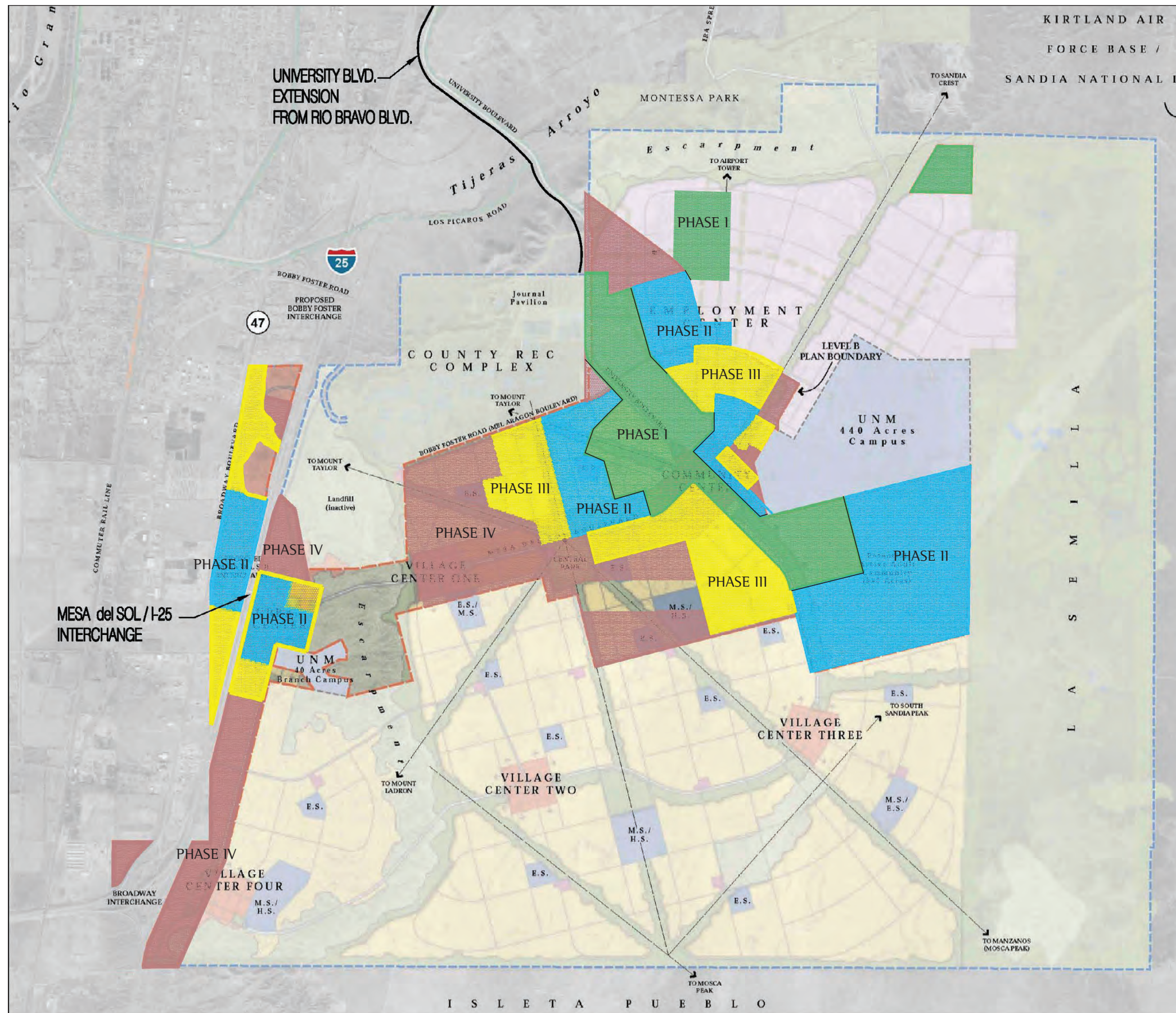
**2.7 Development Phasing**

Market conditions and infrastructure funding issues will ultimately have the greatest impact on phasing. Accordingly, some flexibility for modifications to the development phasing must be retained and considered acceptable. The phasing presented herein represents the following strategic phasing scenario, as shown in Figure 2-3.

*Phase I*

For many reasons, this initial development phase of Mesa del Sol is perhaps the most predictable of all those reviewed. Figure 2-3 portrays this phase (and others) and its relationship to the site. Initial development, including Advent and Albuquerque Studios, has already begun along the University Boulevard extension. Known elements of this phase include:





## LEVEL B OVERALL PHASING PLAN

Figure 2-3

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

- Phase I Development
- Phase II Development
- Phase III Development
- Phase IV Development

### Key Dates:

1. University Blvd. Extension from Rio Bravo Blvd. to Journal Pavilion - Complete September 2006.
2. Mesa del Sol / I-25 Interchange - Complete 2009 Q4.

### Notes:

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



Mesa del Sol





- a) The City of Albuquerque plans to complete construction of the University Boulevard roadway extension in September 2006. The terminus of this planned four-lane roadway occurs near the midpoint of Mesa del Sol's northern escarpment, which is also the Journal Pavilion's 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 roadway's proposed terminus also coincides with the location of the main employment center of Mesa del Sol. With relatively short extensions of the roadway and utilities from the City road project, the first residential neighborhood will be located near the southeast corner of the County Recreational Complex (near the southwest corner of Bobby Foster Road and University Blvd extension).

- b) The Advent Solar and Albuquerque Studios projects necessitated early trunk extensions of water, sewer and roadway infrastructure. This infrastructure is suitable to service the area of development in these years, and beyond.
- c) A major "high security" site is planned and scheduled for 2008-2009 for a 40-acre site in the northeast corner of Mesa del Sol, requiring infrastructure planning for this remote corner to be accelerated.
- d) The Mesa del Sol interchange at Interstate 25 will be designed and constructed towards the end of Phase I timeframe, with construction ending in early 2010. This permits the beginning of Urban Center development.

#### *Phase II*

Generally, residential development phasing begins from the initial phase area and proceeds westerly and southerly. The progress of non-residential land development will proceed northerly and easterly. Access to University Boulevard roadway and utilities is maintained.

With the construction of the Mesa del Sol interchange, development of non-residential lands adjacent to I-25 and Broadway Boulevard can begin.

The Active Adult Community is anticipated to be fully built by the end of this phase.

#### *Phase III & IV*

Residential development phasing continues from the initial phases and proceeds westerly and southerly. Non-residential land development on the Mesa Top will proceed northerly and easterly. Non-residential development in the I-25/Broadway corridor will continue both in the Urban Center and along the I-25 corridor.

The Mesa del Sol Level B master plan area will be significantly, if not fully, built out by the end of this phase.

## **2.8 Art and Signage**

An art and wayfinding signage master plan has been developed to create a unique sense of place, promote public safety for vehicular and pedestrian traffic, reinforce the principles of sustainability, and educate the community about the inherent natural qualities and resources of the environment.

Through the use of a well thought out system of art, wayfinding and information signs, this program exceeds most current standards for compliance, accessibility and legibility by establishing an all-encompassing approach to the master plan, so that all components work together harmoniously. Every aspect of the program has been considered, from the maximum sign height to font/type size, legibility and placement of signs. This system adopts the most current standards and best practices of the environmental graphics industry for fabrication and longevity, while incorporating innovation and state of the art technology.

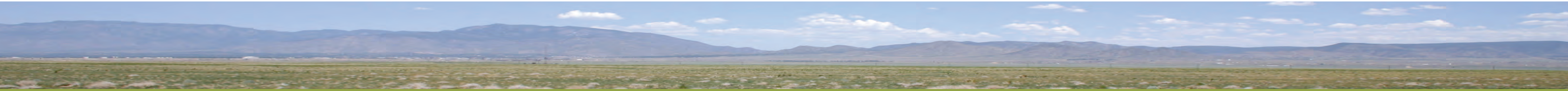
The design aesthetic for the art, wayfinding and information signs emphasizes components which are low profile, horizontal in orientation and designed to integrate into the environment.

The consistent and logical system programming establishes predictability, so that the user can begin to anticipate the next sign component, increasing safety and ease of use.

The art components are utilized to identify the site, and individual centers, while establishing an overall, unique identity for the community.

The general sign code is developed to prevent visual clutter that distracts or otherwise inhibits safety. The sign code encourages the use of signs that reinforce the character of Mesa del Sol and its architectural elements.

The Sign Code Standards presented in this document conform to the City of Albuquerque General Sign Regulations (14-16-3-5). See Appendix 2A for the Complete Art and Wayfinding Signage Master Plan.



# TRANSPORTATION

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

3



# *A Multi-Modal System*

## Transportation

The Transportation System planned for Mesa del Sol consists of facilities and right-of-way for motor vehicles, mass transit, pedestrians, 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 and for the greater Mesa del Sol community. Concepts introduced for multi-modal transportation facilities in the Level A Community Master Plan have been expanded upon in this Level B document and appendices, with additional detail provided regarding the transportation network, street characteristics, intersection operation, local access, and phasing of street construction, transit, and pedestrian/bicycle facilities.



Vehicle Trip Reduction

Alternative Transportation

Significant effort has been dedicated to the careful planning of the transportation network with the objective of minimizing traffic volumes on both major and minor roadways, including the boulevards, avenues, and connectors that comprise the street framework and grid. This effort has included the addition of a number of major roadways that connect the Mesa del Sol internal transportation network with the off-site transportation network. Based on travel demand models developed for the overall site and the Level B planning area, traffic volume is distributed among numerous roadways, thus reducing volumes on individual roadways such as Mesa del Sol Boulevard. Although Mesa del Sol Boulevard will function as a major spine of the internal transportation network, the volumes predicted on Mesa del Sol Boulevard have been reduced from those shown in the Level A Master Plan, resulting in a more pedestrian and user friendly environment. This same concept holds true for the smaller scale connector roadways that have been laid out in a traditional grid pattern, which results in providing numerous parallel routes for travel, thereby minimizing traffic volumes on any one street.

Mesa del Sol is planned as a future “Transit Oriented Development,” and currently as a “Transit Ready Development” with street right-of-way on the major boulevards designated for wide transit corridors that will provide the framework of a future mass transit system. A separate study of Mesa del Sol Transit Concepts and Scenarios (URS, April 2006) has been undertaken by the developer, with excerpts from that study included in this Level B document that present a viable transit implementation scenario. Mesa del Sol transit service is likely to begin as bus service extensions from adjacent areas of the City’s ABQ Ride system, but is foreseen as a robust fixed guideway transit system that will

enable travelers in Mesa del Sol to leave their cars behind and provide an alternative to typical passenger car travel.

A comprehensive network of trails for both transportation and recreation are also planned within Mesa del Sol. Key segments of these trails are included in the Level B Planning area, with connections to the off-site University Boulevard and Tijeras Arroyo trails. From the transportation perspective, Mesa del Sol is envisioned as an excellent place in which to live and work, where many daily commute, business, and pleasure trips can be made without the use of passenger cars.

### *Conformity With Level A Transportation System Plan*

The emphasis on the multi-modal transportation concepts of New Urbanism, as introduced in the Mesa del Sol Community Master Plan, Level A Plan, June 2005, remains a primary tenet of Mesa del Sol Level B planning. The road types and street sections as shown in the Level A Plan and Appendix F-1 of that Plan continue to serve as the basis for the Level B roadways. Other aspects of the Level A Plan remain applicable and valid: Appendix C—Street Design, Appendix D—Intersection Design, and Appendix E—Parking, in the Level A Technical Appendices all remain valid. The methodology and approach to travel demand modeling as shown in Appendix F of the Level A Plan also remains valid, although the results derived have been revised in this Level B document to reflect certain changes to land use and broader changes to the street network.

The enclosed Level B Transportation Plan and appendices include traffic analyses prepared in accordance with requirements in the Planned Communities Criteria, Level B,

Transportation. These analyses update the Level A Plan and provide a greater level of detail with respect to various elements of the Plan. The following items introduced in the Level A Plan have been revised or addressed in greater detail in this Level B Plan and appendices:

- Transportation Network and Traffic Analysis for Build-Out (refer to Section 3.1.1 of the Plan, Figure 3-1, and Appendix 3A)
- Phasing Plan for Development of Transportation System in 2015 and 2025 (refer to Section 3.2.2 of the Plan, Figures 3-3 and 3-4, and Appendix 3C)
- Phasing Plan for Roadways and Intersections in 2015, 2020, and 2025 (refer to Appendix 3D)
- Off Site Impacts and Costs for Improvements (refer to Appendix 3E)

### 3.1 Proposed Street Network

#### 3.1.1 Connections to Off-Site Transportation Network at Build-Out

The Mesa del Sol Community Master Plan, Level A Plan, June 2005, has been approved by the City of Albuquerque Environmental Planning Commission (EPC) and the Albuquerque City Council. An Amendment to Technical Appendix F—Transportation, January 2006, was submitted to the staff of the City’s Department of Municipal Development in response to comments relative to the initial Level A Transportation Master Plan. As a normal course of major development planning, changes have been made to certain facets of land use and the planned street network in response to market conditions, tenant needs, and various other reasons. The basic overall assumptions made in the Level A Plan relative to the size of the development, general mix of land uses, and overall traffic volume to be generated remain intact. Details of the more specific changes between Level A and Level B are provided in Appendix 3A.

Full build-out of the Mesa del Sol development is planned for 35 to 50 years into the future. The proposed circulation system for full build-out of Mesa del Sol will connect to the surrounding regional transportation network at a number of locations, including connections to I-25, Broadway Boulevard, and access to Kirtland Air Force Base (KAFB) via the Ira Sprecher Gate. The location of Mesa del Sol is constrained by the surrounding terrain and jurisdictional boundaries and associated land uses, thus restricting opportunities for access and connections to the regional transportation network. These restrictions to access include the Isleta Pueblo lying directly contiguous to the south of Mesa del Sol, with Isleta Pueblo having no present intent for any roadway or transportation connections

between Pueblo lands and Mesa del Sol except the existing right-of-way in the southwest corner of Mesa del Sol that connects to NM 47. To the east of Mesa del Sol, KAFB and the Albuquerque Sunport International Airport also restrict access. The Ira Sprecher gate, which currently serves as a limited access gate to KAFB, could be improved to create a better link between Mesa del Sol and the Base. The extension of University Boulevard provides full access to the north and links Mesa del Sol to Albuquerque’s greater transportation grid. Otherwise, access and connections to the surrounding city and county roads, and state highways, are all located west of the site, thus requiring numerous points of connection on the west side of the development to distribute traffic to reasonable volume levels and avoid overloading a few major roadways.

The primary transportation corridors that will serve Mesa del Sol are University Boulevard and Mesa del Sol Boulevard. University Boulevard is currently being constructed from Rio Bravo Boulevard to the north end of Mesa del Sol, initially providing access to the Journal Pavilion amphitheater. This construction is planned for completion in August 2006. A further extension of University Boulevard is currently being designed to extend University Blvd. into the Mesa del Sol Community Center. In the future, beyond the Level B Planning period, other roadways will be developed and could become more attractive and heavily used, therefore shifting the primary access into the Employment Center from University Blvd. to those roadways.

Mesa del Sol Blvd. will require an interchange with I-25. Planning for this interchange has begun with a Location and Access Study / Initial Evaluation of Alternatives meeting the Phase A requirements of the New Mexico Department of Transportation (NMDOT) being developed by URS Corporation for Forest City Covington NM, LLC (FCC). The NMDOT will continue with the planning and environmental process for the interchange, with a Detailed Evaluation of Alternatives (Phase B) and Environmental Assessment (Phase C) under contract with another consulting engineer. The NMDOT is also planning a corridor study of I-25 between Isleta Blvd. and I-40, through the area fronted by Mesa del Sol. This study is expected to get underway in early 2007. To the extent within the developers jurisdictional control and subject to private/public cost allocations, “Level C” plans shall comply with applicable policies of the Interstate Corridor Enhancement Plan, including its provisions relating the the South Gateway to Albuquerque. Development of the other future interchange planned for Mesa del Sol, at Bobby Foster Road, will have to follow NMDOT procedures as well. This interchange at Bobby Foster is not needed until beyond 2025, but should also be addressed in the NMDOT corridor study of I-25.

The number of connecting roadways that link Mesa del Sol streets with off-site arterial roadways has been increased from those shown in the Level A Master Plan. These changes are depicted on Figure 3-1, Auto and Transit Circulation: Build-Out Network.







**3.1.2 Connections to Off-Site Transportation Network in 2025**

The land that comprises the Level B “Takedown” area is located in the northernmost and westernmost portions of the Mesa del Sol Planned Community. This area is accessed by an existing multi-lane roadway, University Blvd., and a proposed multi-lane boulevard, Mesa del Sol Blvd. These primary access roadways are shown on Figure 3-2, Transit Circulation: Level B Plan Area. University Blvd. has recently been extended south of the intersection with Rio Bravo Blvd. to a point of connection with Bobby Foster Road at the northwest corner of Mesa del Sol and the entrance to the Journal Pavilion amphitheater. This extension of University Blvd. was opened to traffic in August 2006. Due to funding constraints, three of the ultimate four lanes on University Blvd. have been constructed. Additional funding is necessary for the paving of the fourth lane leading from Rio Bravo Blvd. to Mesa del Sol. When funding is identified, this project is recommended for inclusion in the 2007–2012 Transportation Improvement Plan by the Mid-Region Council of Governments (MRCOG).

In addition to University Blvd. entering the site from the north, Mesa del Sol Blvd. is also proposed to enter Mesa del Sol from the west. A new interchange has been proposed as part of the Level A Transportation Plan, and a Location and Access Study is underway for that interchange in accordance with the requirements of the New Mexico Department of Transportation (NMDOT) and the Federal Highway Administration (FHWA). This new interchange will provide direct access from I-25 to the new east-west boulevard, Mesa del Sol Blvd., which will extend from Broadway Blvd. on the west to University Blvd. and the Mesa del Sol Community Center on the east. Mesa del Sol Blvd. is defined in “New Urbanism” terms as a “boulevard,” serving mobility needs of transit, vehicles, bicycles, and pedestrians, with local access provided via attached frontage roads.

A third point of connection to the off-site transportation network at 2025 is temporarily labeled as Avenue 4 (see Figure 3B-1, Street Naming Conventions, in Appendix 3B). Avenue 4 is located on the west edge of Mesa del Sol, just east of and parallel to I-25. Avenue 4 begins at NM 47 / Broadway and extends north to intersect with Mesa del Sol Blvd. Avenue 4 is defined as an “avenue” (serving as a transportation corridor, and to a lesser degree, providing for local access, but without frontage roads).

The north portion of the “first” residential neighborhood located west of University and north of Mesa del Sol Blvd. will also access Bobby Foster Road. Bobby Foster Road is an existing three lane roadway that will be upgraded in the future to serve as an avenue connecting Mesa del Sol with Broadway to the west.

Lengths, laneage, forecast traffic volumes, and other details describing these roadways are included in Appendix 3B.

**3.1.3 Connections to Remainder of Level A Area**

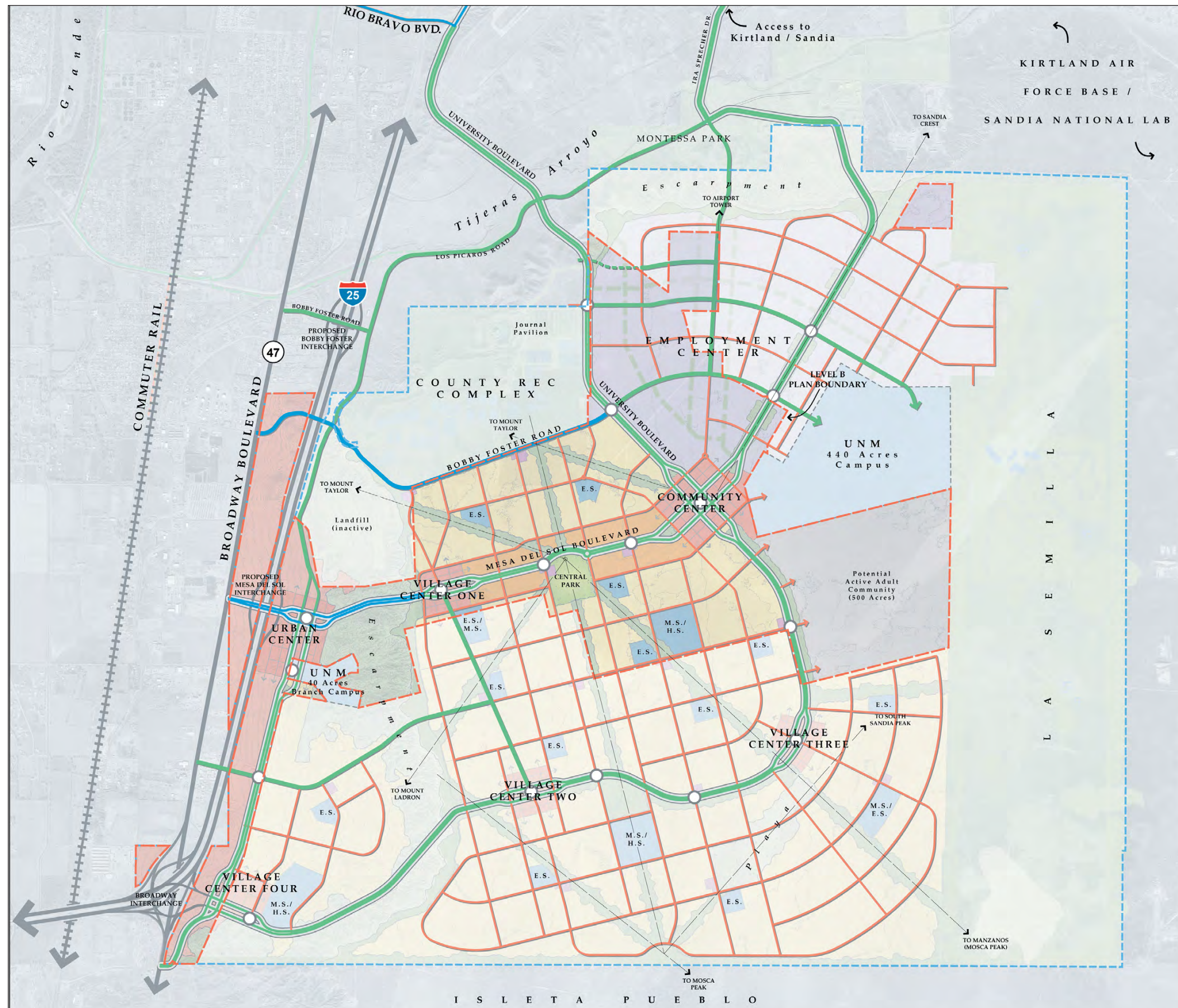
As development expands beyond this initial Level B planning area, Mesa del Sol is planned to grow to the northeast to complete the Employment Center, to the south, expanding the residential development, and to the southwest along the I-25 Urban Center corridor. Mesa del Sol Blvd. is planned to continue to the northeast and ultimately tie in with Los Picaros Road. University Blvd. is planned to continue south of the Community Center and wind through the southern portion of Mesa del Sol, connecting with Avenue 4, and ultimately with I-25 to the west. Most of the north-south connector roadways begun in this Level B area will be extended to the south. Along with these connectors, the remainder of the east-west connector system will also be added, resulting in a continuation of the grid system.

**3.1.4 Street Location and Characteristics**

Along with the boulevards and avenues (Mesa del Sol Blvd., University Blvd., etc.) described above, other avenues and connector roadways are proposed to comprise the street network grid that will serve transportation needs within the Level B planning area. As previously shown in the Level A Master Plan, the street system is primarily formed by a grid of connector streets that are intended to distribute traffic throughout the Level B planning area. Figure 3-2 shows the streets and segments of streets that are proposed within the Level B Planning area. A Street Naming Convention has been adopted for interim use until formal street names are adopted; these street names are shown in Appendix 3B, along with a table that provides the details of the roadways (lengths, laneage, speed, forecast traffic, etc.) that are included in the Level B planning area.

Typical cross sections of the streets proposed in Mesa del Sol have previously been provided in the Level A Master Plan and in the Technical Appendices accompanying the Level A Master Plan. These typical cross sections, as planned at Level A, remain valid for the Level B streets. The cross sections have been developed to a greater level of detail, and those details are included in Appendix 3F. Due to the need to further refine details during subsequent phases of project planning and development, the cross sections should be interpreted as illustrative and subject to change during specific Level C planning or later design efforts.





## AUTO AND TRANSIT CIRCULATION BUILD-OUT NETWORK

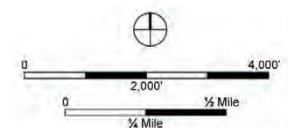
Figure 3-1

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

- Primary Transit Nodes
- Trunk Transit Routes
- Primary Roadways (Boulevards and Avenues)**
  - 2 or 3 Lanes Each Direction
  - 2 Lanes Each Direction
- Connector Roads  
(specific configurations to be assigned at a more detailed planning level)

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





# **AUTO AND TRANSIT CIRCULATION LEVEL B PLAN AREA**

Figure 3-2

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

Legend

○

Primary Transit Nodes

Trunk Transit Routes

Primary Roadways  
(Boulevards and Avenues)

2 or 3 Lanes Each Direction

2 Lanes Each Direction

Connector Roads  
(specific configurations to be  
assigned at a more detailed  
planning level)

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

The map illustrates the Mesa del Sol Level B Plan area, showing a network of transit routes and primary roadways. Key features include:

- Transit Routes:** Primary transit nodes are marked with circles, and trunk transit routes are shown as thick grey lines. A commuter rail line runs vertically along the left side of the map.
- Roadways:** Primary roadways (boulevards and avenues) are shown in blue, while connector roads are shown in orange. The map includes major roads such as Broadway Boulevard, University Boulevard, and Mesa del Sol Boulevard.
- Centers and Landmarks:** The map identifies several key areas, including the County Rec Complex, Employment Center, Community Center, Village Center One, Village Center Two, Village Center Three, and Village Center Four. It also shows the UNM 440 Acres Campus and the UNM 40 Acres Branch Campus.
- Geographic Context:** The map is bounded by Rio Bravo Blvd. to the north, the Rio Grande to the west, and the I-25 corridor to the east. It also shows access to Kirtland Air Force Base and Sandia National Lab.

48

Mesa del Sol Level B Plan - Revised September 2012



3.1.5 Operation of Special Intersections (Roundabouts, Couplets)

A unique feature of the Mesa del Sol transportation network is the use of one-way couplets that will be used for several of the major transportation facilities in the Mesa del Sol community, particularly in the areas of greatest level of development and highest density. These one-way couplets separate the opposing directions of travel by “city blocks” and allow major transportation facilities to remain at an appropriate human scale by narrowing the overall street cross-section and reducing the pavement width that pedestrians and cyclists are required to cross. The couplet intersections in the mixed-use centers will have a full, built-out city block or an occupiable public plaza in the center. The couplet streets would be separated by at least 300 feet. Frequent pedestrian access to the center block is expected, with full crosswalks at each corner of the intersections.

Outside of the mixed-use centers, certain intersecting multi-lane roadways may be designed and constructed with extra wide medians, creating in effect one-way couplets at the intersections. Nicknamed “square-about” intersections, the resulting junction of two closely spaced one-way roadways operates as a set of four signalized intersections with precisely coordinated signal timing and phasing. Unlike the one-way couplets in the mixed-use centers, pedestrian use in the center of the square-about intersections is discouraged. To avoid conflicts with left-turning traffic in the “square-about,” the preferred plan is to route pedestrians along the outside of the square-about (no pedestrians in the center median area).

In addition to square-about intersections, other possible special intersection configurations in the Level B planning area are roundabout intersections. Roundabout intersections are circular intersections that operate with one-way flow around the circle. Traffic entering the roundabout yields to traffic that is already circulating within the roundabout. The entry approaches and the roundabout geometry are designed to encourage low-speed but essentially continuous traffic movement. Specially designed traffic signing and pavement markings are used to guide motorists and pedestrians through the roundabout. Roundabouts have been used in this country at many arterial-arterial intersections; in Mesa del Sol, their use will be confined to selected Boulevard-Avenue, Avenue-Avenue, and Avenue-Connector intersections.

3.2 Traffic Analysis

Traffic volumes have been forecast for the Level B planning area based on the latest assumptions of land use and resultant population and employment projections in Mesa del Sol. Using the forecast traffic volumes, a transportation phasing plan has been developed for the years 2015 and 2025, along with projections of laneage requirements and level of service for each of the years 2015, 2020, and 2025. Using this information, on-site roadway needs and off-site roadway improvements have been identified. Appendices 3C, 3D, and 3E detail the traffic analysis and present the results.

3.2.1 Trip Generation and Traffic Volume Projection

The travel demand models that have been developed to predict Mesa del Sol traffic have utilized the Mid-Region Council of Government’s (MRCOG) computer hardware and Emme2 travel demand modeling software. This same program and process was utilized in the Level A Transportation Master Plan and again in this Level B development to predict traffic for the future planning years being considered. The Emme2 program, as utilized by MRCOG for traffic projections in the Albuquerque metropolitan area, includes certain parameters for the prediction of trips as a function of population and employment that have proven to be appropriate and are in common use for the larger metropolitan area. However, there are certain characteristics of development within Mesa del Sol that may warrant different treatment or a different interpretation of results than that obtained from typical MRCOG modeling. The following are significant areas of trip generation that warrant special consideration:

- Transit Use – The MRCOG model can be adjusted to provide a transportation mode choice split between passenger vehicle use and transit use. However, the model in use by MRCOG does not currently provide this choice, since for many origin/destination pairs, current opportunities for transit use in Albuquerque are limited to standard bus service, characterized by relatively frequent stops, low travel speeds, infrequent headways and limited hours. Standard bus service in Albuquerque typically does not capture a large percentage of vehicle trips. With a new or enhanced transit system and service available, a significant reduction to trip generation is possible and anticipated in Mesa del Sol. Mesa del Sol is being planned as a “Transit Ready Community” with expectations for implementation of a robust transit system as development takes place. (Refer to the following Section 3.4 for more details on Mesa del Sol transit planning.)
- Mixed Use Development – The MRCOG model does consider the generation of trips based on the projected population / employment balance that is expected within Mesa del Sol. With both large residential areas and employment centers proposed within the Level B area, the number of vehicle trips will be reduced from what might otherwise occur, since many residents will work close by, within Mesa del Sol.
- Pedestrian and Bicycle Friendliness – The strong emphasis that will be placed on providing bike lanes, sidewalks, and trails to accommodate pedestrians and bicyclists is expected to have the beneficial effect of further reducing trips generated by passenger vehicles, since good opportunities and facilities will exist for these other modes of transportation. The MRCOG model does consider, to some extent, the modal choice for use of bicycling or walking for shorter trips. However, that mode choice is based on historical use in Albuquerque, based on survey results of travel patterns and availability of facilities. Within Mesa del Sol, bicycle and pedestrian facilities are being planned that are comprehensive, continuous, safe, and provide the connections to locations and other modes that users need. With such a substantial system, it is expected that





the choice of modes will rely more heavily on bicycle and pedestrian travel than in other parts of the City. The typical resident or employee in Mesa del Sol may also be more likely to use these modes than elsewhere. As a result, it is likely that vehicle trip generation is overestimated by the model.

The overestimation of trip generation is a concern in any mixed-use New Urbanist development, since their multi-modal transportation features will often help to mitigate traffic volume, yet use of standard means of projecting trips and traffic can then penalize the development into providing more and greater facilities for passenger cars. Studies have been done on this subject, including a paper prepared by Nelson / Nygaard (2005) on Crediting Low Traffic Developments—Adjusting Site-Level Vehicle Trip Generation Using URBEMIS. The premise in Nelson / Nygaard’s paper is that use of standard trip generation methods may warrant adjustment to the number of trips generated, using trip reduction credits. A mixed-use development could see a trip reduction of up to 9%, provision of transit service could result in trip reductions of up to 15%, pedestrian and bicycle friendliness could result in trip reduction of up to 9%, and the application of a Transportation Demand Management (TDM) program could further reduce trips by up to 2%. These reductions are based on adjustments to typical Institute of Transportation Engineers (ITE) Trip Generation Rates. In the case of Mesa del Sol, ITE Trip Generation rates were not used for overall Level A and Level B planning. Due to the size of the development, MRCOG’s Emme2 model was used instead. Therefore, the reductions suggested by Nelson / Nygaard may not all be appropriate; however, it is likely safe to assume that the trip generation characteristics of the Emme2 model are likely to result in a greater number of trips than this New Urbanist community will generate. As pointed out by Nelson / Nygaard, “Modifying the trip generation rates in this way is essential for transit oriented, mixed use and other projects that can expect lower rates of auto use. Otherwise, they will be disadvantaged by the traffic study, which in effect assumes a ‘worst case scenario’ in terms of car use.”

**3.2.2 Transportation Phasing Plan**

Figures 3-3 and 3-4 that follow show the major roadways or roadway improvements that will be needed in Mesa del Sol and the immediate surrounding area by 2015 and 2025. Roadways shown on these figures are the boulevards, avenues, connectors, and interstate highway interchanges that will be needed to serve development and forecast traffic volumes in 2015 and 2025. These roadway needs have been identified by various means:

- Completion of planned phased construction, such as adding the fourth lane to University Blvd. between Rio Bravo Blvd. and Mesa del Sol.
- Current and future Traffic Impact Studies done for the early buildings in Mesa del Sol (Advent, Culver Studios, etc.) being designed and constructed that identify the existing need for improvements, such as major capacity improvements to the I-25 / Rio Bravo Interchange.
- Phased construction of the major access roadways into the areas of development such as University Blvd. and Mesa del Sol Blvd.
- Completion of the I-25 / Mesa del Sol Interchange and the interchange coming on line to serve as access to adjacent areas and other roadways.
- Assumptions of an improved future connection to Kirtland Air Force Base, via the existing gate access on Ira Sprecher Road.
- Connector streets as needed within the areas being developed.

More detail on phasing needs for future traffic is shown in Appendix 3D, where Travel Demand Modeling results from Emme2 have been input into a sub-area model called Traffix, which takes into account land use and the calibrated predictions from Emme2 to provide interim year laneage requirements and level of service results.

**3.2.3 On-Site Transportation Network Requirements**

As shown on Figure 3-2, the Mesa del Sol on-site transportation network is structured to provide a framework of major “Avenues” and “Boulevards,” supported by a grid system of “Connector” and “Local” streets. Initial construction phases to implement the transportation network in the Level B planning area will primarily focus on developing the system of Avenues and Boulevards. In commercial areas, these Avenues and Boulevards may be constructed to their ultimate “build-out” cross-section to avoid disruption to business and traffic operations that would result from future additions. In other areas, these facilities will be constructed using a phased approach, with the initial construction program providing for future widening to the ultimate cross-section. The connector and local street network, including alleys, will be constructed as required to serve ongoing development.

As described and shown in Appendix 3B, intersection traffic signals will typically be installed as a part of the construction of major intersections (intersection of two multi-lane facilities). At other locations, such as the intersection of Avenues and Connector streets, signal conduits will be installed during construction to allow for the future construction of traffic signals when volume warrants are met.



## ROADWAY PHASING: ROADWAYS NEEDED BY 2015

Figure 3-3

### Legend

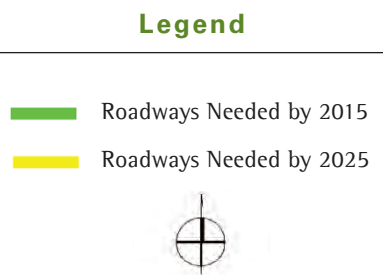
— Roadways Needed by 2015





ROADWAY PHASING:  
ROADWAYS  
NEEDED BY 2025

Figure 3-4



3.2.4 Off-Site Transportation Improvements

Traffic volume forecasts have been developed for Mesa del Sol based on population and employment growth within the development. (Growth within Mesa del Sol is described with phasing plans and absorption schedules as shown in Appendix 3C.) This information has then been overlaid on growth and traffic forecasts for the Albuquerque Metropolitan Region, based on data obtained from the MRCOG, using their forecasts of the background transportation network and traffic for 2015 and 2025. With this information assembled, traffic has been modeled on an “Impact Area” surrounding Mesa del Sol. Based on a review of predicted levels of service on the surrounding roadways, off-site roadway improvements have been identified for both 2015 and 2025. Details of these roadway improvements, including roadway segment location and length, predicted traffic volumes, levels of service, required improvements, and costs of improvements are shown in Appendix 3E.

3.3 Access

3.3.1 Access Management Concepts

The streets planned for Mesa del Sol form a hierarchy of transportation functions and uses, serving to different degrees of both mobility and local access. This hierarchy is described below.

Boulevard

Boulevards are defined as multi-functional and multi-modal arterials designed to serve through traffic and transit in the central area (inside through lanes), and to also serve local access via small-scale parallel one-way access roads, similar to frontage roads, that will support adjacent property uses. The inside through lanes of boulevards will function as multi-modal transportation corridors, serving the mobility needs of vehicles, bicycles, and transit. The outside access roads will serve the needs of adjacent local access, on-street parking, and pedestrian use.

Avenue

Avenues are the major routes in addition to boulevards that will connect the mixed-use centers of Mesa del Sol with each other and will provide connections to key facilities within the site and to major roadways off the site. The primary role of avenues is also mobility, although to a lesser degree than boulevards.

Connector

Connector streets form a grid of approximately ¼ mile spacing within and between neighborhoods and commercial areas. These streets are frequent and continuous, and therefore serve to disperse traffic and create livable / walkable environments along them,

while also relieving the avenues of local trips. Connectors will equally serve the needs of both mobility and local access. They form a major part of the transportation system within Mesa del Sol, applying the grid layout to distribute traffic with the objective of maintaining a pedestrian and bicycle friendly environment. Alley-loaded housing types will predominate along Connector streets to reduce the number of access points onto the Connectors.

Local Street

Local streets will serve neighborhood traffic, with their primary function to provide local access to businesses and residences within neighborhoods of Mesa del Sol. The local streets are not shown or discussed in detail in this Level B plan, but will be addressed specifically in future Level C plans.

3.3.2 Access Control Policy

Policies for the location of public and private accesses to the Mesa del Sol street system are designed to protect public investment in the development’s transportation system and to enhance the street environment for pedestrian and driver safety. Effective access control policies for the design and location of public and private access, streets and driveways, will reduce points of conflict for both drivers and pedestrians and promote efficient traffic operations and traffic safety.

Public Access (Streets)

Working from a framework of major “Boulevards” and “Avenues” within the Mesa del Sol development, the supporting system of “Connector” and “Local” streets will be developed on a grid system to disperse traffic through the development. Signalized intersections will be constructed at regular intervals, generally on one-half mile spacing, but with certain exceptions where necessary.

Along Boulevards with raised or lowered medians, median breaks will be provided at regular intervals; however, to maintain mobility on the Boulevard and provide continuity of the median section, median breaks will occur only at intersections with Avenues or Connector streets (not Local streets or driveways). Local streets intersecting with Boulevards will have right-in / right-out access only. Local streets intersecting with Avenues will be allowed median breaks and full movement intersections within the spacing constraints described below.

Along Avenues with raised or lowered medians, median breaks will be provided at regular intervals in accordance with the requirements in the City of Albuquerque’s Development Process Manual (DPM) as modified herein. A median opening for a full movement intersection will be allowed within every 1000 feet of roadway, but median openings will not





be spaced any closer than 400 ft. from centerline to centerline of opening. Use of this minimum spacing, or any exceptions to it, shall be based on traffic analysis demonstrating that forecast traffic volumes will have adequate left turn storage length.

#### *Private Access (Driveways)*

Policies for the location and design of private driveways to off-street parking, docks, or drop-off areas include the following:

- Individual parcels will be limited to one access per lot, unless it can be demonstrated that additional accesses will provide a benefit and not a detriment to the transportation system.
- For commercial properties, shared access centered on property lines is desirable and encouraged to facilitate internal circulation within properties and reduce the use of streets for local movement from one property to the next.
- If possible, local accesses will be located on connector and local streets, as opposed to Avenues and Boulevards.
- Local accesses on connector streets will be limited to accesses that serve multiple residences, rather than individual driveway cuts.
- The location and design of local driveways will conform to the guidance provided in the Level A Community Master Plan Appendix D for width, corner radii, corner clearance and sight distance, offsets, etc.
- As a general rule, private accesses will not be signalized (unless the driveway is opposed by a public street, and the intersection meets the traffic signal warrants of the Manual on Uniform Traffic Control Devices).

#### *Alleys*

Policies for the design and location of the intersection of public alleys with the public street system include:

- Connections to alleys will be located on connector and local streets, as opposed to Avenues and Boulevards.
- The location and design of alley accesses will conform to the guidance provided in the Level A Community Master Plan Appendix D for width, corner radii, corner clearance and sight distance, offsets, etc.
- To the extent possible, alley connections will be located on tangent (as opposed to curved) sections of connector and local streets.

### **3.4 Transit**

Transit is planned to be a major element of the ultimate multi-modal transportation system within Mesa del Sol. As stated in the Level A Master Plan for Mesa del Sol, one of the most important aspects of the development will be the “Planning and development of transportation facilities that are truly multi-modal, with the blending and encouraged use of transit, bike lanes, pedestrian walkways and trails, and roadways...Such a system will offer the user fundamentally different choices in mobility and access.” Transit facilities and use are envisioned to provide a significant benefit to the traveler within Mesa del Sol, providing an opportunity for the traveler to consider and have mode choices that result in less dependence on the passenger vehicle.

Transit operation within the City of Albuquerque currently consists of on-street bus service, including express “Rapid-Ride” service on a number of routes. The City has also completed a study for the analysis of light rail transit on key arterials connecting the downtown and uptown areas of the City. That study has evolved into the development of a project for the design and implementation of a modern streetcar system on a fixed guideway track. The streetcar system is proposed to begin in the Old Town area of Albuquerque and extend along Central Avenue to Carlisle Street, with another connection extending from Central and University, along either University or Yale to the Albuquerque Sunport. Implementation of such a system will provide the start to enhanced transit service to key areas within the City. The streetcar connection to the Sunport will provide a possible future linkage to Mesa del Sol, in that the same system could be extended south along University into Mesa del Sol.

Other aspects of existing transit planning include MRCOG’s 2025 Metropolitan Transportation Plan, which includes proposed expansion to the ABQ Ride transit network, with a new bus route on University Blvd. into Mesa del Sol. Preliminary discussions with ABQ Ride staff provide indication that bus service can begin into Mesa del Sol’s Employment Center and initial residential areas when development has occurred to the point of generating adequate ridership to justify the service extension.

#### **3.4.1 Transit Concepts Proposed**

In light of the present status and plans for transit in Albuquerque, FCC has taken the lead on commissioning an independent transit study for Mesa del Sol, documented in Mesa del Sol Transit Concepts and Scenarios (URS, April 6, 2006). This study was undertaken to investigate the feasibility of providing transit service within Mesa del Sol, with consideration of transit routes, modes, service, and costs. Such a system, with adequate funding, could be developed well ahead of other City transit facilities into Mesa del Sol and could thus “jump start” transit service with the potential for future links and later adoption into the City’s system.

In the aforementioned report, transit service concepts for Mesa del Sol were developed with certain guiding principles that should be applied regardless of who initiates the transit system and service.

- Transit should complement the internal mixed-use, pedestrian-friendly design principles of the development while providing connections to other activity and employment centers in the region.
- Transit should fit into the topography and landscape of the development to promote sustainability and minimize impacts to the natural environment and include environmentally-friendly design and operations.
- Transit should be user-friendly so that it is as convenient and easy to use as possible to encourage maximum ridership. Transit concepts should maximize ridership by focusing on travel corridors and activity centers with concentrated travel patterns.
- Transit should complement and supplement the urban design of the development by providing architectural amenities that fit into the design character of the neighborhoods through which it passes.
- Transit should adapt to the street design principles of the development by taking advantage of available right-of-way while integrating into the “traffic calming” nature of street design.
- The development’s transit system should be flexible and adapt and grow with the expanding nature of the development over many years. Transit improvements implemented in the short-term should be adaptable and expandable to new technologies and service delivery systems in the future.
- There should be a mix of service concepts that provides a wide range of services to meet specific travel needs. No one transportation mode can be expected to meet all transportation needs in the development.
- The transit plan should benefit the entire development to the extent possible and not provide services to one portion of Mesa del Sol at the expense of the other.
- The transit system should be integrated into a seamless regional transportation system.
- The transit system and concept(s) must be affordable and make economic sense.

Three basic concepts for transit service in Mesa del Sol were considered in the transit study. The systems can be incremental, wherein one concept can be implemented initially, followed by a more enhanced system as residential and employment population, ridership, and funding opportunities develop. Selection and implementation of a specific concept will be a function of financial feasibility and priorities for the dedication of revenues when considering other needs for the funding of public facilities.

*Scenario 1: Internal Bus Circulation*

This option would use traditional buses of different sizes to provide bus service throughout the development. It consists of a number of different routes with the intent of ensuring that no portion of the initial development area is more than ¼ mile from a route. The routes on Mesa del Sol Blvd. and other streets are assumed to travel in mixed traffic on general purpose travel lanes with no travel time advantage over autos. This scenario would include several timed transfer centers along Mesa del Sol Blvd. to provide maximum travel flexibility. It also would include potential regional connections along I-25 and to the New Mexico Rail Runner Express commuter rail line to the west, University Blvd. to the north and west, and to Kirtland Air Force Base to the northeast.

*Scenario 2: Bus Rapid Transit*

This scenario consists of a Bus Rapid Transit (BRT) vehicle using a dedicated guideway in the right-of-way of Mesa del Sol Blvd., with five passenger stations. It uses closely timed headways, signal priority or pre-emption, and other means to provide rapid, frequent service along the core travel route of the development.

*Scenario 3: Streetcar*

This scenario consists of a modern streetcar vehicle using a dedicated guideway in the right-of-way of Mesa del Sol Blvd., the same as with Scenario 2, with five passenger stations at approximately one half mile intervals. It also uses closely timed headways, signal priority or pre-emption, and other means to provide rapid, frequent service along the core travel route of the development.

The most likely scenario for implementation of a transit system within Mesa del Sol would involve a phased or gradual project that begins with lower-cost improvements and adds higher-cost and higher-capacity improvements as the development matures and population and ridership increases. An initial concept might be to develop a BRT guideway and associated infrastructure (including stations) within the Mesa del Sol Blvd. right-of-way, in combination with a local internal bus circulator system that is implemented in stages as different areas of the development come on line. That BRT infrastructure could be planned and designed to convert to a more capital-intensive improvement (such as a streetcar system) as the development proceeds and as funding is made available.

Figure 3-5 illustrates a combination transit system that could be implemented for the 2025 development, including components of both local bus circulation and either bus rapid transit or modern streetcar. The system should also connect to transit service off site, as indicated in Figure 3-5.



*Internal Bus Circulation*



*Bus Rapid Transit*



*Streetcar*



Transportation Options





**Pedestrian-Oriented Development**

Mesa del Sol has begun this process by setting aside right of way within the primary boulevards and avenues, University Blvd. and Mesa del Sol Blvd., for a dedicated transit guideway. Those plans will be refined further as development continues, including identification of needed right-of-way for passenger stations and pedestrian connections to ensure that right-of-way is available for any transit improvements chosen for implementation. Mesa del Sol will begin exploring alternative funding mechanisms to provide development-related financing for transit operations and maintenance in the future.

The 2025 MTP contains only minimal transit improvements for the Mesa del Sol area; as Mesa del Sol moves development continues, further discussions will take place with ABQ Ride staff regarding additional transit routes and services to the area. Potential improvements could include future express bus routes to and from the Mesa del Sol Urban Center and Employment Center and connections to the Rail Runner Express commuter rail stations being implemented at Isleta Pueblo and Rio Bravo.

As development takes place in Mesa del Sol and transit service is added, FCC will coordinate with MRCOG regarding the potential for implementing a new commuter rail station west of the proposed Mesa del Sol interchange along I-25. This station would require additional infrastructure improvements from NMDOT and additional right-of-way purchase for access to the commuter rail line. It is recommended that the emerging Mid-Region Transit District consider potential improvements to, from, and within Mesa del Sol and nearby areas. The district is likely to be an integral part of the transit planning activities as Mesa del Sol matures in the next few years.

#### **3.4.2 Transit Ridership**

As part of the Level B Planning, no specific forecasts of transit ridership within Mesa del Sol have been made. Mesa del Sol is planned as a transit oriented development, with land uses situated to enhance the connectivity of transit facilities with major generators of transit users, thus addressing one of the key guidelines mentioned in the previous section, that of making it convenient and easy to use—user friendly. Commercial development is currently taking place at Mesa del Sol; residential development is projected to begin in 2007. Ultimately in the future, a close balance between residents and on-site employment opportunities and jobs in Mesa del Sol will create an environment that is particularly conducive to use of transit for trips that are internal to the Mesa del Sol community.

#### **3.4.3 Interface with Commuter Rail and Intermodal Connections**

Commuter Rail service between Albuquerque and Bernalillo began in July of 2006 on the New Mexico Rail Runner Express. Service between Belen and Albuquerque is planned to be open and underway in the late summer or fall of 2006. Expanded commuter rail service that will connect this Albuquerque area corridor to Santa Fe is currently being

analyzed by the MRCOG and the New Mexico Department of Transportation. The objective of the State is to have commuter rail service to Santa Fe in operation by 2008. The commuter rail line is located only 0.6 miles west of Broadway at the west edge of Mesa del Sol, and approximately 3.5 miles west of the Mesa del Sol Community Center. With present service to Albuquerque and the addition of service to Santa Fe in the near future, it is likely that there will be a need and ridership demand for an intermodal connection between Mesa del Sol transit service and the Commuter Rail line.

#### **3.4.4 Transit-Facilitating Features**

Master planning of the Mesa del Sol roadway system envisions a comprehensive system of on-street transit routes. Of note, Mesa del Sol Blvd. will be designed as a transit boulevard that serves bus traffic (and other future transit technologies) in an exclusive transit right-of-way. The Mesa del Sol system will provide for convenient transit circulation within the Mesa del Sol development itself, as well as proving convenient connection to the regional transit system including the New Mexico Rail Runner Express between Belen and Bernalillo.

Within the Mesa del Sol development, a series of transit nodes have been designated that will serve as key transfer locations for transit service in the community. To increase the attractiveness of the development's transit service, "transit facilitating features" will be integrated into the development's infrastructure plan. These facilitating features include:

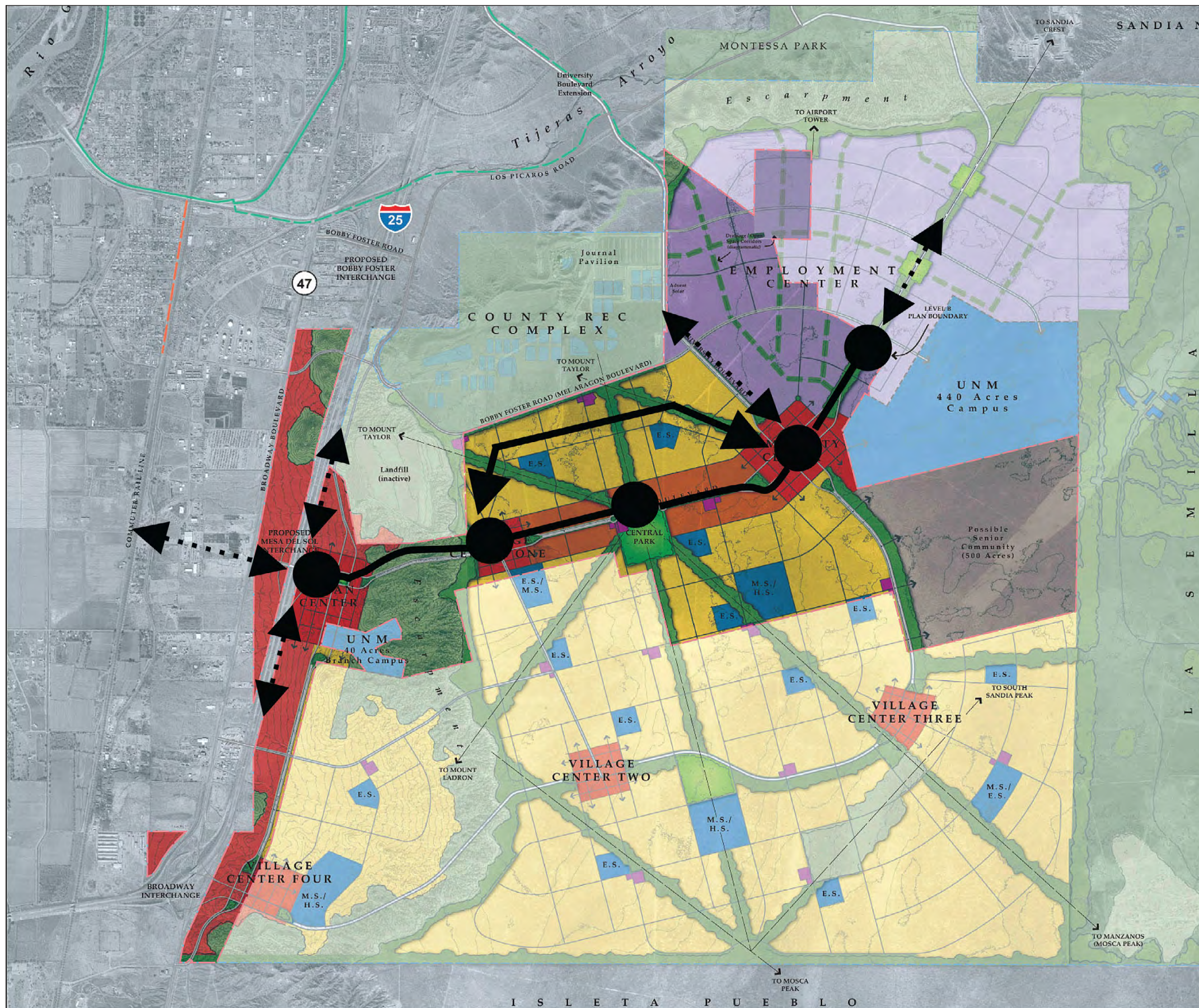
- On-street and off-street pedestrian and bicycle connections between designated transit nodes and residential and employment centers.
- Transit stop amenities, including shelters, seating, newsracks, etc.

### **3.5 Pedestrian and Bicycle Facilities**

#### **3.5.1 Sidewalks and Pedestrian Accommodations**

As a primary principle of New Urbanism, the provision of safe, comprehensive, and well connected pedestrian facilities is of paramount importance in the Mesa del Sol transportation system. This philosophy extends into all aspects of planning, design, and implementation, with the pedestrian treated with equal importance to the vehicle driver. With the provision of good pedestrian facilities, pedestrian use will be greatly encouraged, and pedestrian traffic will be significant and will increase as more and more of the Employment Center and residential neighborhoods are occupied. As a result, pedestrian considerations are key elements of the design of Mesa del Sol streets, not only with respect to sidewalks and trails, but with respect to the roadways as well, relative to design and travel speed, number of lanes, width of lanes, intersection configuration, and all design components.









## TRANSIT SYSTEM: COMBINATION LOCAL BUS CIRCULATION AND BRT/STREETCAR SCENARIO

Figure 3-5

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

-  Proposed Bus Route
-  Proposed Fixed Guideway Route
-  Passenger Station/Transfer Center
-  Potential Regional Connection







### 3.5.2 Bike Lanes and Trails

An extensive system of trails for bicycle and pedestrian use will be provided in Mesa del Sol, as was shown on Figure 3-3 of the Level A Master Plan, Pedestrian and Bicycle Circulation. The current Pedestrian and Bicycle Circulation Plan for Level B, shown on Figure 3-6, is basically the same as was depicted in the Level A Plan, for that portion of the Level B planning area, with modifications made as a result of overall street network changes. For the overall Build-Out scenario, an addition to the proposed bicycle facilities has been added, as described below.

#### *Velocircuit*

In addition to the trails planned within Mesa del Sol, portions of a trail that were initially included in the Level A Plan, along the west and north sides of the escarpment, are now planned to be connected with a larger trail that completely encircles Mesa del Sol. This trail will comprise a Velocircuit, a complete course around and within Mesa del Sol for use in bicycle racing and training for that racing. (This concept has been proposed by the City of Albuquerque in conjunction with a local bicycle racing group, and will be implemented at such time as City resources permit. Mesa del Sol will set aside land only; construction of this circuit will be by others.)

The proposed velocircuit would create an approximately 20-mile long course around Mesa del Sol. During a velocircuit race, cyclists would compete around the course for a predetermined distance, depending on what type of event is set up.

### 3.6 Transportation Demand Management

Transportation Demand Management (TDM) consists of various means to provide travel options for all types of travelers through the establishment of strategies to influence travel behavior. Transportation Demand Management is important to Mesa del Sol, since its tenets work well with the concepts of New Urbanism, those of creating more pedestrian friendly and livable environments, with less use of and demand for passenger vehicles. TDM encompasses a wide range of programs and services that make the most efficient use of transportation facilities by managing the demand placed on those facilities. A typical TDM program has goals, objectives, a budget, staff, and a clear relationship with stakeholders to develop strategies that promote alternative modes, increase vehicle occupancy, reduce travel distances, and ease peak-hour congestion through a combination of incentives, pricing, and education. TDM efforts can extend the useful life of transportation facilities, enhance community mobility, and improve air quality. A TDM program can provide a cost-effective complement to any transportation strategy by addressing the demand and focusing on partnerships between public and private sector stakeholders to reduce travel demand. A TDM program will be included as a key component of the Mesa del Sol development. This program will be coordinated with City Transit Department TDM efforts.

The Mesa del Sol TDM program will focus on reducing peak hour travel by reducing use of single-occupant vehicle (SOV) trips. It will seek to meet this goal by strongly encouraging, and even providing incentives for, the use of transit, ridesharing, biking, walking or travel outside of peak hours by individuals going to or from the workplace, business, home, and personal trips.

The specific goals of the Mesa del Sol TDM program will be the following:

*Education and Awareness* – Inform and educate travelers about the TDM plan and the availability of alternatives to travel by SOV and provide persuasive marketing to motivate changes in commute modes.

*Commuter Alternatives* – Highlight the convenience, availability, and attractiveness of alternatives to SOV commuting and provide for reductions of commute trips through programs that support bicycling, walking, carpooling, vanpooling, telecommuting, transit use when available, and compressed work schedules. This will encourage better use of modes of transportation that focus on moving people, not vehicles.

*Parking Management* – Develop and manage parking assets in a way that:

- Encourages group riding and shared parking arrangements to reduce the demand for parking spaces.
- Balances demand with parking availability and space allocations.
- Enhances access and convenience for users.
- Minimizes parking spillover into adjacent areas.
- Promotes safety, security, and positive management of parking.

*Incentive Based* – Establish a broad, incentive-based TDM program that is implemented in a phased approach, which is available and accessible to all employees, business owners, and residents. TDM programs tend to be most effective when they improve consumers' travel choices and provide incentives for using alternative travel modes.

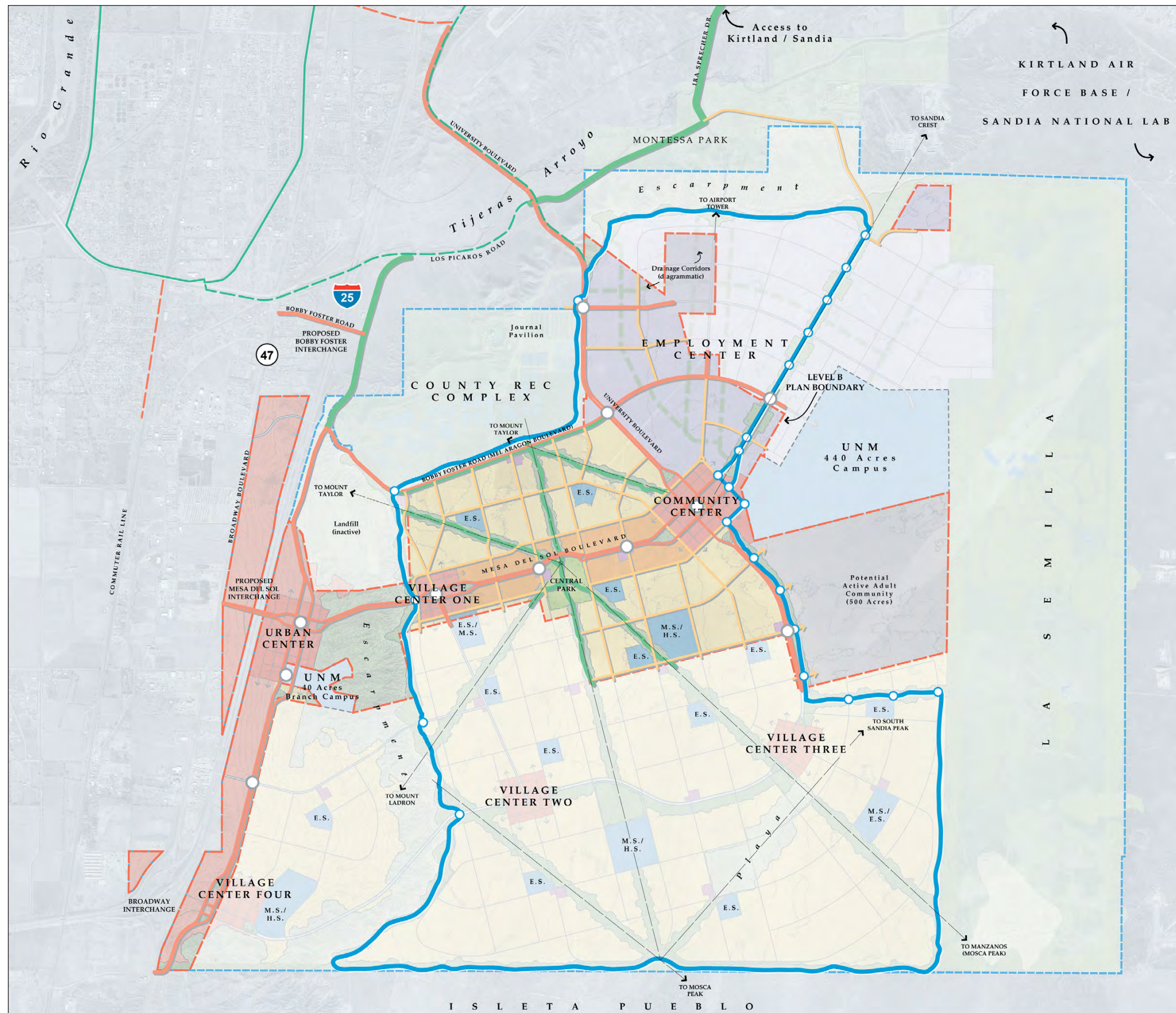
*Community Impacts* – Mitigate negative impacts of site-generated travel on the surrounding community, including traffic congestion and vehicle-generated air pollution.

*Commitment of Resources* – Determine the costs and resources needed to develop and administer a TDM plan and develop mechanisms by which to commit needed resources to evaluate performance and recover costs from potential funding sources.

#### 3.6.1 Program Strategy

The Mesa del Sol TDM program will include both principal strategies that are tangible systems used to provide alternatives to personal vehicle use, such as carpools, vanpools, bicycling, walking, and transit, as well as support strategies used to enhance the effectiveness of the principal strategies such as management (both program and parking), incentives, marketing and education, on-site amenities, and a TDM friendly design.





## PEDESTRIAN AND BICYCLE CIRCULATION

Figure 3-6

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

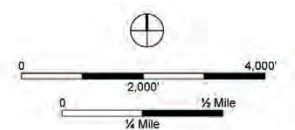
- Primary Transit Nodes
- Velocircuit Conceptual route; the actual route will be determined at a more detailed planning level.
- Velocircuit Road Crossings
- Pedestrian / Bicycle Paths
- Bicycle Lanes
- Connector Roads Depending on traffic volumes, bicycle lanes or routing may be provided.

Sidewalks are not noted on this map; in general, most streets are assumed to have sidewalks and/or pedestrian/bicycle paths (see street sections).

**Bike Facilities — Site Context**

existing	planned
	Path
	Lane

Source: Mid-Region Council of Governments Long-Range Bikeway System map, 2004







#### *Principal Strategies*

- **Transit** – Transit use is typically one of the most important elements of a TDM program. At Mesa del Sol, transit service is not initially available, but the service level is projected to rapidly increase over time and as development warrants. As described in the previous section, a framework for a robust transit system within Mesa del Sol has been studied and will be considered for implementation as a function of funding availability and priority.
- **Variable Work Schedules** – Working with employers to encourage variable work schedules will be part of the building lease negotiations. Promoting 4/40 (four day/40 hour), 9/80 or 3/12 programs that compress work schedules will be encouraged. This type of strategy will serve to spread out the peak hours of congestion by reducing the peak hour on-site work trips.
- **Bicycling, Walking, Carpooling, and Vanpooling** – Employers will be encouraged to display promotional posters of the program. Display racks with bicycle route maps and marketing flyers promoting alternative travel options will also be encouraged of each employer.

#### *Support Strategies*

- **Program Management** – This would entail the establishment of an Employer's Council with every tenant in the Employment and Urban Centers as members, possibly with Employee Transportation Coordinators (ETC) assigned from each large employer. To take this concept a step farther, a Transportation Management Association (TMA) could be composed, consisting of the various public and private stakeholders that would be responsible for oversight of the TDM program. (More detail on the TMA is included in the following subsection.)
- **Parking Management** – This is a strategy designed to reduce the parking demand while promoting the use of alternative travel modes. The ability of an area to restrict parking while encouraging other commute modes must be balanced with providing enough parking to attract viable businesses and prevent parking spillover into the adjacent neighborhoods.
- **Facility and Design** – Providing and enhancing on-site design to promote alternate modes of travel focuses primarily on the pedestrian and bicycle environment. The pedestrian environment is critical because it can attract and generate walking trips. Providing generous sidewalk widths, street furniture, ample lighting, essential connections, and safe and efficient intersection crossings are all part of the Mesa del Sol design to enhance the pedestrian environment. In addition, Mesa del Sol's development standards require bicycle parking in mixed-use centers.
- **Incentives** – It has been found that a combination of incentives and disincentives are the most effective tools to influence travel behavior. Disincentives generally involve paying for parking or providing the less desirable parking locations to SOV's. Mesa del Sol will also consider preferential car pool parking and parking cash out strategies.

- **Marketing** – Marketing is essential to raise community awareness regarding the options available, as well as to motivate potential users to try another alternative at least once. The concept of marketing goes hand-in-hand with education, because many of the potential users are unfamiliar with how the different systems work. With unfamiliarity comes a reluctance to try another travel option.

For Mesa del Sol it is proposed that marketing will focus on working with the employers to develop specific Bike or Walk to Work Weeks. These efforts will be emphasized at the beginning of each employer lease to “sell” the benefits of alternative modes while educating employees on how the different systems work. Employers will be encouraged to market and educate their employees on the benefits of reducing SOV trips.

Marketing to residential owners can include providing information to each potential buyer regarding the benefits of this mixed-use New Urbanism development. Continued marketing can be cost effective with the posting of flyers or working with the local retail businesses to provide “bag stuffers” to customers upon check-out.

#### **3.6.2 Implementation Plan**

The ideal implementation plan would involve the key stakeholders (Mesa del Sol employers, COA, MRCOG, NMDOT, Bernalillo County and the assigned ETCs) developing a comprehensive Transportation Management Association (TMA) responsible for oversight of the TDM program, within individual districts of Mesa del Sol or in Mesa del Sol as a whole. This association would be a public-private partnership designed to guide stakeholders toward a common goal with coordinated strategies. Establishing a TMA is a critical element to optimize the effectiveness of the TDM program. TMAs work to develop and maintain cooperation between transportation agencies, transit service providers, businesses, employees, and residents who are affected by their programs.

The TMA's responsibilities would include the following:

- Serve as a collective voice in addressing transportation issues.
- Increase awareness and use of alternative transportation services.
- Enhance employer and property owner / tenant participation and investment in transportation services and programs.
- Utilize public transportation effectively and efficiently, through improved system information, frequencies, routing, connections, and transfers.
- Maximize convenience of intermodal transfers between systems.
- Produce an annual “State of the Commute” report, which assesses the Mesa del Sol TDM program and resources, travel trends, and comparisons with other community programs.

---

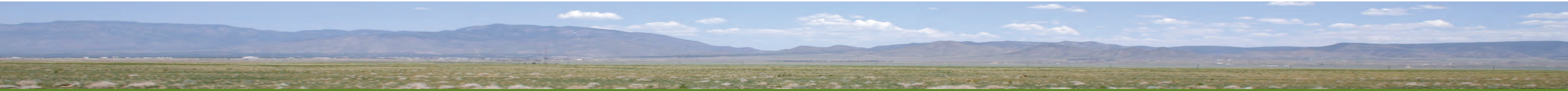
The TMA's primary customers would be employers, especially large employers during their start-up years. Employers should look to the TMA as a resource to help address their commuting needs as well as promote the use of alternative forms of commuting. Services are valued when they help to minimize commuting cost, improve the quality of life, reduce commuter stress, and improve employee recruitment, retention, and productivity. The TMA works with employers to create commute option programs, and it reduces the burden of developing and implementing these programs at their own work sites.

FCC will work with on-site employers to establish employee transportation coordinators (ETC) whose role is to market, educate, and assist employees with selecting alternative transportation options. This type of organization will allow each employer to customize a program for its employees that works towards a specific trip reduction goal. A key component of the employer program will be to provide employee orientation, designed to educate new employees on available travel options and the benefits and incentives associated with each.

Additionally, the establishment of ETC's will provide a critical point of contact in the future for a TMA. This ETC contact will provide each business with a voice in the TMA to ensure employee needs are met and they will provide the TMA with a key contact to solicit information for program evaluation. ETC's are most effective when they receive support from upper level management. This may include an annual budget for the ETC program, being allowed to spend a specified number of hours per month to work on ETC projects and knowing that upper level managers are willing to visibly participate in trip reduction efforts.







# ENVIRONMENT AND OPEN SPACE

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

4

Mesa del Sol



## Environment and Open Space



### 4.1 Introduction

#### Topography/Slope Analysis

The landscape of the vast majority of the site is in its natural topographic condition, with the exception being the areas occupied by the closed City of Albuquerque landfill. The site occupies three topographic zones: 1) the mesa top, a large, natural, relatively level to gently undulating depression from which no surface water escapes; 2) the western escarpment area, a dramatic and unique landform of steep slopes and 3) the gently sloping upper valley floor which lies at the base of the western escarpment. (See Figure 4-1, Topographical Map and Figure 4-2, Slope Map.)

#### Geology/Soils

The site is located on what is locally known as the East Mesa, a gently sloping piedmont surface which extends from the mountains to the Rio Grande valley floor. The mesa's surface is characterized by alluvial fan deposits of deep, well drained Madurez loamy fine sand lying on beds of sediments inter-bedded with volcanic rocks, known as the Santa Fe Group. According to the Soil Conservation Service, the moderately alkaline Madurez series of soils of the mesa create conditions appropriate for range, watershed, wildlife habitat and community development with their moderate permeability, slow surface runoff, water capacity of 7.5-9 inches, and rooting depths of 60 inches.

Eight sample borings were conducted at representative sites to a depth of 20 feet to determine general soil conditions and percolation rates. The geotechnical analysis of these borings showed that the soils generally have good compaction and percolation rates. The varying depths of caliche indicate low to moderate plasticity and low to moderate expansion potential.

### 4.2 Biological Resources

Marron and Associates, Inc., (Marron) conducted a biological survey for a portion of the Level B area on May 30, 2006. The purpose of the survey was to identify biological resources, such as vegetation, wildlife, migratory birds, wetlands, noxious weeds, and protected plant and wildlife species, that occur in the Albuquerque Studio project area. It is possible that this sample survey would not cover all the potential vegetation and wildlife for the 3,000 acre area but it is a good indication of potential issues for the larger

area. References and databases containing information on biological resources in the project area were reviewed beforehand, including lists of federal and state protected species and the New Mexico Noxious Weed List.

#### Vegetation and Wildlife

The vegetation in the project area is representative of Chihuahuan Desert Grassland and Plains Mesa Grassland communities. No trees are present and few shrubs are scattered throughout the project area, which appears to have been heavily grazed in the past. The dominant vegetation consists of *Gutierrezia sarothrae* (snakeweed), *Sporobolus cryptandrus* (sand dropseed), *Pleuraphis jamesii* (galleta), *Plantago patagonica* (plaintain), *Muhlenbergia torreyi* (ring muhly), *Salsola tragus* (Russian thistle), and *Machaeranthera pinnatifida* (golden aster). Less common associates present are *Yucca glauca* (soaproot yucca), *Opuntia polyacantha* (prickly pear), *Descurainia sp.* (tansy mustard), *Bouteloua eriopoda* (black grama), *Panicum obtusum* (switch grass), and *Opuntia clavata* (daggerthorn cholla). A solitary *Opuntia imbricata* (cane cholla) was observed along the southern boundary of the project area and a small pocket of *Artemisia filifolia* (sand sage) occurs along the eastern boundary. Drought conditions have severely impacted the area and there was no recent vegetative growth indicated. In total, thirty-six species of vascular plants were observed. There were no unusual or rare plants or plant communities present, nor were there any noxious weeds in the area. There were no waterways, riparian habitats or wetlands either within or adjacent to the project area.

Seventeen species of animals or their sign were observed in the study area. This included six species of mammals, seven species of birds and four species of reptiles. The most common mammal observed in the area was the black-tailed jackrabbit (*Lepus californicus*). However, banner-tailed kangaroo rat (*Dipodomys spectabilis*) mounds were also common. The presence of coyote (*Canis latrans*) was identified by tracks and scat. Ords kangaroo rat (*Dipodomys ordii*) holes occurred sporadically. Spotted ground squirrel (*Spermophilus spilosoma*) and desert cottontail (*Sylvilagus auduboni*) were also observed.

Birds were uncommon in the project area. Western meadowlark (*Sturnella Neglecta*)

horned larks (*Eremophila alpestris*), mourning dove (*Zenaida macroura*), a common night-hawk, barn swallows (*Hirundo rustica*), and both common raven (*Corvus corax*) and turkey vulture (*Cathartes aura*) were observed at the site.

No amphibians were present and four species of reptiles were observed. These were the little striped whiptail (*Cnemidophorus inornatus*), New Mexico whiptail (*Cnemidophorus neomexicanus*), prairie lizard (*Sceloporus undulates*), and ornate box turtle (*Terrapene ornate*). There were no rare animals present on the site, nor were there any significant or unusual wildlife habitats present.

Over thirty species of plants and animals with agency status occur in Bernalillo County. Due to lack of habitat, only seven of them could occur within the project area (Table 4-1).

Bald eagles and both American and Arctic peregrine falcon could fly over the project area, but no suitable roosting habitat for these species occurs there, and the project would not affect these species.

Black-footed ferret occurs in grassland habitat but relies on large colonies of prairie dogs as a prey base. There are no prairie dogs in the project area and thus, no suitable prey base for this species. The project would not affect black-footed ferret.

Baird’s sparrow could occur as a migrant in the project area during the spring, but would

**Table 4-1 Protected Animal Species Potentially Occurring in the Project Area**

Animal Species	Federal Status	State Status
<b>Mammals</b>		
<i>Mustela Nigripes</i> (Black-footed Ferret)	E	—
<b>Birds</b>		
<i>Athene Cunicularia Hypugea</i> (Western Burrowing Owl)	Soc	—
<i>Ammodramus Bairdii</i> (Baird’s Sparrow)	Soc	T
<i>Charadrius Montanus</i> (Mountain Plover)	Soc	—
<i>Falco Peregrinus Anatum</i> (American Peregrine Falcon)	Soc	T
<i>Falco Peregrinus Tundrius</i> (Arctic Peregrine Falcon)	Soc	T
<i>Haliaeetus Leucocehalus</i> (Bald Eagle)	T	T

E - Endangered      T - Threatened      Pt - Proposed Threatened,  
C - Candidate      Soc - Species Of Concern      S - Sensitive

not be expected to nest in the project area. It was not observed during the survey, and the project would not affect the species.

Mountain plover occurs in grassland habitats around Albuquerque, but the snakeweed grass present did not constitute suitable habitat. This species was not observed at the project area, and would not be affected by the project.

Burrowing owls could occur within the project area. Though prairie dogs were not present, banner-tailed kangaroo rat burrows provide suitable nest sites for owls, and they are known to utilize these burrows at nearby Kirtland Air Force Base. Mounds and burrows in the project area were examined and western burrowing owls were not present.

The proposed project activities would not affect federal or state of New Mexico status species.

**4.3 Archaeological Resources**

This section presents the results of a Class I (records search) and Class II (20 percent field inventory) cultural resource survey by Marron and Associates, Inc. (Marron) for the approximately 3,000 acres of land purchased in fee by FCC, which comprise nearly all (over 97%) of the Level B Plan area. The project area consists entirely of private land acquired from private sources and the New Mexico State Trust in July 2006. The project Area of Potential Effect (APE) consists of approximately 3,000 acres, of which 215 acres are west of I-25, 452 acres east of I-25 in the flats and badlands bordering the East Mesa, and the remainder is on the gently rolling terrace of the East Mesa. The built environment APE includes buildings with construction dates prior to 1962 that are within 100 feet of the project APE. A total of 611 acres, approximately 20 percent of the total 3,042 acres, was surveyed for the project. The sample survey did not include the isolated 40-acre parcel in the Employment Center, but that land was surveyed separately and no significant cultural resources were discovered. Marron conducted the cultural resource survey between June 26 and July 10, 2006 under New Mexico State Survey Permit No. NM-06-160-S.

Three previously recorded sites—LA 69517, LA 69520, and LA 153415—were revisited, and seven new sites and 56 isolated occurrences (IOs) were found during the cultural resource survey. One previously recorded site, LA 69520, and two newly recorded sites, LA marron2 and LA marron7, may be eligible for listing on the National Register of Historic Places (NRHP) under Criterion D, information potential. One previously recorded site, LA 153415, may be eligible for listing under Criterion A, association with events that have made a significant contribution to the broad patterns of our history. Newly recorded sites LA marron4, LA marron6, LA marron9, and LA marron10, and one previously recorded site, LA 69517, are not eligible for listing on the NHRP under any criterion. The eligibility for nomination to the NHRP of newly recorded site LA marron5 is undetermined.





---

LA 153415, a historic road that connects Atrisco to the Hell's Canyon Road and the salt flats east of the Manzano Mountains, has appeared on published maps since 1864 and is currently used as a ranch road. The project will affect 3.09 km (1.92 mi) of LA 153415 within the residential, commercial, and park areas, altering or destroying the characteristics that qualify the site for eligibility on the NHRP. Subject to comment, therefore, the criteria of adverse effect have been applied to the proposed undertaking regarding LA 153415. However, the road segment within the proposed commercial and residential development APE has been documented and no additional investigations regarding this portion of the road are recommended. An additional 0.63 km (0.39 mi) of LA 153415 on adjacent State land was also surveyed.

LA 69520, a lithic scatter with intact subsurface cultural deposits, is entirely within the project APE in an area slated for commercial development. The site, therefore, will be disturbed or destroyed by the proposed development. Subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA 69520. Marron recommends the site be tested for subsurface cultural remains.

LA marron2 contains a scatter of chipped stone artifacts, a hearth, and buried cultural materials. The site is entirely within the project APE, and its location is scheduled for commercial development. The site, therefore, will be disturbed or destroyed by the proposed project. Subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA marron2. Marron recommends the site be tested for subsurface cultural remains.

LA marron7 is a lithic procurement and stone tool manufacturing site that contains undisturbed, buried cultural materials. The site is entirely within the project APE, in an area proposed as Trunk Open Space Network land. Subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA marron7. Given the nature of Open Space, the site is not likely to be directly affected by construction activities. However, Marron recommends that any construction activities adjacent to LA marron7 (including trail building and maintenance) be monitored by an archaeologist.

LA marron5, a chipped stone artifact scatter containing a scatter of fire-cracked rock, is not eligible for nomination to the NHRP under Criterion A, B, or C, and its eligibility for nomination to the NHRP under Criterion D is undetermined. The site is entirely within the project APE. Its location is designated as Trunk Open Space Network; if the area necessitates grading, appropriate mitigation measures will be taken. Subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA marron7. However Marron recommends that any construction activities in the vicinity of the site (including trail building or maintenance) be monitored by an archaeologist.

LA 69517, a scatter of flaked stone artifacts, is entirely within the project APE, in a location scheduled as park or open space. LA marron6, a scatter of flaked stone artifacts, and LA marron4, a scatter of flaked stone artifacts and a possible hearth, are entirely within the project APE in locations designated as Trunk Open Space Network. Subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA 69517, LA marron4, and LA marron6. However, none of these sites is eligible for nomination to the NHRP under any criterion. Although these sites may experience increased visitation as the mesa is populated, LA 69517, LA marron4, and LA marron6 will not be directly disturbed by the proposed project. These sites have been fully recorded, and no additional investigations are recommended concerning LA 69517, LA marron4, and LA marron6.

LA marron9, a World War II to Cold War radar ranging station, is entirely within the proposed APE, and is within the area scheduled for Phase I commercial development. The site, therefore, will be disturbed or destroyed by the proposed project, and subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA marron9. However, the ranging station has been dismantled, altering or destroying the defining characteristics of such a site. Therefore, LA marron9 is considered not eligible for nomination to the NHRP under any of the four criteria. The site has been fully recorded, and no additional investigations are recommended concerning LA marron9.

LA marron10 is a demolished dairy farm. It is entirely within the project APE in an area scheduled for commercial development. The site will therefore be disturbed or destroyed by the proposed project. Subject to comment, the criteria of adverse effect have been applied to the proposed undertaking regarding LA marron10. However, the farm buildings are demolished and removed, and the farmyard has been bladed. The farm site no longer retains characteristics that qualify it for nomination to the NHRP under any criterion. LA marron10 has been fully recorded, and no additional investigations of this site are recommended.

The IOs have been recorded and are not likely to yield important information beyond what has been documented. None is eligible for listing on the NRHP and no additional investigations are recommended concerning the IOs. In addition, no buildings with construction dates prior to 1962 are in the project APE or within 100 feet of it.

If cultural materials or human burials are encountered during construction, work in that area should stop and a certified cultural resource specialist should be notified. In addition, in the case of human burials, the local law enforcement agency, the New Mexico Office of the Medical Investigator (OMI), and the New Mexico State Historic Preservation Officer (SHPO) must also be notified immediately.

4.4 Air Quality and Noise

The Mesa del Sol Level B Plan area has been designed for sustainability and environmental compatibility. Planning and design considerations include ways to maintain a high level of air quality and limit noise impacts. Air quality and noise considerations include impacts internal to the community, possible impacts on neighboring areas, and impacts that surrounding activities may have on Mesa del Sol. Mesa del Sol has been planned and designed to perform favorably in each respect.

4.4.1 Air Quality

Mesa del Sol’s New Urbanist design for sustainability will mean lower impacts on air quality for the Albuquerque area than for developments adhering to a more conventional suburban model. The multiple benefits of compact pedestrian-oriented development with modes of travel other than the automobile are well known and have been demonstrated by recent studies, including the Nelson / Nygaard study cited below. That study shows that a New Urbanist grid layout of the street network can reduce the impact of the automobile on air quality by 9%. At Mesa del Sol, the jobs first strategy will reduce automobile trips (especially over time) and further reduce impacts on air quality. The Mesa del Sol Master Plan, as set forth in this document, will produce significant reduction over time in automobile dependency and increase in the viability of transit and other alternative modes.

In addition, other air pollution sources will be reduced, including point sources from industrial operations, fugitive (airborne) dust from construction sites, and particulate from wood burning. The developer’s approach to natural resources and stormwater management, and the emphasis on extensive vegetation and quality urban landscapes, will help further to reduce dust and to encouraging walking and bicycling for both pleasure and for shopping and commuting. In the choice of plant material, pollen—a potentially significant contributor to poor air quality—can also be significantly reduced.

The proposed project is within Bernalillo County, which is currently designated by the U.S. Environmental Protection Agency (EPA) as an attainment area for all air pollutants identified in the National Ambient Air Quality Standards (NAAQS). This area was previously designated as a moderate non-attainment area for carbon monoxide (CO), in 1978, due to violations of the NAAQS for CO. The County remained under the non-attainment designation until 1996, when it was redesignated as an attainment area under maintenance for CO. This indicates that the County air is clean enough to meet health standards today, for carbon monoxide, but continues to receive federal oversight until 2016 when the Limited Maintenance Plan for CO expires.

The Mesa del Sol Level B Plan conforms to regional air quality and transportation planning initiatives. The 1990 Clean Air Act amendments require that federally funded transportation projects be included in designated “conforming” transportation plans. The Mid Region Council of Governments (MRCOG) has prepared a Supplement to the 2025

Metropolitan Transportation Plan (MTP) Amendment, which includes the construction of the Interstate 25 (I-25)/ Mesa del Sol interchange in the 2016 to 2025 time period. The MRCOG’s approved Conformity Analysis for Air Quality shows that the planned roadway network in the MTP, including the interchange and the initial phases of development at Mesa del Sol, will keep CO levels below established thresholds, which will maintain the region as an air quality attainment area.

The City of Albuquerque regulates air quality (vehicle emissions) related to land development that exceeds specified traffic generation thresholds (City Zoning Code, Section 14-16-3-13). Under certain conditions, high traffic volumes result in localized impacts, or “CO hot spots,” which are detrimental to people’s health. These areas of potential air quality impact, when they occur, are typically found near major intersections immediately adjacent to driving lanes. The City’s air quality impact analysis (AQIA) procedures typically require an evaluation of CO levels associated with these congested, high-volume intersections. Because air quality impacts are assessed according to the particulars of roadway design, potential impacts may be investigated in more detail as the project proceeds and design information becomes available.

Because CO levels in the Albuquerque region have been declining for several years, it is rare to identify CO hot spots associated with any major intersection in the urban area. There is even some question as to whether the City’s Air Quality Regulations that relate to CO emissions are out-of-date. With this in mind, and because detailed traffic and roadway intersection design data is not available at Level B, it appears justifiable to waive AQIA submittal requirements for the Level B Plan area, or to address in Level C Planning.

Nelson / Nygaard Consulting Associates, a California-based firm, has developed an analysis and report for the California Department of Transportation (CalTrans) with respect to trip generation and air quality. Their findings provide a rationale for adjustments to standard traffic engineering trip generation models to obtain quantifiable trip reduction benefits relating to development location, physical characteristics and travel demand management programs. Their data indicates a trip reduction credit of up to 9% for grid-based developments that are pedestrian and bicycle friendly. Various other reductions are tied to proximity to quality transit service, residential density and mixed-use development. Some of these credits may apply to the Mesa del Sol Level B Plan as these elements are the founding principles upon which the Mesa del Sol plan is based.

As pointed out by Nelson / Nygaard, “Modifying the trip generation rates in this way is essential for transit oriented, mixed use and other projects that can expect lower rates of auto use. Otherwise, they will be disadvantaged by the traffic study, which in effect assumes a “worst case scenario” in terms of car use.” Taking the above into account, traffic forecasts as modeled with Emme2 utilized throughout this study, likely represent higher numbers than those truly anticipated for Mesa del Sol. This would then affect emissions output calculations as well, giving results that over-estimate the amount of traffic and resultant vehicle emissions.





Improved Air Quality

•

Reduced Point-Source Pollution





#### Alternative Transportation Options

#### Noise Mitigation

Transportation Demand Management (TDM) is another method that will be used to reduce vehicle miles traveled and roadway congestion. TDM is primarily an employer-based means of providing incentives to reduce employee trips through a variety of coordinated techniques. (Refer to Section 3.6, Transportation Demand Management, for more information on the Mesa del Sol TDM program.) Typical elements of a TDM program include free or reduced rate transit passes, carpool matching programs, preferential carpool parking, and allowance for telecommuting and compressed work schedules. All of these elements help to reduce vehicle trips, and therefore, emissions.

Stationary sources of air pollution are the result of various industrial and manufacturing processes. Such emissions are regulated by various local, state and federal government entities. In keeping with its sustainability commitment, air emissions at Mesa del Sol will be kept to a minimum and will comply with all applicable standards.

Fugitive dust has been identified as a significant source of particulate pollution within the Albuquerque region. The sources of this pollutant are primarily from unpaved roads and construction activities. To combat the problem, the City of Albuquerque has implemented dust control regulations for construction sites. Because the project is expected to disturb more than 3/4 of an acre of soil, Surface Disturbance Permits from the City of Albuquerque Air Quality Division will be required. The terms of these permits will be followed during construction.

As Mesa del Sol develops, a working relationship with the City's Environmental Health Department will be maintained to ensure that all construction activities are in strict accordance with dust controls. In addition, the development and use of unpaved roads at Mesa del Sol, including the Level B planning area and the overall planned community, will be minimized. New roadways will be paved and the few existing dirt roads will either be eliminated or used minimally. To this end, the developer will work with the City Open Space Division and Kirtland Air Force Base to limit vehicular access to open space areas or other property inappropriate for vehicular use.

Pollen is another air borne pollutant that has a significant impact on health. Planners and designers of Mesa del Sol have committed to a public landscape that generally complies with the City of Albuquerque's pollen ordinance.

#### 4.4.2 Noise

Noise reduction and mitigation at Mesa del Sol is largely accomplished through overall community design and land use distribution. These measures are described below:

***Airport Noise:*** A primary consideration has been to separate single-family detached residential areas from airport-related noise. As a result, industrial/employment uses are designated for the northern portion of Mesa del Sol and residential villages are located well to the south. The Sunport noise contour map indicates that airport-related noise

levels even within the Employment Center are moderate, and are well below federal standards that would entail restrictions on residential use or would necessitate noise-mitigating construction.

***Concert Noise:*** Proximity to the Journal Pavilion presents a unique noise issue. This open-air concert venue is in operation for six months out of the year with events occurring approximately once a week during the concert season. To reduce noise impacts, residential areas have been located over 1/2 mile away from this facility. In addition, the two performance stages are designed as amphitheaters that are depressed into a hillside, which acts as a buffer for sound traveling toward the Mesa del Sol residential areas. While amplified music from this facility will be audible within residential areas, it is not expected to exceed reasonable community standards.<sup>1</sup>

***Traffic Noise:*** To avoid traffic noise, residential areas within the Level B Plan area are located away from Interstate 25.<sup>2</sup> Freeway-adjacent land use is designated for commercial and mixed-use activities, along with open space. Therefore, single-family residential areas will be buffered from direct freeway noise impacts. Traffic in residential and mixed-use areas will flow at reasonable low speeds, facilitating favorable pedestrian and bicycling environments, and reducing noise, since traffic noise is a function of traffic speed. Another factor in reducing traffic noise is dispersing traffic. The grid system in Mesa del Sol will provide more pathways or options than the typical suburban street configuration that concentrates traffic along a few corridors, creating areas of relatively high traffic noise. With a functional grid system, many of the connector streets will operate with low traffic volumes, and a lower level of noise. Truck traffic will be signed and routed on avenues and boulevards, keeping truck noise as far from residential areas as possible.

1. The City of Albuquerque's Noise Ordinance (Chapter 9: Health, Safety, and Sanitation) establishes general sound-level limits at affected property lines of 55 dBA during daytime and 50 dBA during nighttime. Noise measurements were taken immediately south of Bobby Foster Road across from the County Recreational Complex to assess the impacts of concert music on future residential areas. The measurements were taken on July 3 and July 4, 2006 during music concerts at the Journal Pavilion. The measured noise levels were in the 45 to 48 decibel (dBA) range during the concert performances, with no traffic present. When traffic was present on Bobby Foster Road, noise levels increased to an averaged of 53 dBA at the same location. Ambient noise levels, with no concert or traffic, were in the 40 to 44 dBA range.

2. Additional noise measurements were taken along the I-25 corridor to quantify existing noise levels resulting from traffic on the adjacent interstate highway. Measurements were taken on May 2, 2006. These measurements indicate noise levels in the 66 dBA range, which approaches the federal traffic-related noise abatement criteria for residential land uses (67 dBA). However, these levels occur in areas that are planned for commercial and mixed use development, rather than residential, which is less noise sensitive.

*KAFB Noise:* Proximity to Kirtland Air Force Base is another important factor in the design and development of Mesa del Sol. The one-mile wide La Semilla area has been established to buffer development in Mesa del Sol from military related activities. This permanent open space area that is owned by the New Mexico State Land Office will provide a significant buffer for Level B development. A further buffering will be through strategic location and phasing of development. FCC and KAFB are finalizing an agreement for a noise easement that will impact the extreme southeast portion of the Level B Plan area.

KAFB has made recent investment in the Chestnut area to conduct further explosive testing for the next three to five years; after this period, it is likely that testing devices will be significantly limited in size. This area is located east of the extreme southeast corner of La Semilla. As development of the Level B Plan area occurs in the northern half of Mesa del Sol, developed portions of Mesa del Sol will remain several miles from this site.

**4.5 Stormwater Management**

**4.5.1 Introduction**

Mesa del Sol promotes and provides environmentally sustainable approaches to stormwater management. These approaches require innovative shifts in thinking, with both short term and long term solutions in mind.

Sustainability concepts for stormwater management require significant compliance with natural systems, including the hydrologic cycle. However, in many communities today, the conventional drainage management approach remains the “conveyance approach,” wherein the sole goal is to get rid of stormwater. Stormwater is collected and concentrated through a network of pipes and structures and conveyed downstream, gradually enlarging as additional tributaries are added to the system. Due to the velocities and hard surfaces of this system, suspended pollutants in the stormwater are carried long distances to an outfall, typically a natural body of water. This system ignores natural systems and too often requires stormwater facilities that are stark and brutal and which symbolically communicate that “water is hazardous.”

The alternative presented for the vast majority of Mesa del Sol is a “water harvesting and infiltration approach,” also referred to as an “urban rainfall harvest.” This approach seeks to preserve and restore the hydrologic cycle wherever possible and practical. While water harvesting is more generally related to the smaller, more frequent storm events, an infiltration system seeks to infiltrate runoff from the larger storm events into the adjacent ground as near as possible to the water source. Discharge of stormwater occurs through soil recharge (infiltration), evaporation and plant transpiration. A balance is sought

between collection of stormwater in conventional systems and the location and frequency of retention and infiltration ponds. This approach of frequent infiltration and evapo-transpiration reduces overall runoff volumes and minimizes conventional piping systems, replenishes shallow groundwater storage and minimizes pollutant discharge to natural watercourses.

The “infiltration approach” at Mesa del Sol, while achieving significant environmental goals goes further to include the concept of “stormwater as an amenity.” This concept has been shown to produce higher land values and greater marketability. It also provides recreational and visual opportunities and creates potential wildlife habitat opportunities.

The following discussion of stormwater management addresses the primary trunk system for stormwater management in the Mesa del Sol Level B planning area. Please refer to the Level B Stormwater Master Plan, Appendix 4A, for more detailed discussion. The Water Conservation Master Plan may be referred to for a discussion of drainage “microsystems” at the lot or tract level.

*Compliance with Level A Master Plan*

Consistent with the Level A Master Plan, the general concept for Level B storm water management remains distributive retention and infiltration ponding (DRIP) for the mesa top area and traditional conveyance for the escarpment area west of the playa basin.

*Existing Hydrologic Conditions*

Currently, there are no improved drainage facilities serving the Mesa del Sol Level B development. A substantial portion of Mesa del Sol is a closed basin, hereafter referred to as the mesa top. These areas consist of slopes ranging from mild (less than 5%) to extremely flat (less than 0.5%).

Other portions of Mesa del Sol drain offsite to the south, north and west. The Northern Escarpment, along the north boundary of the Level B area, historically drains northward through private and public property ultimately discharging to the Tijeras Arroyo.

Significant portions of the Level B project slope to the west and discharge storm runoff to the river valley (Western Escarpment). Stormwater runoff from these areas is currently conveyed through the existing drainage culverts under I-25, which were designed to serve historic runoff conditions. Once runoff traverses I-25, there are limited improved drainage structures capable of conveying developed or undeveloped runoff to the Rio Grande.

Offsite drainage basins to the east of Mesa del Sol, including Kirtland Air Force Base and areas stretching into the Manzano mountains, generate storm water runoff which drains westward across La Semilla and flows into Mesa del Sol.



**Stormwater Management and Collection**

•

**Surface Water Harvesting**

•

**Stormwater Retention and Infiltration**





#### *Existing Mesa Top Playas*

The mesa top is part of a unique hydrologic area for Albuquerque which consists of very gentle slopes and natural playas. The existing playas collect nearly all flows from the mesa top drainage basins, and have been found to hold sufficient storage capacity to accommodate a large, very infrequent storm event, potentially in the range of the 500-year storm event. The 100-year design storm event for these basins generates runoff well below the calculated 2,500 ac-ft. capacity of the existing playa system.

Since a natural outfall to the river does not occur, the State Engineer and the City of Albuquerque have recognized the existing playa storage and will not require the storm water be conveyed to the river by means that diverge from historic conditions.

#### **4.5.2 Level B Stormwater Master Plan**

The stormwater master plan studies and reports on the five primary development zones of the Level B planning area:

- 1) The Employment Center area (mesa top)
- 2) The Residential Area (mesa top)
- 3) The I-25/Broadway Corridor Area (Western Escarpment)
- 4) The County Recreational Complex lands (mesa top)
- 5) The La Semilla and Kirtland Air Force Base (KAFB) lands (mesa top)

Figure 4-4 graphically portrays these key development areas.

#### *Hydrologic Parameters*

The design storm event selected for hydrological analysis of the site for both existing and proposed development conditions includes the 100-year, 10-day duration storm for ponding design, and the 100 year, 6-hour duration storm for drainage piping and inlet design.

Retention ponding design assumed no credit for the known depleting actions of evaporation, minor surface infiltration and passive infiltration devices that occur in the drainage basins. Through monitoring of these ponds, and documentation of successful stormwater discharge, the design event for the ponds may be reduced at some point in the near future with the approval of the appropriate jurisdiction.

#### *Stormwater Management for Mesa Top Lands*

Due to the flat slopes associated with the mesa top, collecting and retaining developed runoff onsite in strategically located retention ponds is the most practical and sustainable approach to storm water management, as opposed to a single very large ponding area. This plan proposes creating regional ponds within the identified open space areas that are distributed throughout the community at locations appropriate to serve adjacent upstream development. Each pond is proposed as a retention pond or a system of reten-

tion ponds, self contained and not necessarily connected to any other major drainage areas. These "Distributed Retention Irrigation/Infiltration Ponds" (DRIPs) are proposed as the primary drainage management method for the mesa top watershed. This approach is modular and scalable and therefore, ponds can easily be located anywhere phasing needs dictate and can be sized to meet the local design runoff volume for the contributing area. This ease of location and design makes the DRIP system applicable to all parts of the playa basin area.

The DRIP scheme is also intended to be multi-use. These ponds shall serve as drainage areas which are visually pleasing and may include open space trails, recreational areas, sitting areas, water fountains, xeriscaping, and wildlife habitat. The DRIP system that is proposed for the mesa top area closely resembles the existing drainage situation present in this area. This solution is practical and viable method for stormwater management in the mesa top area.

Future detailed drainage planning and design may present a slightly modified approach for certain areas in Level C drainage submittals or in special overlay District areas. This modified approach continues the concept of the DRIP system but, rather than each pond fully retaining the 10-day storm volume, the ponds retain and infiltrate only smaller stormwater volumes at the distributed regional pond locations. This occurs because the regional DRIP ponds are provided a small outlet (bleed line) that discharges southerly to a large terminal retention pond, which has no outlet. The pond would be located, very appropriately, in the vicinity of the large existing playa in the southern portion of Mesa del Sol lands. At this terminal pond location, evapo-transportation and infiltration on a large scale would mimic, to some degree, the historic runoff patterns of the mesa top area. An additional benefit of this approach is the reduction of ponding areas required in and around the Community Center.

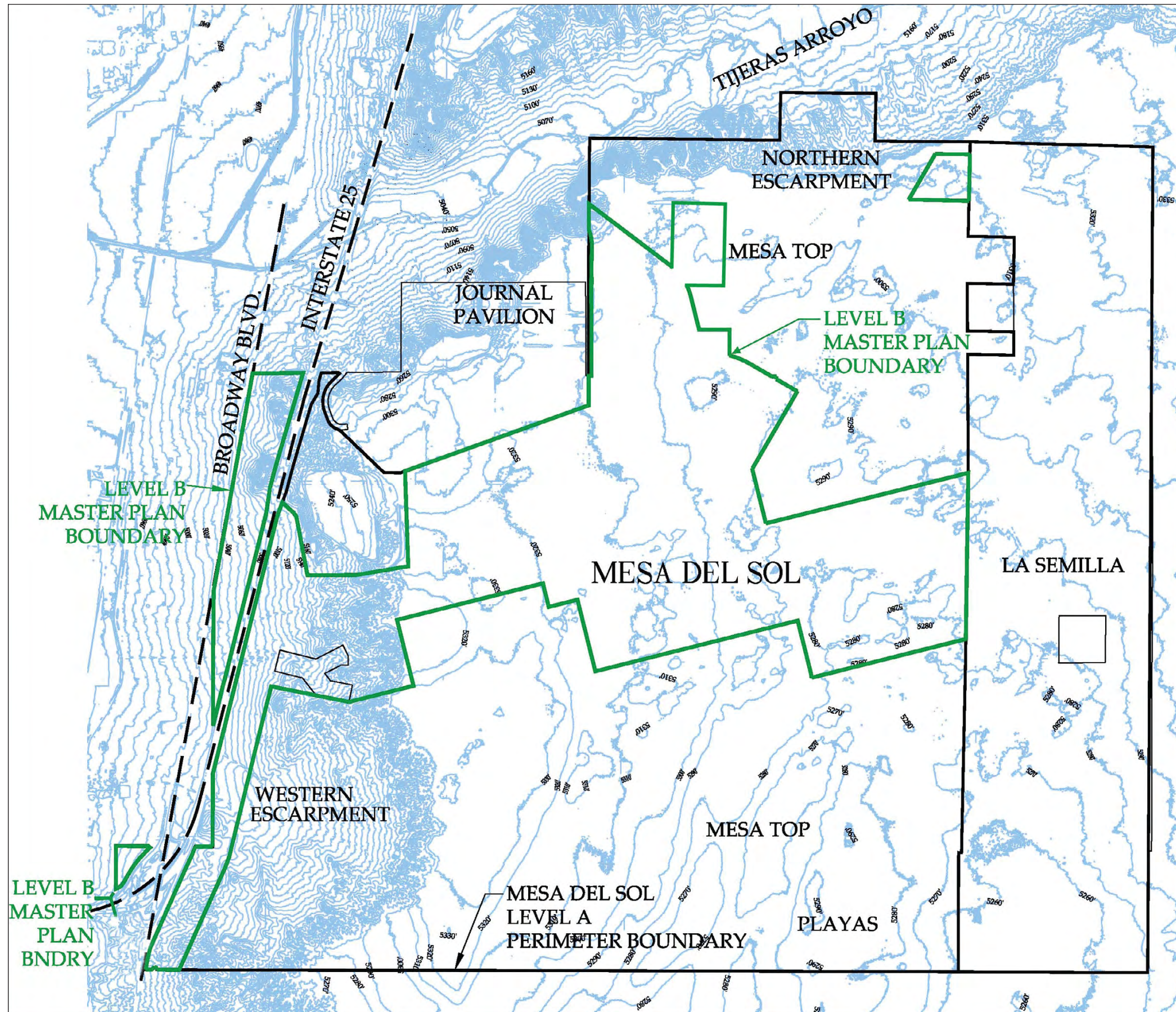
#### *Offsite Drainage Impact (La Semilla/KAFB)*

Flows that enter from La Semilla, KAFB and areas to the east will be retained in ponds so that offsite flows do not impact the Mesa del Sol development. Currently seven ponds are proposed along the eastern border of Mesa del Sol within La Semilla to collect the 5,000 cfs flow and are sized to retain the 100-year, 10-day event. The pond will allow access for wildlife and the opportunity to create transitional life zones when full.

Each pond is intended to serve as an extension of the DRIP system while also serving as habitat enhancement for local wildlife populations, as a means of shallow groundwater recharge, and an opportunity to distribute water to locate vegetation.

Note: Ponds will be required to infiltrate or drain to less than eighteen inches in depth within ninety six hours. Ponds are not required to be fenced.





## TOPOGRAPHICAL MAP

Figure 4-1

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

## Notes

1. 10' contour interval is shown.

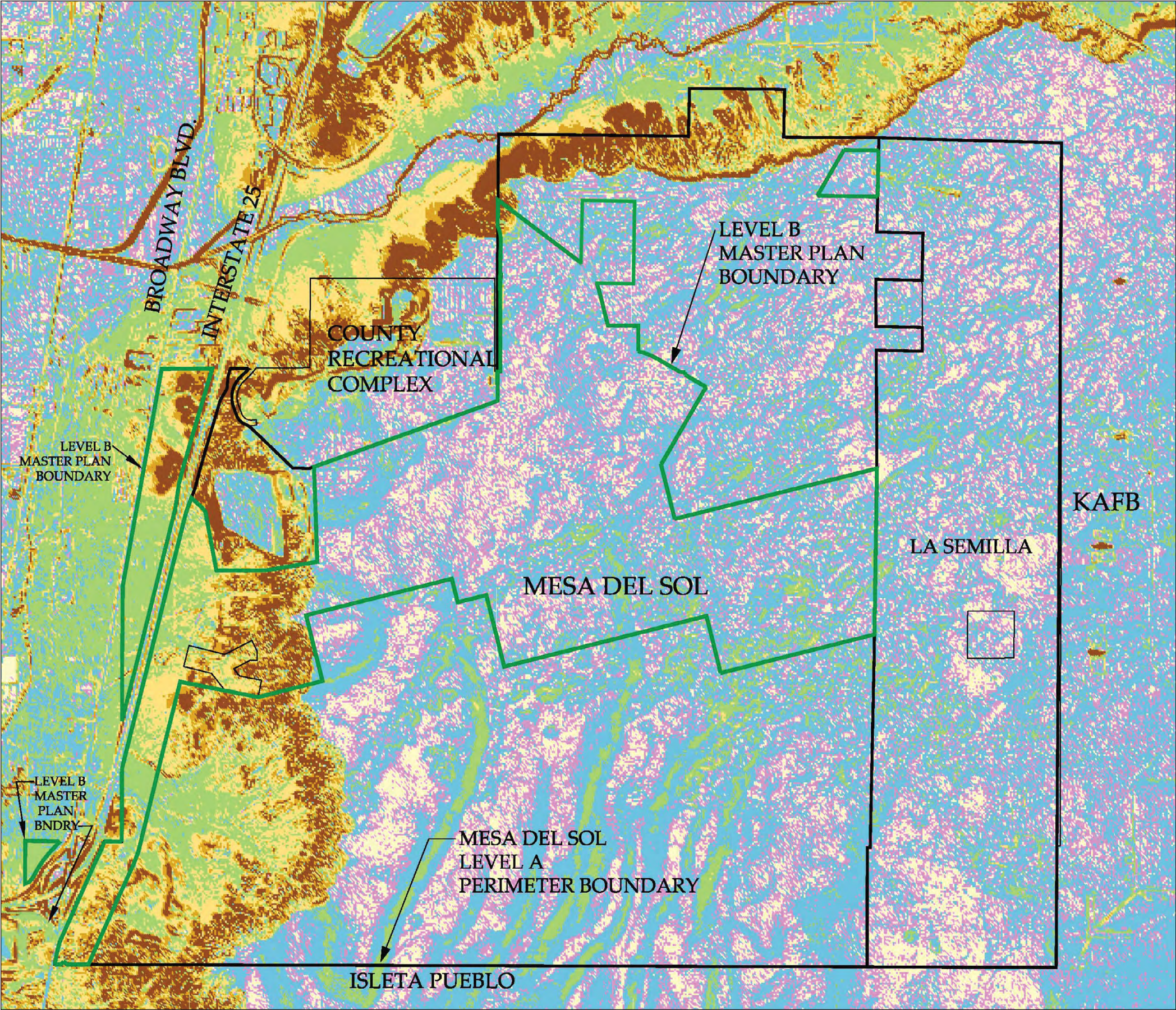
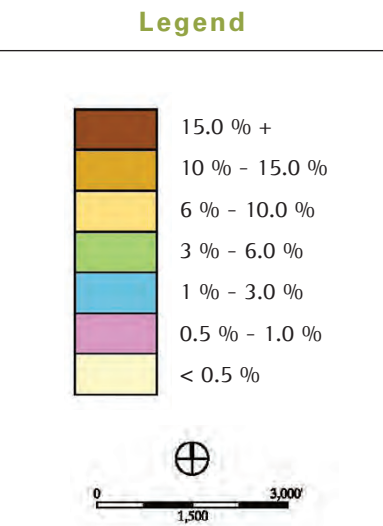




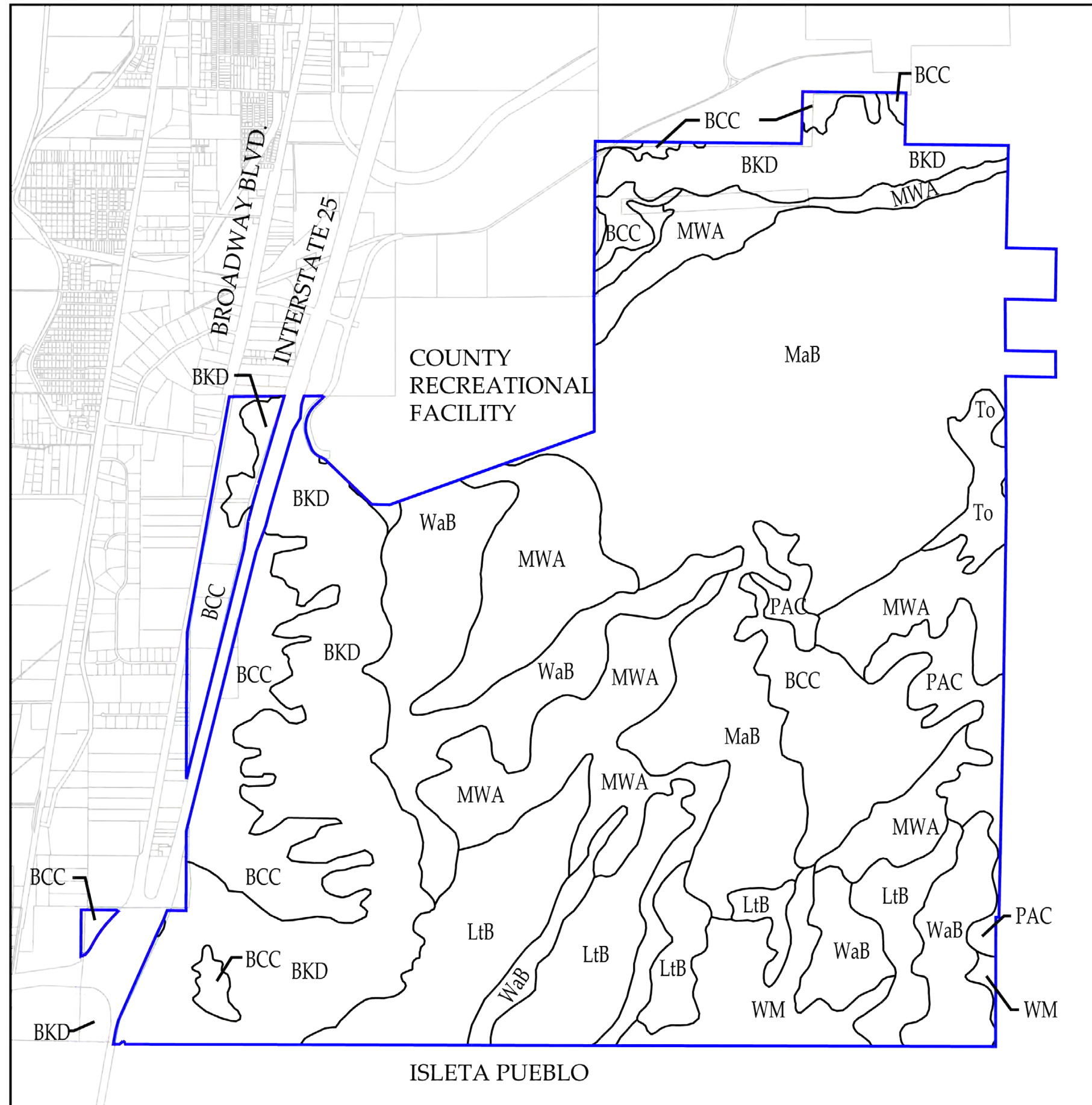
SLOPE MAP

Figure 4-2

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.







Revised September 2012 - removal of Tract 8 from plan area

## MASTER PLAN

### SOIL MAP

### BERNALILLO COUNTY, SOIL CONSERVATION SERVICE

### SOILS MAP

Figure 4-3

### 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.

JUNE, 2005



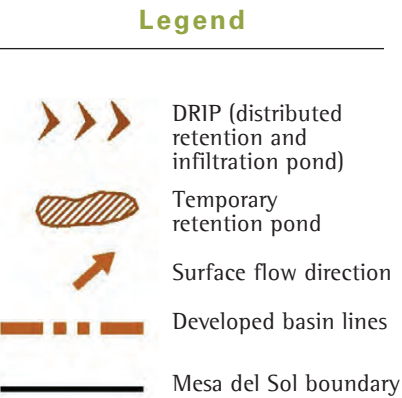
Mesa del Sol



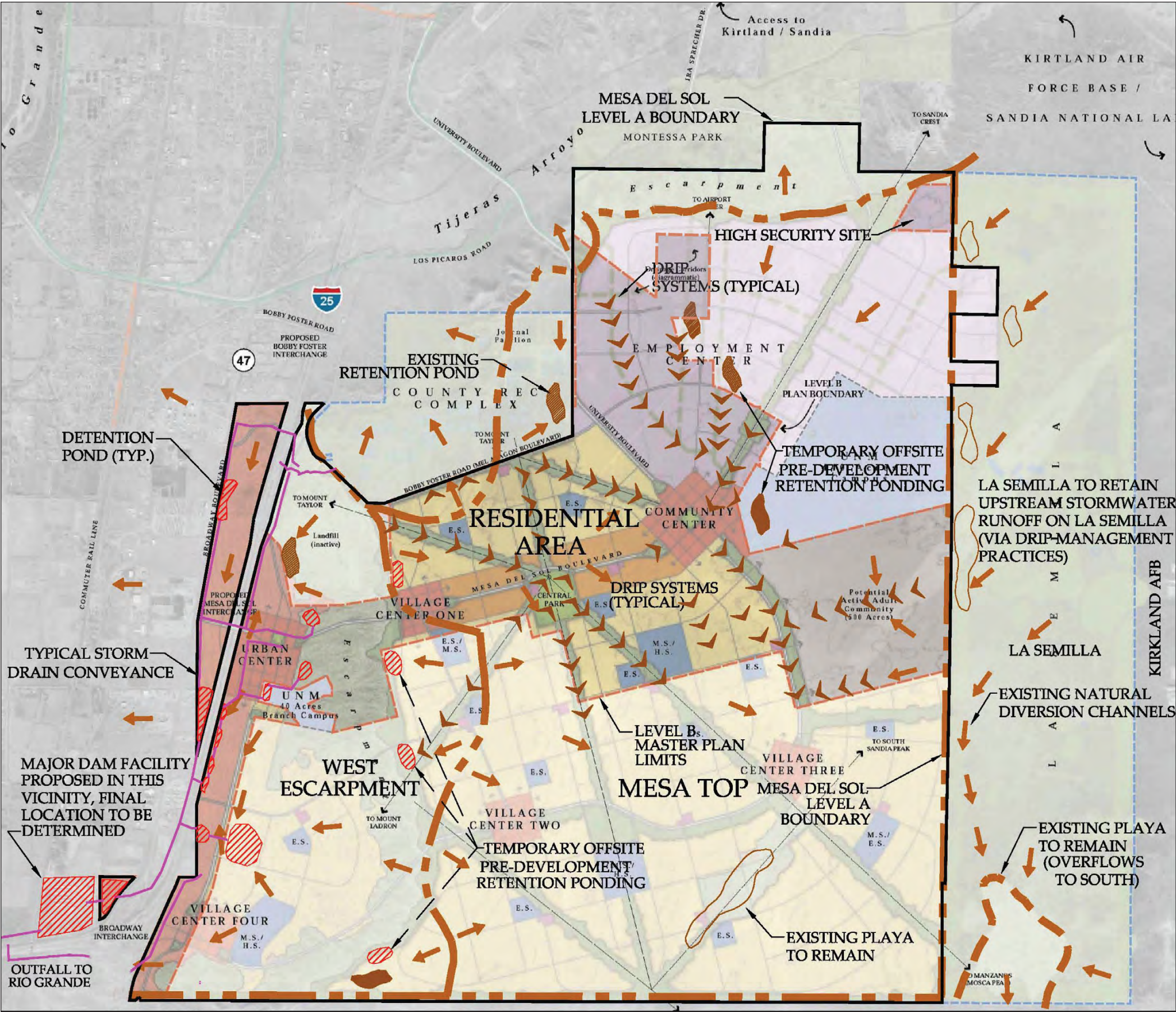
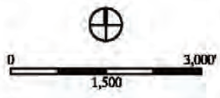
Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

OVERALL  
STORMWATER  
PLAN

Figure 4-4



- Notes:
- Shown facilities are illustrative only.
- Mesa Top Area:
- Drainage management concept plan uses distributed retention/infiltration ponds (DRIPs) to collect all flows generated on the mesa top in the residential lands.
  - Non-residential lands (i.e. employment center, UNM, public sites) may utilize shared onsite drip systems.
- West Escarpment:
- The drainage management concepts consist of collection runoff in detention ponds and discharging storm water to a large storm water detention basin as proposed by the AMAFCA study entitled "Southwest valley drainage management plan," dated Jan. 1988. The detention pond discharges to the Rio Grande.





*County Recreational Center*

Located adjacent to Mesa del Sol and west of University Blvd. is the Bernalillo County Recreational Complex. The complex encompasses approximately 600 acres and is planned to support public entertainment and recreation activities such as the Journal Pavilion and the existing soccer field complex. Generally speaking, no storm water will be received from or discharged to the County Recreational Complex.

*Employment Center (Mesa Top Lands)*

The Level B Employment Center consists of approximately 500 acres of industrial, commercial and mixed used development. Runoff generated by the Employment Center will drain into Distributed Retention and Infiltration Ponds (DRIPs) generally located centrally along each block (often within the open space areas of the Master Plan). Drainage from each block and from the adjacent public roads will be conveyed to the DRIP ponds via surface flow and storm drains. Each retention pond will institute water quality measures, as well as infiltration measures, described in more detail in a later section.

Approximately 40 acres has been set aside in the Employment Center’s far northeast corner for a “high security” site. The site will retain its stormwater runoff either onsite or on immediately adjacent lands.

*Village Center/Community Center (Mesa Top Lands)*

The Level B master plan area of Mesa del Sol includes two significant mixed use centers on the mesa top; the Community Center and Village Center One. These areas will include a mix of retail uses, higher-density housing, transit, and public facilities. They are not intended to have large open space or park areas that would be conducive to the proposed DRIP storm water management approach for the mesa top lands. Instead, most storm water runoff would be conveyed out of the Centers toward adjacent trunk open space corridors or parks within adjacent lands.

*Residential Villages (Mesa Top Lands)*

Collecting and retaining developed runoff on at a neighborhood scale is the most practical approach to storm water management for the mesa top residential lands. Accordingly, Distributed Retention Irrigation/Infiltration Ponds (DRIPs) are the primary drainage management method for the residential areas. The modular and scalable nature of the DRIPs allow them to be located anywhere that phasing needs dictate and be sized to meet the design runoff volume for the contributing area. Trunk open space corridors that often define neighborhood edges are primary and opportunistic locations for retention ponds. In addition, the planning and layout of each residential neighborhood may include open space, parks, and school playing fields that can integrate necessary retention ponds into the plan to accommodate the design storm volume.

Each large neighborhood generally retains all runoff generated within its boundaries. Ponds for a given neighborhood may also need to be sized to accept runoff from adjacent Village or Community Centers. Future detailed drainage design for each neighborhood may dictate that some inter-neighborhood movement of runoff will be necessary to accommodate optimal pond locations within the neighborhoods and/or better use the storage capacity within trunk open space areas. The detailed drainage design for each neighborhood will also evaluate the street and storm drain hydraulics for conveyance of storm runoff to the ponds.

The proposed use of Distributed Retention and Infiltration Ponds (DRIPs) as the preferred storm water management approach for the mesa top Residential Area in this Level B plan does not specify, at this time, the exact number and frequency of ponding and area to be covered. This concept does not preclude the use of more regional, less frequent retention ponds to serve multiple neighborhoods should future detailed design and actual experience determine that a more regional approach would better serve the Mesa del Sol community in Level C planning efforts.

*I/25 Broadway Corridor (Highway Commercial)*

The I-25/Broadway Corridor within the Western Escarpment area historically discharges to the Rio Grande Valley, although discharge actually reaches the Rio Grande on a very infrequent basis. This drainage area includes the Urban Center mixed use area and substantial highway commercial lands. Since this drainage area has historically drained to the Rio Grande, State Engineer Office regulations require stormwater discharge to historic drainage paths under developed conditions. The DRIP retention system used on the mesa top is not available therefore for the Escarpment areas.

The Level B development in the Western Escarpment area is planned along the I-25 and Broadway corridors, primarily comprised of urban and commercial land use. Currently, much of the far western extent of the mesa top drains westward to the escarpment edge, but runoff from those areas will be retained prior to any initial downstream development or with development on the mesa top within these western mesa top basins.

The lands at Broadway and I-25 currently lack storm drain infrastructure capable of detaining and conveying flows to the Rio Grande. This area was studied as part of the Southeast Valley Drainage Management Plan approved by AMAFCA. The study 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 and convey and discharge the storm water runoff to the Rio Grande. Mesa del Sol is working with AMAFCA to develop a regional drainage plan that further refines the SE Valley DMP to address Mesa del Sol’s planned improvements.







#### *Stormwater DRIP Ponds – Water Quality, Water Harvesting, Infiltration*

Stormwater discharge quality continues to be a major national, state and local concern. Pre-development runoff generally contains only water and low concentrations of natural compounds. However, developed runoff collects a whole host of additional elements, including sediment, organic compounds such as fertilizers, excessive nutrients, heavy metals, chemicals, bacteria, viruses, oil, grease and more. A study by the USGS was reported to say that such pollutants are largely removed by only six (6) inches of soil. Vegetative cover adds significantly to the pollutant removal process. Mesa del Sol will incorporate significant stormwater quality features in its planning and construction goals. Generally, on the trunk infrastructure level, these measures are accomplished through the use of the distributed retention and infiltration ponding (DRIP) plan of the mesa top and the detention ponding of the escarpment area. These ponds will incorporate distinctive water quality and water storage features, such as a first flush/water quality forebay, a main storage pond, and infiltration areas.

#### *Stormwater System Maintenance*

The stormwater system in the Level B planning area will primarily consist of two major elements that require maintenance and operational management:

- 1) The DRIP ponding system, including the pond, water quality and infiltration devices.
- 2) The adjacent public stormwater system, including the drainage piping, manholes, inlets, etc that are generally located in public streets.

It is anticipated that public ownership and maintenance of the major storm drain system, outside the ponds, will be by the City of Albuquerque. This is standard procedure in the City today and should be continued.

Mesa del Sol will be responsible for private ownership and maintenance of the pond elements of the stormwater system, including pond slopes, access, landscaping infiltration, etc., possibly through a secondary maintenance agreement with the City and using a special stormwater entity or district. Removing existing FEMA floodplains on mesa top and escarpment areas may possibly require some level of public commitment to the constructed facilities that permit removal of floodplains.

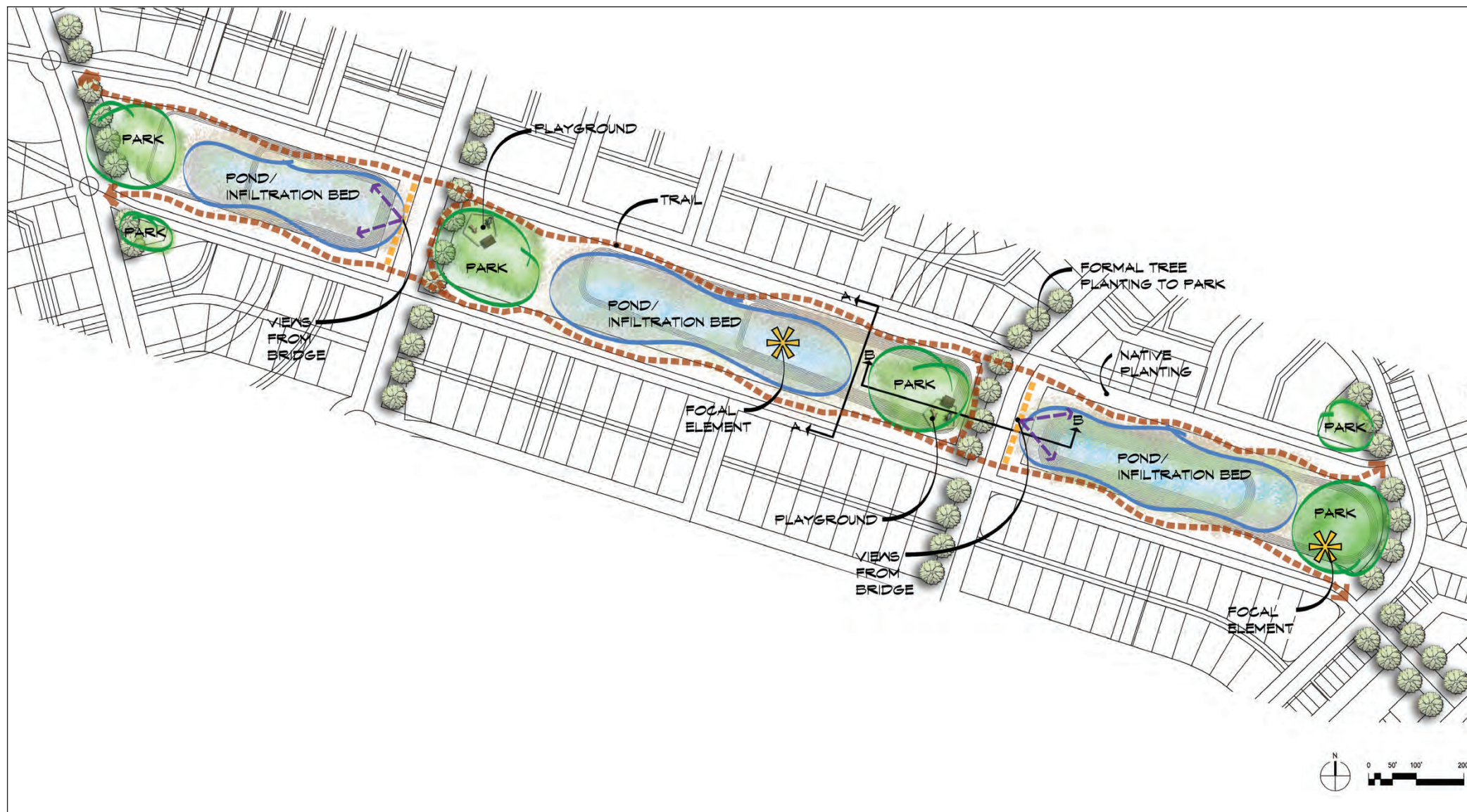
Level C subdivision planning and final design of the integrated public-private system is required to refine the drainage management concepts and jurisdictional elements.

#### *Future Design Criteria*

For public safety, design calculations for stormwater system and based upon conservative assumptions. For instance, the 100-year, 10-day design storm event criterion reflects in part a concern for failure of the discharge capability of the infiltration/evapo-transpiration system of the retention ponds. This concern is well founded for the current level of experience in Albuquerque for the proposed system. The undesired aspect of this conservatism is oversizing of stormwater infrastructure. Recognizing the issues involved, Mesa del Sol plans to monitor and test the ponding and infiltration systems, and other water harvesting features within its master plan areas. In time, if proven satisfactorily to the City, Mesa del Sol will seek to modify current design criteria where possible.

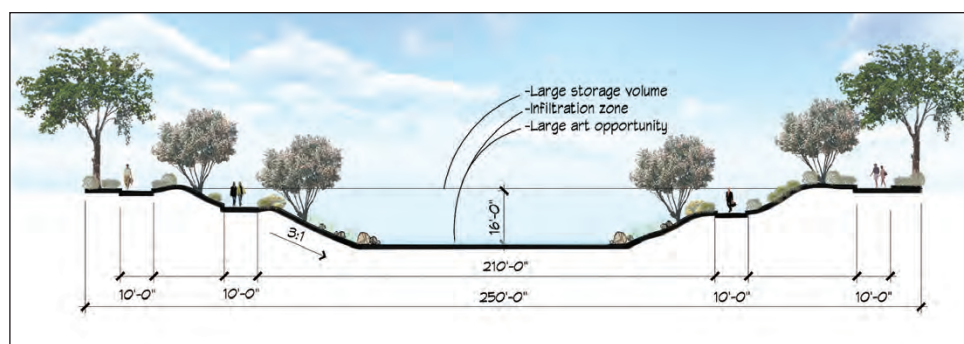
#### *Phasing*

Storm drainage infrastructure planning and construction will be phased to comply with the actual development pace within the Level B planning area. Mesa top drainage infrastructure is easily scalable to actual development planning, due to distributed and relatively frequent nature of the DRIP system. The I/25 Broadway Corridor on the Western Escarpment will however have at least one significant threshold. The development level that “triggers” the outfall infrastructure to the Rio Grande must be established with the City and the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). Prior to this trigger point, development can occur with the construction of interim facilities (retention ponding) that is in substantial compliance with the ultimate drainage plan with respect to such details as road location, sizing, alignments and more.

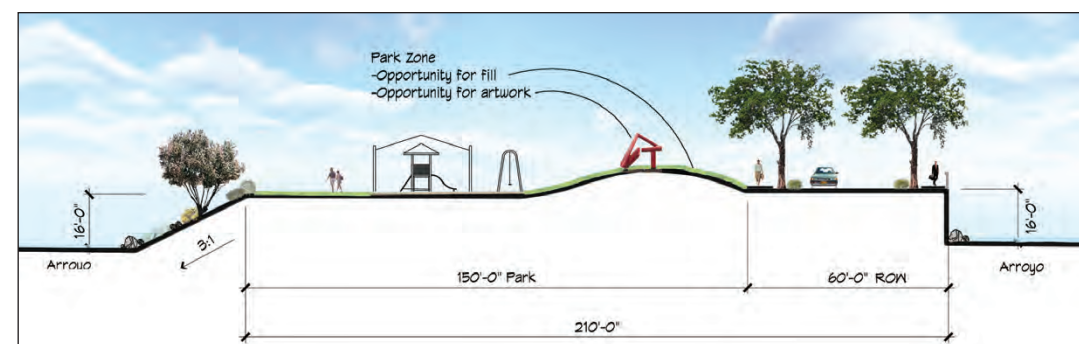


## OPEN SPACE POND AND SECTION DETAIL

Figure 4-5



Section A (not to scale)



Section B (not to scale)







# UTILITIES

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

5



## Utility Infrastructure and Services

Mesa del Sol's unique terrain characteristics and location relative 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 Water Supply

The Mesa del Sol Level B Plan promotes an integral strategy of sustainable water system practices, including aggressive water conservation, high desert landscaping design, wastewater reuse and aquifer recharge. Taken together, these strategies will enable Mesa del Sol to significantly reduce water consumption compared to City averages.

The Mesa del Sol Level B water supply, as depicted in Figure 5-1, will be designed to conform to the City of Albuquerque Water Resources Management Strategy and Albuquerque Bernalillo County Water Utility Authority (WUA) system design requirements. General guidelines for the design of the water system are based on past usage from records for the Albuquerque Metropolitan Area and current City of Albuquerque master plan criteria. While actual water use at Mesa del Sol will be significantly less per capita than historical City-wide averages, the basic system design still must conform to WUA standards. Please refer to Appendix 5A, Water Supply, for a more detailed discussion.

#### 5.1.1 System Demand

One of the essential elements of water system design and configuration is identifying anticipated water demands. Unique opportunities, not available to many developed communities, exist at Mesa del Sol to reduce water demand and consumption. The WUA has instituted an aggressive water conservation program which consists of education in water use, 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, which constitutes all water usage divided by population served, has dropped from nearly 250 gallons per day average to under 180 gallons per day. The WUA conservation program's goal of 75 gpcd has recently become a mandate: Administrative Instruction No. 1, adopted by the WUA effective June 1, 2006, has mandated a water use of 180 gallons per household, which, for an average household of 2.4 persons, equates to 75 gallons per capita per day.

Industrial/Commercial/Institutional (ICI) Demand predictions were estimated based upon building square footage and assumed FAR values for Mesa del Sol. Average Day demand calculations assume 1 gpm/ac. However, the proposed ICI average water duty of 1 gpm/ac is not valid for manufacturing processes that may require high amounts of water.

Given the aggressive water conservation goals and continuously improving system planning of both Mesa del Sol and the WUA, Mesa del Sol may seek to modify system demand criteria in the future to take advantage of potential system infrastructure reductions due to proven water usage savings—a key sustainability concept.

#### 5.1.2 System Supply

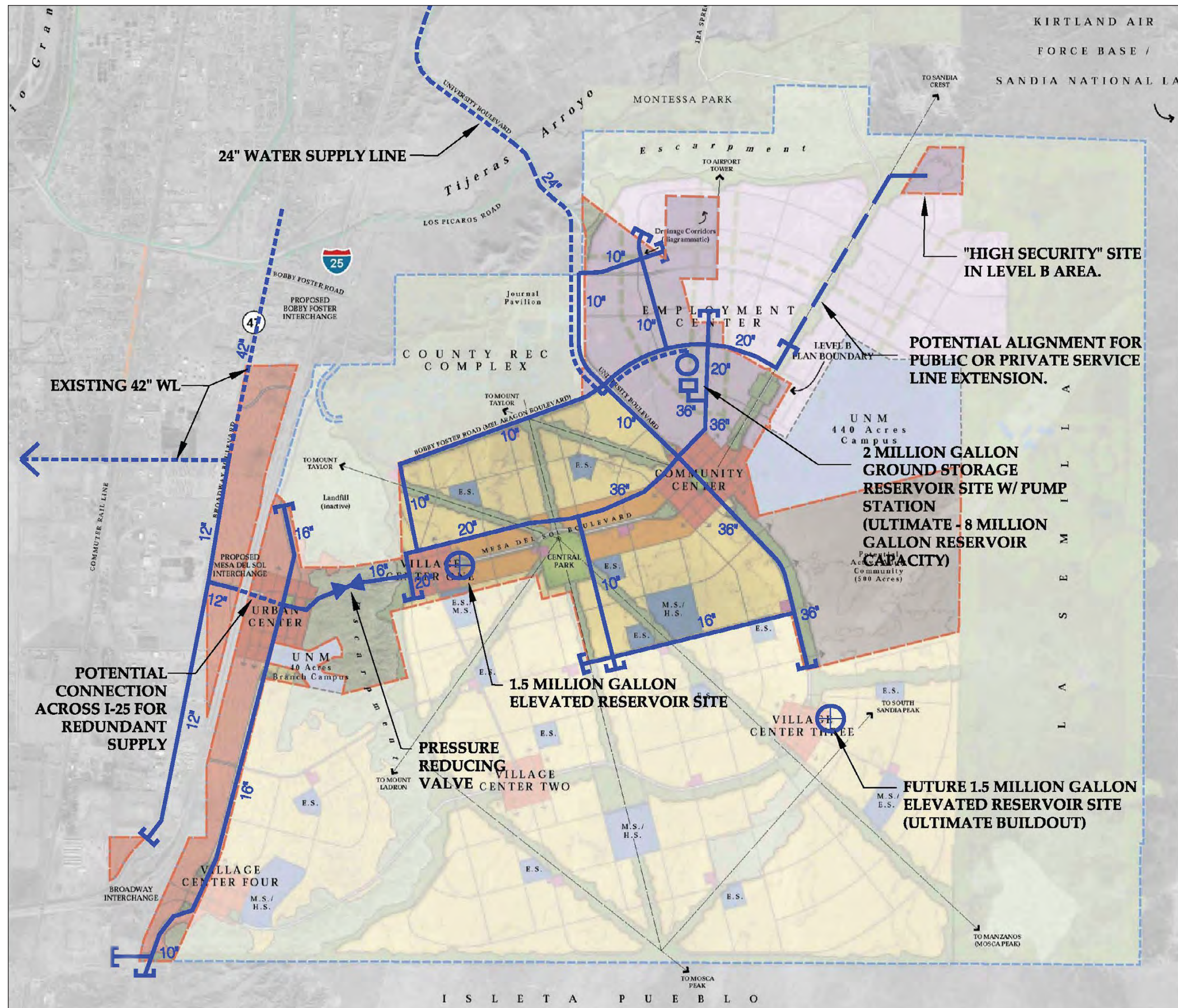
Under this strategy, average day supply on a city-wide basis will come from one treated surface water source. Any consumption in excess of average day will be supplied from groundwater sources. The implementation of this strategy was completed under the San Juan-Chama Drinking Water Project, designed first to determine then implement the most cost effective means of utilizing the San Juan-Chama surface water supply throughout the city.

Because the Southwest experiences cyclic periods of rainfall, the surface water supply cannot be relied on as the sole supply for average day consumption requirements. Albuquerque's Water Resources Management Strategy recognizes that periods of drought will occur and has established a groundwater reserve as part of the overall water strategy for use during those periods. Consistent with that plan, the Mesa del Sol supply will be designed to be able to provide Average Day supply plus standby capacity from a groundwater well field. The proposed well field would most likely be located within the northern areas of Mesa del Sol.

##### *Initial Water Supply*

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 Reservoir and Pump Station, situated on University Boulevard approximately one half mile west of Yale Boulevard, and Burton Reservoir and Pump Station situated on Carlisle Boulevard at San Rafael Road.





## PREFERRED WATER SYSTEM: TRUNK INFRASTRUCTURE PLAN

Figure 5-1

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Notes

1. The water infrastructure and line sizing shown on this plan is illustrative and subject to change with further planning with the water utility authority.
2. Water wells and associated well collector system are anticipated prior to full development of Level B area.





Initial water supply for Mesa del Sol is expected to come from Ridgecrest Reservoir and Burton Pump station. These facilities will provide water to Mesa del Sol using a new 24 inch water line in University Boulevard. This line is capable of providing a maximum of 3,500 gpm of water to supply to the Mesa del Sol service area. This translates to roughly 5 MGD of water supply to the Mesa del Sol Service area. The level of permitted development will be highly dependent upon the water use of the initial water users during this phase.

*Future Supply*

It is clear that additional sources of water supply will be necessary to achieve the latter stages of Level B and ultimate build out for Mesa del Sol. The initial system supply is expected to provide only about one fourth of the ultimate system demand. Additional future water supplies will be necessary to support continued development. It is imperative that the WUA work with Mesa del Sol to identify future water supplies as soon as possible.

If local Mesa del Sol groundwater supply is used to augment the initial water supply, certain activities will need to commence as soon as possible. The permitting process for well applications requires public notification and can take considerable time. For that reason, it is strongly recommended that the well application process be pursued aggressively at the inception of Mesa del Sol by the WUA in order for the wells to be approved and permitted by the time they are needed within Mesa del Sol.

*Arsenic Regulations*

New EPA requirements concerning maximum concentration levels (MCL's) and disinfection go into effect in 2006. Among the most important MCL's in terms of impact on groundwater in the metro area is the new arsenic regulation. With promulgation of the new arsenic MCL, some of the water within the Albuquerque area will require treatment above the current disinfection and fluoride treatment currently provided for well fields to meet this new standard. Preliminary water quality samples from the existing SEO well test field indicate the groundwater below Mesa del Sol will require arsenic treatment to meet the new standards, unless arsenic levels are mitigated sufficiently by the blending of the well water with anticipated San Juan Chama (SJC) Diversion waters or with water from other well fields.

**5.1.3 System Configuration**

*System Pressure Zones*

The WUA water system configuration is based on providing gravity service from service storage. Typical WUA Pressure Zones are generally designed to provide a minimum static pressure of 50 pounds per square inch (psi) and a maximum static pressure of 100 psi to customers within the zone. The highest elevation in the Mesa del Sol boundary is about 5,340 feet and the lowest elevation is 4,910 feet. These elevation boundaries fall into three of the existing WUA Pressure Zones: Zone 1E, Zone 2E, and Zone 3E.

*Fire Flow Requirements*

The Mesa del Sol water system will be designed to provide a minimum Fire Flow of 3,500 gpm for 3 hours for any customer within the Industrial, Commercial, and Institutional land use areas. The system must be capable of providing fire flow service while maintaining a minimum system pressure of 20 psi to all customers in the system. Accordingly, buildings within the Industrial, Commercial, and Institutional land use areas will be required to install sprinkler systems and use building materials and zone breaks such that the maximum building fire flow will not exceed 3,500 gpm.

The Mesa del Sol water system is expected to be able to provide a minimum Fire Flow of 2,500 gpm for 2 hours for all residential land use areas.

*System Storage Criteria*

Two distinct types of storage are required for the Mesa del Sol ultimate development; Ground Storage (or Primary Storage) and Elevated Storage. These two storage elements are somewhat unique types of storage in the WUA water system but are required due to the unique location of the Mesa del Sol service area.

*Ground Storage*

Ground storage is storage that will not be used for direct water supply but will be used to provide key system storage to the water system. Ground storage provides no gravity service and will only supply water to the Mesa del Sol service area by use of booster pumps and/or fire pumps. The initial ground storage selected for the Level B area is 2 MG, based upon economic considerations and discussions with the WUA. The preferred site for this ground storage is north of the Community Center, as identified on Figure 5-1. The ultimate size of the ground storage will depend upon how the system is proposed to operate and may also depend on the nature of the future water supply. It is likely that the ultimate development will require between 6 to 8 MG of additional ground storage.

*Elevated Storage*

Only one location in the entire WUA service area is currently serviced by the use of elevated storage, the Metropolitan Detention Center. Elevated storage is preferred for Mesa del Sol because there is no location within Mesa del Sol with sufficient elevation to provide a minimum of 50 psi static pressure to the customers at the highest elevation in the service area. Elevated storage tanks overcome this difficulty by raising the storage tank off the ground to an elevation that will provide a minimum of 50 psi static pressure at the top elevation of the service area.

Initial estimates indicate that between 2.5 to 4 MG of total elevated storage for Mesa del Sol will provide the best mix of control, emergency backup power, emergency storage, and equalization storage for the ultimate Mesa del Sol system. Elevated tank locations in the lower elevations will require taller tanks than elevated tanks placed at higher elevations.

5.1.4 Level B Water System Master Plan

Several options were considered for the Mesa del Sol ultimate water system, based on varying the elevated storage locations. Water system operation is greatly affected by the location and amount of elevated storage in the system.

The preferred approach for the ultimate Mesa del Sol system will include the use of at least two separate elevated storage tanks located at roughly equal distances from the Pump Station and Ground Storage site. The two elevated storage tanks would contain about 1.5 MG of storage.

Optimal locations for the elevated tanks are at Village Centers One and Three; please refer to Figure 5-1. These locations are the most equidistant from the Mesa del Sol Pump Station and are will optimally spread the equalization storage for the entire system. This layout of elevated tanks also appears to minimize the pipe size requirements for the entire system and provides significant operational flexibility.

Phasing

Initial system operation will be supplied directly from the new 24 inch waterline in University Boulevard and from Ridgecrest Reservoir. Water usage is constrained because the WUA is limiting the maximum supply through this line to no more than 3,500 gpm. The 3,500 gpm maximum flow must include all fire flow and normal demands. To account for this, initial users are limited to 2,300 gpm of maximum fire flow per facility, and a cumulative maximum of 1,200 gpm of peak hour demand from all users.

Due to the rapid development pace of development, planning, design and construction of the 2 MG Ground Storage Tank and the Mesa del Sol Pump Station will start as soon as possible.

The Mesa del Sol Ground Storage and Pump Station will support up to 3,500 gpm of peak day demand in Mesa del Sol in Zones 2E and Zone 3E, and will remove the fire flow component of the 24” supply line because all fire flow will be stored in the Ground Storage and supplied when needed from the Mesa del Sol Pump Station. The proposed Level B area will have about 6.05 MGD or a total rate of about 4,200 gpm of total demand, exceeding the available 3,500 gpm of water supply in the 24-inch University Boulevard line. This means the 24” supply line alone can only serve roughly 90% of the anticipated Zone 2E and Zone 3E demand for the total Level B area. Development in Zone 2E and Zone 3E of the Level B area will be limited to the capacity of the initial 24-inch water source. Additional development will not be allowed until additional water sources, such as wells, are developed for Mesa del Sol.

The first elevated tank must be constructed at some point during buildout of the Level B area, depending on actual water demand growth. In the preferred option, the full Level B buildout would include construction of the elevated tank located in Village Center One.

Special service considerations are proposed for the 40-acre “high security” site located in the northeast corner of the Level B Master Plan area. Subject to WUA considerations, this isolated area will be served by either a) small private metered water line extensions from the existing public water system in University Blvd. or b) by public water line extensions to the site. Fire storage may be private onsite storage facilities.

5.2 Sanitary Sewer – Water Reclamation Component

Introduction

The Sanitary Sewer, also referred to as Water Reclamation, system within the Level B planning area benefits from the water conservation and sustainability goals of Mesa del Sol. These goals include significant reductions in water demand and usage, reuse of treated effluent, and the potential implementation of grey water plumbing. The cumulative effect of these actions leads to significant reductions in sewer discharges to the public system and an associated reduction in infrastructure and energy requirements.

Development of the Level B Sanitary Sewer Plan was a cooperative process between Mesa del Sol and the Albuquerque Bernalillo County Water Utility Authority (WUA). In this process, agreements were reached regarding significant refinements to the Level A Sanitary Sewer Plan regarding sewer generation rates, permissible sewer line depths, the location and function of the proposed Water Reclamation Plant, and number and location of public pump stations. Accordingly, the ultimate development of Mesa del Sol Level A area was revisited in these key areas, in order to derive the Level B system elements. The discussion of both ultimate and Level B Master Plan areas are intermixed herein.

Please refer to the Sanitary Sewer Master Plan, Figure 5-2, for graphical representation of the plan concepts. Additional discussion and analysis can be found in Appendix 5B, Sanitary Sewer.

5.2.1 Key System Design Criteria

Aside from typical sanitary sewer design criteria that current WUA guidelines provide, several additional key criteria guide the Level B master planning effort.

Land Use and Population Density

The land use assumptions reflect the current Mesa del Sol Master Plan. The following densities were utilized in projecting flows for the sanitary sewer system:

- Residential at 7 dwelling units per acre and 2.4 people per dwelling unit.
- Senior Community Area at 4 dwelling units per acre and 2 people per dwelling unit.
- Multi-family residential at 20 dwelling units per acre and 2 people per dwelling unit.



#### *Design Flows*

Residential water usage for Mesa del Sol is projected at 75 gpcd (180 gpd per household). Therefore, the average residential sewer flow rate is reduced above from the previous City standard of 110 to 75 gpcd. This is conservative as no allowance is taken for the consumptive use portion of the residential water usage.

#### *Sanitary Sewer Line Depths*

The typical maximum sewer depth criterion is modified for Mesa del Sol's unique situation. The COA has typically held to an unwritten maximum depth of 20 feet. An exception is proposed to allow substantially greater depths, as much as 39 feet, rim to invert. This will provide the WUA with substantial operational advantages.

### **5.2.2 Sanitary Sewer System Master Plan**

#### *Water Reclamation Treatment Plant*

The Master Plan proposes that the Water Reclamation Plant as discussed under the Level A plan, be relocated north of Mesa del Sol in the Tijeras Arroyo. For clarity, this treatment plant will be referred to as the Montessa Park Water Reclamation Plant (MPWRP). A siting study was performed that showed that the MPWRP could be located north of Mesa del Sol and intercept the Tijeras Interceptor and the mesa top flows from Mesa del Sol. The WUA will need to perform further studies regarding the viability of the future MPWRP. The MPWRP could possibly be on-line by 2020.

Future construction of the MPWRP is presumed for Mesa del Sol. However, development of Mesa del Sol is not dependent on the MPWRP. In the event that the MPWRP is not constructed, service would be taken from the Tijeras Interceptor.

#### *Mesa Top- Gravity and Pumped Flow Areas*

A large diameter gravity interceptor has been constructed on the mesa top along the University Boulevard to provide service to the Advent Solar and Culver sites. Further extensions will be possible from this line, providing gravity service capability to the middle and western portions of the mesa top lands.

However, a significant portion of the mesa top cannot be served by gravity and must be pumped to gravity sewer lines. Based on discussions with the WUA, two alternate systems were developed, one adhering to the maximum 20 feet sewer line criteria and another with substantially deeper sewers. Five permanent pump stations were found to be necessary to adhere to the maximum 20 feet criteria, with the same flow being pumped multiple times. The alternative with substantially deeper sewer lines was found to allow a single large pump station. In addition to lower projected construction costs for the proposed single pump station system alternative, substantial energy and O&M savings will be recognized. Per discussions with the WUA, the single pump station with deep sewers is now planned for Mesa del Sol. This station will be installed when required by development, but is not expected to be required for the Level B development. The force main outfall from this station will run along the eastern edge of development and discharge to the future MPWRP.

Two temporary pump stations along the southerly extension of University Blvd, adjacent and south of the Community Center, will be provided to allow continued development until construction of the permanent pump station is feasible and cost effective. Less expensive, manhole type stations will be utilized.

#### *I-25/Broadway Corridor Area*

No current gravity outfall capacity exists for the I-25 corridor area. Based on discussions with the WUA, three alternatives exist for future consideration and study:

- The Level A Master Plan called for pump stations that would pump to a gravity main at the top of the mesa. This alternative is still available as a temporary expediency; however, gravity capacity at the mesa top will not be available under ultimate flow conditions nor for the 2025 build out. Capacity does exist through the 2020 build out.
- Adjacent properties are expected to consider development and will request water and sewer service in the relatively near future. This area will require a new pump station and force main to the existing Southside Water Reclamation Plant (SWRP). Gravity flow from the I-25 corridor is possible to a new pump station serving the Price's Dairy property.
- Alternately, pump stations at the I-25 corridor could pump due north, perhaps along the Broadway alignment, to the Tijeras Interceptor.

Further coordination with adjacent property owners and the WUA will be required to determine the preferred alternative. Gravity flow to a pump station(s) near developable properties lying west of Mesa del Sol (exact location to be determined) is currently seen as the most likely outcome. This option makes the most economic sense, as the I-25/Broadway Corridor flow solution would be a component of the ultimate area wide sewer system.

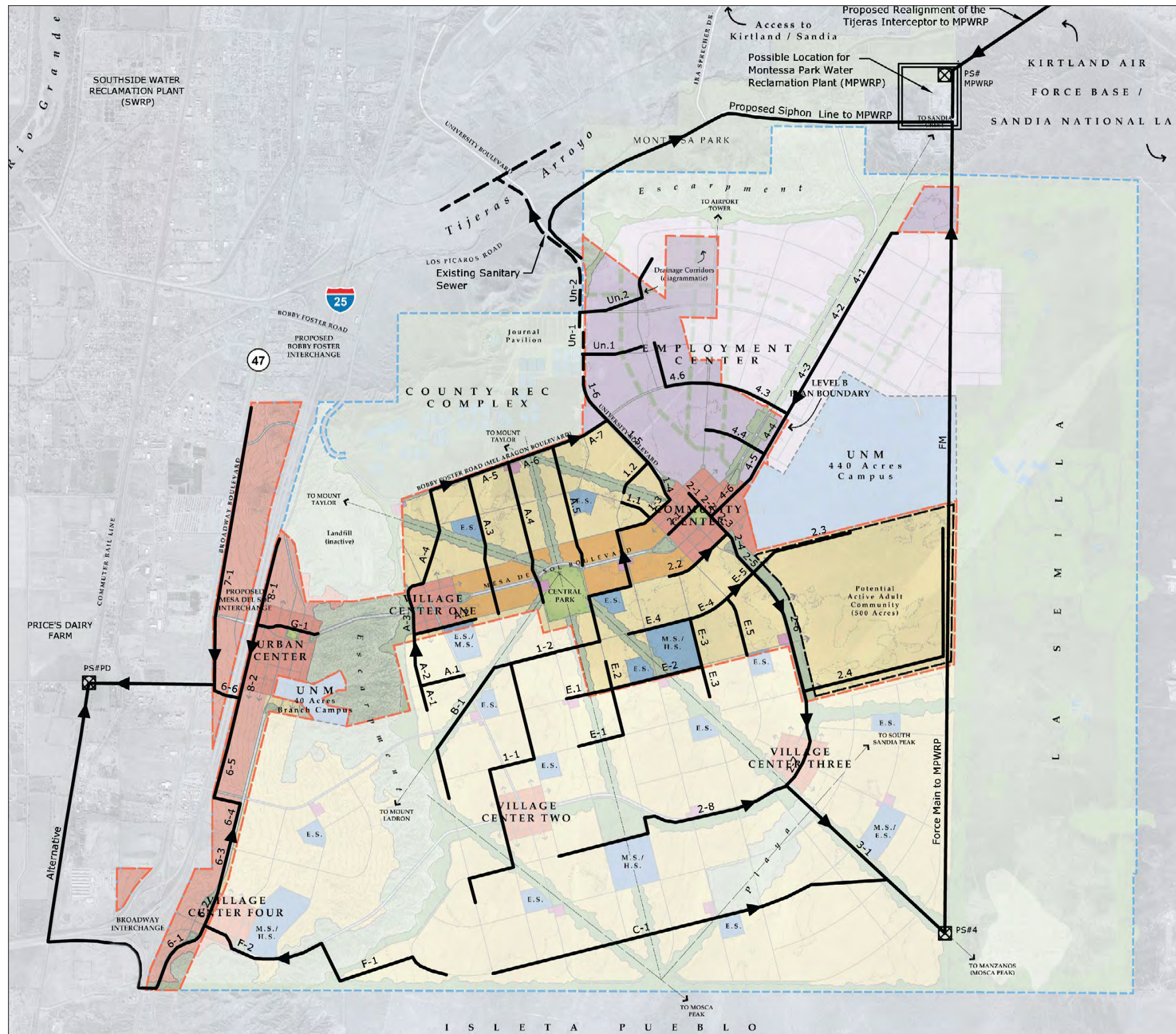
#### *High Security Site*

Special service considerations are proposed for the 40-acre "high security" site located in the northeast corner of the Level B Master Plan area. Subject to WUA considerations, this isolated area will be served by a) an extension to the north to an existing sewer main on the south side of the Tijeras Arroyo, b) public sewer line extensions to the site, or c) installation of a temporary pump station and force main pumping to the trunk sewer line in University Boulevard.

#### *Flow Rates and Sizing*

A total Design Flow of approximately 22 MGD is anticipated for the ultimate Mesa del Sol Level A service area, while an Average Daily Flow of approximately 10 MGD is anticipated. The average flow for the permanent pump station is 5.6 MGD and the design flow is 12.3 MGD.





## SANITARY SEWER MASTER PLAN INCLUDING LEVEL A AREA

Figure 5-2

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

- A-1** Sewer Line (Trunk Line) and Identifier
- A.1** Sewer Line (Level B Collector) and Identifier
- FM** Force Main
- PS#1** Pump Station and Identifier





### 5.2.3 Phasing of Sanitary Sewer System Construction

Gravity mains sized for ultimate development will be extended when service is required in a particular area. The proposed permanent pump station facility will not be available until after 2025, therefore at least two temporary pump stations are proposed for development of the Level B area. Pump stations and associated force mains are also subject to construction phasing.

### 5.2.4 Expanded Discussion – Montessa Park Water Reclamation Plant (MPWRP)

As discussed in the Level A Report, the WUA is considering future satellite treatment plants at strategic locations to relieve demand at the existing Southside Water Reclamation Plant (SWRP). The Level A Plan proposed a new treatment plant in the southeast portion of Mesa del Sol. Subsequent consultation with the WUA led to the relocation of this plant north of Mesa del Sol in the Tijeras Arroyo in the area of the old Montessa Park. Advantages of this location are:

- A major portion of the City's sewage flows in the Tijeras Interceptor, which is located in the Tijeras Arroyo (average flow of 26.6 MGD per the Facilities Plan). The Tijeras Interceptor would be routed to the new MPWRP in the Tijeras Arroyo. This would provide significant relief to the existing SWRP on 2nd Street.
- The MPWRP would benefit from economy of scale in both initial construction and operation and maintenance.
- The reuse water generated at the MPWRP would be approximately 240 feet higher than the similar facilities at the SWRP, a significant energy cost advantage in the future pumping of reuse water to facilities at Mesa del Sol and other appropriate facilities in other parts of the City.
- It is perceived to have fewer siting issues regarding land use and current and future neighbors.
- It is a preferred location for surface injection of a possible future ASR system. A major zone of depression in the aquifer has been documented just north of this proposed MPWRP site.

The proposed location has not been finalized and will be the subject of substantial study. The Montessa Park site is highly desirable for the following reasons:

- Location outside the proposed Tijeras Canyon 500-year floodplain.
- Relative ease of rerouting of the existing gravity Tijeras Interceptor to the MPWRP site.
- Diversion of flow from the University Boulevard outfall sewer via a potential gravity siphon line.

The WUA is considering the MPWRP to be a full treatment facility, including solids treatment. The WUA may pursue innovative technology grants and possible a cooperative approach involving Sandia National Labs, specifically involving solids treatment.

## 5.3 Dry Utility Master Plan

### Project Overview

This Level B Dry Utility Plan is a master plan strategy for developing the dry utilities to support the Mesa del Sol community. This plan expands on the concepts developed in the Mesa del Sol Community Master Plan – Level A. While the names of utility providers are mentioned, no specific companies have been selected. Mesa del Sol reserves the right to use best business practices to select the utility provider. The utility provider reserves the right to determine all technical needs but not those impacting land use and planning issues.

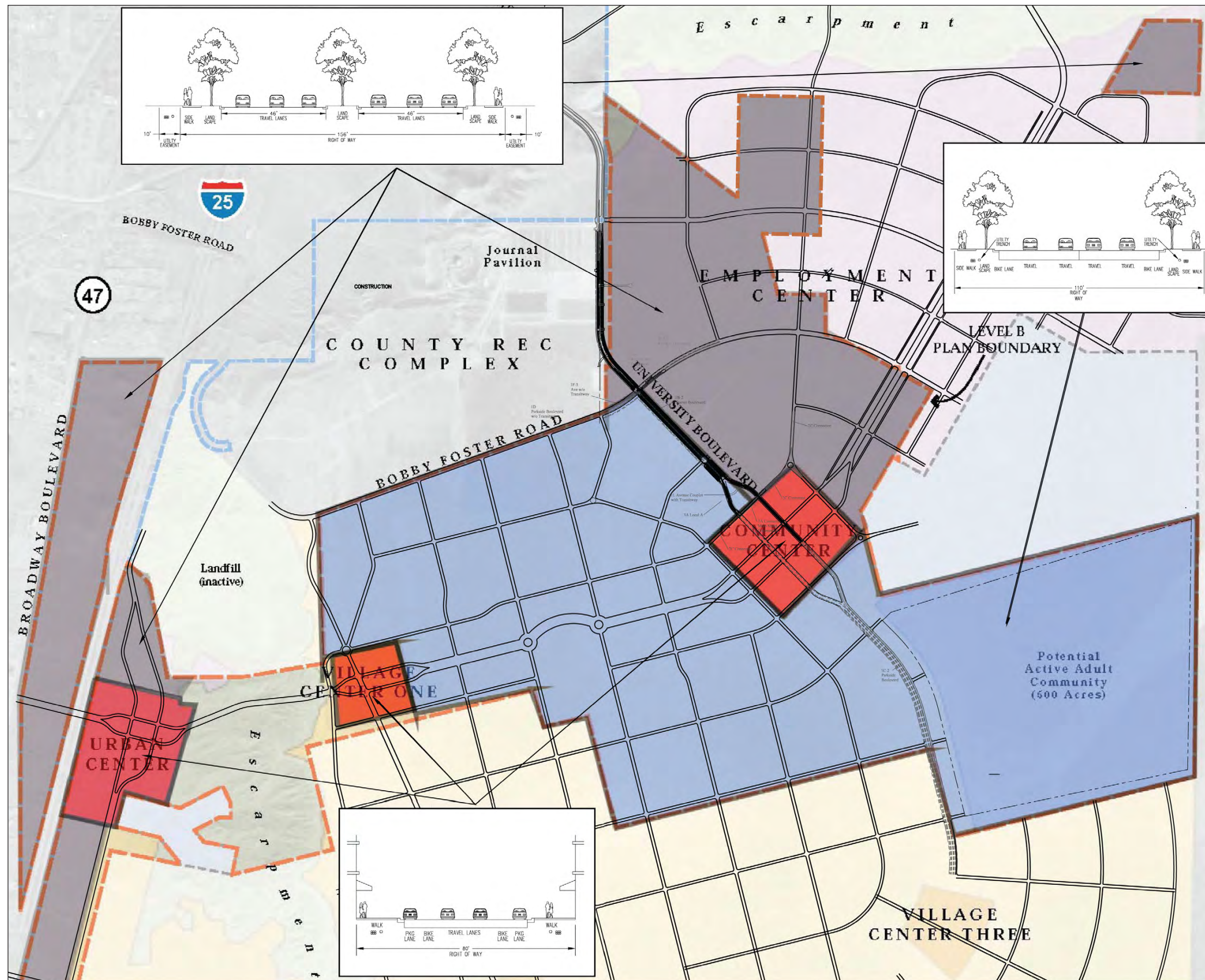
#### *Application of New Urbanist Concepts*

New Urbanist concepts will be applied to the planning, layout and development of the dry utility system within Mesa del Sol. This system will mix new strategies for locating utilities within the transit corridors to reinforce access and construction for walkable neighborhoods and urban town centers. Mesa del Sol will utilize a hierarchy of locations for the differing types of needed installation. Technical needs and aesthetics will determine the best location for each type of system.

Key concepts of New Urbanism applied to dry utilities at Mesa del Sol will include the following:

- Within the employment center, a 10 foot public easement behind the road right-of-way will be granted for routing of utility systems. (See Figure 5-3, “Utility Corridor Street Sections” for installation locations.)
- Planning and development of systems within residential and urban centers will locate utilities within private alleys and adjacent to streets to allow building foundations to encroach to a “zero lot line.” (See Figures 5-3, “Utility Corridor Street Sections” and 5-4, “Typical Alley Installation” for installation locations.)
- Transmission systems’ visual impact will be minimized by running the overhead power lines at mid-block locations perpendicular to streets and at the edges of the open space corridors, and by minimizing the extent to which power lines run alongside streets.
- Distribution systems will be underground for electric, gas and telecommunications facilities. Their location underground will be determined by the zone they occupy.





## UTILITY CORRIDOR STREET SECTIONS

Figure 5-3

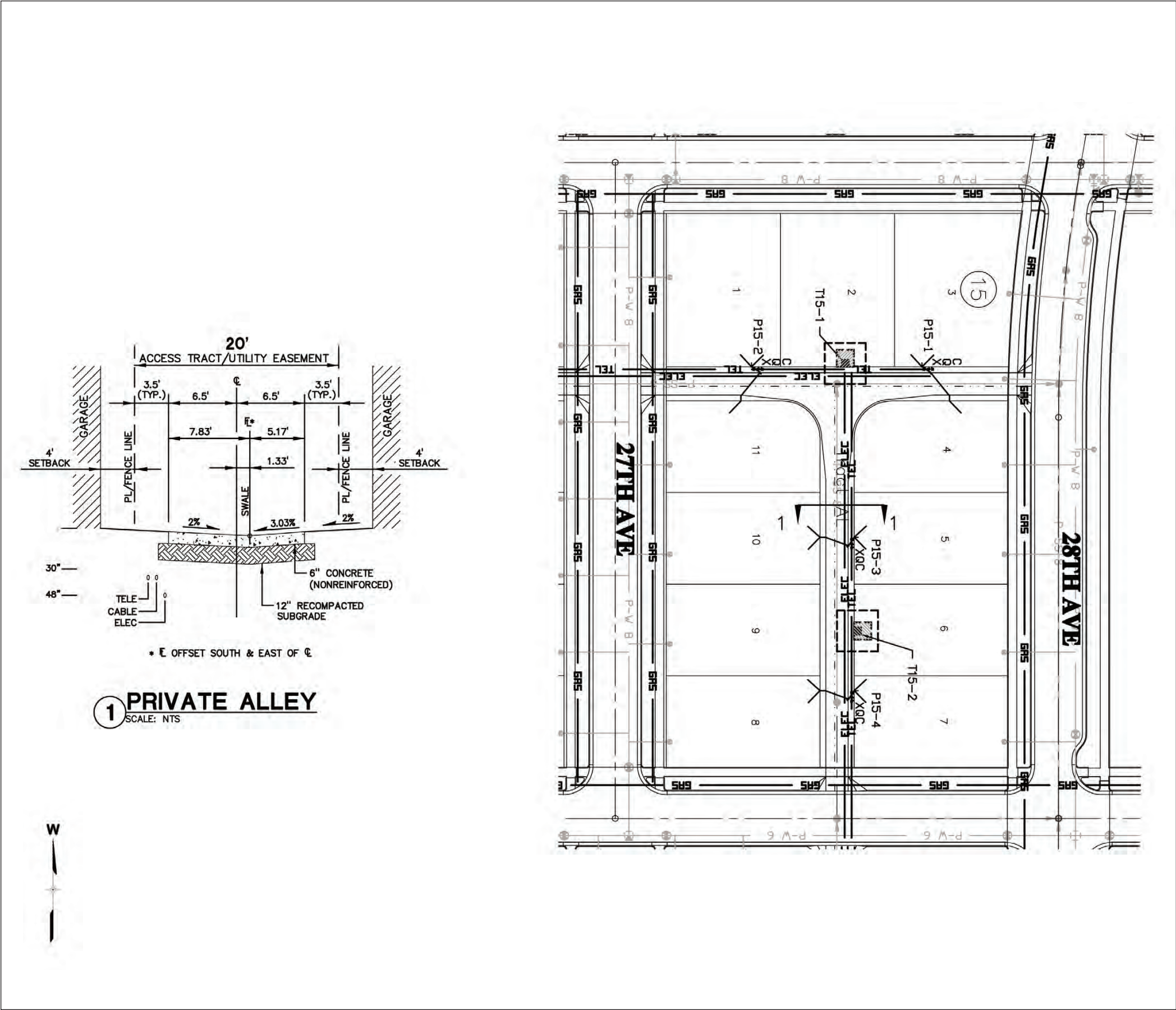
Revised September 2012 - addition of Tract D.





DRY UTILITIES  
COORDINATION:  
TYPICAL INSTALLATION  
DETAILS

Figure 5-4



5.3.1 Electric Supply

Existing System

Within the Level B development area the first planned buildings are already under construction in the employment center. These buildings include Advent Solar and Culver Studios. During the construction of these buildings, University Boulevard is being extended south, beyond the University Boulevard Extension project previously described. To support the development of these new buildings and industries, electric facilities have been extended as well.

PNM, as the electric utility in the Albuquerque area, has several possible transmission lines in proximity to the site. In 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. PNM has another 115kV transmission line running north and south along the west ROW of I-25 in proximity to the future planned Mesa del Sol interchange of I-25. Within the Tijeras Arroyo there is also a 12.47kV distribution line running parallel to the 115kV transmission line, which feeds the County Rec Complex and the Journal Pavilion.

Existing 12.47kV Distribution

The existing 12.47 kV line has limited capacity based on PNM’s present system configuration. For Advent Solar, this line has been extended east, overhead from the Journal Pavilion to University Boulevard. It then transitions to an underground line within the Mesa del Sol development and continues along University Boulevard to Street D. However, due to the line’s limited load capacity, additional electrical systems need to be developed and constructed.

Proposed System

The electrical system will have three components. The first will be the 115 kV transmission systems consisting of the transmission line and structures, and distribution substations. The second system will be the 12.47 kV and 7.2 kV distribution systems. The third will be a transmission switching station to provide reliability to the transmission system serving the area. In order to support the loads required by the build out of Mesa del Sol, 115 kV electrical transmission lines will tie load centers together. By 2007-2008, a 115 kV electrical substation will be installed within Mesa del Sol to continue to feed the site. This substation will be fed from an overhead 115 kV transmission line that will be tied to the existing 115kV line in the Tijeras Arroyo. The location of the new switching station and the routing of the transmission line are being determined by off-site easement availability, costs, and aesthetic considerations. PNM has identified an area north of the Journal Pavilion, at the base of the escarpment for the location of the switching station.

Based on the continued build out load requirements, additional substations will be brought online. The existing feed to the site is a radial distribution line, and the installation of the first substation will include a radial transmission line. The electrical distribution system will feed out of the substations underground. Electric distribution systems will be in a joint trench with Gas, Telecommunications and Television/Internet services beyond substation walls where applicable.

Transmission System

A 115 kV transmission line will be brought into the Mesa del Sol development for the first substation. The requirements of PNM include:

- a) The design and construction of a 115 kV transmission line from the existing 115 kV line located in the Tijeras Arroyo to the first substation;
- b) The design and construction of the first substation; and
- c) PNM is evaluating the construction timing of a switching station that will be constructed north of Mesa del Sol.

PNM is working on the design of the transmission line in the alignment shown in Figure 5-5, Transmission Line Routing. Aesthetics and cost have been taken into consideration in determining the route through the entrance to the Mesa del Sol development. Underground duct banks, for the possible routing of transmission lines, are typically 10 feet wide and 5 feet deep and contain thermal-concrete encased conduits with a thermal backfill to aid in heat dissipation, and may contain splice boxes where required. These splice boxes are approximately 10 feet wide by 20 feet long and will require space for vehicle access and soil storage during construction and maintenance.

The first Substation, shown in Figure 5-5, “Transmission Line Routing,” will need to be on-line to support the employment center as it is built and occupied. Each substation is on a 200 foot by 200 foot lot. The location of the first substation has been considered for proximity to both the Employment center as well as the first Residential neighborhood.

Distribution System

The PNM distribution system is built and operated as a interconnected system. The distribution lines of adjacent substations are interconnected to accommodate transferring load between substations. The details of the distribution will be documented in future Level C submissions. A direct application of New Urbanism will be applied to the routing of the electrical distribution (via joint trench with gas and telecommunications) adjacent to streets and within alleys in the residential zone. Diagrams of this are shown in Figure 5-3, “Utility Corridor Street Sections.”



5.3.2 Gas Supply

Existing Gas System

PNM is also the local gas distribution utility in Albuquerque. The gas systems has been extended from Person Generation Station, east along Rio Bravo Boulevard, and continued down the west side of University Boulevard extension project. It connects to a PNM-built Gas Regulator station within a PNM easement on the north side of Street D. This regulator station will allow for distribution at a design maximum allowable operating pressure of 60lb within the employment center.

Proposed System

The proposed natural gas system will have two different components. The first will be a continuation of the very high-pressure system and the second will be a high-pressure system. The very high-pressure gas system will continue through the development with regulator stations as required by gas consumption and the integrity of the overall system. The high-pressure system will be centered out of the regulator stations; the lines will be sized from 2 inches to 6 inches. The details of the distribution system will be documented in future Level C submissions.

5.3.3 Telecommunications

Facility Providers

Currently, Qwest, Comcast and Time Warner are planning to install infrastructure facilities within Mesa del Sol. Time Warner is bringing services to the employment center, while Qwest and Comcast will be building services throughout the development.

Existing Systems

Existing Telecommunications/Fiber Facilities

Qwest is a franchise utility for telecommunications distribution within the Albuquerque area. Qwest has constructed a 4-way duct bank within the University Boulevard Extension project to tie to previously existing facilities under the future intersection of Rio Bravo and University. Qwest has constructed an RT site on Street D to support the work kicked off by the construction of Advent Solar. Qwest also has an existing fiber line within Los Picaros Road that extends overhead with the PNM distribution line to the Journal Pavilion. It is this line that has been extended to bring initial services to Advent Solar. This line is in the same joint trench with the PNM 12.47 kV electrical distribution supporting Advent Solar. Qwest currently supports broadband facilities as well.

Time Warner Telecom is a fiber based telecommunications provider targeting the business community for telecommunications distribution within the Albuquerque area. Time Warner Telecom has constructed a conduit system within the University Boulevard Extension to tie to future facilities. Time Warner Telecom has researched a diverse fiber path to provide a redundant path to service Mesa del Sol. Time Warner Telecom’s nearest fiber plant is located north of the project at University Boulevard and Randolph.

Existing Broadband Facilities

Comcast is a franchise utility for the distribution of television and broadband internet services within Albuquerque area. Comcast has constructed a conduit system within the University Boulevard Extension project to tie to future facilities. 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.

Proposed Systems

Mesa del Sol is preparing a Telecommunications Master Plan. All options for providers and levels of service will be explored in this master plan. As part of this master plan, types of services and distribution requirements will be established. Depending upon the findings of this master plan, the Telecommunications utilities will continue to develop engineering strategies to meet the needs of the community. However, the details of the distribution systems will be documented in future Level C submissions.

Major Telecommunications Facilities

Except for existing service extensions to Advent Solar and Albuquerque Studios, no decisions have been made for long term providers. This will be subject to further review in the Telecommunications Master Plan.

Qwest

Qwest distribution facilities are installed within the right-of-way. However, Qwest’s RT site does require an easement of 20 feet by 30 feet. Each RT site serves around 400 residential users, and RTs will be frequent within the development of Mesa del Sol. RT locations need access to the right-of-way either by adjacency or additional easement. Planning with Qwest will determine all approvable locations for an easement. Distribution pedestals and splice boxes will be placed in right-of-way along allies and streets.

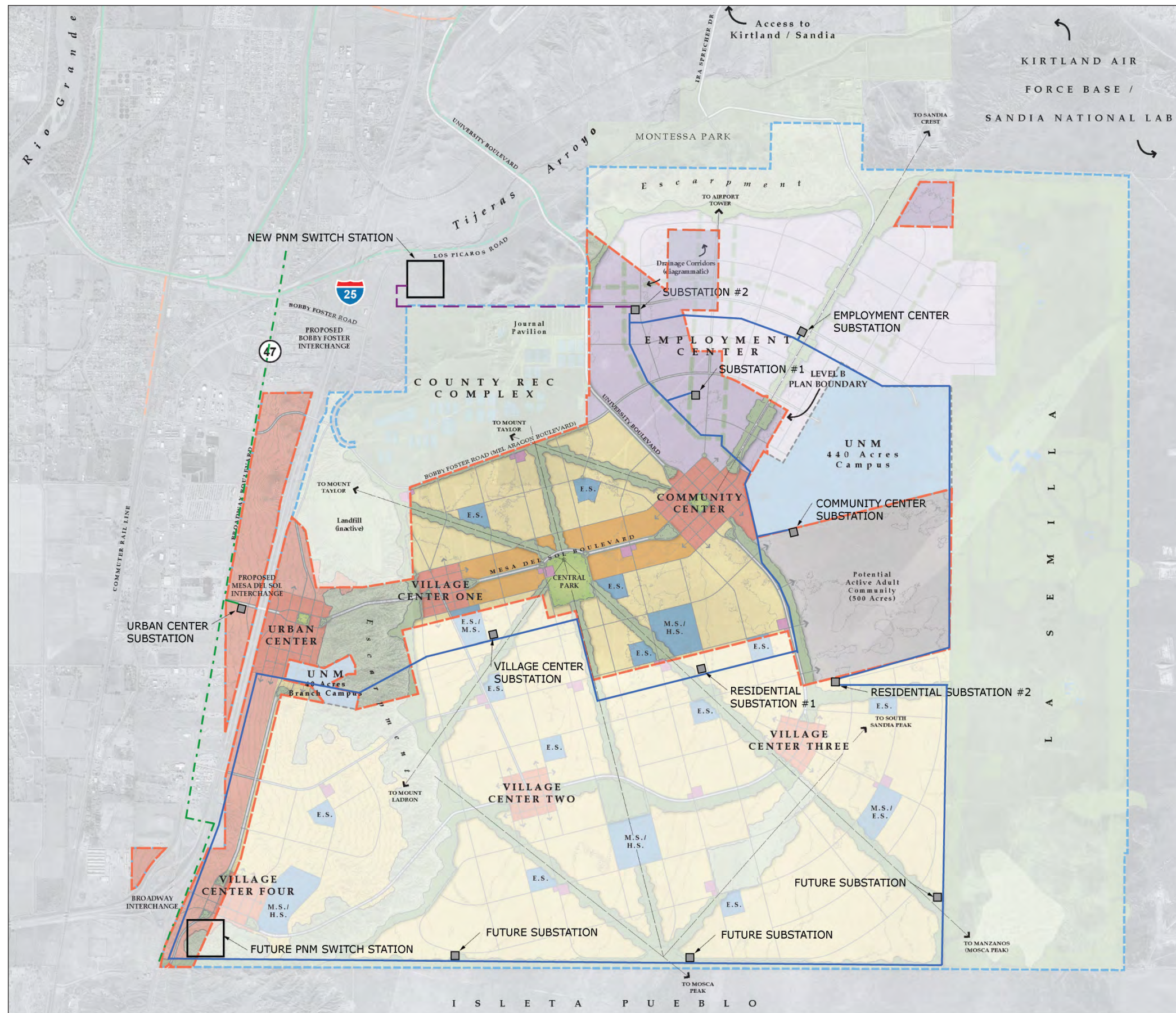
Time Warner

Time Warner Telecom’s distribution facilities are also installed in the right-of-way. Time Warner Telecom prefers to locate their equipment within the main telecommunications room of the building the contracted customer occupies or, less preferably, in the customer’s suite. Time Warner Telecom will only need any external easement for its equipment in uncommon and extraordinary circumstances, in which case a 10 foot by 10 foot easement may be required. Time Warner Telecom’s presence will be mainly in the employment zone of Mesa del Sol.

Comcast

Comcast’s distribution facilities are also installed within the right-of-way. Comcast can install their Node location within the right-of-way. Either by easement or free working space the Comcast node is a 10 foot by 10 foot space, and these nodes will also be frequent within the development of Mesa del Sol. Distribution pedestals and splice boxes will be placed in right-of-way along alleys and streets.





## TRANSMISSION LINE ROUTING

Figure 5-5

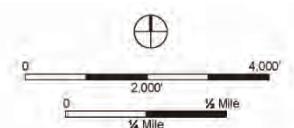
Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.

### Legend

#### LAND USES

- Mixed Use Centers
- Neighborhood Centers (diagrammatic placement)
- Commercial
- School and UNM Land
- Office / R&D
- Corridor Residential
- Residential
- Large Parks
- Trunk Open Space Network
- Steep Slopes and Playas

- Double Circuit Overhead Transmission Line
- Single Circuit Overhead Transmission Line
- Existing 45KV and 115 KV Transmission Lines

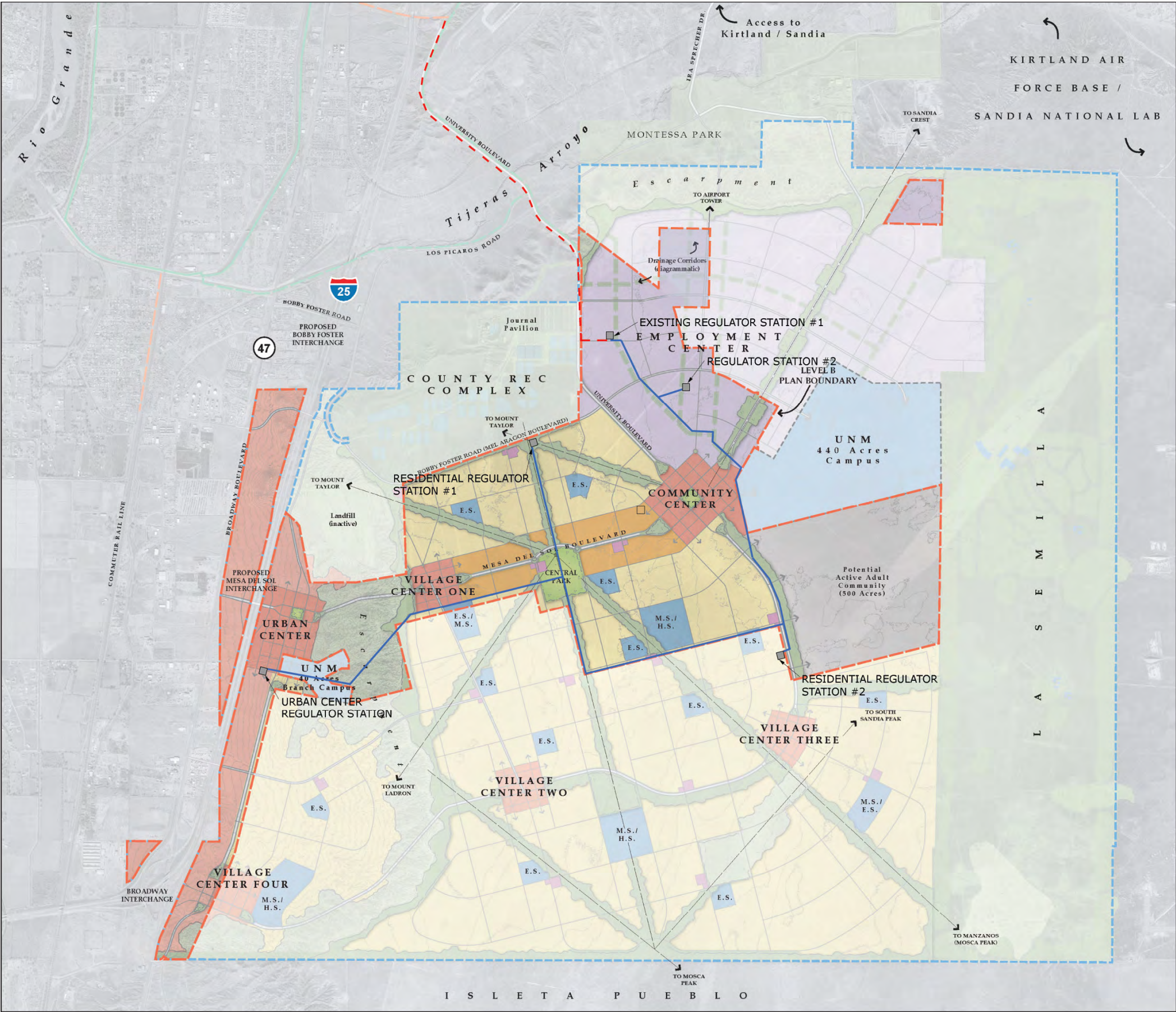
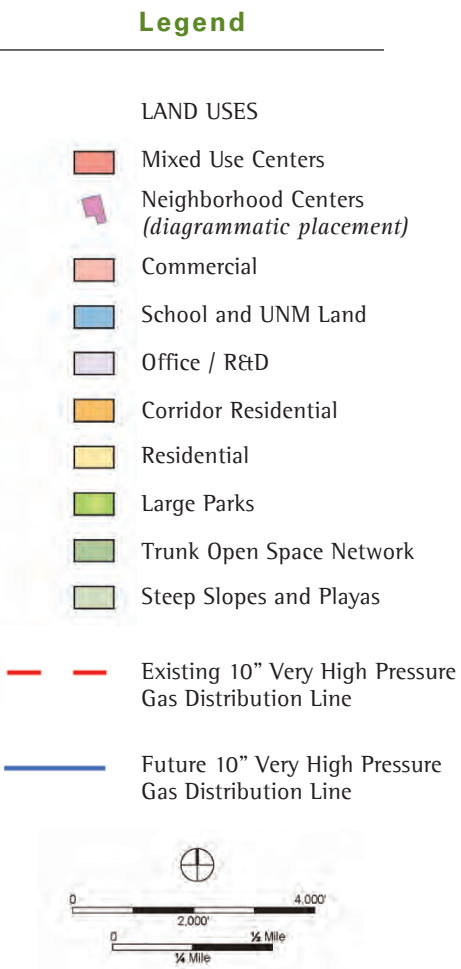




GAS LINE ROUTING

Figure 5-6

Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.





5.3.4 Typical Facility Requirements and System Demands/Loads

Appendix 5C contains more detailed facility requirements as well as data on overall system demands/loads and projected timing of new facilities at Mesa del Sol.

5.4 Lighting

5.4.1 Goals and Objectives

The purpose of the Mesa del Sol Master Lighting Plan is to establish specific site lighting-use criteria for the development of Mesa del Sol. The intent of these guidelines is to enable the appropriate and sustainable use of exterior lighting, and in some cases interior lighting, and to fulfill the long term vision of creating a nighttime environment that uses less energy and is protective of the dark sky, as set forth by the partnership of the Mesa del Sol development team, the City of Albuquerque, and Kirtland Air Force Base.

Humans are creatures of light. Quality lighting is critical to personal comfort, color identification and sense of security. When quality is missing, vision is compromised. The Mesa del Sol Master Lighting Plan sets forth criteria to promote quality design through the following seven fundamental principles:

- a) Create a strong sense of nighttime identity while preserving the neighborhood visual identity.
- b) Minimize glare for the pedestrian and motorist.
- c) Enhance the nighttime environment with appropriate lighting levels while maintaining safety.
- d) Reduce light pollution and eliminate light trespass.
- e) Create a sustainable lighting environment.
- f) Soften the nightscape by developing a natural hierarchy of lighting that will reduce visual clutter from the nighttime environment.
- g) Negate unwanted nightscape light pollution detrimental to the Kirtland Air Force Base complex.

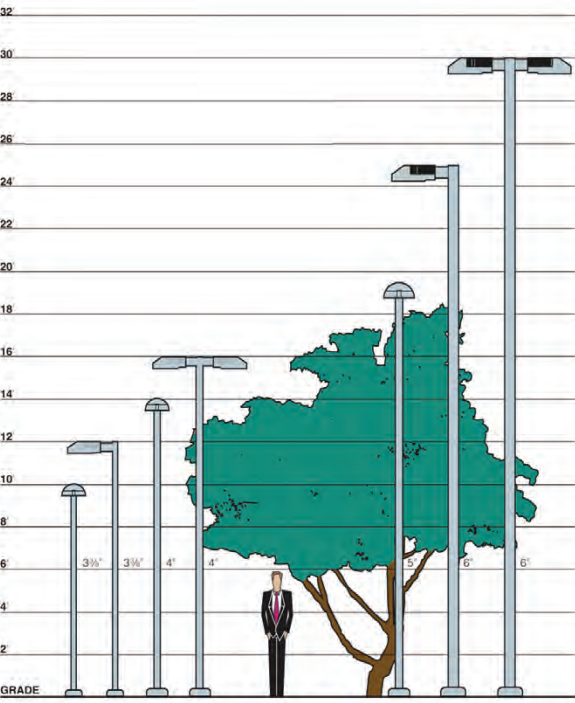
To achieve these goals, the Mesa del Sol Lighting Plan proposes a community-responsive design based on the following 6-step design process:

- a) Community lighting goals.
  - 1. Improve the neighborhood physical environment and strengthen the identity of adjacent communities by the sustainable use of lighting.
  - 2. Demonstrate effective approaches to development that emphasize lighting efficiency, reduce resource consumption and reduce impacts on the natural environment.
  - 3. Provide walkable scale communities that offer a variety of mobility options and address residents’ most basic concerns regarding nighttime safety.
  - 4. Comply fully with “Dark Sky” requirements.
- b) Develop a family of luminaires. The fixtures that are selected can have significant impact in the communities in which they are placed. They can reinforce the community theme or become stylistic elements that people identify with a destination. In choosing a family of luminaires aesthetics, scale, lamp color, performance and quality have been considered to help define the community for many years.
- c) Develop a Family of Lamp Choices. Current technology has given us a broader range of lamps types. These types range from metal halide (white light), fluorescent, incandescent and Light Emitting Diodes (LED). All of these combine the best combinations of lumen to watt ratio, long life, and superior color rendition allowing site lighting to fit a particular urban nightscape.
- d) Luminance ratios impact on visibility. High luminance ratios can create a safety hazard, reduce the ability to perform a task or cause general annoyance. Mesa del Sol has specific luminance ratio guidelines.
- e) Luminaire luminance affects perception of the environment. Luminaire luminance can mean the difference between a quality design and a poor design. A low luminance fixture can direct illumination where it is needed, yet still be a visual element; conversely, a high luminance fixture can be a cause of disability glare. The limitation of sight beyond the fixture is a safety issue, and should be avoided.
- f) Design standards. Design standards for lighting can be found in Section 5.4.4 of this plan.
- g) Educate developers of lighting standards. The guidelines contained within this document should be used to achieve a successful lighting design.

Footnote: (IESNA RP-33-99)

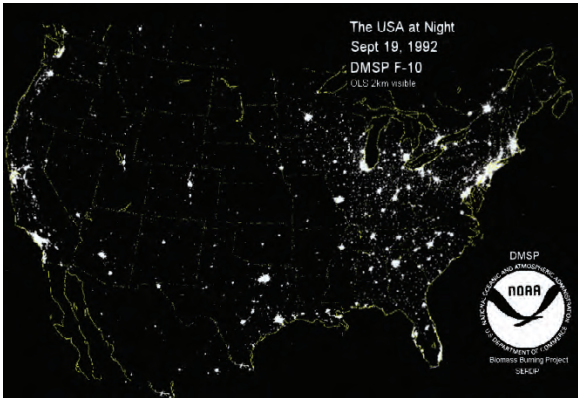


Albuquerque at Night



Choose the appropriate mounting height for the location. Courtesy of Kim Lighting.





*Sustainability and “Dark Sky”*

This section discusses energy and light pollution concerns as they relate to fixture choice, location, maintenance costs, and environmental impact. Good sustainable lighting design encompasses the following points; they become our “Best Management Practices.”

- *Quality.* Using the most efficient reflector/luminaire fixtures that include full or semi-cut off technology.
- *Quantity.* Using fewer, more effective lighting fixtures to achieve design goals.
- *Durability.* Using long-lasting, durable materials to prevent failure and require less frequent replacement.
- *Recyclability.* Using recycled-content materials and packaging that can be safely recycled at end-of-life.
- *Safety.* Using non-toxic materials, coatings and processes that ensure a healthy working environment and prevent pollution.
- *Embedded Energy.* Obtaining materials and components from local sources and using energy-efficient manufacturing processes to reduce the amount of energy used to make and transport products.
- *Energy Effectiveness.* Designing lighting systems that most effectively use the least amount of energy.

Sustainability is an interdisciplinary discussion that reaches beyond lighting design.

*Dark Sky*

The night sky is something many take for granted, yet Albuquerque has one the most spectacular stargazing locations in North America. Albuquerque would lose a pleasant and valuable resource if citizens could no longer enjoy this nightly event. The night sky is in jeopardy of disappearing if lighting designs continue to disregard the adverse effects of throwing light into the sky. As well, a dark night sky is imperative to the mission of the Starfire Optical Range facility at Kirtland Air Force Base.

The Mesa del Sol Master Lighting Plan (MLP) will reduce “sky glow,” energy usage and glare, while improving overall citizen safety and satisfaction and minimizing impact to Kirtland Air Force Base’s Starfire Optical Range complex. Refer to the specific building type section regarding the exact lighting strategy and application.

**5.4.2 Lighting Standards**

*Lighting Zones*

Mesa del Sol’s diverse topography and its lighting development plans will be guided by the creation of Lighting Zones. These zones will define appropriate lighting levels, lamp usage, pole height and other guidelines consistent with the overall land plan. The zones have been developed based on Environmental Zones adopted by the Illuminating Engineering Society of North America. These zones, L-1 through L-4, establish areas of intrinsically dark, low, medium, and high ambient brightness that set the vision for lighting standards in each zone.

*Lighting Zone L-1:*

Areas of intrinsic darkness pertain to natural areas with significant wildlife habitat and would have no added illumination except where needed for nighttime safety. In addition, these areas would establish a distance boundary from the Kirtland AFB and its light sensitive components. Boundaries for Lighting Zone 1 are limited to the established boundaries of the parcels or corridors indicated on the Lighting Zone map. (Mesa del Sol, La Semilla)

*Lighting Zone L-1a:*

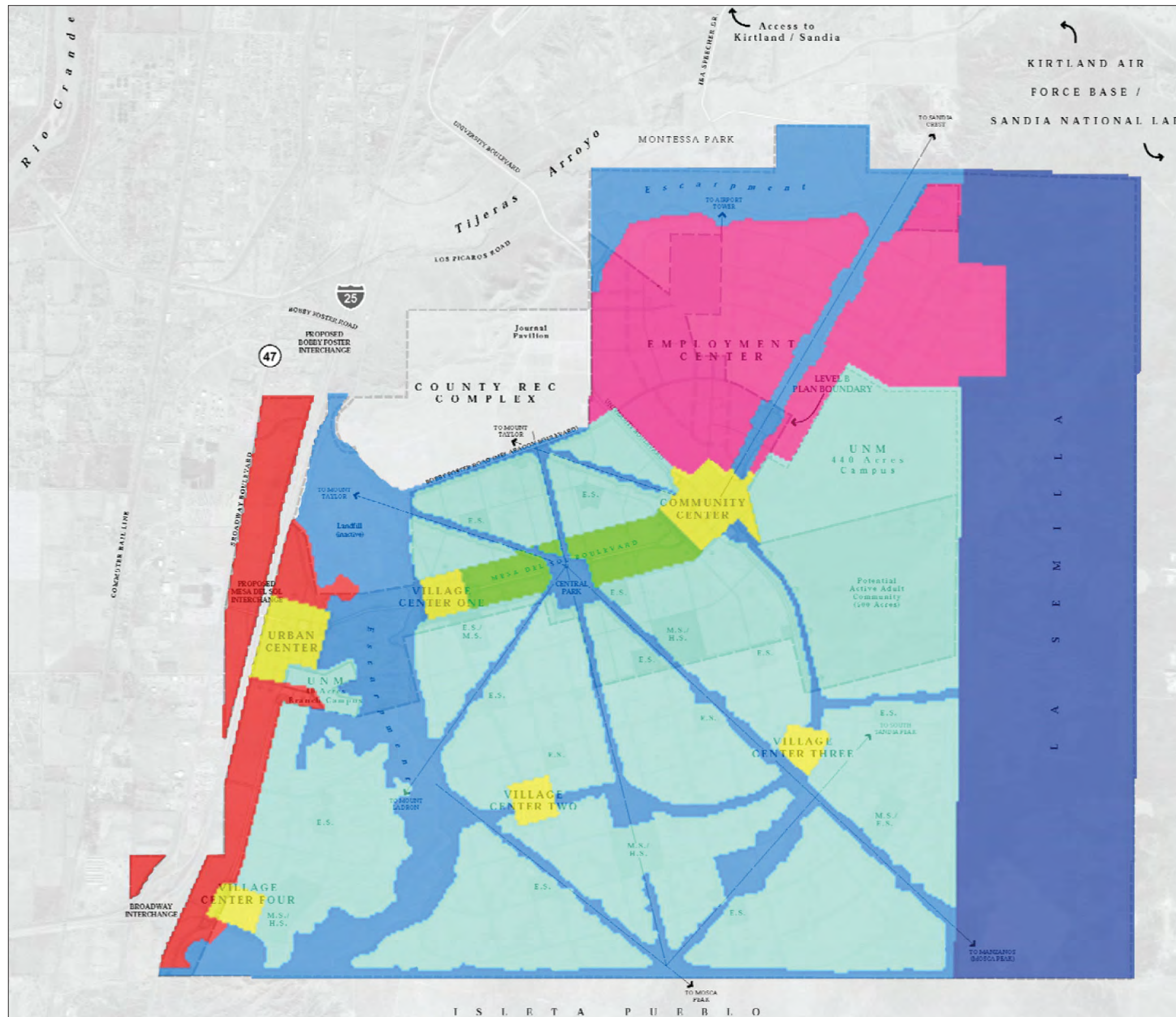
Areas of modest intrinsic darkness include natural areas, open space, parkland, community parks and landscaped transit corridors. Within these zones, areas of nighttime activities and certain visual features require some low level landscape and hardscape lighting. (Mesa del Sol: Open Space, Central Park, County Rec Complex)

*Lighting Zone L-2*

Areas of low ambient brightness include all residential neighborhoods as well as small scale businesses or retail uses not located on major commercial corridors. Requirements in this lighting zone are especially sensitive to the close proximity of residential uses. Lighting Zone 2 consists of all land within Mesa del Sol not specifically identified as Lighting Zone 1, 3 or 4. (Mesa del Sol: Residential Area, Campus)

*Lighting Zone L-2a*

Areas of low ambient brightness exist; yet the urban fabric setting includes a blended mixture of high density urban residential units and pedestrian friendly commercial and retail components. Lighting requirements may require additional safety and pedestrian lighting elements. (Mesa del Sol: Corridor Residential)



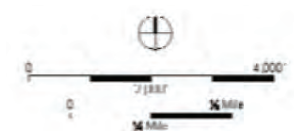
## LIGHTING ZONE PLAN

Figure 5-7

Revised September 2012 - removal of Tract 8 from plan area

### Legend

- Lighting Zone 1
- Lighting Zone 1A
- Lighting Zone 2
- Lighting Zone 2A
- Lighting Zone 3
- Lighting Zone 3A
- Lighting Zone 4





*Lighting Zone L-3*

Areas of medium ambient brightness pertain to the mixed-use centers found throughout the development. Lighting requirements are compatible with a commercial environment, while still being responsive to adjacent residential uses. (Mesa del Sol: Urban Center, Community Center and Village Centers)

*Lighting Zone L-3a*

Areas of medium ambient brightness also pertain to commercial settings where there is little or no nighttime activity requiring illuminated nightscape environment. (Mesa del Sol: Employment Center)

*Lighting Zone L-4*

Areas of high ambient brightness are limited to areas with maximum nighttime pedestrian activity, large scale parking lots and mixed commercial uses. Lighting Zone 4 encompasses high-use nighttime commercial and retail power centers and transit corridors. (Mesa del Sol: Highway Commercial District)

**General Lighting Standards**

*Intent*

To set forth lighting standards for outdoor uses that serve to create a safe and comfortable nighttime environment, while protecting the public's ability to view the night sky. These lighting standards are designed to ensure personal safety and prevent motor vehicle and pedestrian conflicts by reducing the negative effects of glare, light pollution and light trespass.

*Applicability*

The outdoor lighting regulations contained herein shall apply to all exterior lighting and to interior lighting to the extent that it impacts the outdoor environment, including lighted signs but excluding public roadway lighting.

*Exceptions*

- a) Lightning required by the FAA for the air traffic control and warning purposes.
- b) Lighting in the public right-of-way installed by the controlling jurisdiction.
- c) Lighting required temporarily for emergency purposes or repairs in the right-of-way, which must comply with applicable State regulations.
- d) Temporary use of low-wattage lighting for public festivals or events, and the observance of holidays provided they do not create disability glare.
- e) Single-family residential lighting, except as prohibited herein.
- f) Lighting installed by a governmental entity for the benefit of public health, safety, and welfare.

*Prohibited Lighting*

- a) High pressure sodium. Low pressure sodium or Mercury vapor lamping.
- b) Blinking, flashing or changing intensity lights including those proposed for signage.
- c) Lighting that could be confused with a traffic control device.
- d) Lighting of a type, style or intensity determined to interfere with the safe flow of traffic.
- e) Strobe lights, searchlights, beacons and laser light, or similar upward or outward oriented lighting.
- f) Lighting creating a public hazard, including lighting that creates disability glare, particularly where such disability glare has a detrimental effect on motor vehicle traffic.
- g) Light mounted on poles for the purpose of illuminating the building façade.
- h) High-intensity floodlighting except as approved for sports facility lighting.
- i) Wall pack light fixture that are not classified as full cutoff.

**General Requirements**

*Outdoor lighting shall meet the following standards:*

- a) Light fixtures, except as otherwise permitted herein, are required to be full cutoff as defined by the Illuminating Engineers Society of North America (IESNA). Full cutoff light fixtures result in a light distribution pattern where no light is permitted at or above a horizontal plane at the bottom of the fixture.
- b) All outdoor light fixtures should utilize one of the following lamp types: metal halide, induction lamp, compact fluorescent, incandescent (including tungsten-halogen), or Light Emitting Diodes (LED). Alternatives are permitted provided they are demonstrated to be more effective for the proposed use based on IESNA recommendations.
- c) Light fixtures shall be installed and maintained in a manner consistent with the intended application and as approved in the Site Improvement Plan (SIP). Full cut-off fixtures may not be tilted or aimed in a manner that results in light distribution above the horizontal plane.
- d) Light fixtures associated with canopies, including but not limited to fuel islands, seasonal outdoor sales areas, shopping malls, theaters, bank drive-thru and hotels, shall be full cutoff or mounted so that the bottom of the lens is recessed or flush with the bottom surface of the canopy. All light emitted from the canopy shall be substantially confined to the ground directly beneath the perimeter of the canopy. No lighting of any kind, except as permitted by sign regulations, shall be allowed on the top or sides of a canopy. The design of the canopy in terms of height above grade, and the spacing between the fixtures within the canopy, shall be such that the illuminance level under the canopy does not exceed 20 foot-candles.

- 
- e) All light fixtures mounted within 15 feet of any residential property line of the site shall be classified as IES Type II or Type III, or a fixture demonstrated to provide similar distribution patterns and shielding properties. Fixtures shall be fitted with “house side shield” reflectors on the sides facing the residential property line.
  - f) Illuminance levels shall not exceed 10 foot-candles measured as initial horizontal illuminance except as otherwise permitted herein. The initial illuminance level is measured following 100 hours of operation. The illuminance levels at building entrances and windows may exceed 10 foot-candles by 100% up to a distance of 5 feet from the building only in order to accommodate light spillage from within the building and light from signage. At a distance of 10 feet from the building or use, the illuminance level must be less than or equal to 10 foot-candles.
  - g) The use of horizontal lamps is recommended for pole mounted light fixtures in parking lots. If the lamp position within a fixture is vertical, any or all of the following may be required:
    - 1. A high socket mount
    - 2. A translucent fixture lens
    - 3. An opaque coating or shield on a portion of the lens perimeter
    - 4. Other industry accepted measures
  - h) The protective pole standard/base may not exceed a height of 30 inches from grade. If the pole is otherwise protected within a parking island or an intervening curb or walkway, no standard is required. Maximum parking lot pole height shall be as follows:  
25 feet when fixture is located within 75 feet of the site’s boundary; and  
30 feet when the fixture is located beyond 75 feet from the site’s boundary, provided that for mounting heights in excess of 25 feet, the distance of the fixture to the site’s boundary be not less than three times the mounting height.
  - i) A maximum of two light fixtures per pole is recommended for parking lots except for perimeter lighting, which should be limited to one fixture per pole. The fixtures shall not incorporate “basket” features or similar design elements that could deflect light horizontally or upward. Perimeter lighting must be classified by IES as Type II, or Type III, or a fixture demonstrated to provide similar distribution patterns and shielding properties.
  - j) The use of semi-cutoff or cutoff (as opposed to full cutoff) fixtures shall be permitted to illuminate areas other than parking lots provided the pole or mounting point is no more than 10 feet in height and the maximum lumen output does not exceed 1800 lumens per lamp. A maximum of 1 lamp per fixture and 2 fixtures per pole or mounting point is strongly encouraged.
  - k) Fixtures located on poles or at mounting point more than 10 feet in height, or that exceed 1800 lumens per lamp, shall be full cutoff fixtures.
  - l) Lighted bollards, or similar light fixtures that do not exceed 4 feet in height, intended to illuminate landscape features or walkways, may be permitted as part of the overall lighting plan upon approval of the SIP. Lamps shall not exceed 900 lumens for any single lamp. A maximum of 2 fixtures per bollard and 1 lamp per fixture is recommended.
  - m) All lights, except those required for security as provided herein, shall be reduced to security levels within one hour after the end of business until one hour prior to the commencement of business. Security lighting at entrances, stairways and loading docks, as well as limited parking lot lighting, is permitted. The use of motion sensors for security lighting is strongly encouraged. Location of motion sensors shall not allow unnecessary triggering from normal pedestrian or vehicle movement. Security lighting shall comply with all applicable provisions contained herein and may not exceed the maximum foot-candle level permitted on the site.
  - n) All stadium and other exterior sports arena lights used for the purpose of illuminance of the playing area shall be turned off following the conclusion of the final event of the night. The remainder of the facility lighting, except for reasons of security, shall be turned off within one hour after the event, and remain extinguished until one hour prior to the commencement of the next event.
  - o) All signage lighting shall be turned off within one hour of the end of business and remain turned off until one hour prior to commencement of business. Verification of the ability to control the signage lighting shall be required as part of the sign permit application.
  - p) Illuminance of a building façade to enhance architectural features may be permitted provided it is approved on the Site Improvement Plan (SIP). Downlighting is preferred provided wall-mounted fixtures are used and illuminance is contained completely within the vertical face of the building and does not spill off the building edge. Uplighting may be permitted provided no illuminance escapes the façade. Building facades may be illuminated to a maximum of 20 foot-candles as measured on the façade. Lights mounted on poles for the purpose of illuminating the building façade are not permitted.
  - q) Lighting in single-family residential areas and agricultural areas should be limited to 2400 lumens per fixture unless shielded. Lighting used for security purposes should be placed on motion sensors.



- 
- r) Illumination of a flag on a flagpole is permitted provided a narrow spread 39-watt PAR metal halide or 50-watt PAR-halogen lamp, or an equivalent lamp with a similar narrow spread, is used and aimed to only illuminate the tope of the flagpole. The source of illuminance (lamp) must be shielded in a manner so as not to be visible from adjacent property.
  - s) The source of illuminance (lamp) from any fixture, including interior fixtures visible through windows, shall not create disability glare on adjacent properties.

*Sign Lighting*

- t) Signs may be internally illuminated, backlit, or illuminated by down lighting or by ground-mounted light fixtures that illuminate the sign face and base only. Once the ground-mounted light fixtures are positioned and aimed in accordance with these requirements, they shall be permanently secured to prevent inadvertent or accidental misalignment.
- u) Illuminance of the sign face by ground mounted light fixtures shall not exceed 50 foot-candles as measured on the sign face. It is suggested that the design of internally illuminated cabinet signs consist of lighter lettering on a darker background in order to maximize visibility. Internally illuminated signs shall be limited to a maximum of 1,000 nits. No sign may be illuminated with fixtures that allow for the unshielded upward transmission of light.

*Lighting Plan Requirements*

The Mesa del Sol Architectural Review Committee (ARC) will review lighting plans for compliance with the standards listed above, as well as those included in the Appendix 5D, before submitting projects for Level C review. Level C plans shall include the following:

- a) A narrative describing how the design of the proposed lighting, including the fixture types, mounting heights, lamp types, locations, illuminance levels, controls, and sign lighting, complies with the intent of the context and the regulations contained herein.
- b) Identification and description of all light fixture locations including whether they are pole-ground- or building-mounted. The location of the light fixtures shall also be shown on the Landscape Plan.
- c) Description of light-level-reduction controls for each fixture or grouping of fixtures, and resulting after-hours light levels.
- d) Maximum outdoor illuminance levels shall include signage lighting and light spillage from within a building; the impact of this illuminance shall be described in the light-ing plan narrative.



# PUBLIC FACILITIES

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

6



This chapter discusses planning and design considerations for the public facilities proposed for Mesa del Sol. Parks and recreation facilities are also discussed in Section 2.6, Open Space and Parks.

## Public Facilities



### 6.1 Schools

Education is a key component to the success of Mesa del Sol. Mesa del Sol is based upon a concept of lifelong learning, starting with pre-school facilities and continuing through to adult learning. Schools form the basic building block of the land use plan, with neighborhoods sized and organized around the projected population for an elementary school. The University of New Mexico (UNM) has two parcels of land within Mesa del Sol that will ultimately be developed as satellite campuses. UNM, along with the state's public schools, are also beneficiaries of the State Trust lands at Mesa del Sol. Both UNM and the public schools will receive revenue as a result of the development at Mesa del Sol. UNM is also an actual partner in the development entity.

An overall education master plan is being developed for the project. This plan will explore all options for provision of education. It is being modeled after the approach to Forest City's Stapleton Education Master Plan, a copy of which is attached as an exhibit to the Level B Plan. Mindful of how demand for classrooms on the West Side has resulted in overflowing classes, anxiety about school enrollment and less than optimal learning conditions, Forest City Covington (FCC) is working on a plan to have Mesa del Sol's first elementary school built within the next four years.

The land use plan for the Level B area anticipates two elementary schools and one middle school or high school (see Figure 1-1, Level B Master Plan). These schools will be designed so that they reflect the overall land use character of Mesa del Sol. Generally, this means smaller sized campuses that are connected to the surrounding neighborhoods by a network of streets, bike lanes and pedestrian trails. The first elementary school in the Level B area will likely be seven to nine acres in size.

As specified in the Planned Communities Criteria, Forest City Covington is working with Albuquerque Public Schools (APS) to anticipate the projected demand for potential APS facilities. APS has indicated, subject to funding availability, including negotiations for developer participation, a willingness to work to meet this schedule. APS understands FCC's desire for construction of permanent facilities and not mobile classrooms. FCC will commit to donating the land for public schools and extending infrastructure to the sites. Any additional developer contributions will be negotiated as part of an overall agreement with the public school district and will reflect the level of the school district's participation at Mesa del Sol.

APS has confirmed that there is sufficient capacity at existing schools to serve new residents at Mesa del Sol. APS states that the Albuquerque High School Cluster could service the Mesa del Sol's first residents. Feeder schools include East San Jose, Kirtland and Lowell Elementary Schools, and Washington and Wilson Middle Schools. According to APS projections, all these feeder schools have excess capacity and can accommodate additional students (see projected enrollment charts from APS that accompanied the overall Level B submittal).

As discussed in the Level A master plan, the schools will serve as the focal point for the surrounding community. This "multi-purpose" approach means that the facilities built for the school are accessible and open for use to the larger community. For instance, ball-fields will be available for use after school hours and libraries will be open to the public. Day care facilities for pre-kindergarten age children may co-locate on the campuses.

Shared uses and co-location of facilities will require close coordination between Mesa del Sol, the school system, and the City of Albuquerque on issues of operations and maintenance, oversight, and liability. In keeping with the overall stormwater management strategy for Mesa del Sol, it is possible that the ballfields on the school sites will also serve as retention basins, similar in concept to the football field at Highland High School, where the field couples as a stormwater detention basin.

**6.2 Police Facilities**

FCC is working with the Albuquerque Police Department on phasing, planning and potential locations for police services at Mesa del Sol. Co-location of facilities is desirable and will be a consideration in locating police, fire and other services. Costs associated with provision of police services for Mesa del Sol will be established as part of the development agreement between the City and FCC.

FCC will reserve land within the Level B area for the first police substation. It will likely be near a major intersection in the first phase of development. It is understood that the service area for the police substation will extend beyond the boundaries of Mesa del Sol.

None of the three existing City police substations are proximate to Mesa del Sol; Bernalillo County is currently positioned best to provide police services to the site. For this reason, during the first phases of development police services will likely be provided by Bernalillo County, under provisions of a cooperative mutual aid agreement between the City and the County.

**6.3 Fire Protection**

Access for fire apparatus will be provided primarily from streets within Mesa del Sol, and secondarily from shared driveways and alleys. Mesa del Sol’s streets will serve as fire apparatus access roads and, following the International Fire Code, these roads shall extend to within 150 feet of all portions of buildings or facilities and all portions of the exterior walls of the first story of buildings, as measured by an approved route around the entire building. When buildings are located at distances greater than 150 feet, as described above, FCC will employ two approaches: either the roadway will be designed with an approved area for turning around fire apparatus, or approved sprinkler systems will be used.

A Bernalillo County substation located along Broadway Boulevard currently serves Mesa del Sol. No specific location for a fire station has been identified at Mesa del Sol as part of the Level B Plan, but FCC will identify sites with good potential for a fire station. With Level C submittals, and as development is phased over time, FCC will provide more specifics on a fire station site that will be located appropriately and designed as a community focal point. As with the police station, the most likely location will be at or near a mixed-use center, which is typically located at the intersections of major roadways, making the station highly accessible to locations within the respective service area. Co-location of facilities is desirable and will be a consideration in locating police, fire and other services. Fire protection services located at Mesa del Sol will serve only the Mesa del Sol service area on a regular basis, providing emergency services to other areas of the city as necessary. Costs associated with provision of police services for Mesa del Sol will be established as part of the development agreement between the city and FCC.

**6.4 Solid Waste**

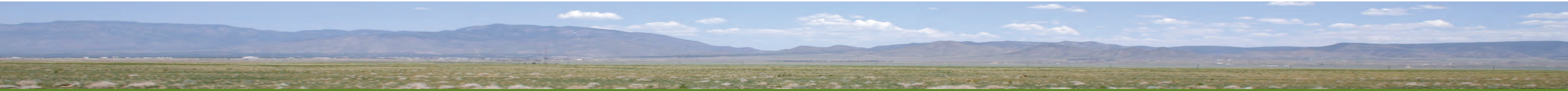
Solid waste services will be provided by the City of Albuquerque. An existing solid waste transfer station is located just north of the Mesa del Sol master planned community and is accessed by Los Picaros Road.

Access for solid waste vehicles and pick up of solid waste receptacles at Mesa del Sol will be primarily from alleys that will be located in both residential and commercial areas. In some residential neighborhoods and other areas, access is provided by driveways. When there is no alley access, solid waste receptacles will be picked up on the streets at curbside. Alleys will have a 13’ wide paved surface in the center of the right-of-way for vehicular access. Some alleys will have a “T” or “H” configurations; alleys of these types will be appropriately designed and constructed with larger radii to accommodate turning movements for solid waste vehicles. Alleys at Mesa del Sol will be private alleys managed by FCC.









# APPROVALS PROCESS

LEVEL B PLAN: AS APPROVED BY DRB FEBRUARY 2008  
REVISED SEPTEMBER 2012

7



## Approvals Process

The Mesa del Sol Level B Plan is the principal plan regulating development within the Level B area. This document refines land planning for a 3,151-acre area in a manner consistent with and supportive of the goals and policies of the Mesa del Sol Level A Plan, the Planned Communities Criteria, the Albuquerque/Bernalillo County Comprehensive Plan and the Planned Growth Strategy.

### 7.1 Process Overview

In the Level B Plan, as required by the Planned Communities Criteria, the land use districts of the Level A have been further defined and design standards are codified for all development within those districts. Certain universal characteristics of development, such as transportation, drainage, lighting, signage, open space, parks, trails and public facilities are also described in greater detail, along with standards for their ownership, design, and maintenance. The Technical Appendices submitted with this plan are incorporated by reference and made part of this Level B Master Plan.

#### Initial Approval of the Level B Plan

The authority to approve this Level B Plan is reserved to the Environmental Planning Commission by the Planned Communities Criteria (page 38).

#### Amendments to the Level B Plan

In accordance with general practice:

- a) Text amendments for the purposes of clarifying or correcting errors in the original writing are approved by the Planning Director.
- b) Text amendments having substantive affect on zoning entitlements are approved by the Environmental Planning Commission.
- c) District boundary changes encompassing less than 10 acres are approved by the Planning Director.
- d) District boundary changes encompassing more than 10 acres require approval by the Environmental Planning Commission.
- e) In this context “boundary change” does not mean moving, turning, or reconfiguring the given acreage of a district; “boundary change” means the addition or subtraction of land area that, in aggregate, makes a district larger or smaller.

### 7.2 Level C Approval Process

#### Submittals Consistent with Definitions of “Site Plan”

Once the Level B Plan is approved, all subsequent development must comply with its standards and guidelines. The Planned Communities Criteria imply (page 41) that a plan submitted pursuant to the Level B Plan is to be either a “Site Plan for Subdivision” or a “Site Plan for Building Permit” as defined in the Comprehensive City Zoning Code Section 14.16.5.

#### Staff Authority to Approve

According to the Planned Communities Criteria (page 41), Level C approvals are by “Staff, with pre-application conference.” For the purposes of this Plan, this is construed to mean the Planning Director, or his or her designee, and/or the Development Review Board.

#### Emulation of Downtown 2010 Plan

This Level B Plan calls for close emulation of the approval process already used by the City in the Downtown 2010 Plan, to wit:

This Level B Plan defines land uses by three standards:

- By land area or “District”
- By a set of land uses allowed in each District
- A “form-based” or “envelope” model of various land uses and land use combinations

This Level B Plan then establishes a matrix of “District” and “Use” assigns to the various combinations certain approval process requirement. Table 7-1, on the following page, summarizes the types of uses that are permissive and conditional in each of the proposed land use designations. Each “district/use combination” is also marked as to whether approval at a higher than staff level is required.

The process for project review is outlined in Figure 7-1 and is synthesized thus:

1. All proposals must first obtain the endorsement of the Mesa Del Sol Architectural

Table 7-1 Approval Matrix

	Urban Center	Community Center	Village Centers	Campus	Employment District ***	Highway Commercial ***	Residential Villages	Open Space and Parks
R-1 Residential	X	X	X	X	X	X	P	X
R-T Residential	P	P	P	X	X	X	P	X
R-G Residential	P	P	P	X	X	X	P	X
R-2 Residential	P	P	P	X	X	X	P	X
R-3 Residential	P	P	P	X	P	X	P	X
RC Live/work	P	P	P	X	P	X	P	X
O-1 Office & Institution	P	P	P	P	P	P	X	R
C-1 Neighborhood Commercial	P	P	P*	X	P	P	P**	X
C-2 Community Commercial	P	P	X	X	P	P	X	X
C-3 Heavy Commercial	R	X	X	X	P	P	X	X
IP Industrial Park	R	X	X	X	P	P	X	X
M-1 Light Manufacturing	R	X	X	X	P	P	X	X
SU-1 Special Uses	R	R	R	R	R	R	R	R
Conditional Uses	R	R	R	R	R	R	R	R

Permitted Use

Review Required

Not Permitted

\*Including grocery stores with package liquor and restaurants with full liquor service.

\*\*Permissive as a home occupation, but other uses are conditional.

\*\*\*Signage requirements are as regulated in the signage standards of the Level B Technical Appendix, and as amended in the Appendix on page 107.

Wireless Telecommunications Facilities shall be permissive in all districts (see Appendix B, pages 108 and 109).

Temporary cellular facilities including but not limited to “cellular on wheels” trucks are permitted on any site for a period of up to one eighteen months.

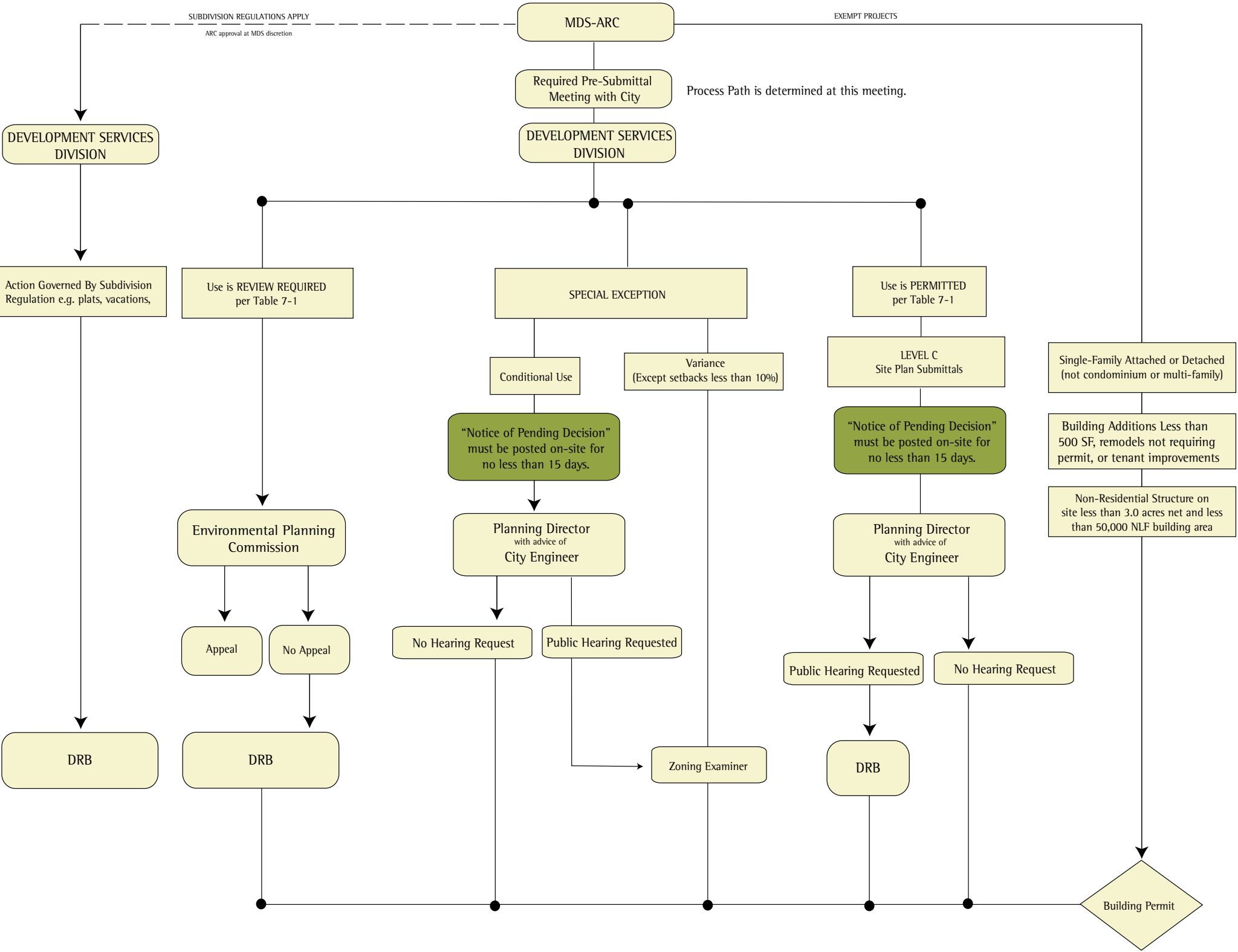
Schools, as permitted in the O-1 code, are permissive anywhere in any district of this Level B Plan.

General note for all districts

1. All dumpsters shall be enclosed on all sides.
2. Barbed wire and concertina wire shall be prohibited except where used by government agencies for public safety purposes. Galvanized diamond mesh chain-link fence is also prohibited as a permanent installation, but can be used for temporary definition of phasing lines or during construction.



Figure 7-1 Approval Process



- The process for project review is outlined in Figure 7-1 and is synthesized thus:
1. All proposals, except as noted herein, must first obtain the review and approval of the Mesa Del Sol Architectural Review Committee or ARC. The ARC shall notify the City in writing that a proposal meets all requirements of the Level A and Level B Plans, and is complete with regard to Level C submittal criteria listed in the Planned Community Criteria. At its sole discretion, the ARC may, but is not required to, comment upon applications for matters governed by the Subdivision Regulation.
  2. Submittals for "exempt projects" are made directly to the Code Administration Division for building permit.
  3. Any proposal for an action governed by the Subdivision Regulation shall remain the purview of the Development Review Board and submittals are made directly to the Development Services Division.
  4. All other submittals will be made as follows:
    - a. A "pre-application meeting" with the Planning Director and City Engineer, or their designees, is required. Upon presentation of the certification required above, the proper submittal process will be determined as set forth in Figure 7-1.
    - b. For "Review Required" proposals, submittal is made to the Environmental Planning Commission under standard City procedures.
    - c. For "Conditional Uses" applications will be forwarded to the Planning Director under the terms of the Level A Plan, which makes Conditional Uses "permissive" at the Director's discretion. The latter's decision shall be considered an administrative action on the part of the City. The applicant shall post a "Notice of Pending Decision" sign on the site for fifteen days, requesting public comment, and a final decision shall not be made until a minimum of three days after the final date of the required posting. The Director shall send notice of the decision to any person or organization who may have filed comments with the Director pursuant to the notice provision above. If during the public comment period, a request for public hearing is received the Director and City Engineer shall require the proposal to be heard by the Development Review Board at a public hearing. If no request for a public hearing is received, the Director shall forward the application to Code Administration for building permit review.
    - d. For variances from the Level A and Level B design standards, application is made to the Zoning Hearing Examiner, and follows the standard City procedures. Setback variance less than 10% may be granted by the ARC.
    - e. Where a proposal is for Site Plan for Subdivision or a Site Plan for Building Permit, for a "Permitted Use" as determined by Figure 7-1, the Planning Director and City Engineer shall determine whether part or all of any proposal should be directed to the Development Review Board (for platting, vacation, and infrastructure-related actions as required by the Subdivision Regulation) or, if such action is not needed, shall have the discretion to approve the project and direct it to be submitted to Code Administration for building permit review. The applicant shall post a "Notice of Pending Decision" sign on the site for fifteen days, requesting public comment, and a final decision shall not be made until a minimum of three days after the final date of the required posting. The Director shall send notice of the decision to any person or organization who may have filed comments with the Director pursuant to the notice provision above. If, during the public comment period, a request for public hearing is received the Director and City Engineer shall require the proposal to be heard by the Development Review Board at a public hearing. If no request for a public hearing is received, the Director shall forward the application to Code Administration for building permit review.
  5. Appeal of any action listed above is as governed in Section 14-16-4-4 of the Comprehensive Zoning Code.

Appendix

Addendum: Amendments to Level B Technical Appendices

Section 2A.6.1.a  
Sign Code Standards for Employment Center

1. Employment Center:

A) Permitted Signs-On Premise

- 1. Wall mounted signs
- ii. Size not to exceed 1 sq. ft per linear foot of building façade along street frontage or 75 sq. ft whichever is less
- 2. Freestanding Monument Signs
- iii. Sign face area not to exceed 75 sq ft.
- 3. Canopy Signs
- ii. Size not to exceed 1 sq ft per linear foot of building façade along street frontage or 75 sq ft, whichever is less
- 4. Marquee Signs
- ii. Size not to exceed 1 sq ft per linear foot of building façade along street frontage or 75 sq ft, whichever is less
- 6. Permanent Directory Listing-Freestanding size not to exceed 75 sq. ft
- 7. Joint Premise Signs size not to exceed 1 sq ft per linear foot of building façade along street frontage or 75 sq ft, whichever is less

Section 2.A.6.2.a  
Highway Commercial District

A) Permitted Signs-On Premise

- 1. Wall mounted signs
- ii. Size not to exceed 1.5 sq. ft per linear foot of building façade along street frontage or 75 sq. ft whichever is less
- 2. Freestanding Monument Signs
- iii. Sign face area not to exceed 250 sq ft.

3. Canopy Signs

- ii. Size not to exceed 1.5 sq ft per linear foot of building façade along street frontage or 75 sq ft, whichever is less
- 4. Marquee Signs
- ii. Size not to exceed 1.5 sq ft per linear foot of building façade along street frontage or 75 sq ft, whichever is less
- 6. Permanent Directory Listing-Freestanding size not to exceed 100 sq. ft
- 7. Joint Premise Signs size not to exceed 1.5 sq ft per linear foot of building façade along street frontage or 150 sq ft, whichever is less.

On Page 19 insert a new Section 2.C.d.3

The turf mix shall not exceed more than 20% high water use turf. Its use is intended to be permissive only for usable open space or active recreational settings, which may be applicable to individual properties. High water turf shall not be used as decorative landscaping in entries to commercial uses.

On Page 19 shall be referred Section 2.D and subject to the following amendments.

Move Desert Willow to the “Other Trees” list. May be used as a street tree with permission of City Forester.

Add purple Robe Locust, Arizona Rosewood to the tree list.

Use of highly allergenic trees will only be allowed with the permission of the City Forester.

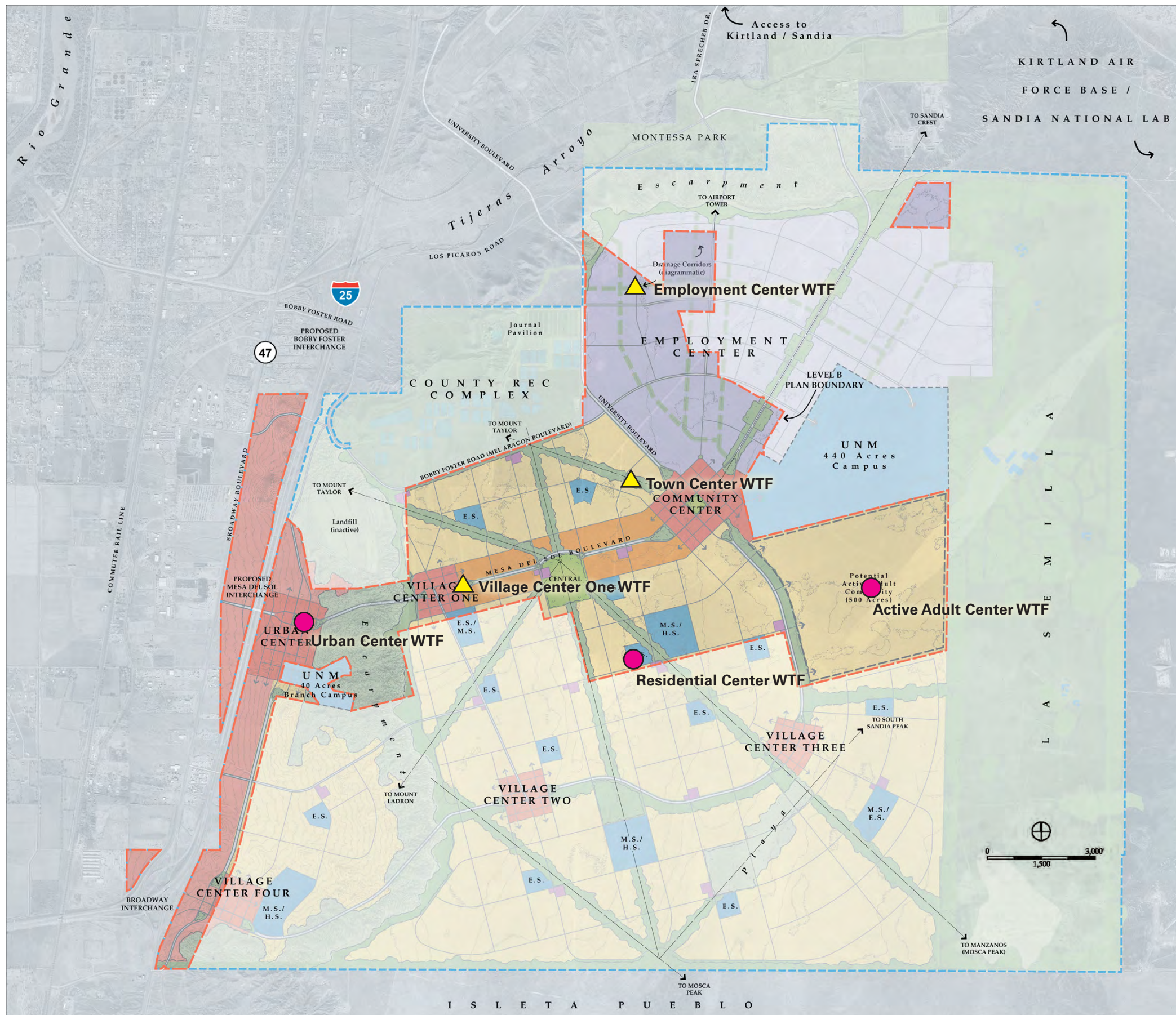
September 2012

NOTE: Technical Appendices pages 39, 40, 41, 96, 106, and 127 were updated to reflect revised Level B Plan.

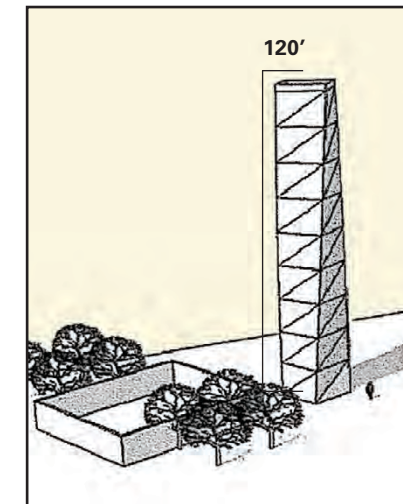




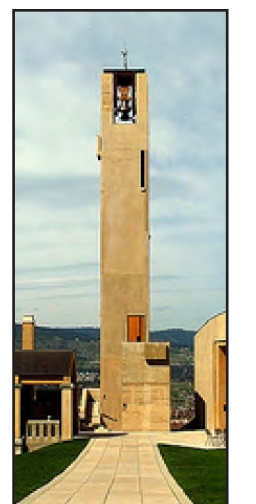
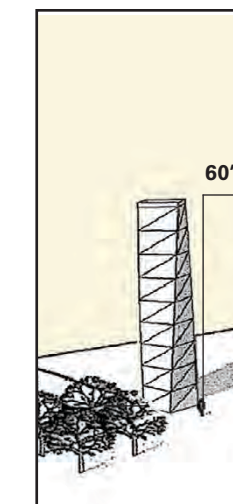




Revised September 2012 - addition of Tract D and removal of Tract 8 from plan area.



Primary WTFs are permitted up to a height of 120'. Images provided for illustrative purposes only.



Secondary WTFs are permitted up to a height of 60'. Exterior design may vary among towers. Images provided for illustrative purposes only.

 **Primary Wireless Telecommunication Facility (PWTF)**  
Location is accurate to within 200 feet.

 **Secondary Wireless Telecommunication Facility (SWTF)**  
Location is accurate to within 500 feet.



Additions to  
Plant Palette

Regionally Native Plants

Other Trees

Acer glabrum	Rocky Mountain Maple
Acer grandidentatum	Big Tooth Maple
Amelanchier utahensis	Utah Serviceberry
Populus tremuloides	Quaking Aspen
Quercus grisea	Gray Oak

Evergreen Trees

Pinus ponderosa	Ponderosa Pine
Pinus strobiformis	Southwestern White Pine

Evergreen/Ever-gray Shrubs

Artemisia tridentate	Big Sage
Eurotia lanata	Winterfat

Mahonia sp.	Barberry
-------------	----------

Deciduous Shrubs

Amorpha fruticosa	Indigo Bush
Atriplex confertifolia	Shadscale
Dalea scoparia	Broom Dalea
Parthenium incanum	Mariola
Poliomentha incana	Mexican Oregano
Ribes aureum	Golden Current
Sambucus var.	Elderberry
Sarcobatus vermiculatus	Greasewood
Shepherdia sp	Buffaloberry var.

Non-native/Ornamentals

Street Trees

Celtis reticulate	Hackberry
Fraxinus Americana “Autumn Purple”	Autumn Purple Ash

Robinia pseudoacacia “Purple Robe”	Purple Robe Locust
------------------------------------	--------------------

Tilia sp.	Linden sp.
Ulmus sp.*	Elm (*pollen producer requires approval)

Other Trees

Catalpa speciosa	Catalpa
------------------	---------

Evergreen Shrubs

Raphiolepis indica var.	India Hawthorn
Spartium junceum	Spanish Broom

Deciduous Shrubs

Potentilla sp.	Bush Cinquefoil
----------------	-----------------

Perennials Non Native

Sedum speciosa/Sedum
----------------------

Rudbeckia speciosa/Brown-Eyed Susan

Note: All infrastructure, maps, plant pallet, tables, figures, illustrations, etc. in the technical appendices are illustrative and subject to change with further planning and coordination with relevant entities and in response to field conditions.

Note:  
The original Plant Palette can be found in the Level B Technical Appendices. The City has requested modifications to the Plant Palette; these changes are listed on this page. Contact the developer or the City for the most current Plant Palette. Highly allergenic trees, such as Arizona Cypress and most Juniper varieties, shall be prohibited. Only non-allergenic varieties of Juniper are allowed.







MESADELSOLNM.COM

©Copyright Mesa del Sol, LLC



Printed September 2012