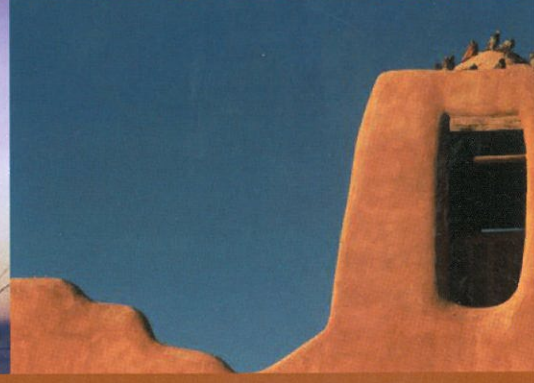
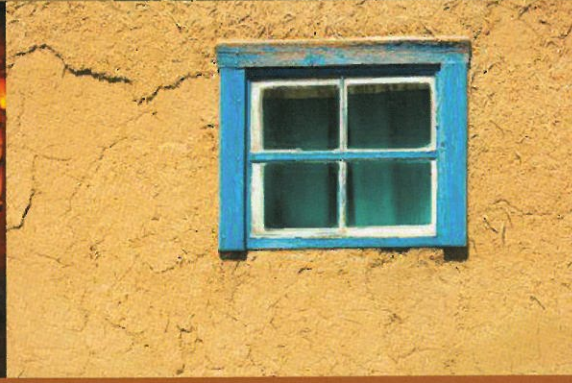
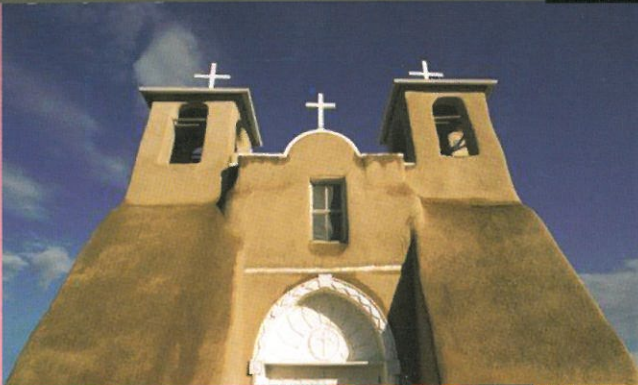
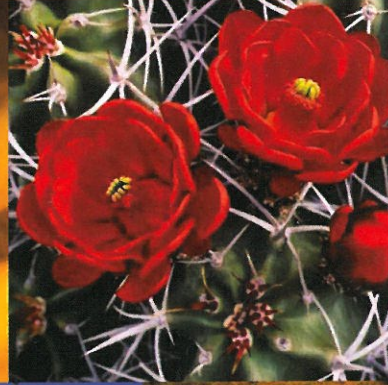
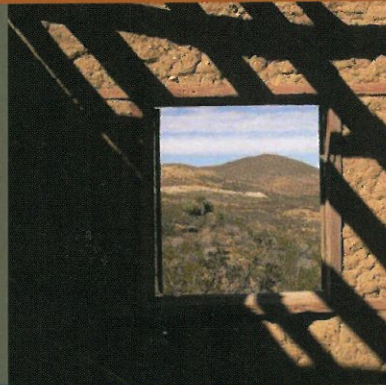


Mesa del Sol



Streetscape Master Plan

a working program

EDAW | AECOM

May 2008

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Executive Summary

INTRODUCTION

Intent

Streetscape design is a vital part of creating a safe and attractive, pedestrian-friendly environment where people will want to live, and where businesses will want to locate. Streetscape serves a number of important functions:

- support the established transportation hierarchy of street types
- aid in wayfinding and placemaking
- mitigate Albuquerque's intense climate conditions
- promote commuter alternatives such as walking and biking

This document is a guidance document created by the Master Developer, and intended to communicate intent, preferences and expectations regarding privately developed streetscape within the public right-of-way (ROW). This document will serve as a reference and will help guide project developers and builders working within Mesa del Sol including, but not limited to, home builders, commercial developers and institutional developers.

Sustainability

Sustainability is a cornerstone of the Mesa del Sol community development approach. The Streetscape Master Plan outlines a "green infrastructure" that seeks to further the New Urbanist principles advocated in the Level B plan, including walkable and bikable communities, transit-ready and transit-oriented planning, context-oriented design and conservation of water and energy resources.

Conformity with Level A and Level B Plans

The plans and sections in this document conform with the guiding principles and street hierarchy set forth in Mesa del Sol development plans, specifically the Level A and Level B plans as required by the Planned Communities Criteria. Some street design dimensions and details have been adjusted in this document to address specific conditions that have presented themselves during preliminary design of the first neighborhoods.

Street Hierarchy

The Level A and B plans outlined a hierarchy of street types. Streetscape design is further developed to support this hierarchy in both dimensioning and level of detail.

Where appropriate higher-level streets, such as Boulevards and Avenues, feature a wider, detached sidewalk and amenity zone or planting strip in order to provide capacity for a higher volume of pedestrians and a physical barrier between pedestrians and higher-speed traffic. These streets also have enhanced planting schemes that include landscaped medians, regular street trees and sometimes patterned underplantings.

Lower-level streets such as Connectors and Locals, consistent with street hierarchy, retain the vocabulary established in Avenues and Boulevards. The pedestrian/amenity zone is normally narrower on these streets, but a detached sidewalk and street tree zone sufficient for regularly-spaced street trees provide for pedestrian comfort and safety.

Street Lighting Approach

Consistent with prior plans and the requirements of the nearby Kirtland Air Force Base and Starfire Optical Range, Mesa del Sol has adopted a low-level lighting strategy. Higher level streets will have street lights placed at regular intervals ranging from 120 to 180 feet apart. Local streets will be primarily lit at intersections, supplemented mid-block where the distance between intersections exceeds 500 feet. Pedestrian and landscape accent lighting will be placed in conjunction with significant community resources, such as parks, gateways and significant pedestrian connections.

Parks and Open Space Connections

Within Mesa del Sol, streetscape can play an important role in directing users to the mostly linear park system. Some streetscapes may be enhanced where they act as direct links to the system. Enhancements could include widened amenity zones, increased building setbacks, multi-use trails, and/or more intensive planting schemes.

Transit

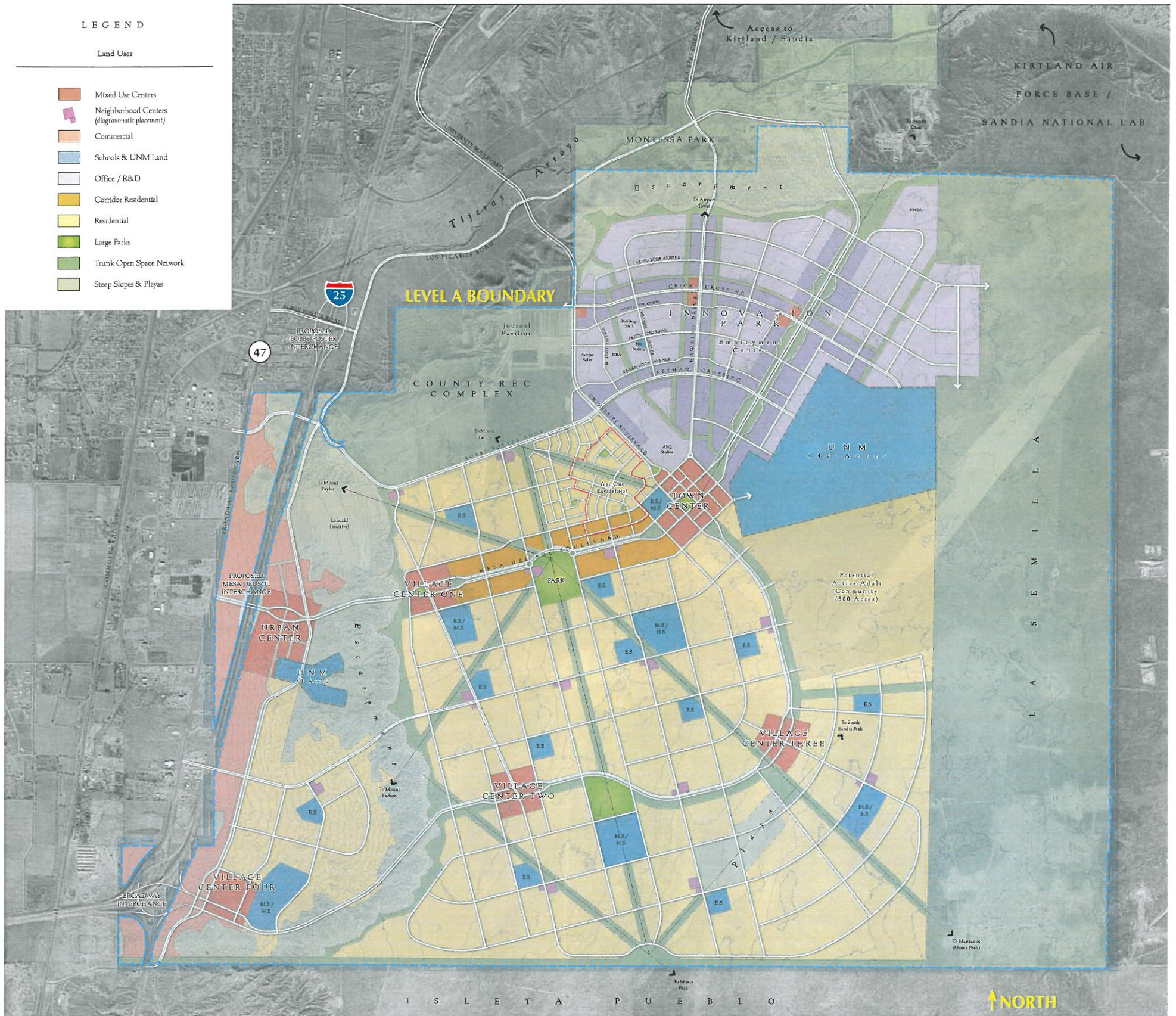
Transit provisions during early development of the project are likely to be extensions of the existing ABQ Ride system. Buses will run in normal traffic, with patron amenities such as benches, shelters and trash receptacles provided in accordance with ABQ Ride's standards.

Later transit development may include dedicated lane or dedicated right-of-way systems. Streets are designed so that they do not preclude future transit opportunities such as light rail transit (LRT) or bus rapid transit (BRT).

LEGEND

Land Uses

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



Level A Master Plan site diagram

ORGANIZATION & USE OF THIS DOCUMENT

Organization: Big To Small

The Mesa del Sol Streetscape Master Plan mimics the design process itself, starting with overarching ideas and finishing with individual components.

The Streetscape Master Plan is organized into seven sections: Character Development, Typology, Pedestrian Amenities, Planting, Irrigation, Lighting and Signage & Wayfinding.

The first section, Character Development, discusses the vision for Mesa del Sol: a philosophical and physical approach.

The second section, Streetscape Approach & Typology, constructs a basic design framework, categorizing streets by function. This section discusses dimensions and geometry, where the elements of the streetscape are located and how these elements relate to each other.

The remaining five sections provide detail on the individual components that compose the streetscape. In the case of plant materials, this section lists approved species, and provides general layout for street trees, applying specific planting palettes to particular streets. Street furnishings and lighting types are identified and typical construction guidelines are established for items such as amenity zones, ramps and crosswalks.

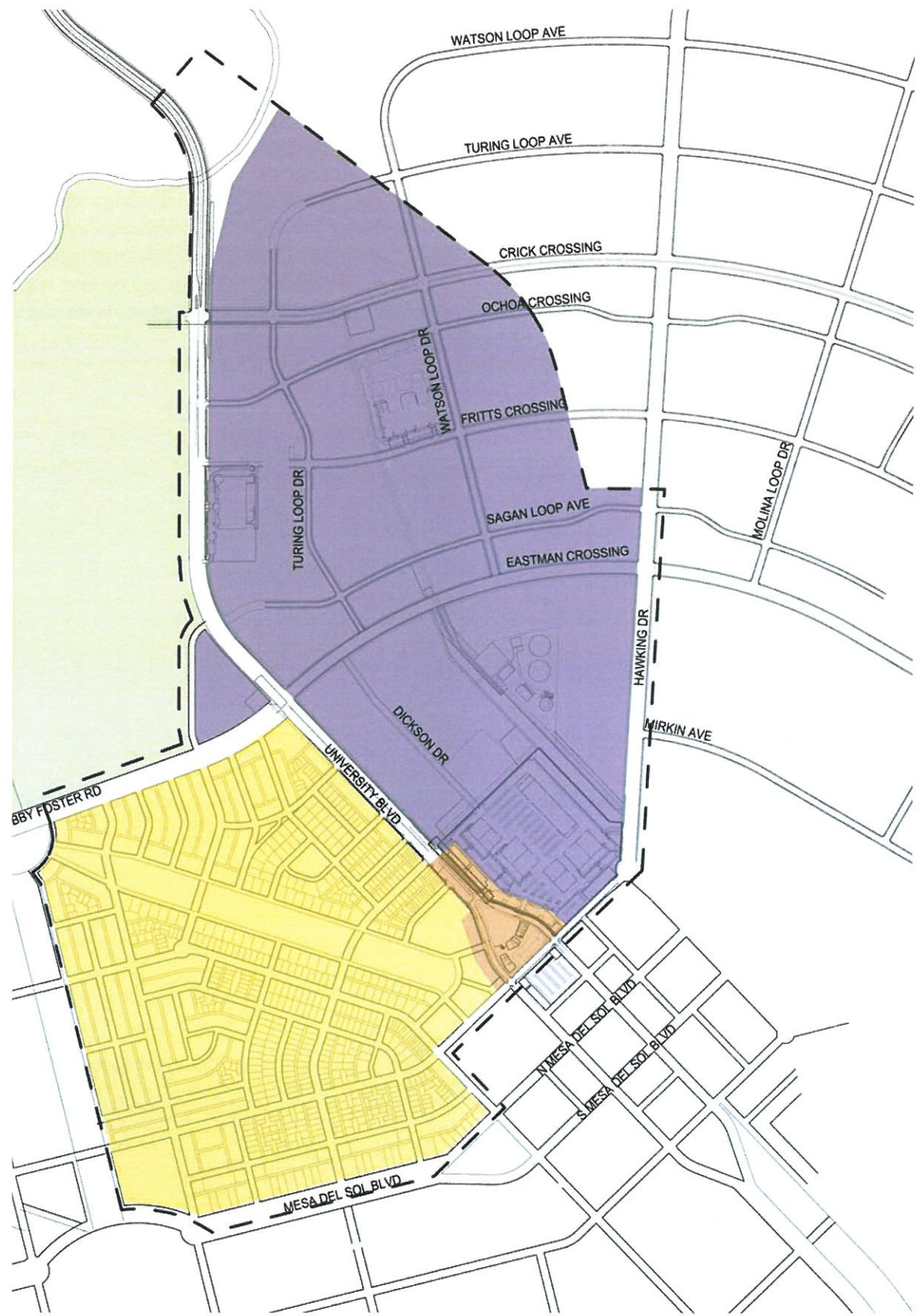
Using the Master Plan

The Streetscape Master Plan is intended to serve as a guiding document for the use of the master developer and commercial and residential builders, to help ensure consistency of approach and harmony of various elements in the public realm. This plan, however, is not intended to anticipate all contingencies and unique conditions, so the Master Plan will serve as a living guidance document rather than a set of rigid standards.

DEVELOPMENT AREAS

Initial development is comprised of four primary use areas. Each area has its own unique development, traffic and transportation issues. Streetscape elements are planned to respond to those needs.

-  Innovation Park
-  Community Center
-  First Neighborhood
-  County Recreation Complex
-  Initial Development



Proposed early development areas

Innovation Park

Office, Research, Light Industrial

Mesa del Sol is based on a 'jobs first' development approach that will bring employment opportunities to the development in its earliest stages. Innovation Park is the realization of this plan, providing sites for a variety of office, research and light industrial enterprises. While specific parcels have been designated for early development, the exact order of parcels and the timeline for development will be market driven. Innovation Park has been planned so that office-oriented uses will be located on arterial and avenue type streets, while less pedestrian-intensive, higher truck-traffic and industrial uses will be located on secondary streets.

Community and Town Center

Mixed Use

The Community Center is intended to be a hub of civic and commercial activity. It features a civic multi-use park designed to host community activities such as concerts, outdoor movies, markets and other special events, including a signature 3-story building. The Community Center anticipates a high level of pedestrian and vehicular activity throughout the day and evening, requiring a high level of detail and amenity in the streetscape.

First Neighborhood

Residential

This neighborhood will offer a variety of single- and multi-family, for-sale and for-rent housing products. Homes are arranged on a grid, with both alley and side loaded product, to maximize connectivity and evenly distribute traffic throughout the transportation system. The grid is bisected by linear parks, which house community recreational amenities such as a swimming pool and a variety of flexible-use recreation spaces. Most streets are two-way with on-street parking, excepting the couplet bordering the linear parks and some streets adjacent to pocket parks.

Bernalillo County Recreation Complex

Recreation

The Bernalillo County Recreation Complex "RecPlex" is operated by the County and includes the Journal Pavilion performance space. The Recreation Complex is considered in this Streetscape Master Plan for purposes of coordinating with adjacent uses. The Recreation Complex currently offers a small number of athletic fields, with plans for additional recreational facilities to be developed through a partnership between the State, County, City and Mesa del Sol. The planned provision of an elite velodrome and off-site storm drainage are considered in the streetscape master plan.



Innovation Park building



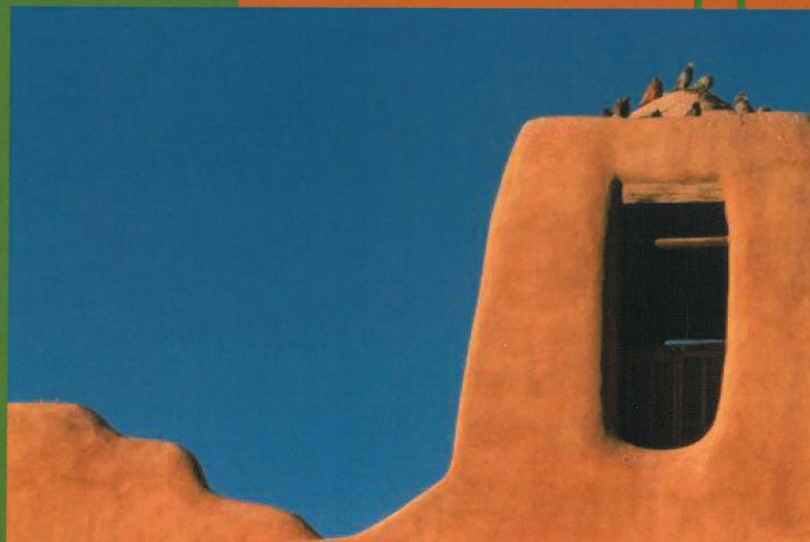
Community Center signature building



First Neighborhood residential sketches

Section 1

Character Development



GUIDING PRINCIPLES

The guiding principles for the Mesa del Sol Streetscape Master Plan are taken from ideas developed in several workshops involving members of the development and consulting team, in early 2007, that resulted in outcomes that are diagrammed on the following pages. The principles are intended to complement and supplement the ideals expressed in the Level A and Level B plans. They are included herein to ensure that each step forward builds on and refines previously stated ideas and goals.

Human-scale

Put people--not vehicles--first.

Streets are planned, designed and engineered. At each level the needs and safety of the pedestrian should be considered a priority.

Planning. Streets should form a fine-grained network that distributes traffic throughout the system and avoids overloading any street with a high number of vehicles.

Design. Landscape design should provide shade, color, texture and detail. Pavement and furnishings should respond to adjacent use--residential, commercial, retail--in scale and materials.

Engineering. Narrower streets with on-street parking and bulbouts at intersections help slow traffic speeds providing a safer pedestrian environment. Detached sidewalks, urban crosswalks and landscape tree strips provide additional layers of separation between vehicles and pedestrians.

Sustainable

Promote responsible use of resources.

'Sustainability' is so often and broadly used that its meaning has become vague and unclear. At Mesa del Sol, sustainability has both physical and programmatic meanings.

Physical. Materials used for construction and maintenance must be carefully considered for their life cycle cost and impact on the environment. Efforts should be made to specify construction materials that are available locally, with the intent to reduce the consumption of resources in transit and to support the local economy. Recycled materials are preferred.

Landscape design, particularly plant selection and density, will be regionally appropriate, reducing the amount of resources--water and maintenance--needed for their upkeep. Aspects of green infrastructure should consider the 'hidden' impacts of all measures. As an example, while retaining stormwater for irrigation is allowed and appropriate, careful thought should go in to the resource impact of storage facilities, pumps or other means of storing and distributing water for irrigation.

Programmatic. Mesa del Sol should encourage a way of life that reduces demand for natural resources. Community design encourages healthy living through walking, biking and other alternative transportation choices. An attractive streetscape is a key component of getting people out of their cars and onto the street.

Authenticity & Identity

Make a 'somewhere', not an 'anywhere.'

Streetscape is a key component of the image of a place. At Mesa del Sol the streets should speak to regional identity--as part of the desert southwest--as well as the local identity of Albuquerque and the South Mesa itself. Streets should act as unifying threads throughout the development, yet still offer variety and change so that the development does not become monotonous or monochromatic in feel.

Beauty

Make it a place people want to be.

The streets of Mesa del Sol should be attractive and appealing, comfortable and inviting. They should be places to be--places to talk to neighbors and places for kids to ride bikes--not just ways to get to another place. They should announce arrival, make each resident feel that they have arrived 'home.' They will aspire to be beautiful, in physical materials and in emotional feel.

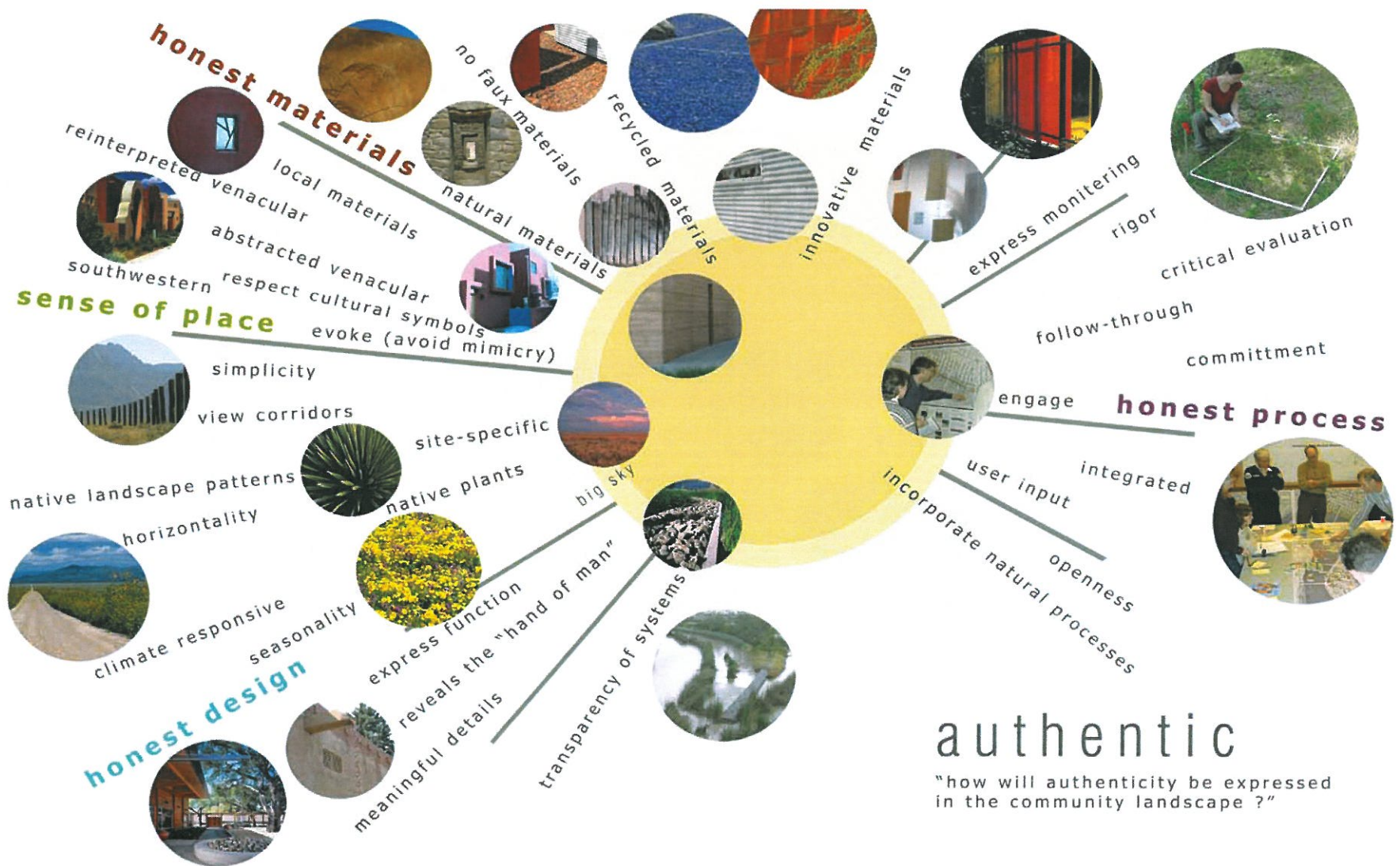
CHARACTER DRIVERS

Mesa del Sol began as more than a piece of ground; it began as an idea, a concept, a feeling. Early design workshops asked questions about what this place should be, what it should feel like, what makes it different from other new developments.

Five big ideas, features that should run through all decisions at this new development, emerged. These ideas - authenticity, connectivity, creativity, healthy living and timelessness - were visualized and refined using the diagrams on the next pages.

Authentic

Authenticity applies to both tangible and intangible aspects of design. Materials should be real-real adobe, real stone, native plants-and design of the public realm should respect the way humans really live.



Connection & Community

Mesa del Sol should provide an environment that allows people to connect with each other, and with the world they inhabit. The public realm should be scaled to the human and allow for an evolution of place.



"how can connection and community be fostered and expressed in the community landscape?"

Creative & Individualistic

Albuquerque takes pride in its uniqueness and freedom of expression. Mesa del Sol should celebrate, encourage and enhance these attributes. The community should allow for individual expression, both on an individual and a collective level.



Health

Development should promote the health of the planet, in the way it is developed and constructed, and as the end product, promote the health of its users. Materials and construction methods should be sustainable, and development patterns should promote and encourage a healthy lifestyle.



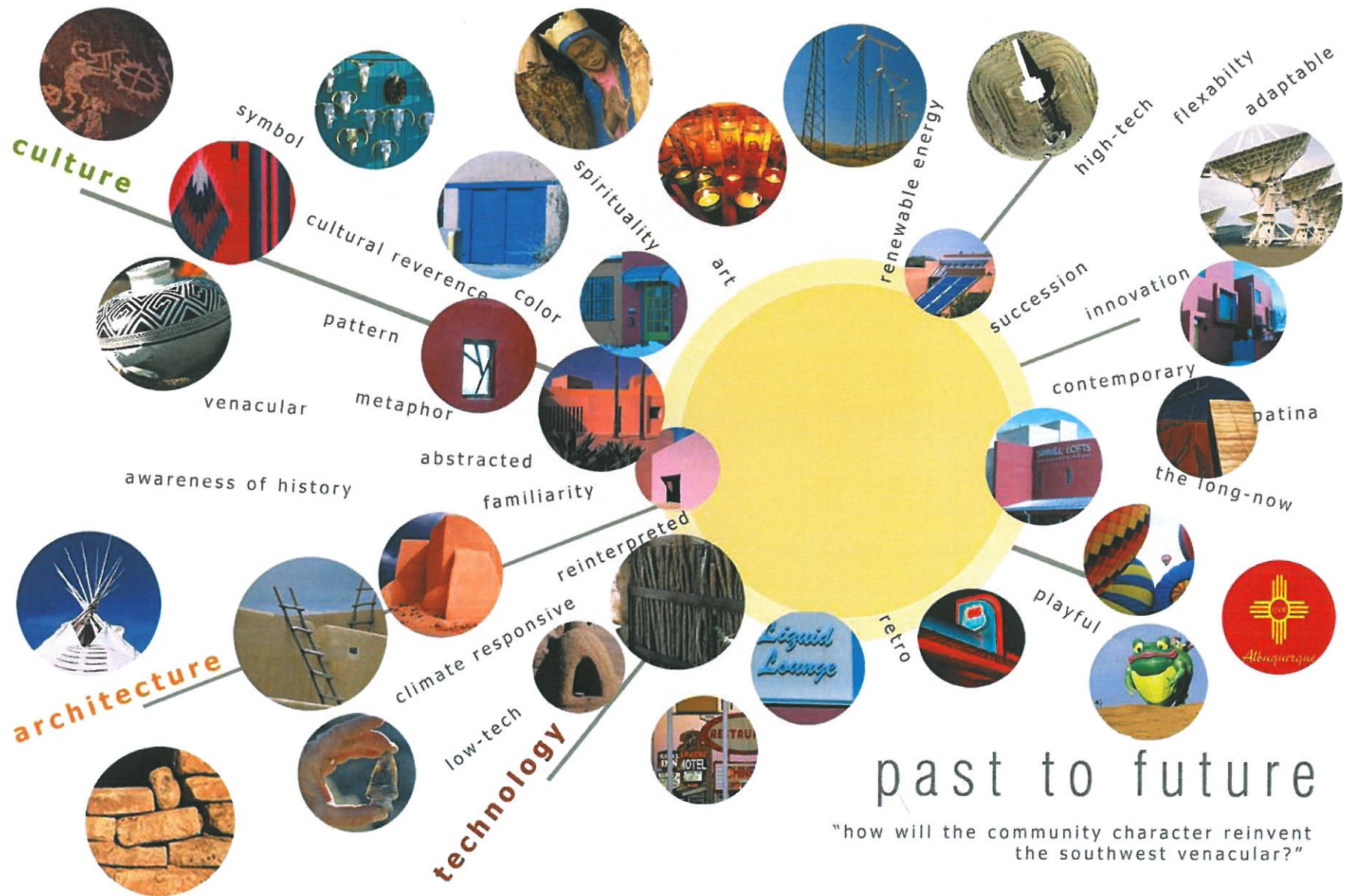
Health

Development should promote the health of the planet, in the way it is developed and constructed, and as the end product, promote the health of its users. Materials and construction methods should be sustainable, and development patterns should promote and encourage a healthy lifestyle.



Past to Future

Mesa del Sol represents a time continuum - celebrating the best of Albuquerque, New Mexico's heritage without creating a tired panorama of the past. It can re-interpret southwestern influences, while showcasing the most innovative technological advances.



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Section 2

Streetscape Approach & Typology



STREETSCAPE APPROACH

As a pedestrian-first community Mesa del Sol will include detached sidewalks on all public streets, separating vehicular and pedestrian traffic and providing a high level of safety for the pedestrian.

Most streets, especially those outside of the Urban, Village and Community Centers, will consist of a sidewalk separated from the street by a landscaped street tree zone; width of the street tree zone will vary with street type. Street trees, street lights and pedestrian lights will be equally spaced and centered within the street tree zone; other elements, such as utility access and hydrants, will be coordinated with landscape improvements. The goal is to improve community and neighborhood aesthetics while reducing potential conflicts, damages during construction and maintenance costs.

Inside the Urban, Village, and Community Centers, where a higher level of pedestrian activity is expected, the streetscape will normally utilize hardscape from the curb to the right-of-way/property line, and often to the building face. In these locations the sidewalk is separated from the street by an amenity zone, consisting of a decorative pavement with cut-outs or grates for trees and including all permanent site furnishings planned for the block. This decorative pavement shall be concrete unit pavers or natural stone pavers, and shall be consistent throughout the center. Color, finish, size and pattern shall be approved by the Architectural Control Board (ACB).

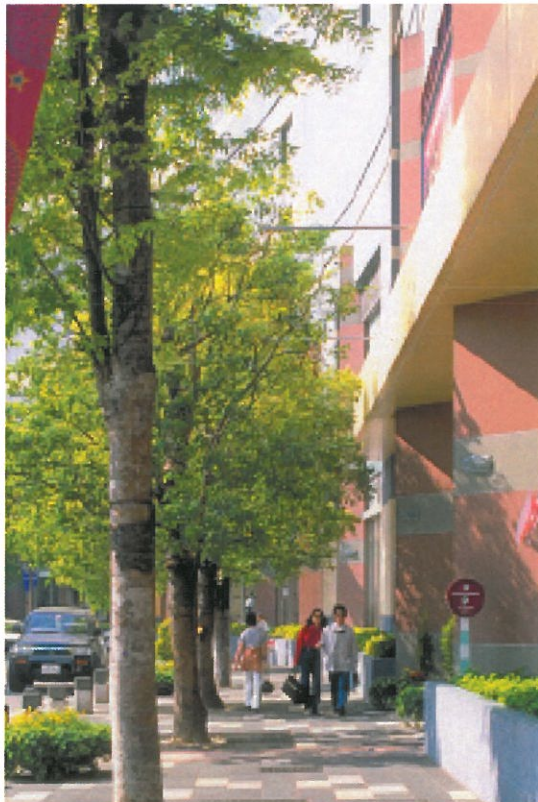
All work in the public right of way must be acceptable to the City of Albuquerque subject to the Mesa del Sol Sidewalk Agreement (see Appendix B).



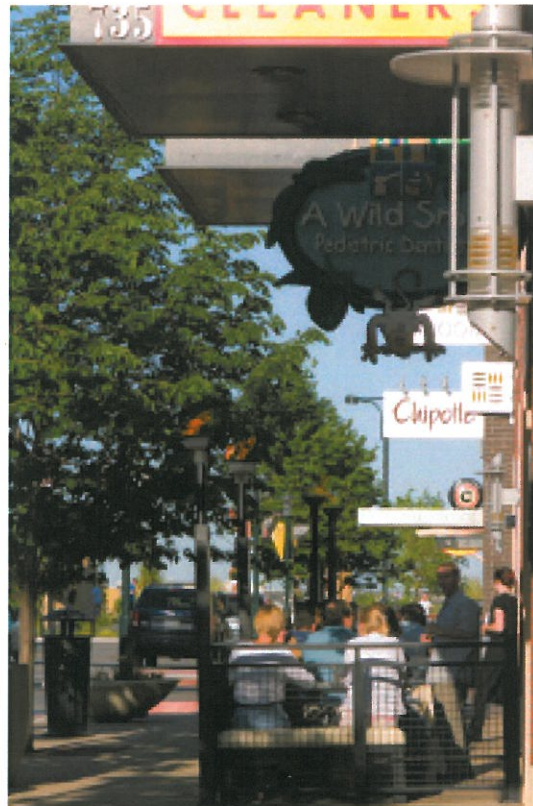
Special paving



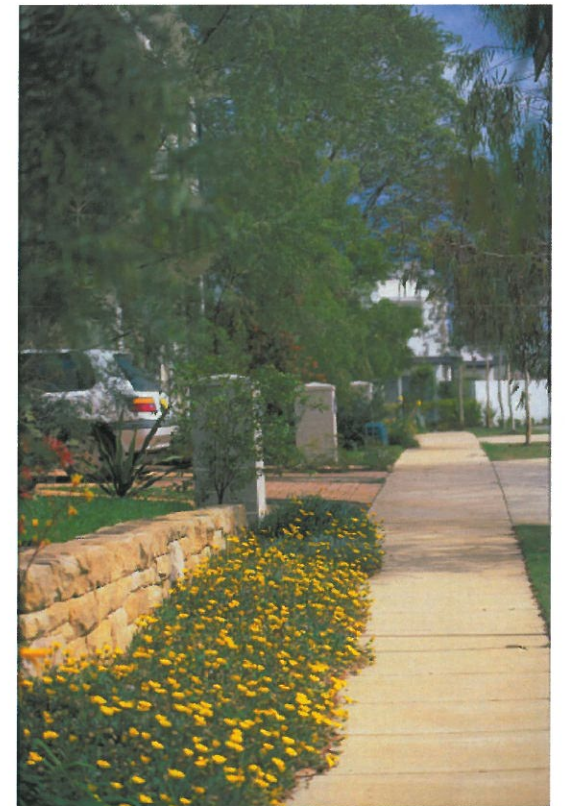
Banners and pedestrian lights



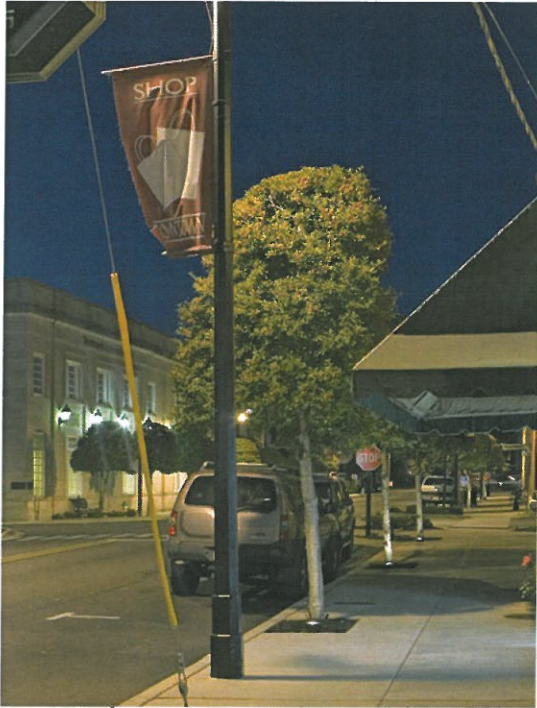
Special paving and planting



Outdoor dining



Flowering accents



Banners and awnings



Sidewalk cafe



Town center



Fall color



Street trees with planting cutouts



Pedestrian-scale streetscape



Planted alley



Outdoor dining, street trees, ground-level plantings and special paving all contribute to the pedestrian-scale of this streetscape.

STREETSCAPE TYPOLOGY

This document builds on and refines the street hierarchy established in the Level A and B plans for Mesa del Sol. It describes the geometry and design elements of each type, and assigns a classification to each roadway within the early development area. This typology will be similarly applied throughout the development.

The intent of the plan is to focus on development of neighborhood character through the public realm. The streets and their landscape character are the most tangible elements of infrastructure and provide a valuable opportunity to impact the quality of life for community users.

The streetscape approach celebrates the overlay of a livable urban community on an arid site. It supports safe pedestrian and bicycle transportation alternatives and provides an attractive and comfortable environment through careful scaling of appropriate materials.

The Level A and Level B Plans identified five street types: Boulevard, Avenue, Connector, Local street, and Alley. This document adds a classification, the Commercial couplet, to these types. Street typologies are based on both the expected traffic volume as well as the adjacent use and urban design character.

-  Boulevard
-  Commercial Couplet
-  Avenue
-  Connector
-  Local
-  Alley
-  Initial Development



Boulevard

Boulevards are Mesa del Sol's 'showpiece' streets, the grand entries that mark arrival, welcome visitors and residents alike, and set the tone for the entire community.

University Boulevard will serve as the primary access to early development within the project, and will be one of the key boulevards at Mesa del Sol. University provides access to Innovation Park, the Community Center, and early residential development. It provides access to regional attractions such as the Journal Pavilion and the County Recreation Complex. University Boulevard will have striped bike lanes, on-street parking and accommodation for transit on both north- and south-bound sides.

Landscape enhancements include unique street lighting, landscape design including signature median design, places for signage and public art and significant attention to pedestrian crossings at critical locations.

Avenue

Avenues are the major routes that connect Mesa del Sol's mixed-use centers to each other, extending to all neighborhoods inside and adjacent to the community. These streets are typically two lanes in each direction, divided by a planted center median. Avenues will have striped bike lanes and on-street parking.

Connector

Connector streets are a level below Avenues in the street hierarchy. They form a finer grid of approximately one-quarter mile spacing within and between neighborhoods. Connectors occur in Innovation Park, the Community Center and the First Neighborhood. Connectors typically provide one traffic lane and one bike lane in each direction, with on-street parking.

Landscape character varies with adjacent land use. In residential areas the connector is enhanced with added lighting and landscaping to accommodate increased pedestrian activity. In commercial areas streetscape will support a walkable environment and enhance retail areas by providing space for outdoor furnishings and supplemental landscape. Trees provide an important element of shade and heat island reduction in these areas.

Commercial Couplet

The commercial couplet occurs where the Boulevard splits into two one-way streets, running through the Community Center before rejoining into a Boulevard at the other end. Couplets occur in community/town centers throughout Mesa del Sol as needed for pedestrian accessibility where block lengths and traffic volumes dictate.

Couplets are designed to accommodate a high level of pedestrian activity, such as ground floor retail and outdoor cafes. It has striped bike lanes and on-street parking.

The commercial couplet is the most highly designed and finely detailed level of streetscape within the street hierarchy. The couplet is also specifically designed to facilitate the safest possible interface between pedestrians and vehicles.

Local Street

Local streets should be extensions of the adjacent land use, giving priority to the pedestrian on narrower streets, slower traffic speeds and safe sidewalks. The narrower width, in combination with on-street parking, may necessitate that cars travelling in opposing directions might need to yield, slowing traffic. These streets do not have striped bike lanes. Local streets serve end-destination traffic, delivering residents, workers and visitors to their home or workplace.

Alley

Alleys are the finest grain of the hierarchy, and are found primarily in residential areas. Alleys serve rear-load parking garages, utilities and services such as trash removal and fire department access. Although they run the length of the block, alleys are not intended as through-roads.

Alleys provide an opportunity for a soft landscape approach, one that minimizes the amount of paved surface, includes low water use landscape and might offer opportunities for stormwater quality treatment and infiltration.

BOULEVARD: UNIVERSITY

Boundary to Eastman Crossing

The northern section of University Boulevard, north of Eastman Crossing/Bobby Foster Road, is an example of a transitional entry boulevard with varying widths and adjacent land uses. The western portion of the road is edged by landscape buffer designed to help screen parking areas and provide stormwater retention at the adjacent County Rec Complex site. On the east side, commercial development parcels have larger setbacks and a single bay of parking permitted between the street and building. The median indicates a signature contoured design reflecting its significance as the original community entry.

South-Bound (west) Section

Drive Lane:	2 lanes; 11' and 12'
Median:	60' and varies
Bike Lane:	6'
Parking:	7'
Street Tree Zone:	12' and varies
Sidewalk:	10'
Transit:	in drive lane; future dedicated transitway in center median

North-Bound (east) Section:

Drive Lane:	2 lanes; 12' and 13'
Bike Lane:	6'
Parking:	8'
Street Tree Zone:	12'
Sidewalk:	6'
Transit:	in drive lane; future dedicated transitway in center median

North-Bound (east) Section:

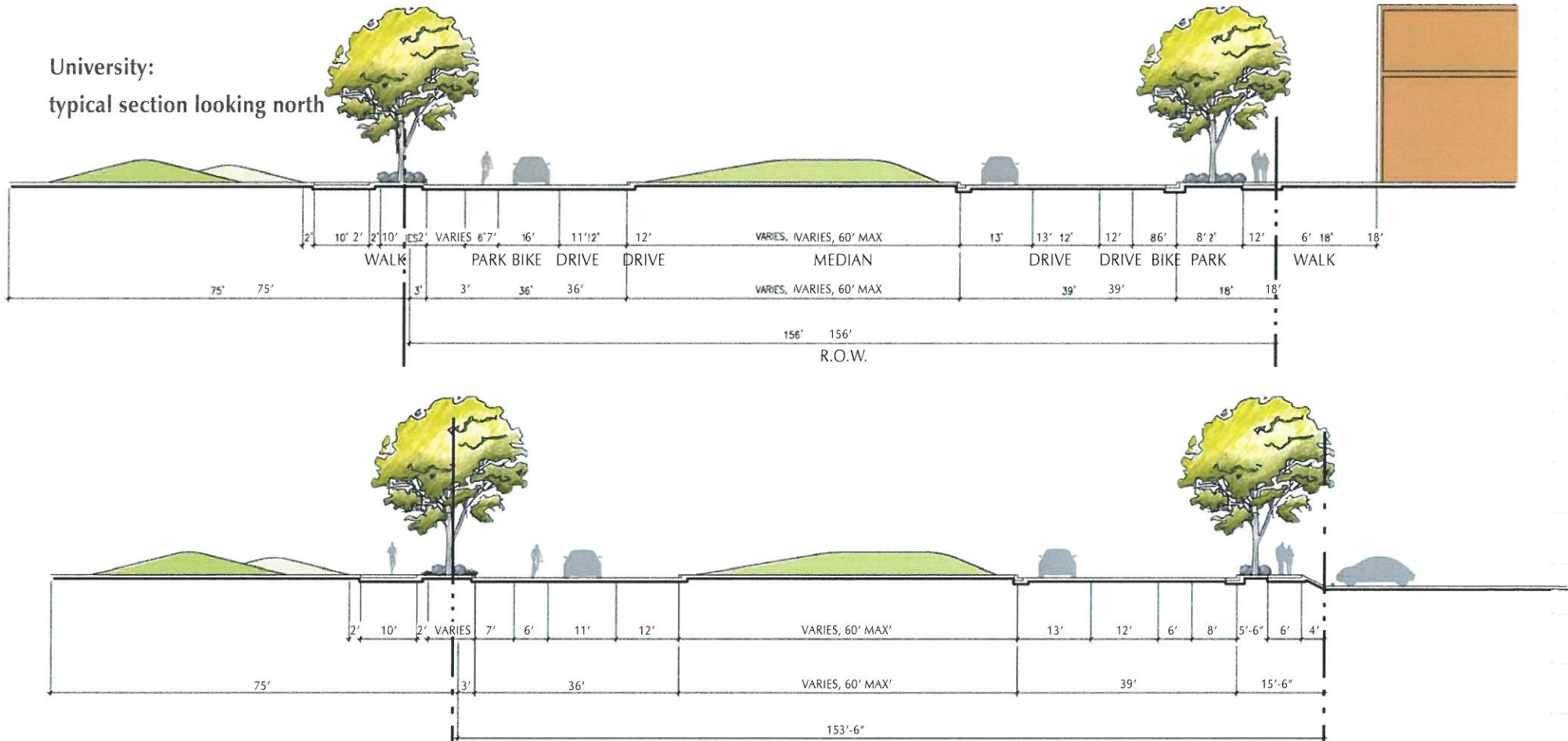
At Advent Solar only

Drive Lane:	2 lanes; 12' and 13'
Bike Lane:	6'
Parking:	8'
Street Tree Zone:	5.5'

Sidewalk:	6'
Landscape	see Section 4
Tree Spacing:	50' o.c. max.
Underplantings:	yes
Screen adjacent parking:	yes

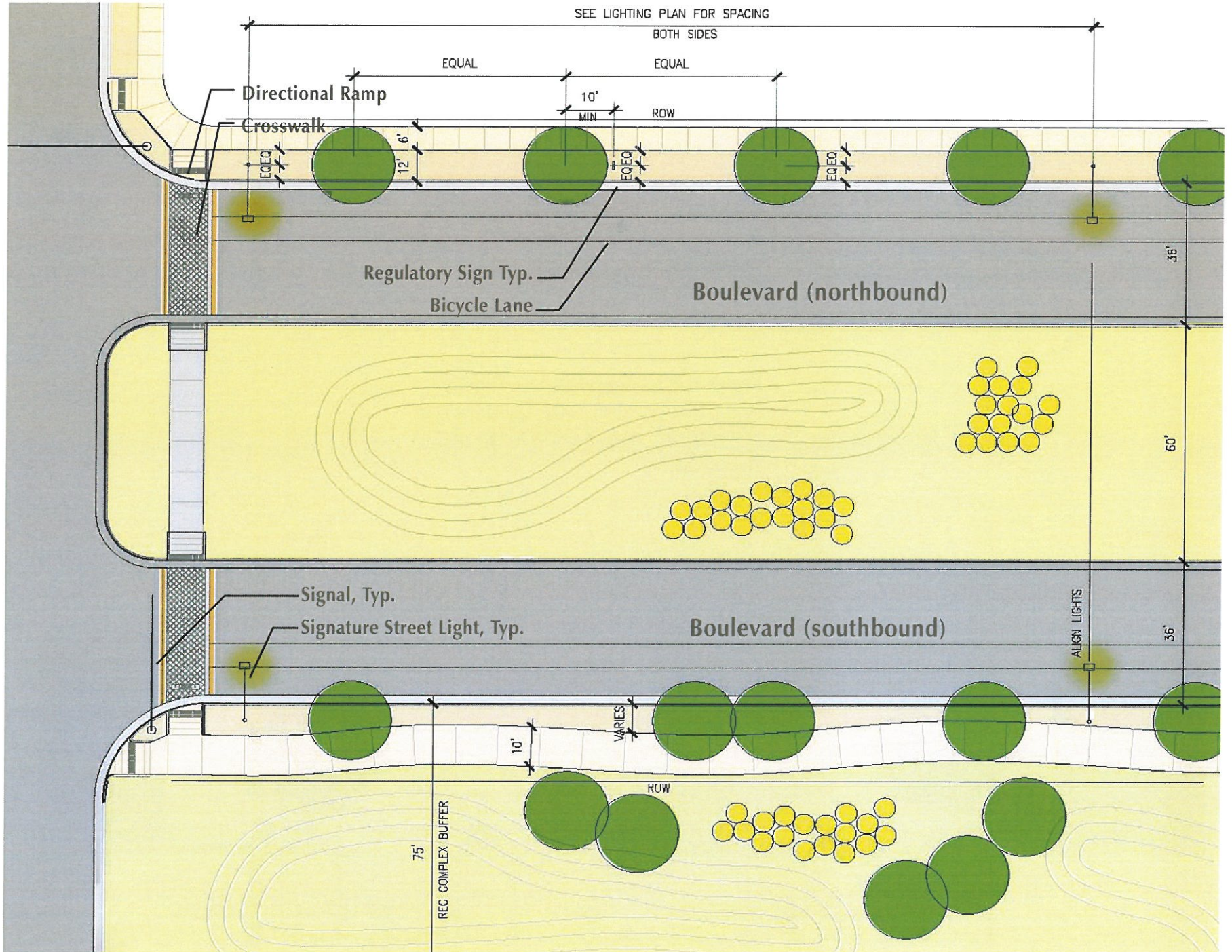
Lighting	see Section 3
Street Lights:	yes; arced pole both sides
Pedestrian Lights:	no
Banners:	no

University:
typical section looking north



Furnishings

Benches:	see Section 3
Trash Receptacles:	at transit stops only
Bike Racks:	no
Transit Shelters	future



University: Typical Plan

showing relationships and general locations of streetscape elements

not to scale

BOULEVARD: UNIVERSITY

Eastman Crossing/Bobby Foster to Community Center

The southern section of University Boulevard has a narrower cross-section than the northern section. Development parcels bound the road on both sides, with predominantly commercial uses on the east, and a mix of single and multi-family residential uses on the west. Building setbacks and median widths are generally smaller than those on the northern portion of University Blvd.

The landscape treatment reflects the higher density by utilizing a closer street tree, underplanting and street light spacing.

Dimensions, each direction

Drive Lane:	2 lanes; 11' and 12'
Median:	48'
Bike Lane:	6'
Parking:	7'

Street Tree Zone:	12'
Sidewalk:	6'

Transit: in drive lane w/future dedicated transitway down center median

Landscape

Street Tree Spacing:	30' o.c.
Underplantings:	yes
Screen Adjacent Parking	yes

Lighting

Street Lights:	see Section 6 yes; arced pole both sides
Pedestrian Lights:	no
Banners	no

Furnishings

Benches:	see Section 3 at transit stops only
Trash Receptacles:	at transit stops only
Bike Racks:	not required

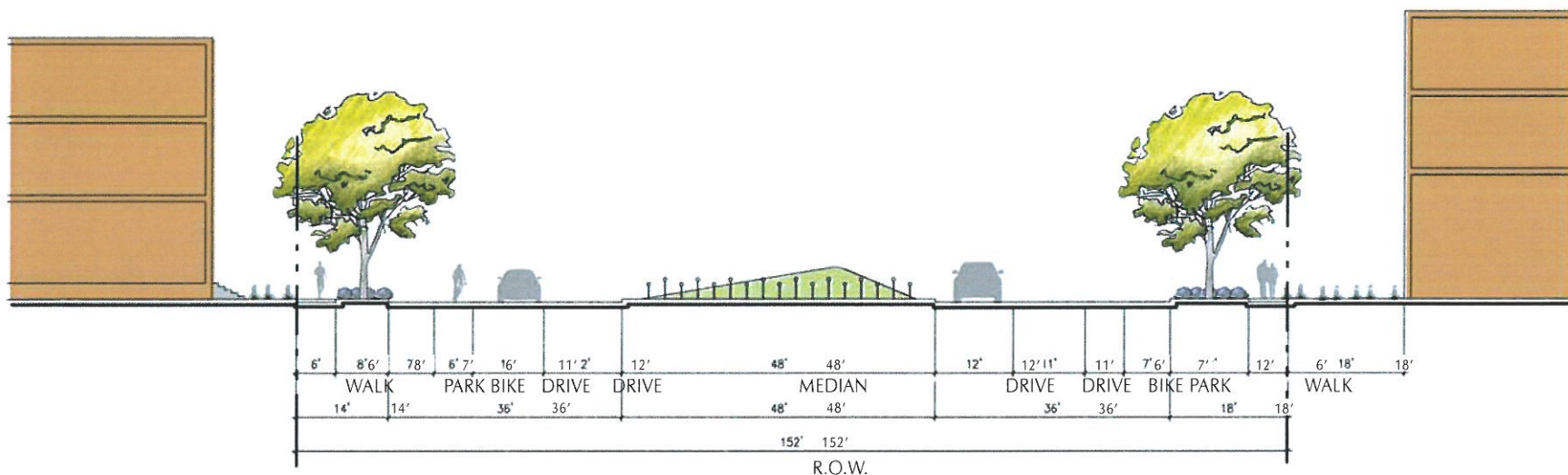
Required Screening of Surface Parking

Surface parking adjacent to the right-of-way must be screened by a planting strip or a low wall.

Planting Zone:	5'
Low Wall:	3' w, 2.5' ht, min.

University:

Section south of Eastman/Bobby Foster
typical section looking north



COMMERCIAL COUPLET

The Commercial Couplet is one of the most urban of the street typologies. The couplet, a pair of one-way streets, is intended to accommodate a large amount of pedestrian traffic, and to ensure a safe interface between pedestrians, bicycles, transit, and vehicles. This type of roadway will also have adjacent retail uses, including sidewalk cafes and potential outdoor merchandising, adjacent to or into the right-of-way.

The Commercial Couplet may use shade trees and/or overhead structures, such as arcades, to provide a comfortable pedestrian environment. Trees may be in landscape strips, pavement cut-outs or grates, depending upon the surrounding urban design context. The Couplet will also include a variety of street furnishings, such as benches, planter pots and bike racks.

Dimensions

Drive Lane:	3 lanes: 10', 10', 12'
Median:	None
Bike Lane:	6'
Parking:	8' - both sides
Street Tree Zone:	8'
Sidewalk:	8'
Transit:	future
12' drive lane may convert to dedicated transit lane	

Landscape

Tree Spacing:	see Section 4
Street Tree Cut-Out:	30' o.c. min.
Tree Grates:	60 SqFt min.
Underplantings:	5' x 8' min
Screen Adjacent Parking:	yes, if no grate
	yes

Required Screening of Surface Parking

Surface parking adjacent to the right-of-way must be screened by a planting strip or a low wall.

Planting Zone:	5'
Low Wall:	3' w, 2.5' ht, min.

**Street tree amenity zone and sidewalk may be combined into a single zone when overhead structure replaces trees.

**Commercial couplets may use either tree cut-outs with raised curbs, grates or landscape strips. If cut-outs are used, they must be set back from face of curb, to allow clearance from parked cars; if grates are used, they should be centered within the amenity zone.

Lighting

	see Section 6
Street Lights:	both sides
Pedestrian Lights:	req'd in cmnty center
Banners:	permitted

Furnishings

	see Section 3
Benches:	2 per block face
Trash Receptacles:	1 per block face
Bike Racks:	4 per block face
Transit Shelter:	per transit plan

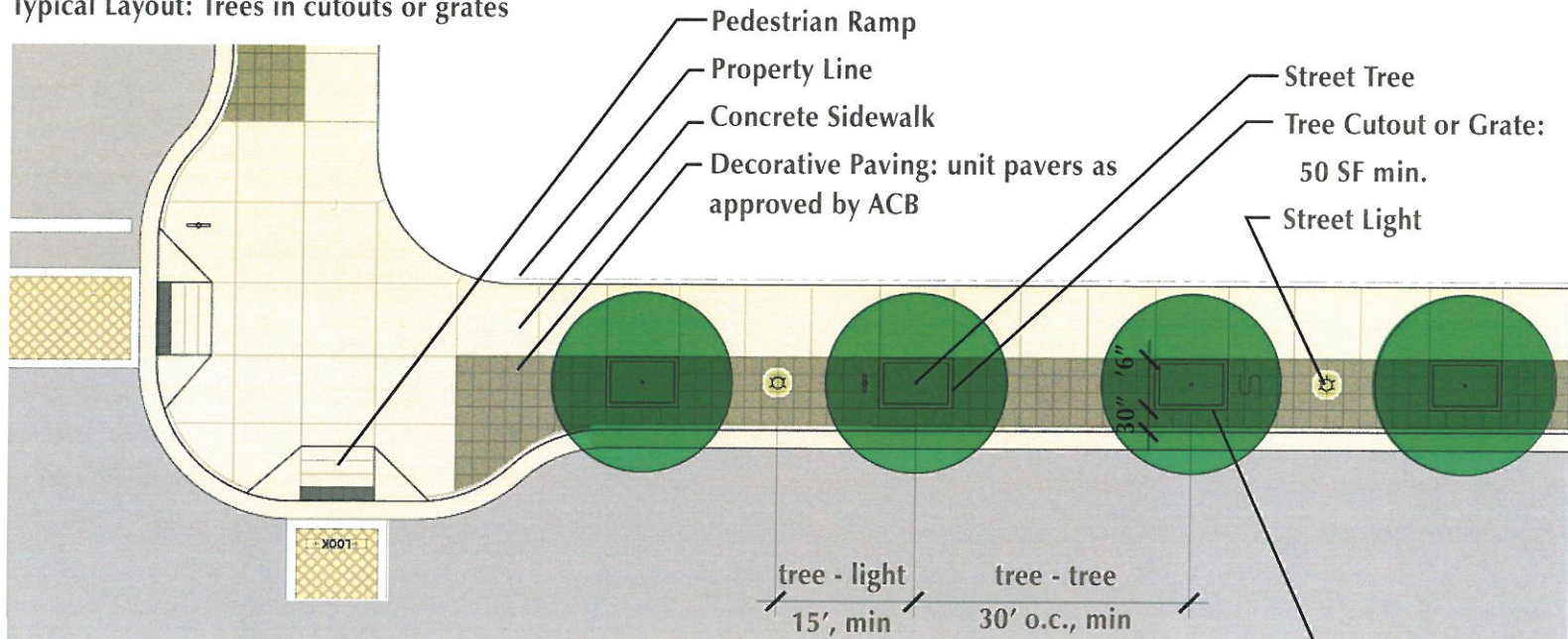


Lights, planters, benches and street trees in a town center

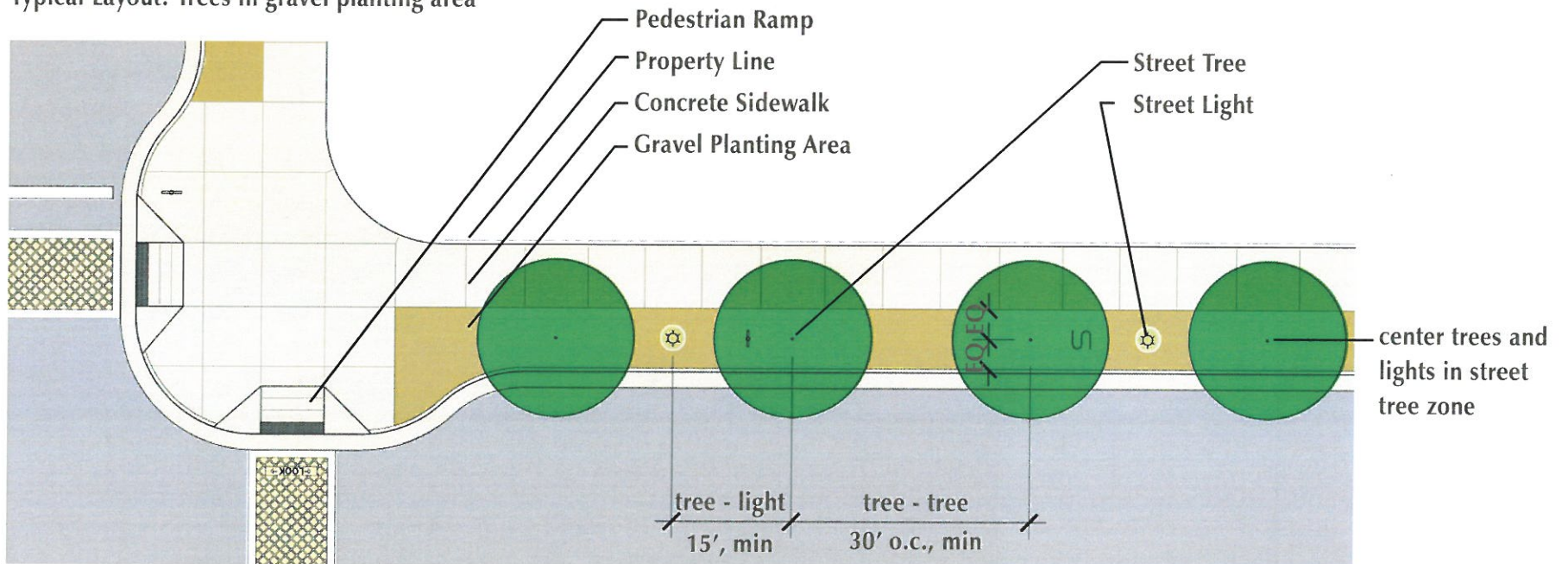
Note: These sections illustrate the initial condition prior to center-lane transit. In the future traffic lanes will shift and one side of on-street parking will be removed to accommodate transit.



Typical Layout: Trees in cutouts or grates



Typical Layout: Trees in gravel planting area



AVENUE: INDUSTRIAL

Eastman and Crick Crossing

This median-divided street type is found in Innovation Park. Narrow building setbacks and tree planting zones with parallel parking on both sides characterize these higher traffic streets.

The street tree zone consists of regularly spaced trees underplanted with low grasses and shrubs.

Eastman Crossing has an open space easement on the southern side of the roadway; this easement is intended to create a 'green connection' to Innovation Park's Linear Park.

Dimensions, each direction, standard

Drive Lane:	2 lanes; 11' and 12'
Bike Lane:	6'
Parking:	7'
Street Tree Zone:	6'
Sidewalk:	6'
Transit:	bus in drive lane

Dimensions, Eastman Crossing, south side

Drive Lane:	2 lanes; 11' and 12'
Bike Lane:	6'
Parking:	7'
Street Tree Zone:	12'
Multi-Use Trail:	10'
Transit:	bus in drive lane

Landscape

Tree Spacing:	40' o.c.
Underplantings:	yes

Required Screening of Surface Parking

Surface parking adjacent to the right-of-way must be screened by a planting strip or a low wall.

Planting Zone:	5'
Low Wall:	3' w, 2.5' ht, min.

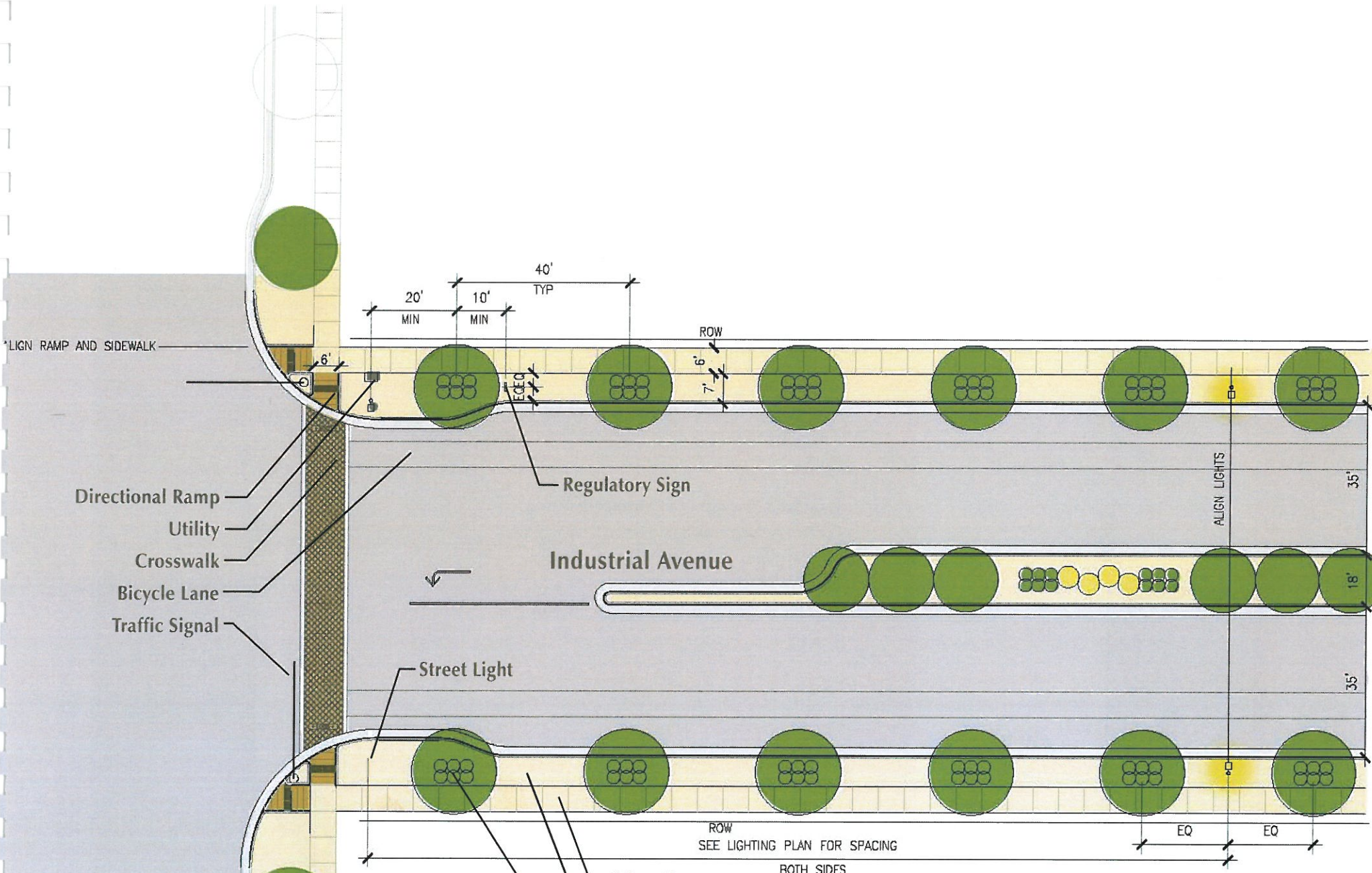
Lighting

Street Lights:	both sides
Pedestrian Lights:	no
Banners	no

Furnishings

Benches:	at transit stops
Trash Receptacles:	not required
Bike Racks:	not required
Transit Shelters:	yes per transit plan





Avenue: Eastman & Crick
 Typical Plan
 not to scale
 showing relationships and general
 locations of streetscape elements

AVENUE: INDUSTRIAL Hawking

Hawking has a wider-than-normal, asymmetrical right-of-way. The eastern portion of the street section includes six feet of 'flex' space behind the sidewalk, that may be used for building setback. Buildings may also build to back of sidewalk, depending on specific context conditions.

Street trees and street lighting are regularly spaced. Underplanting of median and tree strip are required.

Dimensions, each direction

Drive Lane:	2 lanes; 11' & 12'
Bike Lane:	6'
Parking:	7' both sides
Street Tree Zone:	12'
Sidewalk:	6'
Transit:	in drive lane

Landscape

	see Section 4
Tree Spacing:	30' o.c. min.
Tree Cut-Out/Grate:	60' SqFt min.
Underplantings:	40% coverage formal layout

Lighting

Street Lights:	see Section 6 200' o.c. max.
Pedestrian Lights:	no
Banners:	no

Furnishings

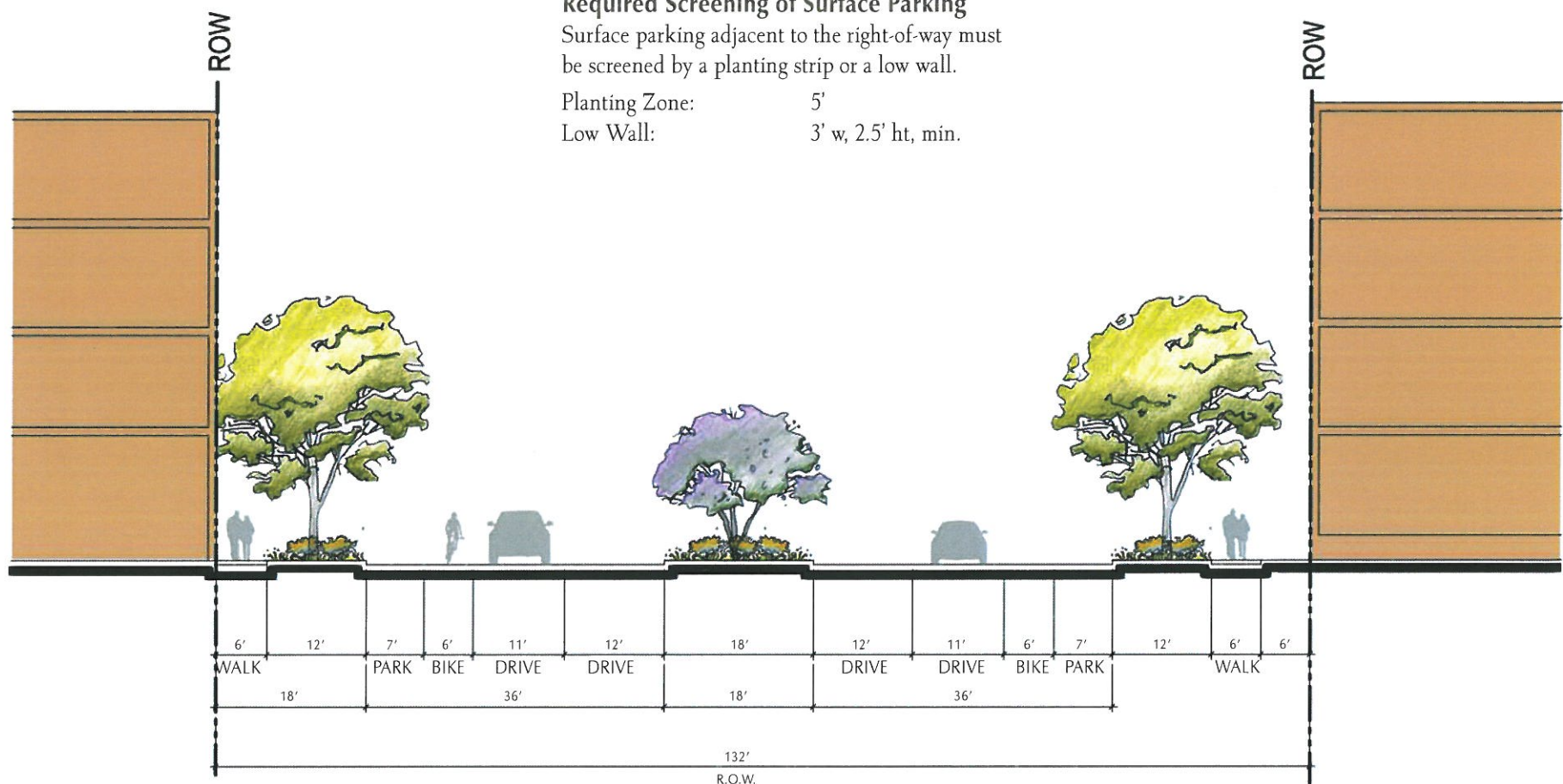
Benches:	see Section 3 at bus stops
Trash Receptacles:	not required
Bike Racks:	not required
Transit Shelters:	yes per transit plan

**Street tree zone and sidewalk may be combined into a single zone when overhead structure replaces trees.

Required Screening of Surface Parking

Surface parking adjacent to the right-of-way must be screened by a planting strip or a low wall.

Planting Zone:	5'
Low Wall:	3' w, 2.5' ht, min.



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CONNECTOR: RESIDENTIAL

Connectors are the primary traffic streets of the residential areas. They ensure connectivity throughout the residential area for both vehicles and pedestrians; as a primary walking route, these streets will utilize enhanced pedestrian-level detail through supplemental street tree zone underplantings, additional street lighting and signage.

Dimensions

Drive Lane:	one each direction, 11'
Bike Lane:	5'
Parking:	7'
Street Tree Zone: 5'	
Sidewalk:	5'
Transit:	in drive lane

Furnishings

Benches:	no
Trash Receptacles:	no
Bike Racks:	no
Transit Shelters:	no

see Section 3

Landscape

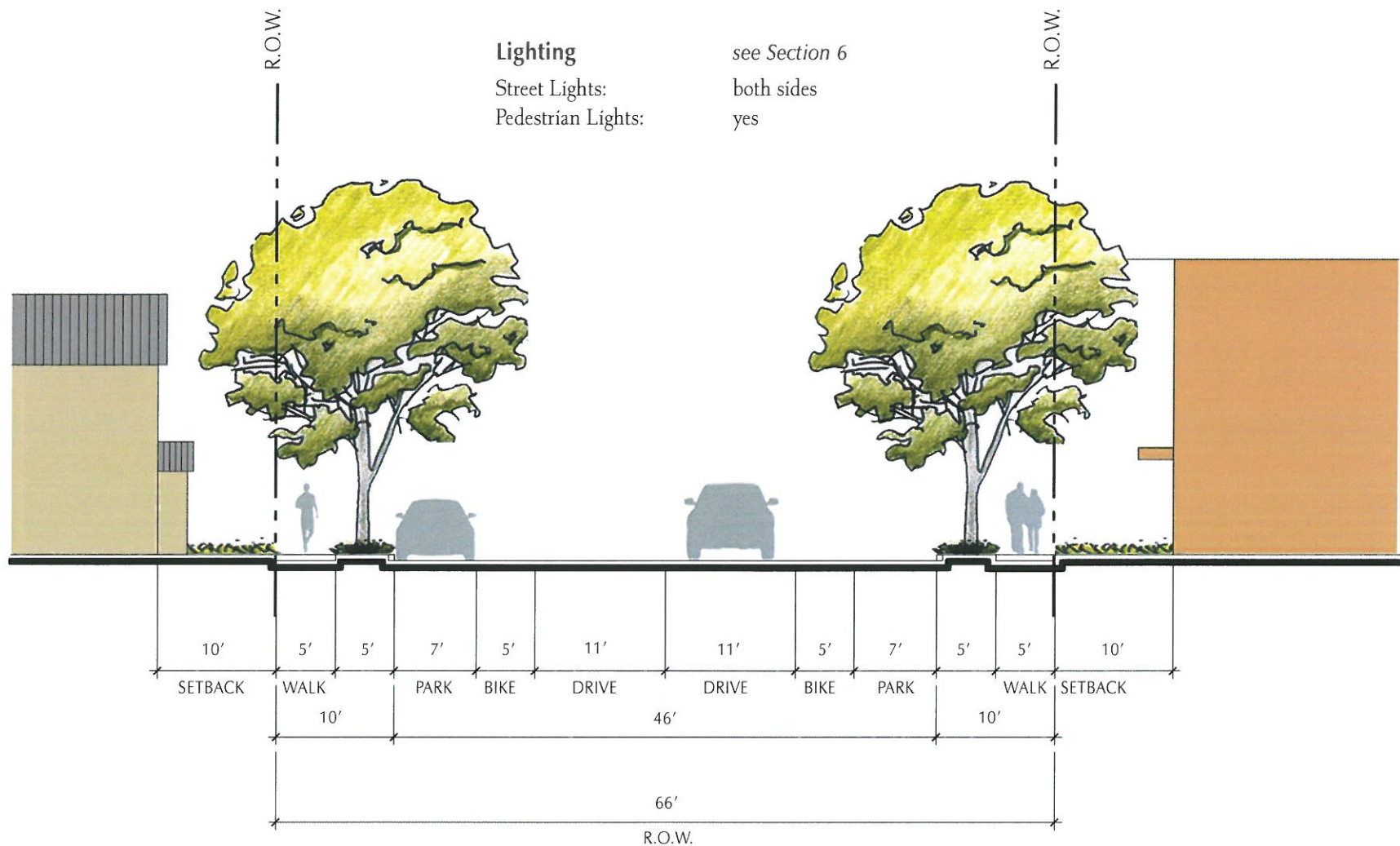
Tree Spacing:	30' o.c.
Underplantings:	yes

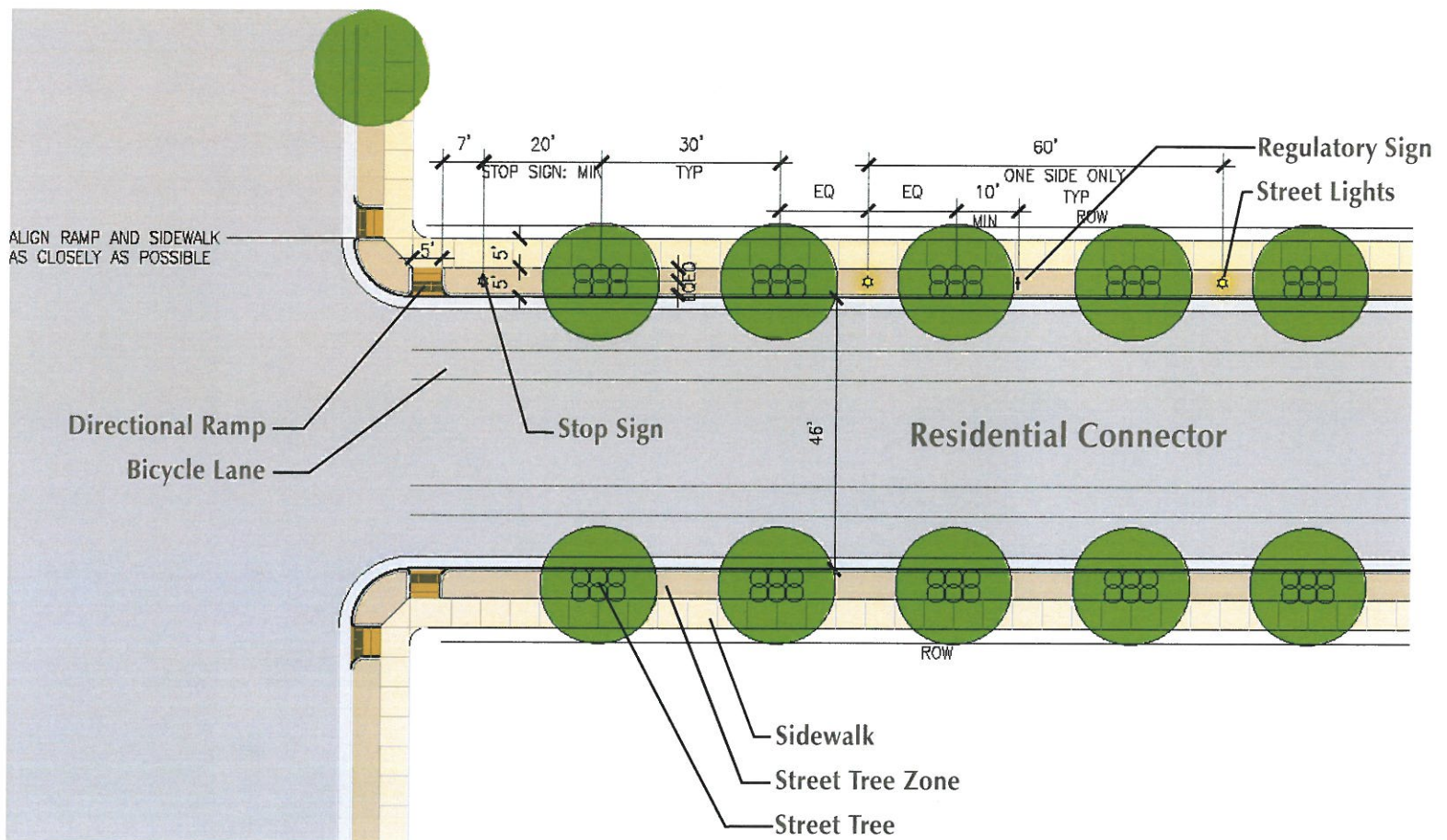
see Section 4

Lighting

Street Lights:	both sides
Pedestrian Lights:	yes

see Section 6





**Residential Connector:
Typical Plan**

showing relationships and general locations of streetscape elements

not to scale

CONNECTOR: INDUSTRIAL

Industrial Connectors are sized to accommodate truck deliveries. A wider street tree zone and tree underplantings retain the softened landscape feel established in the Avenue cross-section, but without a median.

Dimensions

Drive Lane:	one each direction, 12'
Bike Lane:	6'
Parking:	8'
Street Tree Zone:	10'
Sidewalk:	6'
Transit:	in drive lane

Landscape

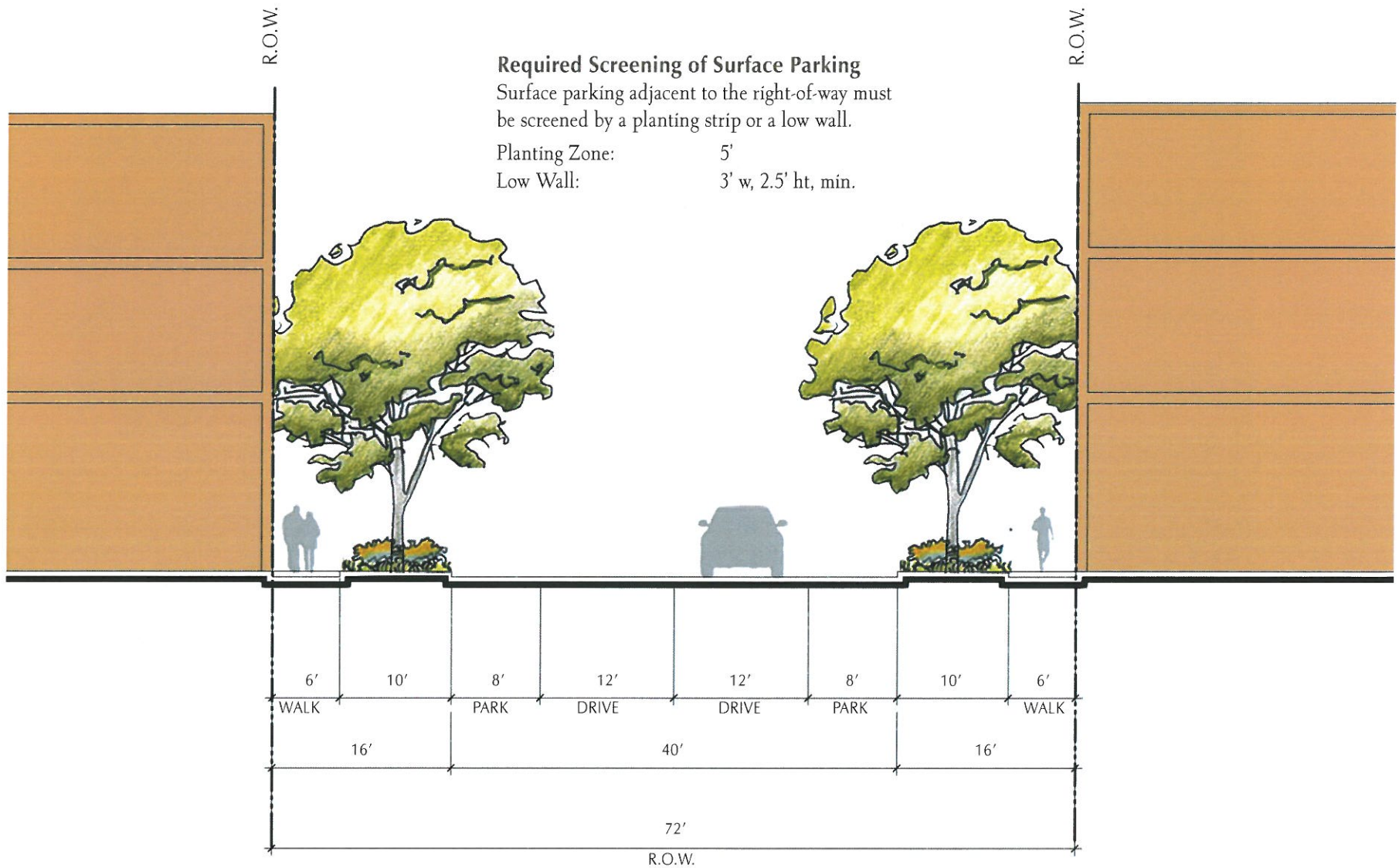
Tree Spacing:	30' o.c.
Underplantings:	yes
Irrigation:	by adjacent owner

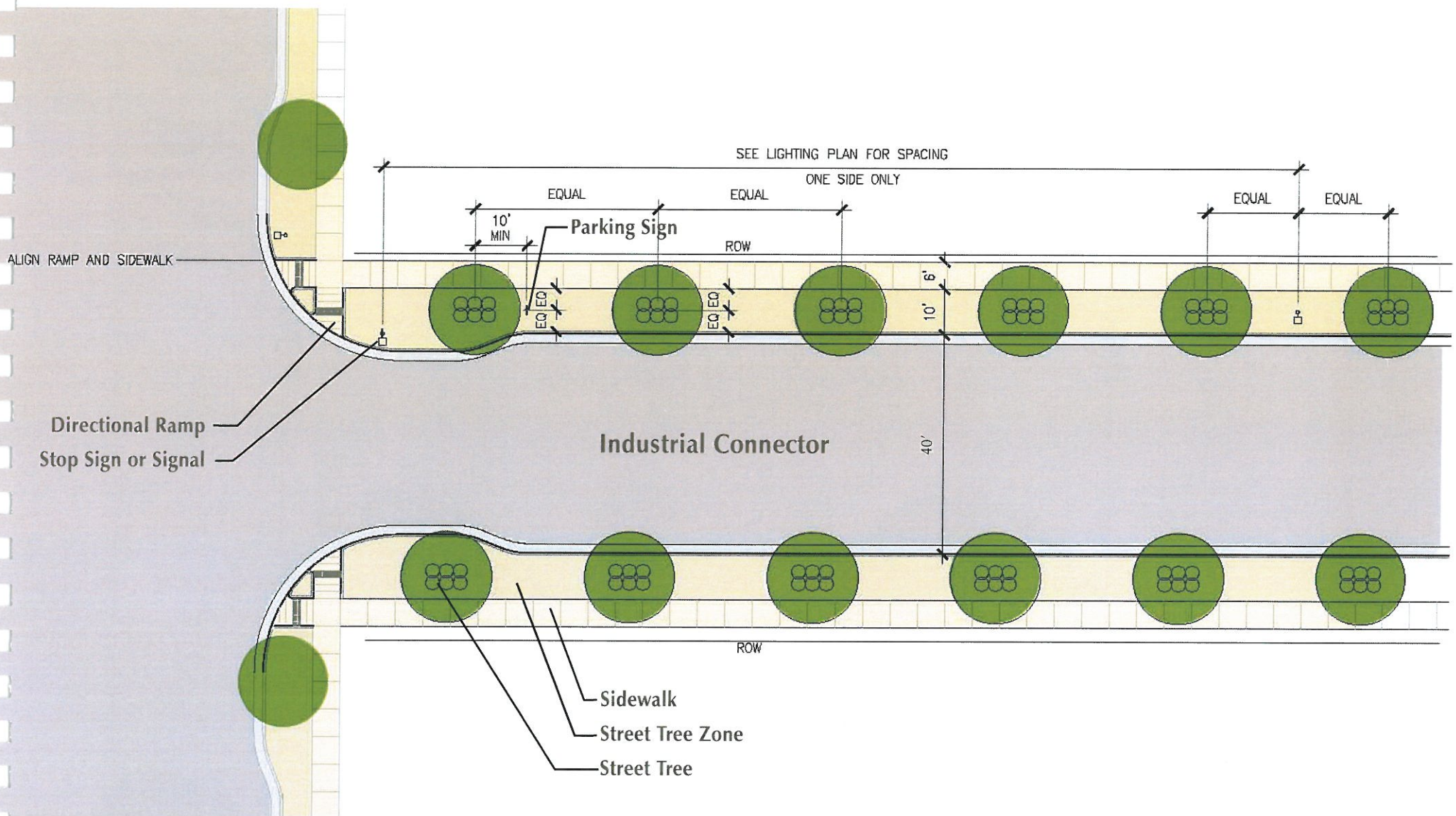
Lighting

Street Lights:	see Section 6 one side only
Pedestrian Lights:	no
Banners:	no

Furnishings

Benches:	see Section 3 no
Trash Receptacles:	no
Bike Racks:	no
Transit Shelter:	no





Industrial Connector:
Typical Plan

not to scale

Showing relationships and general locations of streetscape elements

CONNECTOR: COMMERCIAL

This street typically occurs within the community center. These streets will normally have street level retail adjacent uses but in the case where surface parking is required, the section below indicates that it is screened by a planted buffer or a low wall.

Streetscape character will be coordinated within the commercial area district on both couplets and connectors.

Dimensions, each direction, standard

Drive Lane:	1 lane; 11'
Bike Lane:	6'
Parking:	7'
Street Tree Zone:	8'
Sidewalk:	8'
Transit:	in drive lane

Landscape

Tree Spacing:	30' o.c.
Street Tree Cut-Out:	60 Sq Ft min.
Tree Grate:	5' x 8' min.
Underplantings:	yes, if no grate
**Street tree zone and sidewalk may be combined into a single zone when overhead structure replaces trees.	

**Commercial streets may use either tree cut-outs with raised curbs, tree grates or landscape strips for tree planting. If cut-outs are used, they must be set back from face of curb, to allow clearance for parked cars. If grates are used, they should be centered within the amenity zone.

Required Screening of Surface Parking

Surface parking adjacent to the right-of-way must be screened by a planting strip or a low wall

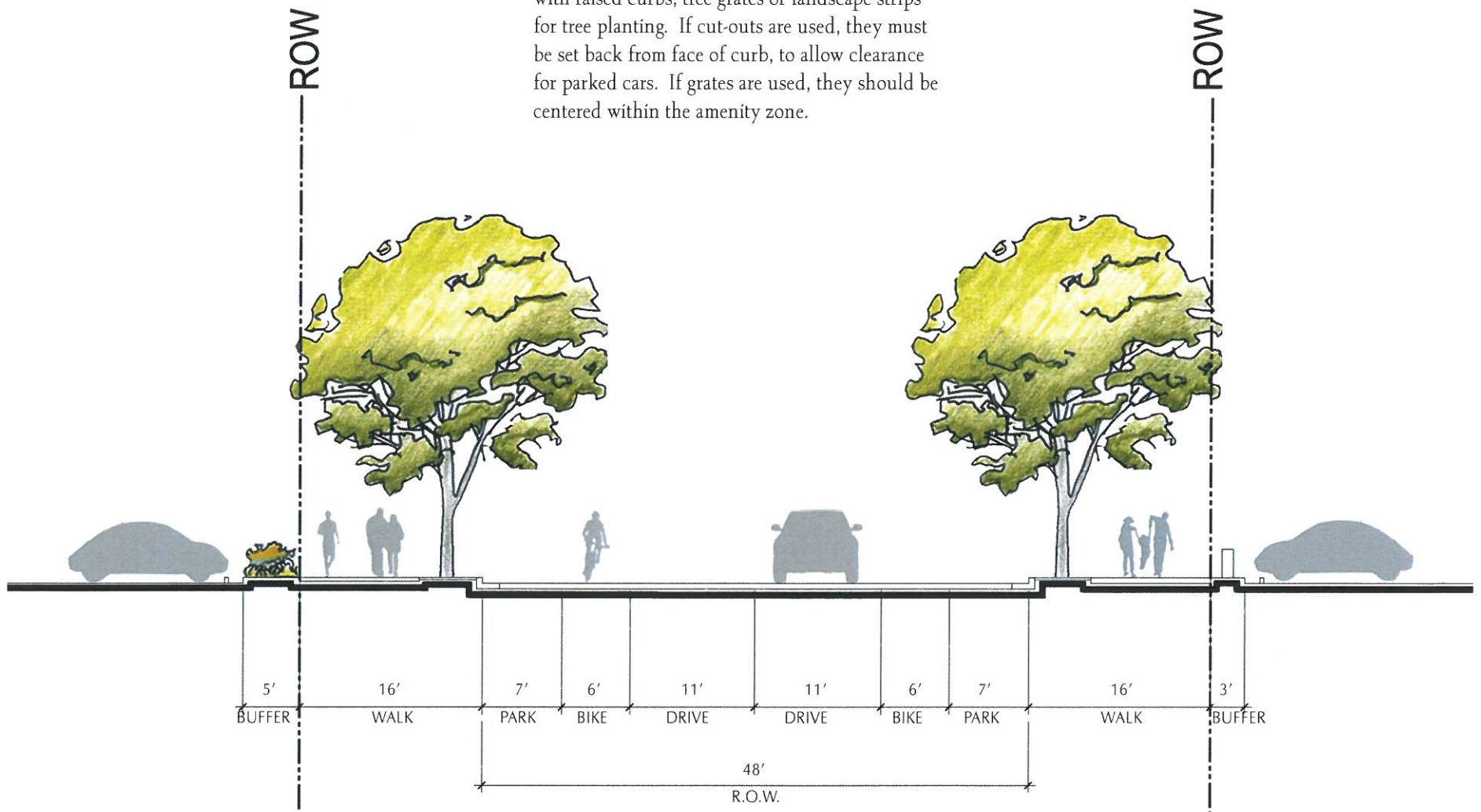
Planting Zone:	5'
Low Wall:	3' w, 2.5' ht, min.

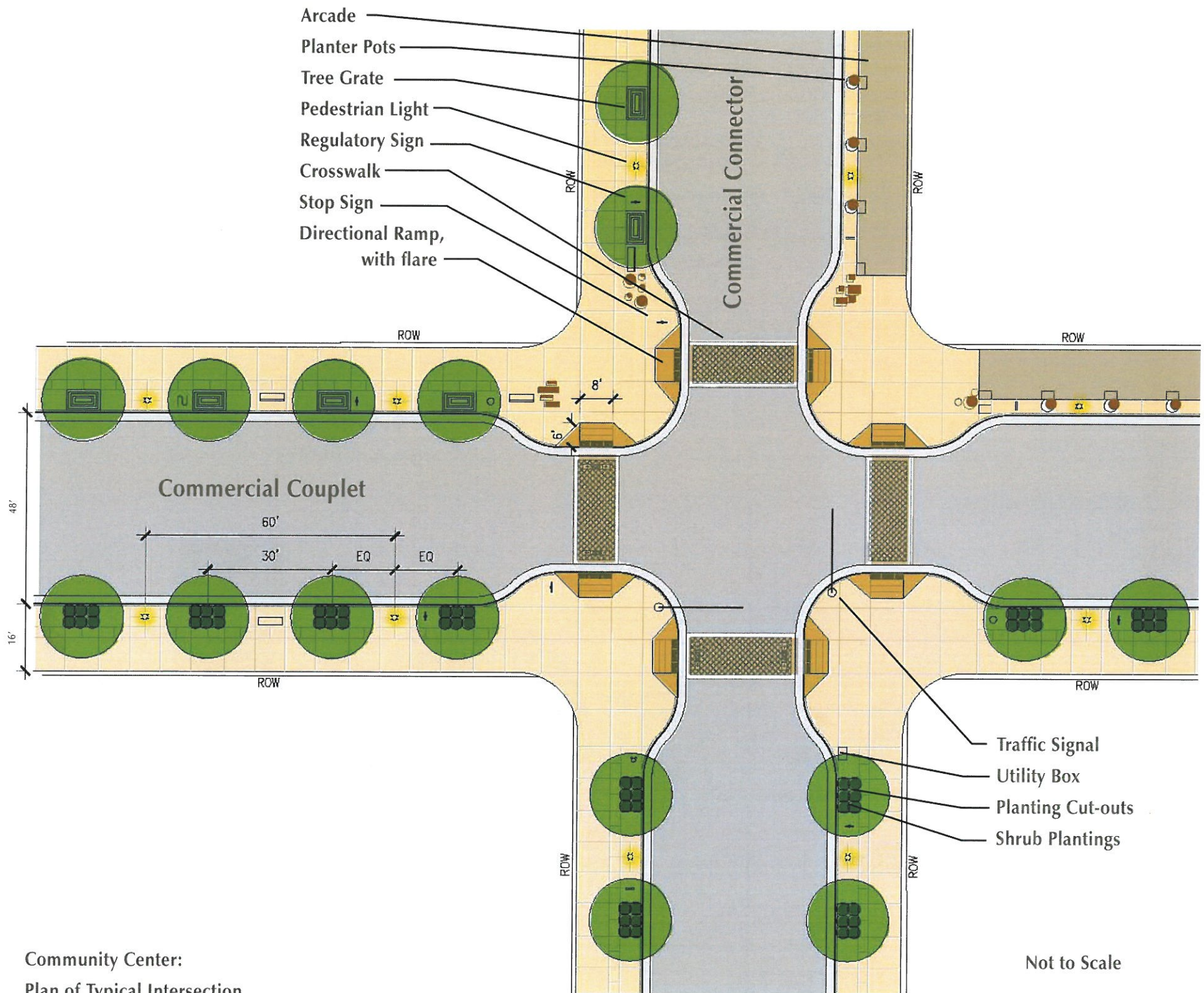
Lighting

Street Lights:	see Section 6
Pedestrian Lights:	both sides
Banners:	yes
	permitted

Furnishings

Benches:	see Section 3
Trash Receptacles:	2 per block face
Bike Racks:	1 per block face
Planter Pots:	2 per block face
	permitted





Community Center:
Plan of Typical Intersection

showing relationships and general locations of streetscape elements

Not to Scale

LOCAL: RESIDENTIAL

This type of street features a narrow curb-to-curb pavement width in order to calm traffic and reduce impervious surfaces. Local streets provide on-street parking, increasing pedestrian separation from traffic and providing space for visitor parking.

Local streets may be 2-way, as shown below, or 1-way, as shown on the facing page. 2-way Locals are the normal condition, with 1-way Locals used primarily adjacent to parks. 1-way Locals normally occur as a couplet.

Local streets have regularly spaced street trees with a detached sidewalk.

Dimensions, 2-way

Drive Lane:	shared, 14'
Bike Lane:	no
Parking:	7'
Street Tree Zone:	7'
Sidewalk:	5'
Transit:	no

Dimensions, 1-way (Greenway-adjacent)

Drive Lane:	12'
Bike Lane:	no
Parking:	7'
Street Tree Zone:	7'
Sidewalk:	5'
Transit:	no

Landscape

Tree Spacing:	see Section 4
Underplantings:	30' o.c. no

Lighting, 2-way

Street Lights:	see Section 6
Pedestrian Lights:	at intersections only, 500' max. spacing
Banners:	no

Lighting, 1-way (Greenway-adjacent)

Street Lights:	one side
Pedestrian Lights:	no
Banners:	no

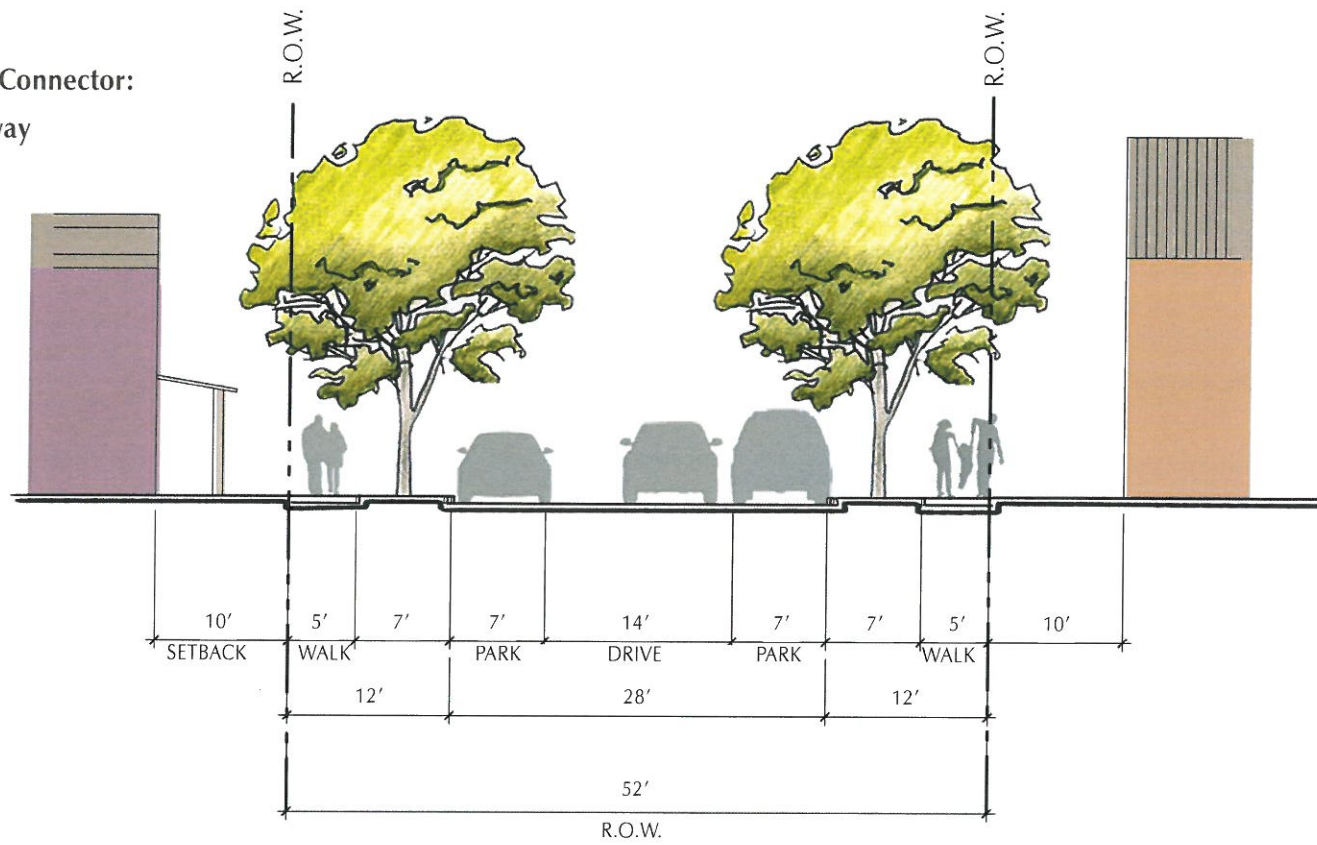
Furnishings

Benches:	see Section 3
Trash Receptacles:	no
Bike Racks:	no
Transit Shelter:	no

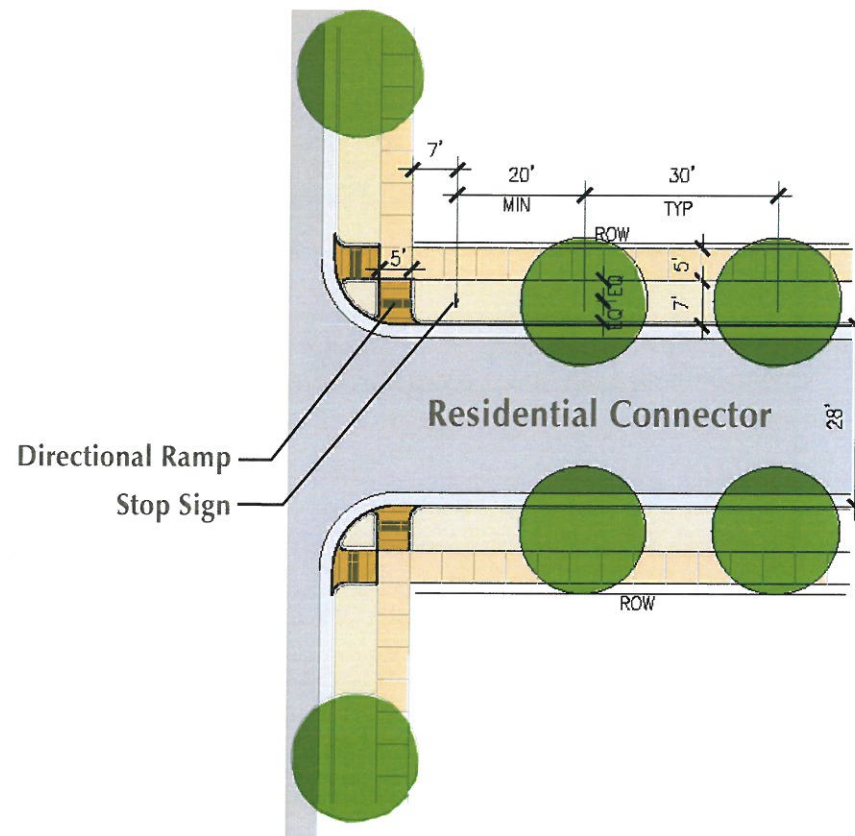
Residential Connector:
Section, 1-way



Residential Connector:
Section, 2-way



Residential Connector:
Typical Plan, 2-way
not to scale



LOCAL: INDUSTRIAL

Local industrials have the narrowest cross-section within Innovation Park, but still accommodate truck traffic. The street tree zone is also narrower than the other street typologies, and uses a constrained planting scheme requiring narrow crown tree types.

Dimensions

Drive Lane:	1 each direction, 14'-16'
Bike Lane:	no
Parking:	no
Street Tree Zone:	6'
Sidewalk:	5'
Transit:	no

*Drive lanes taper wider at intersections to accommodate truck turning movements.

Landscape

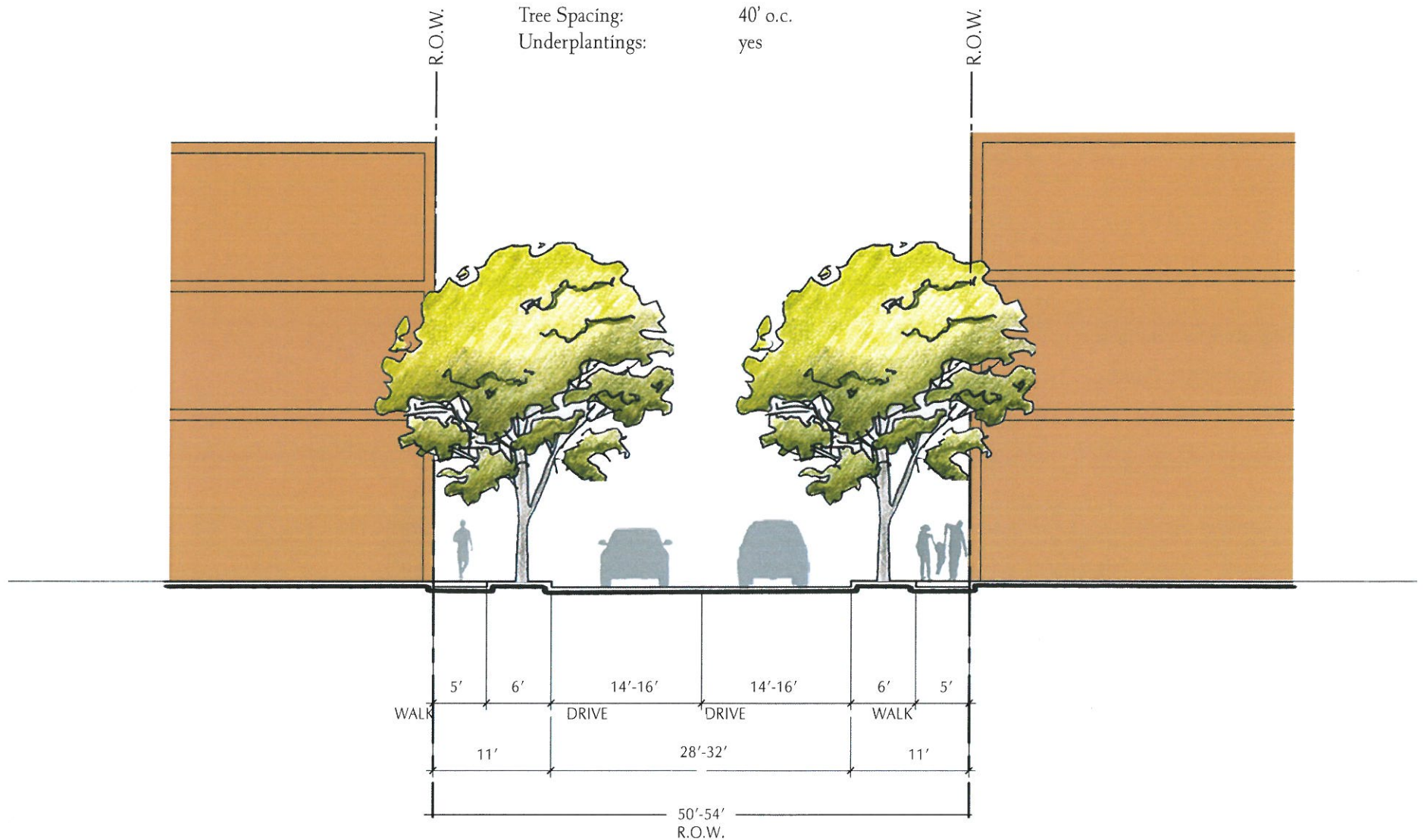
Tree Spacing:	40' o.c.
Underplantings:	yes

Lighting

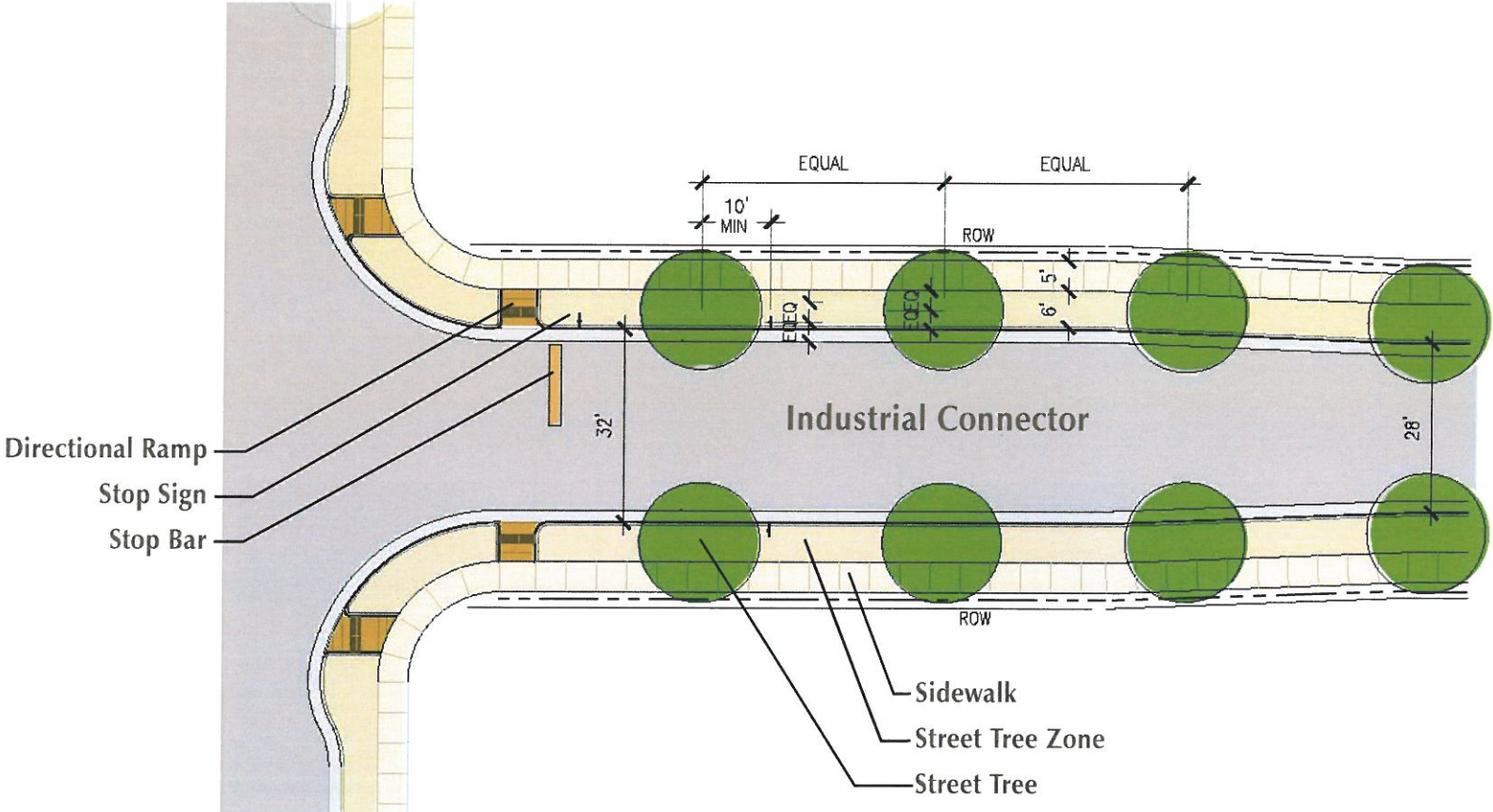
Street Lights:	at intersections only
Pedestrian Lights:	no
Banners:	no

Furnishings

Benches:	no
Trash Receptacles:	no
Bike Racks:	no
Transit Shelter:	no



Note: Drive lanes taper wider at intersections to accommodate truck turning movements. The right-of-way will follow this taper, in order to maintain width of street tree zone and sidewalk.



**Industrial Connector:
Typical Plan**

showing relationships and general locations of streetscape elements

not to scale

ALLEY: RESIDENTIAL

Alleys are service roadways in the residential neighborhoods, providing access to garages and back-of-lot. They also provide important utility routing and provide for trash removal and fire access at the back of house. They are not intended to serve as through-routes.

Narrow pavements, allowances for surface stormwater conveyance and treatment and landscape border planting enhance the alley. Shade trees should be planted as close as possible to the alley pavement to provide shade in these corridors.

Dimensions, 2-way

Drive Lane: shared, 12'
 ***drive lane is proposed to be 9' wide asphalt pavement, with two 18" concrete flush curb edges

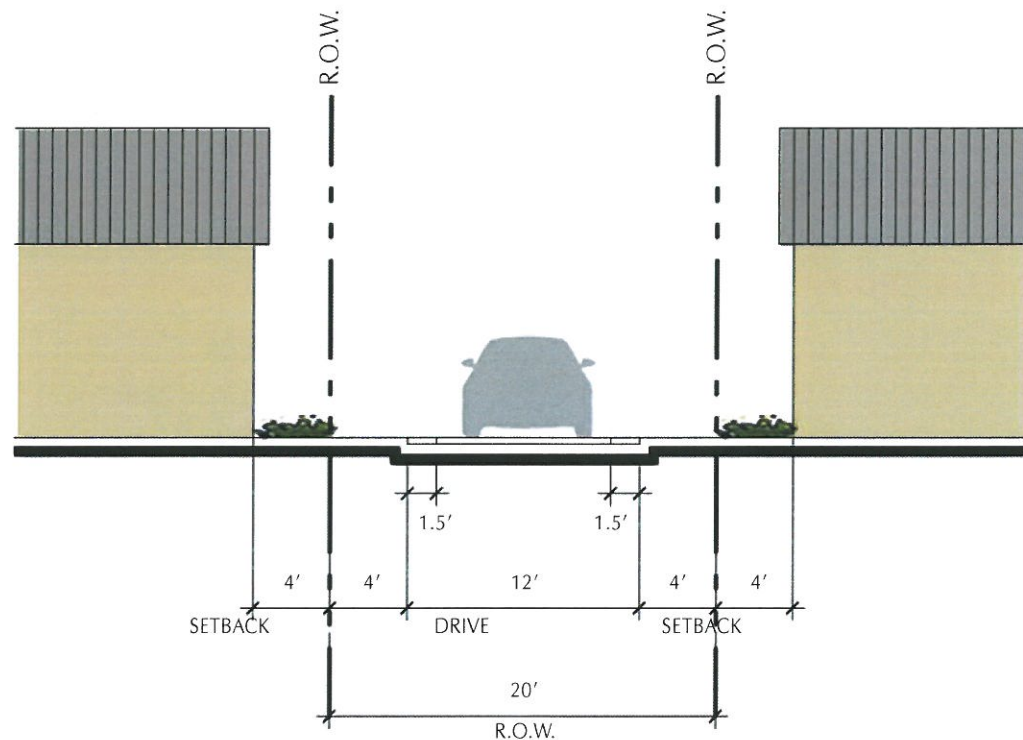
Bike Lane: no
 Parking: no
 Street Tree Zone: no
 Sidewalk: no
 Transit: no

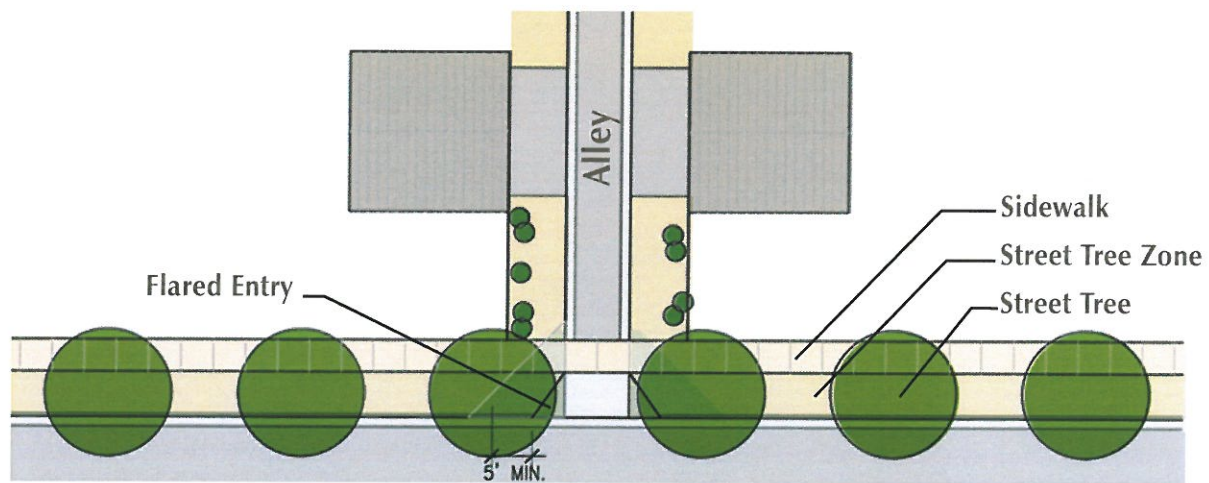
Lighting

Street Lights: no
 Pedestrian Lights: no
 Banners: no
 ***Lighting is provided by motion sensing lamps mounted on garages.

Furnishings

None





Alley: Typical Plan

not to scale

showing relationships and general locations of streetscape elements

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Section 3

Pedestrian Amenities



SIDEWALKS & PEDESTRIAN RAMPS

Mesa del Sol has at least 15 different intersection configurations that influence the location, size and orientation of sidewalks, ramps and crosswalks. A number of factors influence intersection design for pedestrians, including curb radius, width of intersecting streets, sidewalk and landscape strip widths and presence of parking, turn lanes and intersection bulb-outs.

Given the level of complexity and variability, there is no 'typical' intersection layout for pedestrian ramps. There are, however, typical details that will be included and general guidelines that all ramps must meet, as well as a number of context-specific design protocols that should govern the specific design at each intersection, as outlined in the following pages.

Americans with Disability Act (ADA) Compliance

All ramps shall comply with ADA requirements in effect at the time of construction including, but not limited to, Sections 4.7 (Curb Ramps), 4.8 (Ramps) and 4.29.2 (Detectable Warning).

In particular, ramps shall not exceed a 1:12, or 8.3% slope in the direction of travel. In simplest terms, this gradient translates to one foot of ramp length for each inch of ramp rise, or a 6' long ramp with a 6" curb and an 8' long ramp with an 8" curb. (If there is insufficient length for a ramp, a depressed sidewalk must be used: see Ramp Type 3 on the following pages.)

Ramps must also display a recognizable color contrast to adjacent sidewalk, either in the ramp pavement or the detectable warning strip and either light on dark or dark on light.

Detectable Warning Strips: Truncated Domes

Detectable warning strips shall be installed on all ramps adjacent to the street.

Either cast iron or precast concrete products are acceptable. Within the Community Center, blocks that utilize tree grates shall use cast iron truncated domes, to maintain a consistent palette of materials. Truncated dome strips shall extend to the end of the ramp, sized and placed in accordance with ADA and City of Albuquerque requirements. Surface-mounted and surface-applied products are not acceptable.

Sidewalk Finish

Unless specified otherwise in refined design drawings and serving a particular design purpose, sidewalks throughout the development shall be standard grey concrete with a medium broom finish.



Cast concrete truncated domes.



Granite truncated domes.



Cast iron truncated domes.

Ramp Color: Contrast

Color shall provide appropriate contrast but also harmonize with colors of adjacent streetscape materials. Ramps shall be grey concrete, to match adjacent sidewalks. Detectable warning strips shall be natural cast iron or brown precast concrete to provide necessary contrast.

Flare vs. Curb Return

Two basic types of ramps will be used at Mesa del Sol, depending on condition of the area adjacent to the ramp. Flared edges will be used for ramps abutting hardscape, while curb returns will be used for ramps abutting planting areas.

Ramp Width

Where possible ramps and sidewalks should have the same width. Where sidewalks of different widths intersect, the ramps should have the same width as the adjacent sidewalk in the same direction of travel.

Ramp Alignment

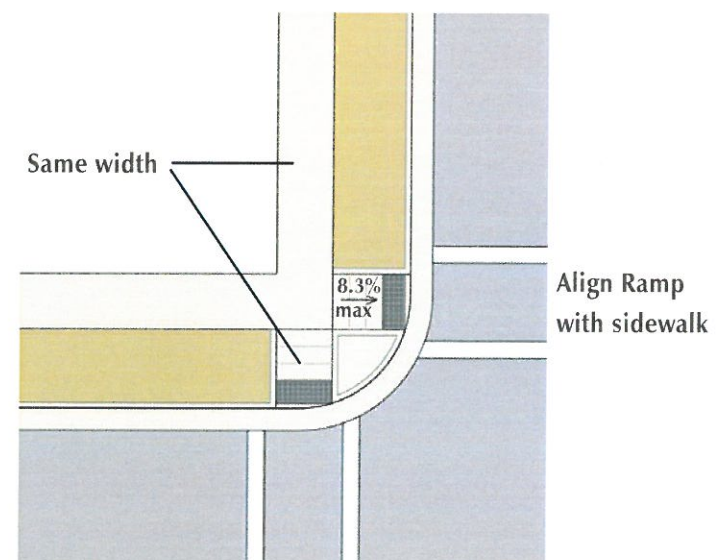
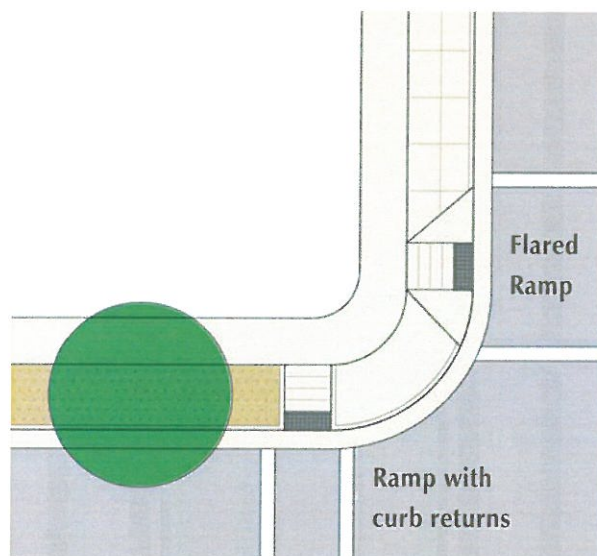
Ramps should be “directional”. They should align on both edges with the sidewalk that leads into it in line with the associated ramp across the street. In conditions where alignment is not possible, such as when a curb radius would not allow appropriate length for an aligned ramp, the ramp should be offset to the smallest distance possible.

Ramps should be aligned with the associated ramp across the street. Likewise, crosswalks should be perpendicular to the street edge; skewed or slanted crosswalks are not acceptable.

Crosswalks & Pedestrian Refuge

Crosswalks should be centered on the pedestrian ramp, and be, at a minimum, the same width as the ramp. Crosswalks must include the entire ramp, exclusive of side flare (an ADA requirement).

Where medians intersect crosswalks, that portion of the median should be designed as a pedestrian refuge, with appropriate ramps (if space allows) or flush to grade, if median is narrow. Pedestrian refuges, if used, must align with crosswalks and may not be offset from the crosswalk.



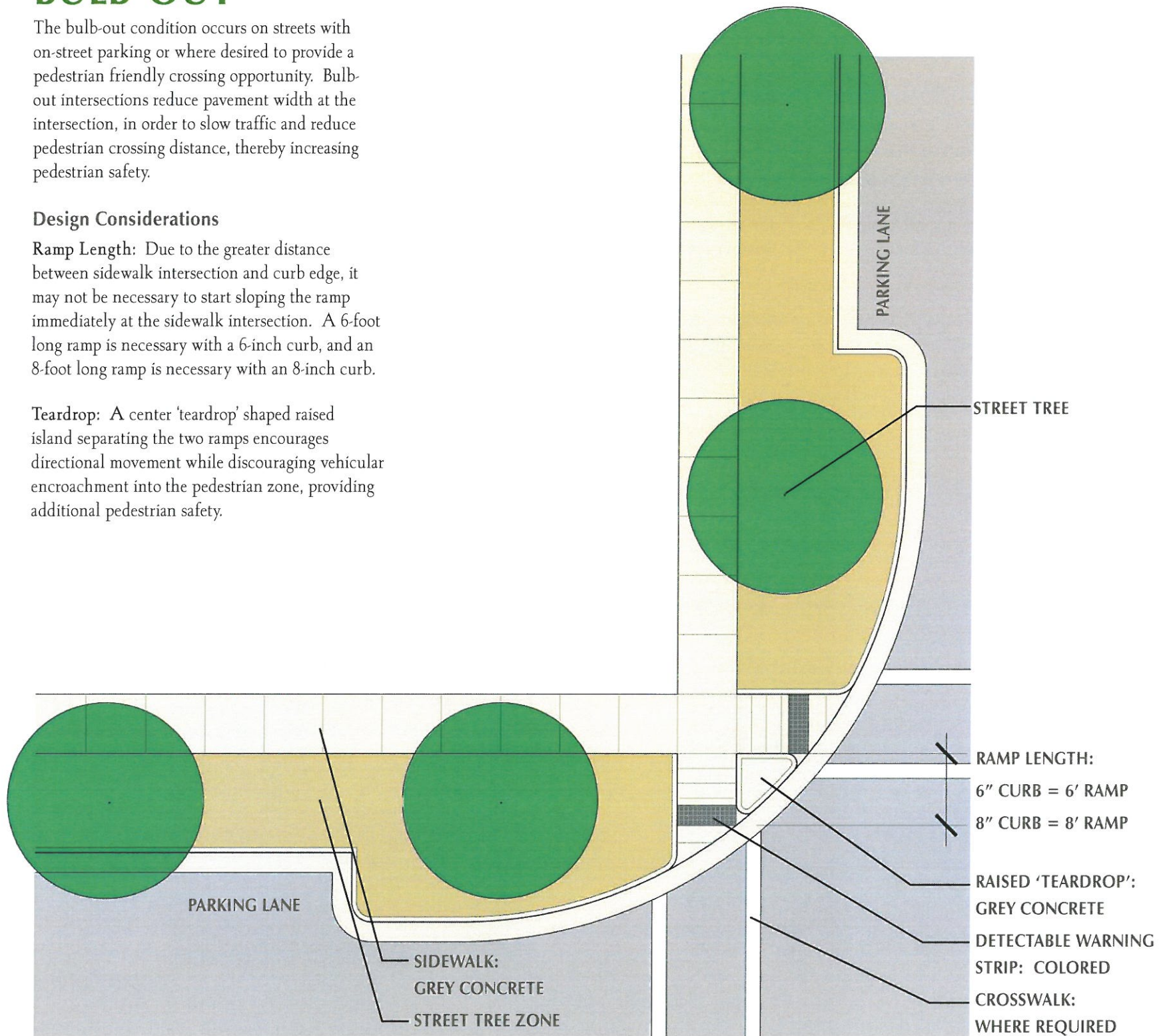
RAMP TYPE 1: BULB-OUT

The bulb-out condition occurs on streets with on-street parking or where desired to provide a pedestrian friendly crossing opportunity. Bulb-out intersections reduce pavement width at the intersection, in order to slow traffic and reduce pedestrian crossing distance, thereby increasing pedestrian safety.

Design Considerations

Ramp Length: Due to the greater distance between sidewalk intersection and curb edge, it may not be necessary to start sloping the ramp immediately at the sidewalk intersection. A 6-foot long ramp is necessary with a 6-inch curb, and an 8-foot long ramp is necessary with an 8-inch curb.

Teardrop: A center 'teardrop' shaped raised island separating the two ramps encourages directional movement while discouraging vehicular encroachment into the pedestrian zone, providing additional pedestrian safety.

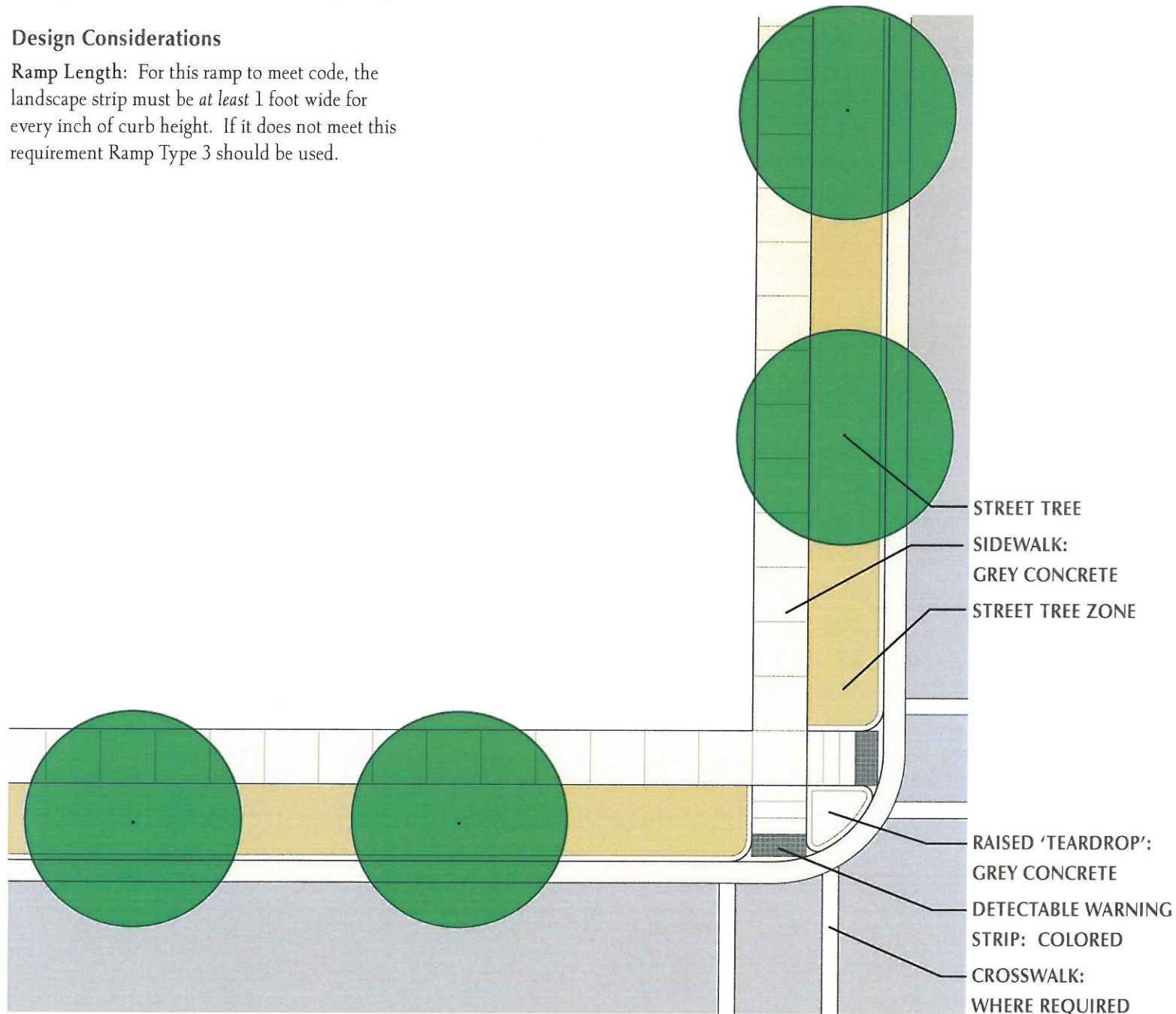


RAMP TYPE 2: STRAIGHT

This condition is found on roadways with standard intersections and tight curb radii. There is normally no on-street parking or there is a turn lane at these intersections. Ramping must be accomplished in the width of the landscape strip.

Design Considerations

Ramp Length: For this ramp to meet code, the landscape strip must be *at least* 1 foot wide for every inch of curb height. If it does not meet this requirement Ramp Type 3 should be used.



RAMP TYPE 3: DEPRESSED WALKWAY

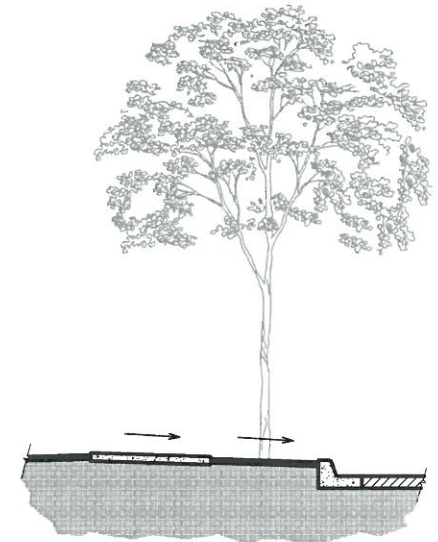
This condition is found on streets where the width of the landscape strip is insufficient for an ADA-compliant slope on the pedestrian ramp. The sidewalk slopes down toward the intersection before the ramp, to reach a suitable height for ramping. As the curb height remains constant, the landscape strip transitions, changing from a toward-the-street slope to an away-from-the-sidewalk slope in order to accommodate the depressed sidewalk.

Design Considerations

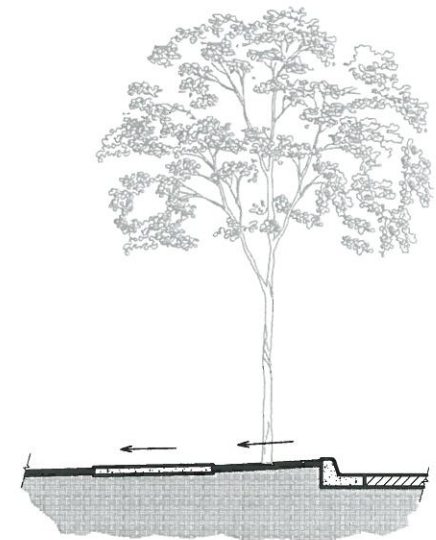
Ramp Offset: The 'corner' edge of the ramp should start on the tangent of the curb return, in order to maximize ramp length. This condition results in ramp offset from the adjacent direction of travel.

Landscape strip drainage: The transition of the landscape strip will result in a laterally flat area presenting drainage challenges. Where possible, a longitudinal slope should be maintained, in order to promote positive drainage.

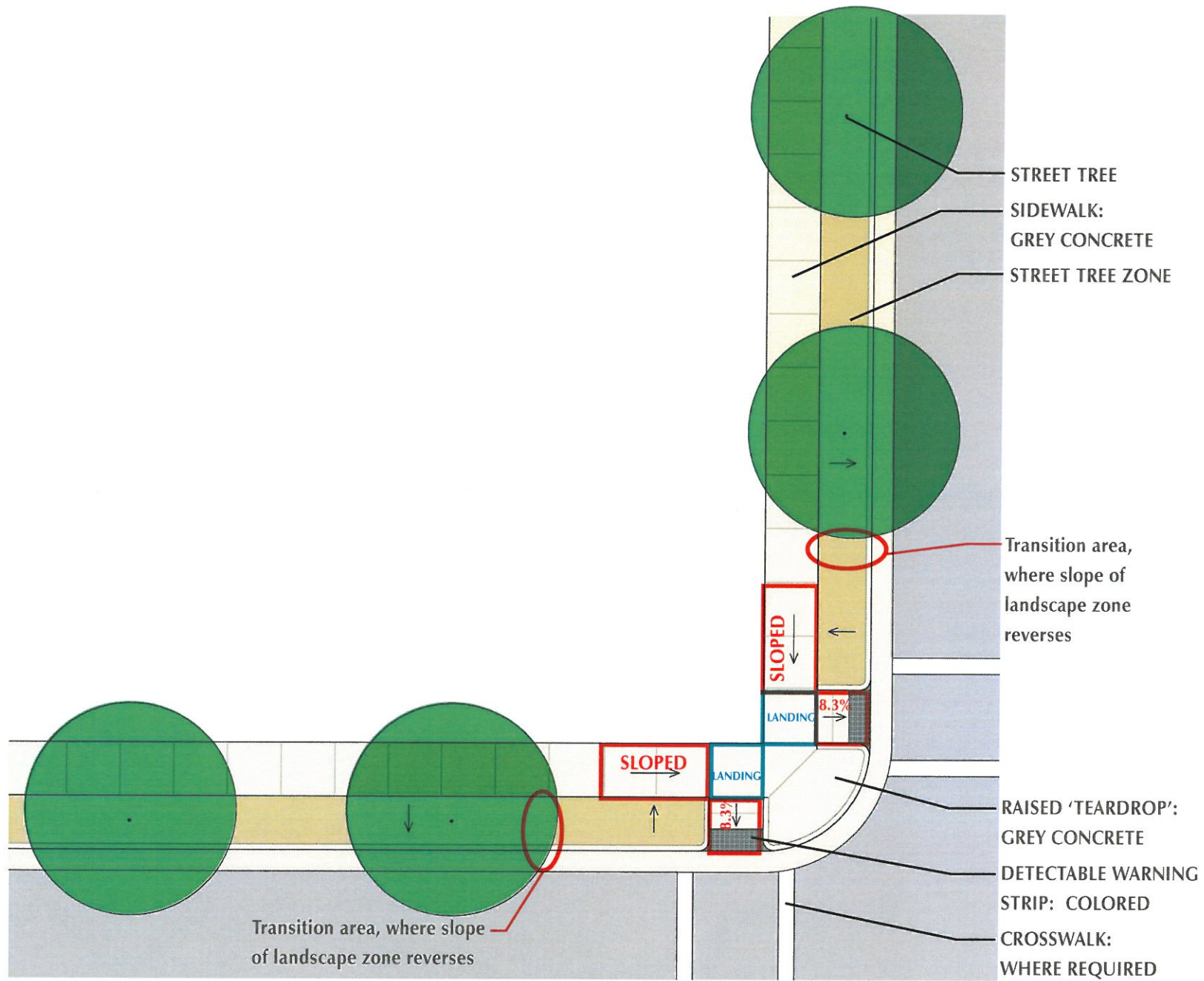
Depressed sidewalk: Due to the drainage issues associated with a reversed slope in the street tree zone, as described above, the length of depressed walkway should be minimized. It is preferable to drop the sidewalk approximately two inches over a distance of four feet, rather than over a distance of ten feet.



Standard condition: walkway and landscape strip drain to street.



Depressed condition: landscape strip drains toward walkway; walkway may drain either direction.



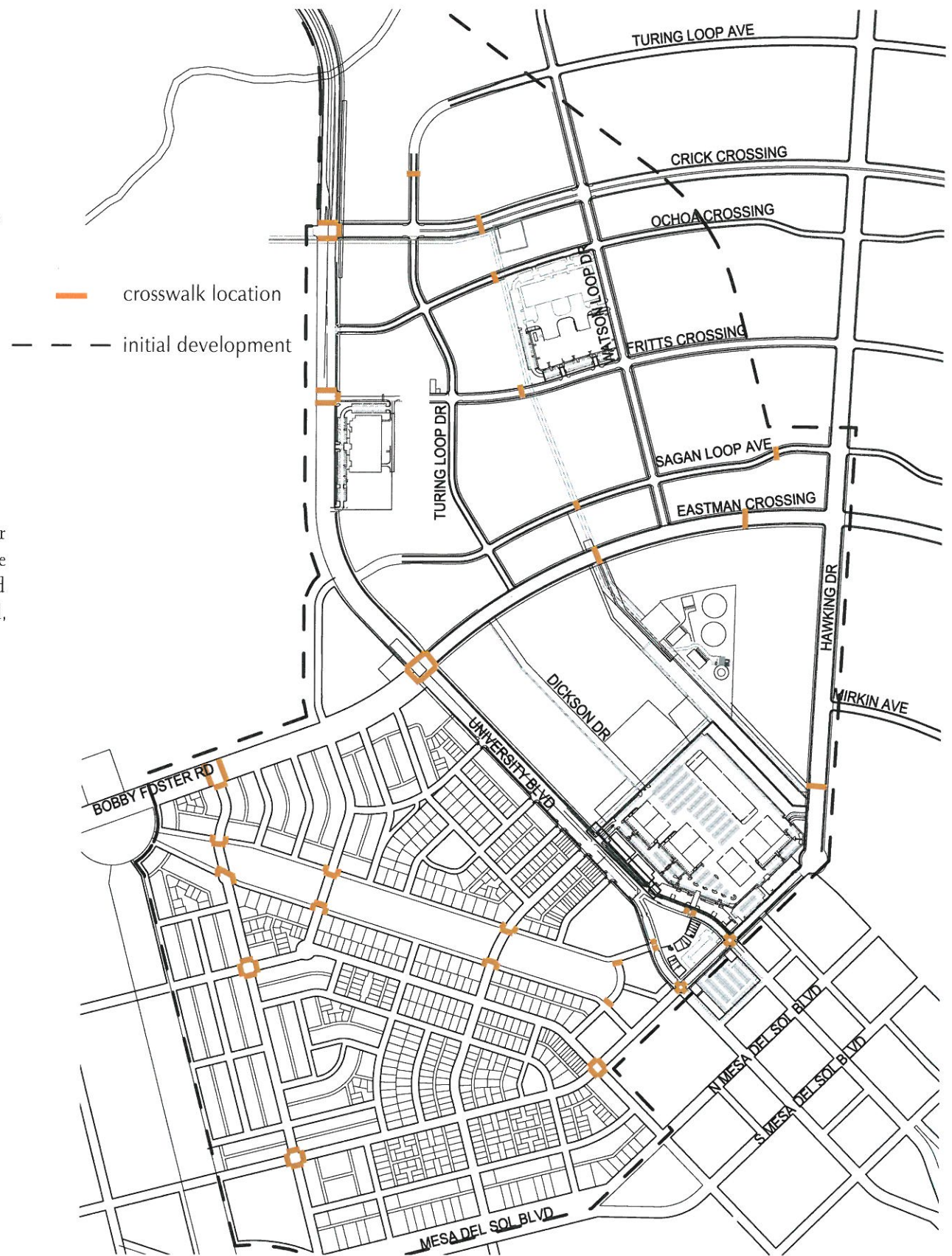
SIDEWALKS: CROSSWALKS

Pedestrian safety is the highest priority at Mesa del Sol. Marked crosswalks will be used at all signalized intersections and on all stop-controlled intersections involving boulevards or avenues (see Section 2 for explanation of the street typology) as permitted by the City of Albuquerque. Connectors and Locals will utilize marked crosswalks on a case-by-case basis, depending on specific conditions.

Mid-block pedestrian crossings can facilitate pedestrian flow under certain circumstance and are permitted, but should only be used in certain conditions, such as when intersections are far apart, or adjacent land uses generate substantial pedestrian flow. Mid-block crossings should never be used if pedestrian or motorist sight distances are impaired. Mid-block crossings, often not expected by motorists, must be well-signed and well-marked, to ensure pedestrian safety.

Crosswalk Materials

DuraTherm, an inlaid asphalt system produced by Integrated Paving Concepts, or an approved equivalent, shall be used for marked crosswalks throughout Mesa del Sol. This product has been selected to comply with the Level B Plan's requirement of decorative crosswalk materials, as well as for its demonstrated durability and performance in hot environments such as Albuquerque. This marking system offers opportunity for customized design, which may be integrated into the overall signage, identity and wayfinding concept.



Crosswalk Design

Crosswalks can be strictly functional, or they can be an integral part of the overall streetscape aesthetic. At Mesa del Sol, crosswalks will fill both these roles.



Dura Therm cross-section. Dura Therm is an imbedded thermoplastic product.



Custom Dura Therm pattern



Standard Dura Therm pattern

Custom Crossings: Custom Dura Therm designs are possible, and may be considered for use in the development.

Standard Crossings: At most or all crossings, a standard DuraTherm design will be used. The 12" Tile design will be applied at 45 degrees, with the "Look" symbol integrated into the pattern in front of pedestrian ramps at non-stop intersections.

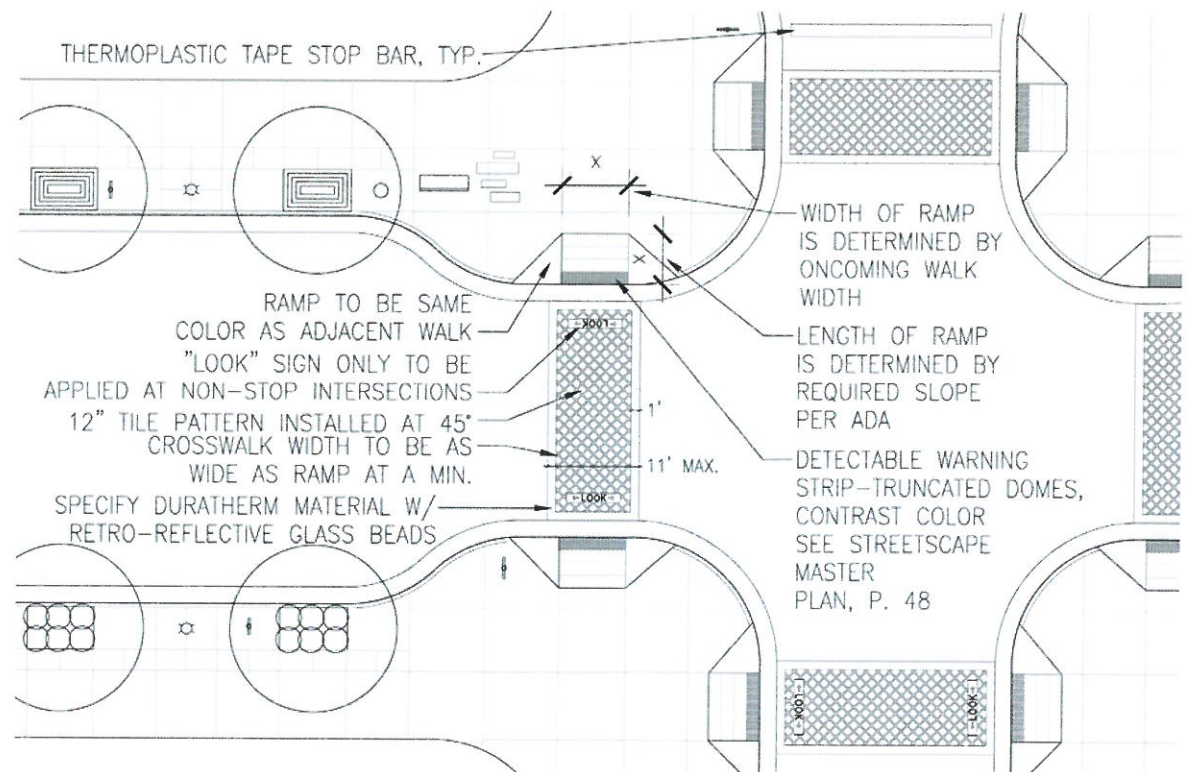
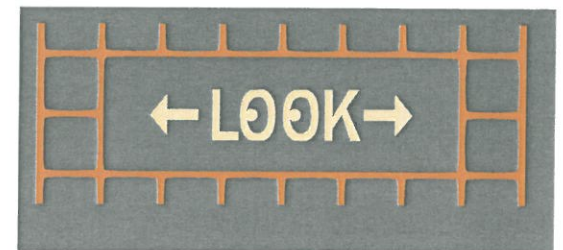
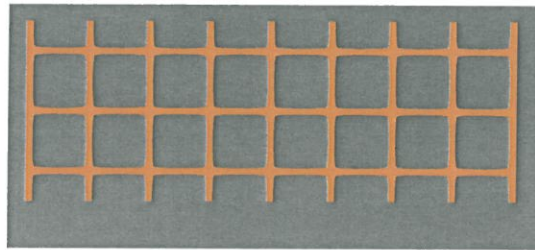
Surface-applied thermoplastic stop bars shall be used with the DuraTherm crosswalk, in order to meet highway safety standards.

Design: 12" Tile set at 45 degrees

Grid Color: Cinnamon

"Look" Color: Sand

* Thermoplastic to contain glass beads for retro-reflectivity.

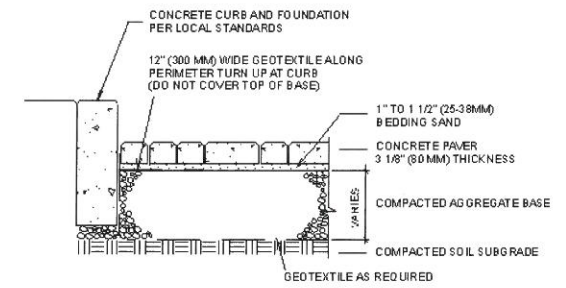


PERMEABLE PAVING

Although not a strictly streetscape issue, permeable paving is a tool that can be used to reduce stormwater runoff, facilitate rainwater harvesting and increase water quality at appropriate locations as part of Mesa del Sol's green infrastructure. Permeable paving is especially effective for large areas of pavement such as for parking and on constrained sites that would otherwise have difficulty with diverting or detaining their storm flows.

Porous Concrete Pavers

This type of system provides an attractive, long-lasting surface appropriate for visually important or highly pedestrian-oriented areas. The pavers are not porous specially shaped to allow stormwater to drain through spaces between the pavers at a very high rate. Pavers are set on an aggregate base, allowing direct flow into the subgrade, underground storage and eventual recharge into the underground aquifer or disposal of cleaned water at a lower rate into the stormwater system.



- NOTES:
1. DRAIN MAY BE NECESSARY IN SLOW DRAINING SUBGRADE.
 2. BASE THICKNESS VARIES WITH TRAFFIC, CLIMATE, AND SUBGRADE CONDITIONS. COLDER CLIMATES AND WEAK SOILS MAY REQUIRE THICKER BASES.
 3. DO NOT COVER ENTIRE TOP OF AGGREGATE BASE WITH GEOTEXTILE.



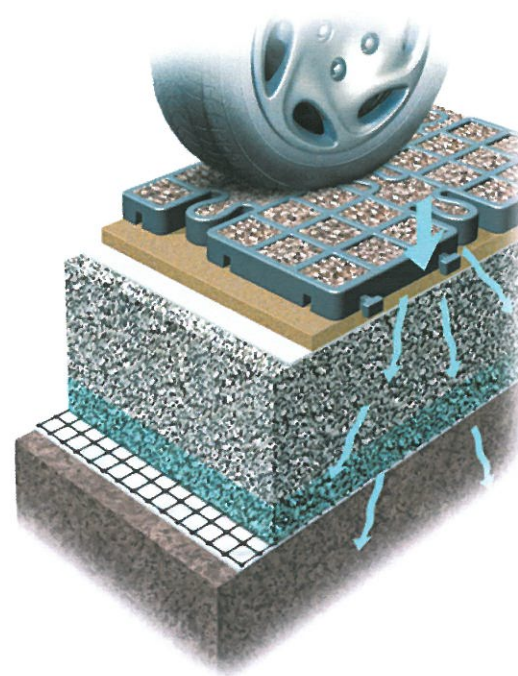
porous concrete pavers

Stabilized Gravel or Turfgrass Grids

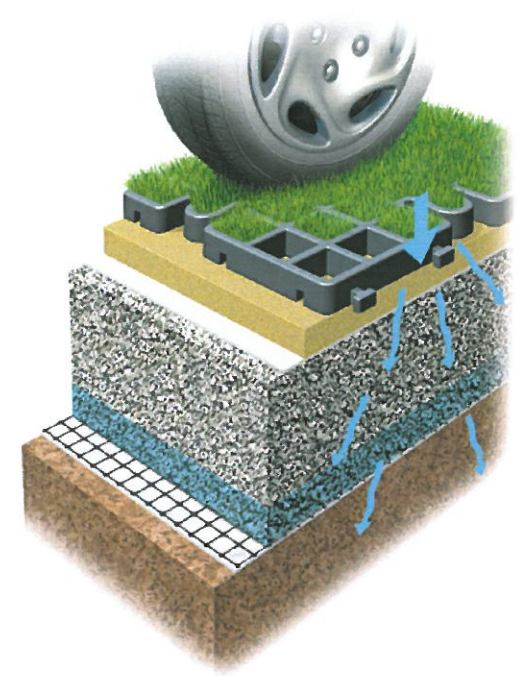
This type of porous system creates an organic look and a more visible demonstration of sustainable practices. An engineered grid structure designed for load-bearing is covered with fine gravel or porous soil and turfgrass sod. Stormwater filters through the soil into the subgrade, taking advantage of the storage capacity of the substrate and eventually recharging the subsoil, water table or storm drain system.



stabilized gravel parking area



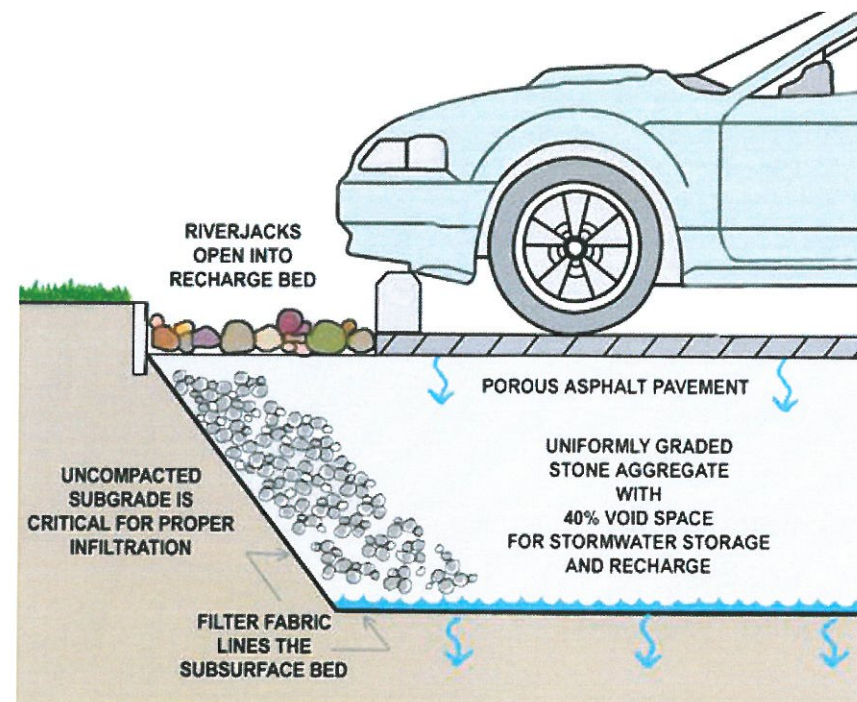
stabilized gravel



turfgrass grid

Porous Asphalt

Porous asphalt has a similar appearance to traditional asphalt, but does not use fine aggregate to fill the tiny gaps between the coarse aggregate. The coarser surface allows water to filter through voids in the paving, percolating into the aggregate base, subgrade and water table or storm drain system.








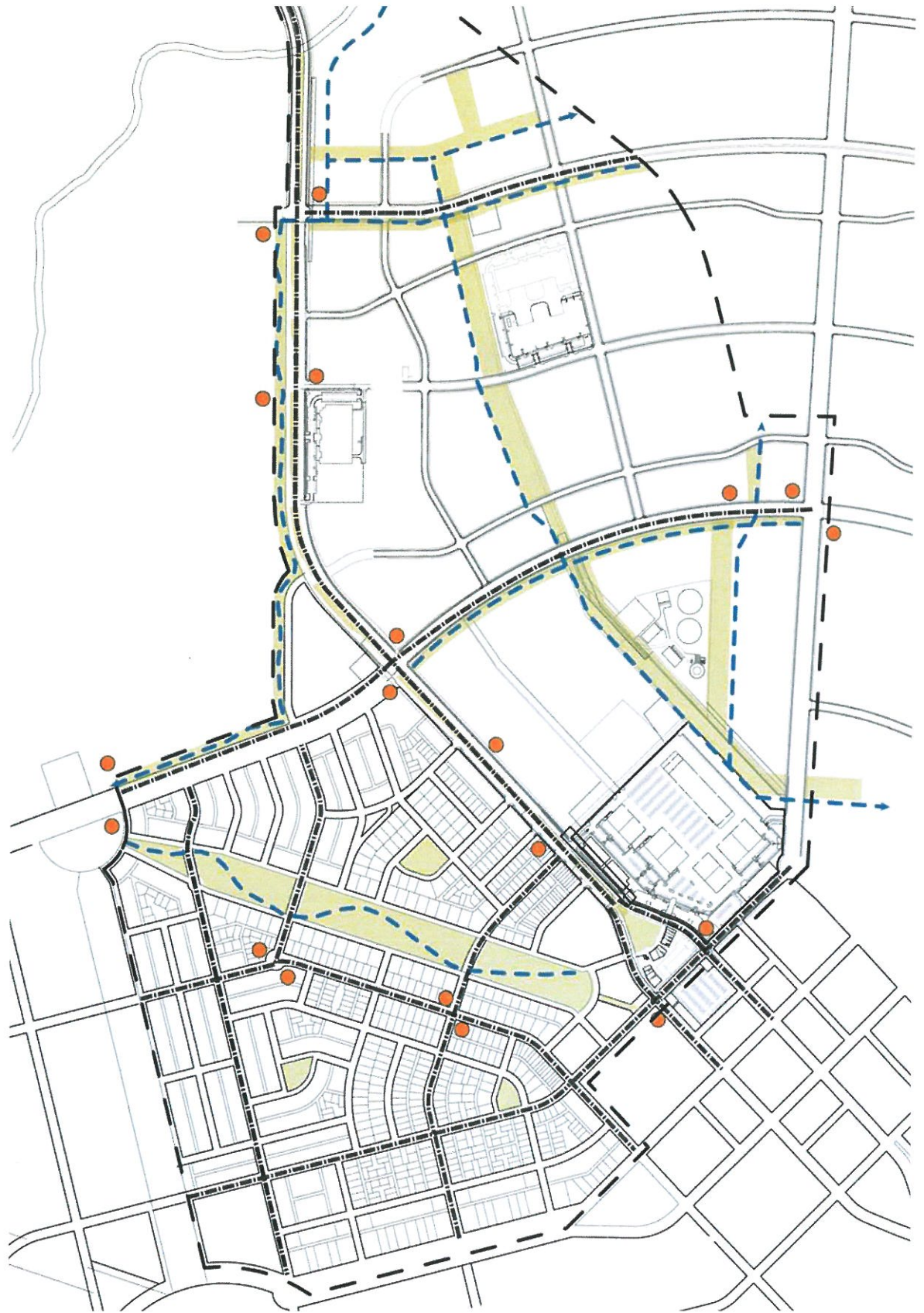
TRANSIT, BIKES, PARKS & TRAILS

Mesa del Sol focuses on systems, and the connectivity created in the street grid is extended in the approach to alternative transportation and open space. The ultimate goal is to enhance multi-modal connectivity, making it as easy and efficient as possible to move throughout the development by various means (by foot, bike, bus, etc.) and for various purposes (for work, recreation, or any other purpose). Streets and streetscape are designed with special attention to these alternative types of movement, in order to facilitate seamless integration of land uses and connectivity to the larger community.

Transit (future)

Mesa del Sol is located at the extreme southeastern reach of the planned City of Albuquerque transit system. It has not yet been determined what type or when transit service will be extended into the community. During Level A and B planning University Boulevard has been sized to accommodate a future dedicated transitway down the center of the median. In the one-way couplets the system is accommodated on-street. Bus rapid transit (BRT) or light rail transit (LRT) are potential transit types that require this type of exclusive right of way. Avenues and Connector streets are also sized to accept non-dedicated transit use such as busees and circulators with stops located at appropriate places in accordance with ABQ Ride's transit plans.

-  Open Space
-  Bike Lane
-  Multi-Use Trail
-  Transit Stop
-  Initial Development



Bicycle Lanes

Bicycle transportation is a key element in Mesa del Sol's transportation plan. Boulevards, Avenues and Connectors all have on-street, marked bicycle lanes. The lanes will be signed and provided with intersection markings as part of a community-wide bicycle route system. These lanes form a consistent network of coverage throughout the community, and offer both commuter and recreational opportunities.



Bike systems can be delineated by signage, pavement marking, or both.

Parks, Open Space and Multi-Use Trails

Mesa del Sol has an extensive parks and open space system that helps meet the mobility needs of residents and users. In particular, a system of internal linear parks plays an important role in providing non-vehicular circulation throughout the community. In some cases, such as the linear space along Eastman Crossing, the off-street trail might be adjacent to the street right-of-way. A perimeter "velocircuit" is also identified as a future recreational and transportation amenity.



A bike system may consist of a combination of trails (above), paths (right, top) and lanes (right, bottom). Bike trails may be paved or unpaved.



Bike paths are usually paved, and may be shared with pedestrians.



Bike lanes are typically a shared vehicular roadway, with a special lane marked for cyclists.

STREET FURNISHINGS

Street furnishings are an important component of placemaking, providing an opportunity to unify the whole, through consistent and expected location, as well as a way to distinguish and individualize different areas within the project. Site furnishings provide pedestrian scale and comfort on the street.

At Mesa del Sol, different families will be used within different areas of the development. The Village, Community and Urban Centers will each have their own family of furnishings. Streetscape and transit stops will also be streamlined through another common set of furnishings.

Manufacturer

For the purposes of this plan a single manufacturer has been selected to set a minimum standard for quality, style and warranty. Other manufactured products will be considered subject to approval of the Architectural Review Board.

Color

All site furnishings shall be of a color and finish as approved by the Architectural Review Board. Furnishings selected should meet the following criteria:

- weather-resistant using materials such as stainless or powder-coated steel
- minimal use of wood
- located in shady or protected areas to reduce the fading and weather impacts of sun and wind-blown sand

Benches

Benches: shall be backed where possible and be manufactured to be sustainable: long-lasting and comfortable.

Trash Receptacles

Trash receptacles shall be placed as appropriate in the streetscape normally near bus stops and in town centers. Type and color should complement the bench.

Bicycle Racks

Bicycle racks shall be placed in Community Center only at a minimum of two per block face. Style as indicated and color selected to complement other site furnishings.

Tree Grates

Grates shall be used as required to maximize sidewalk area in the town center. Tree grates shall be medium cast iron and have opening sizes that are consistent with ADA accessibility requirements (opening sizes should not exceed 1/4").

COMMUNITY CENTER



Community Center Bench
(Landscape Forms Stay)



Community Center Trash and Recycle
Receptacle

Custom Furnishings

- Manhole covers
- Tree grates

Both these items will be custom-designed as part of a larger image and branding effort.



Community Center Bollards
(Urban Accesories DG5)



Bicycle Rack
(Landscape Forms Bola)
Single and Multiple

TRANSIT

Long-term plans call for a combination of transit alternatives such as LRT or BRT and an extension of the Albuquerque City Bus system ABQ Ride to Mesa del Sol. The streetscape Master Plan must accommodate the need for bus lanes, stops and potential locations for future platforms and transfer stations.

Since the system is not planned by ABQ Ride yet, this plan assumes potential locations based on a regular spacing and proximity to areas with a higher concentration of people.

ABQ Ride currently uses bus shelters manufactured by Lacor Streetscape. Mesa del Sol has selected the Heritage Shelter, as shown at right, for use as required in the first phase of development.

There are also a number of custom-designed shelters throughout Albuquerque, normally financed by adjacent property owners. Given the large number of transit shelters within the development, Mesa del Sol reserves the right to design a custom shelter for use throughout the project.

Shelters which provide protection from the wind, wind-blown sand and sun would be preferred.

Bus stops may consist of a sign and bench and a waiting area adjacent to the sidewalk; bus stops could also include a shelter where it is appropriate for larger populations of transit users.



Standard ABQ Ride Bus Shelter

Lacor Streetscape Heritage Shelter



Custom Transit Shelter

MAIL

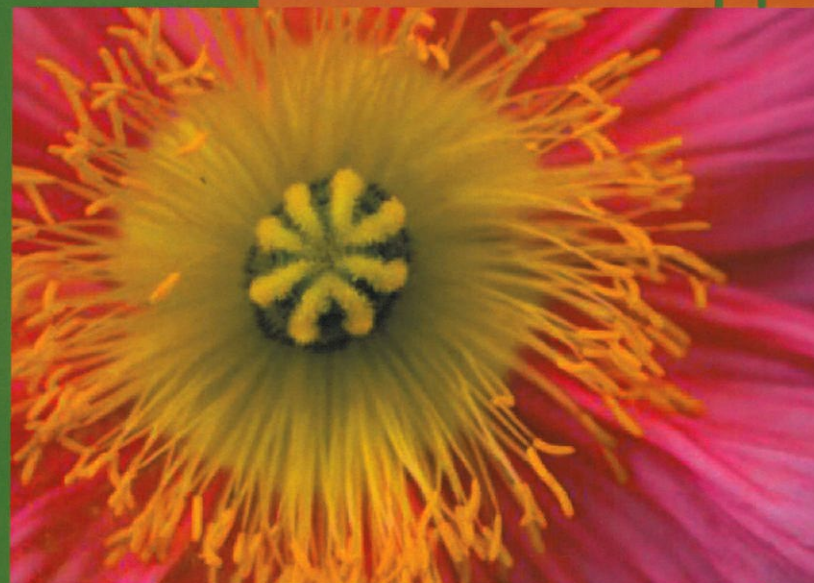
Group, or 'gang' mailboxes will be used throughout the development. Mailbox locations will be determined by the Master Developer; installation will be done by the builder.



Group mailbox example--actual furnishing will vary

Section 4

Streetscape Planting



PLANTING APPROACH

City of Albuquerque Requirements

The Level B Plan established streetscape standards that in some cases conflict with City of Albuquerque standards. As a City-approved document, the Level B plan replaces City requirements, where the two are in conflict. Please refer to the Level B Plan for more information.

Particularly applicable to the Streetscape Master Plan, the City requirement of at least two tree species per street, as well as the requirement of regularly spaced street trees, has been waived for Mesa del Sol.

Plant Materials: Selection and Size

As outlined in the Level B Plan, native and regional plants are preferred for all streetscape within the development, and native plants are explicitly identified on the planting list found in this section of the document. These species will establish faster and require less water and maintenance-long term and short term-than exotic species, and will contribute to the creation of a distinct regional identity. In the case of non-native species, low-water use xeric plantings are preferred, in order to reduce water demand. Minimum size for street trees is 2-1/2" caliper; ornamental trees shall be a minimum of 2" caliper.

Plant Materials: Irrigation

Precipitation-supported landscape is encouraged at Mesa del Sol, but this plan also recognizes that supplemental water is required in almost all but extremely native New Mexico landscapes. The use of proper mulching and soil amendments within the planting areas will also maximize soil moisture retention between storm events. Builders and developers are also encouraged to take advantage of new technologies, as they become available throughout the life of the project, that may also optimize irrigation efficiency.

Plant Materials: Sourcing

Locally-grown materials are favored for all streetscape within the development, both to encourage local economic development and to promote plant health by acquiring plants already acclimated to local conditions. When locally-grown plant materials are not available, plants should be acquired from the New Mexico-Arizona region. Contract growing should be utilized whenever possible, in order to assure a ready supply of appropriate plant materials.

Plant Materials: Maintenance Regime

Street plantings should be designed to minimize the need for chemical and mechanical maintenance procedures (such as mowers and other machinery run with fossil fuels) to the greatest degree possible. A 'natural' look, requiring less use of resources for maintenance, is preferred.

Plant Palettes & Substitutions

The scale and schedule of the Mesa del Sol project may make it difficult to find a particular species, or a great enough quantity of a species. In this case, an alternate species presenting similar characteristics (height, spread, form, water requirement, flowering or not) should be selected.

PLANTING MAINTENANCE

First Neighborhood

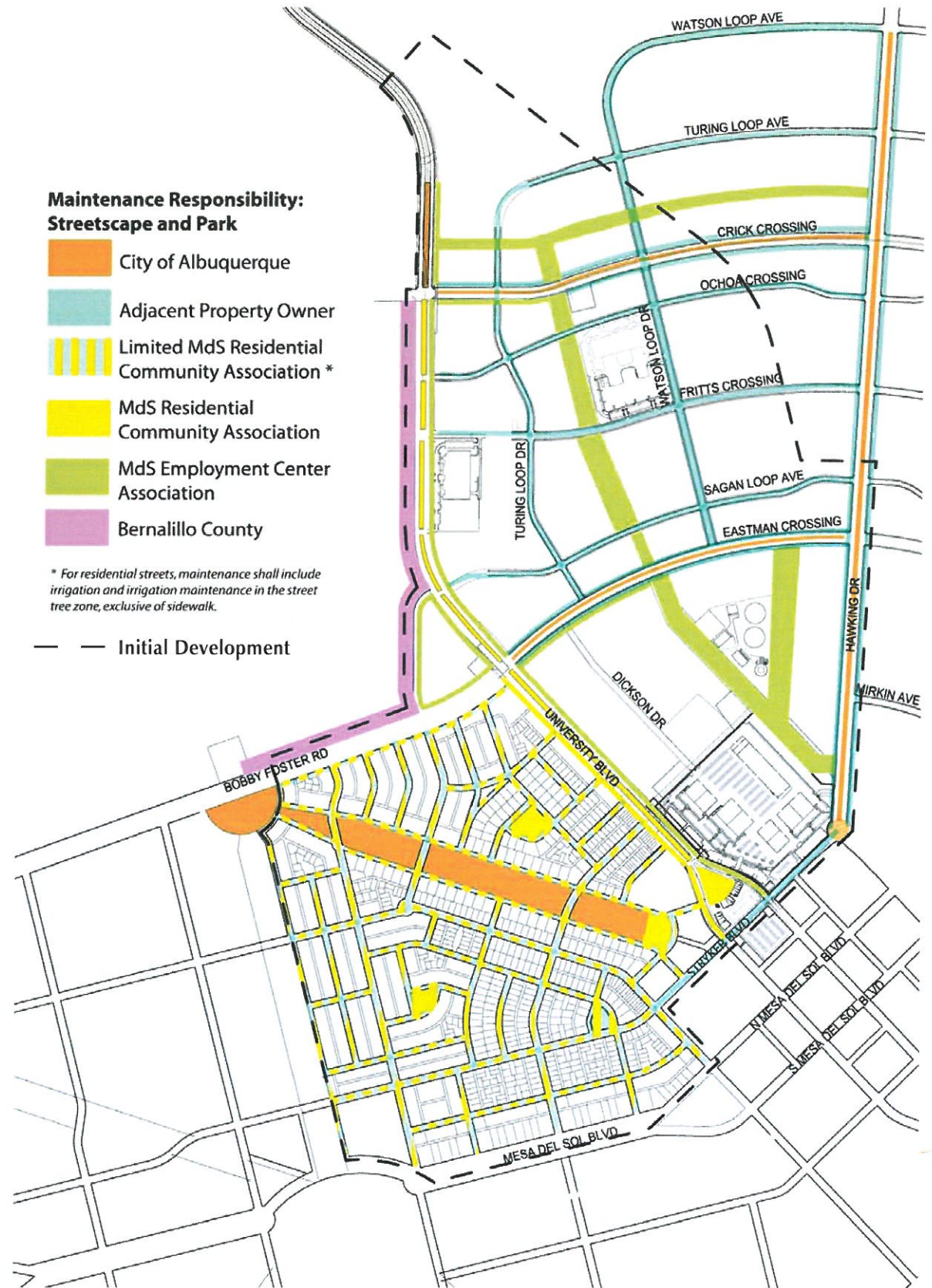
Plantings in the street tree zone, both trees and underplantings, will be irrigated by a single irrigation line paralleling the roadway. Tap and meter installation will be the responsibility of the Master Developer. The installation of trees, streetscape planting and irrigation will be done by the individual residential Developer. In order to ensure an adequate and consistent level of irrigation and trimming after installation, these activities - for all original street tree zone plantings - will be permanently taken on by the Residential Community Association. Maintenance and irrigation of any additional plant materials added to the street trees zone by the owner of the adjacent parcel will be the responsibility of the parcel owner.

Innovation Park

Street trees and underplantings will be installed, irrigated and maintained by the adjacent property owner. Additional plantings in the street tree zone, at the cost of the adjacent owner, are permitted but must be approved by the Employment Center Association.

Supplemental Planting Enhancements

Homeowners are permitted to plant additional shrubs, annuals and perennials in the street tree zone. Such additions must be approved by the Residential Community Association (RCA), and must be irrigated from the homeowner's individual water budget. Homeowners may not tap into the RCA-maintained irrigation line. Homeowners are also responsible for the maintenance of these additional materials.



PHASING

University Blvd.

University Blvd. will be built in two phases. In the first phase, the eastern portion of University Blvd. will serve both south-bound and north-bound traffic. Traffic will split into a one-way couplet just north of the civic park. The University Blvd. median will be fully constructed, with curb and gutter on both sides, in the first phase. Traffic will shift and become median-divided directional traffic when the western side of University Blvd. is built.

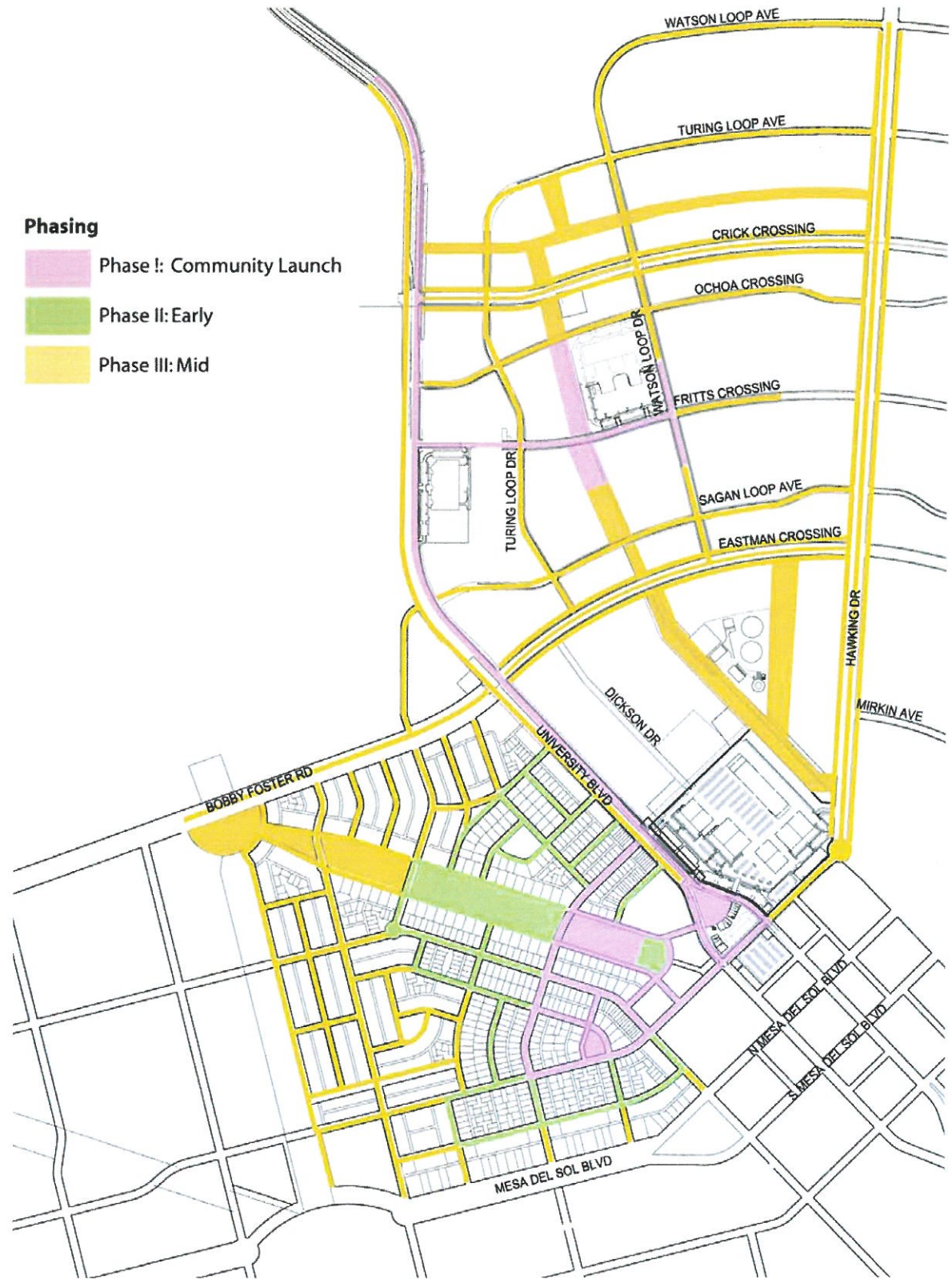
Innovation Park

Development within Innovation will be highly market driven. The streets shown in green on the map at right are slated for early-phase development. Other streets will be completed as parcels come on-line.

Phasing

- Phase I: Community Launch
- Phase II: Early
- Phase III: Mid

- Phase 1:
Community Launch
- Phase 2:
Early Phase
- Phase 3:
Mid Phase



PHASING

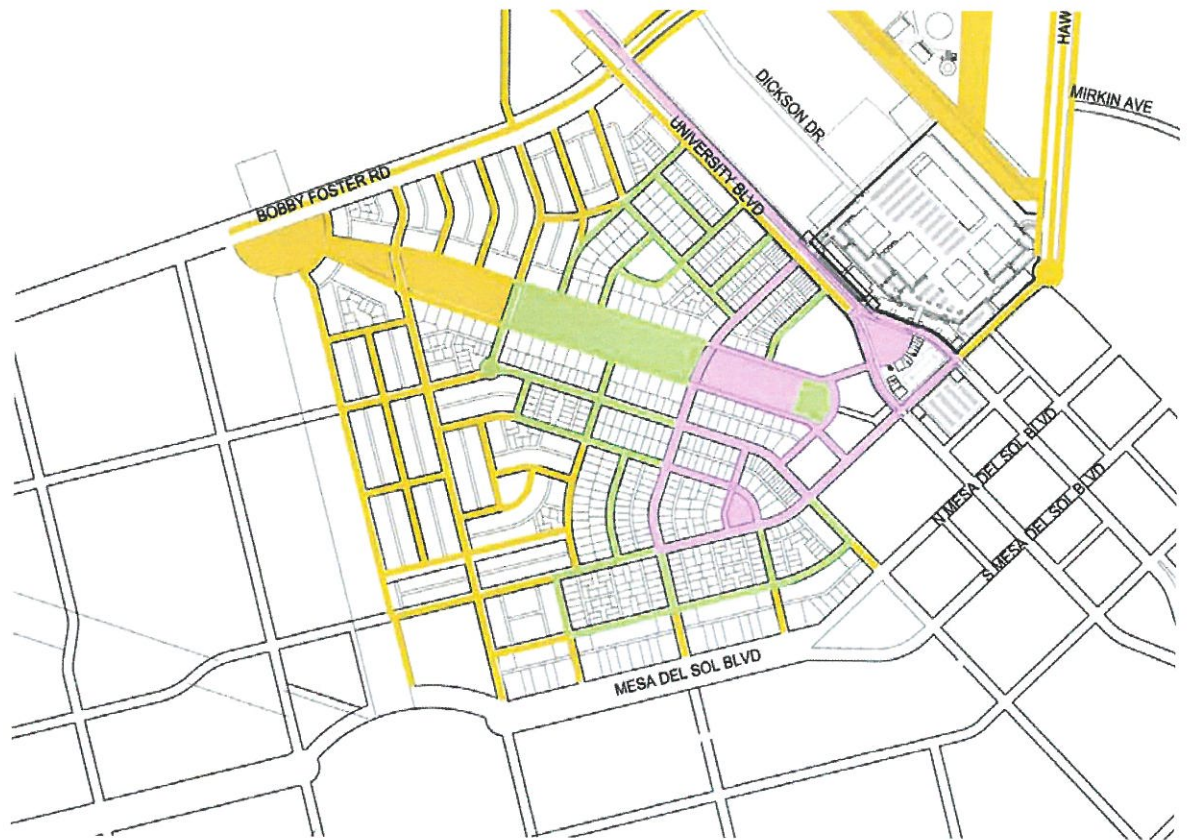
Residential

Residential development will begin with model homes built around the southern pocket park. From this point, development will spread north and south. The western portion of Neighborhood One will be built in the second phase of development.

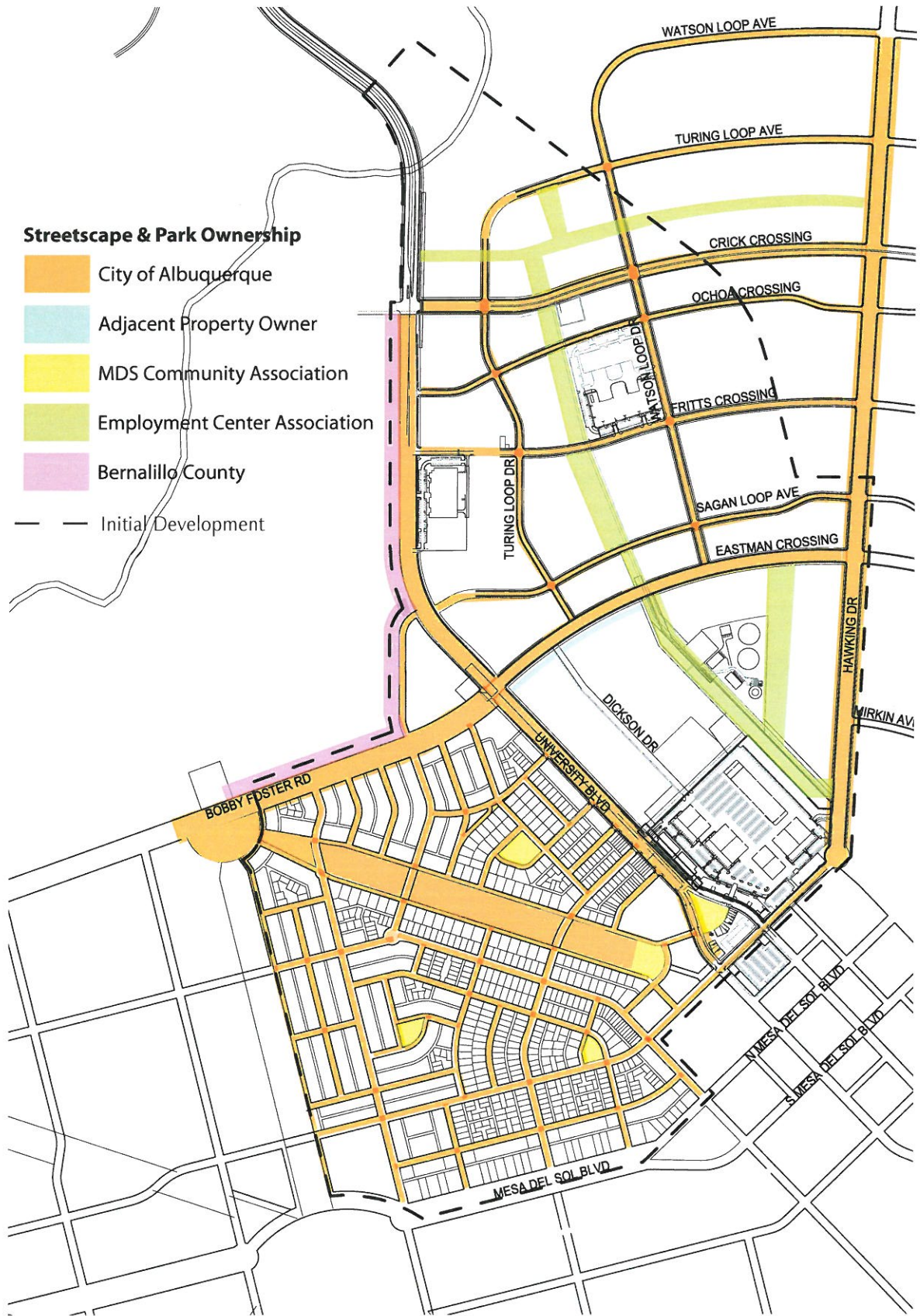
Residential & Town Center

The Town Center will have a high degree of connectivity as soon as the project opens. Roadways around the central civic park and shopping area will be built in earliest phase development.

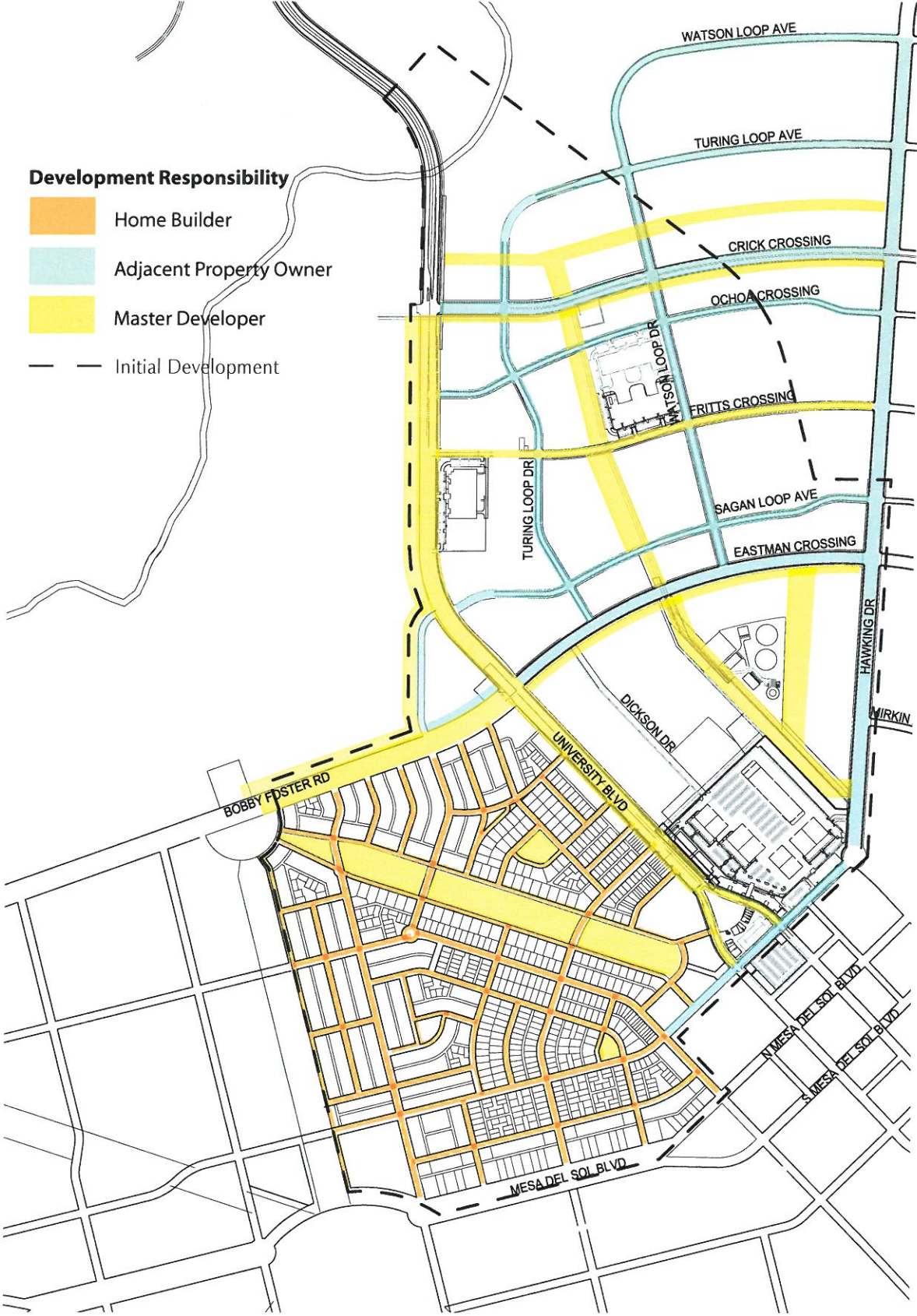
-  Phase 1:
Community Launch
-  Phase 2:
Early Phase
-  Phase 3:
Mid Phase



STREETSCAPE & PARK OWNERSHIP



STREETSCAPE AND PARK DEVELOPMENT RESPONSIBILITY



GROUND PLANE

Coverage Requirements

The City of Albuquerque has no established vegetative coverage requirements for streetscape. Plant materials play an important role in both visually softening and physically mitigating the sometimes harsh Albuquerque environment. For this reason, it is preferred that all streets in Mesa del Sol receive some level of ground-level plantings, although such plantings are not required on local streets. Avenues and Connectors are required to have a minimum of 30% vegetative coverage at the ground plane, exclusive of the tree canopy.

Hierarchy

Ground plane plantings are a supporting element of the street hierarchy described in Chapter 2. The highest level of street, Boulevards, may or may not have ground level plantings; as 'high image' areas, Boulevards receive special design treatment that may choose a unique treatment not described in this document.

Avenues and Connectors- will have ground-plane plantings in addition to regularly-spaced street trees. As a way to reinforce the street hierarchy and signify a 'higher-level' roadway, both Avenues and Connectors may exceed the minimum 30% coverage requirement.

Local streets aim to meet the minimum requirement through tree canopy alone.

Planting Design

Species and layout of ground plane planting will be determined as each street is designed. The general aesthetic, however, should be loose informal groupings, unless a rigid formality is desired for a specific design purpose. Formal or informal layout is specified in the street palettes on the pages that follow.

Mulch/Gravel

Rock mulch will be used in all tree strips and medians. Approved colors are listed below, and will be varied among streets as indicated in the preceding plant palette specifications.

Supplier: LaFarge
www.lafarge.com
505.343.7800

Colors:

Franklin Red, 3/8"

Desert Tan, 3/8"

Mesa Red, 3/8"

Franklin Red and Desert Tan, 50/50 mix, 3/8"

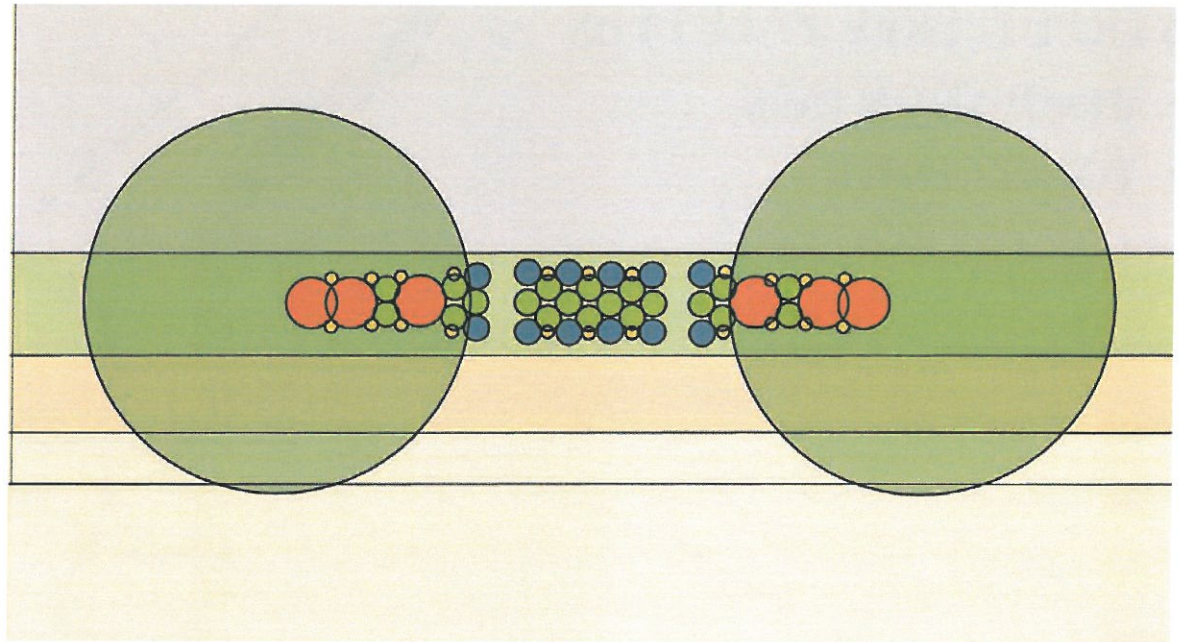
Mesa Red and Desert Tan, 50/50 mix, 3/8"

Mesa Red and Franklin Red, 50/50 mix, 3/8"

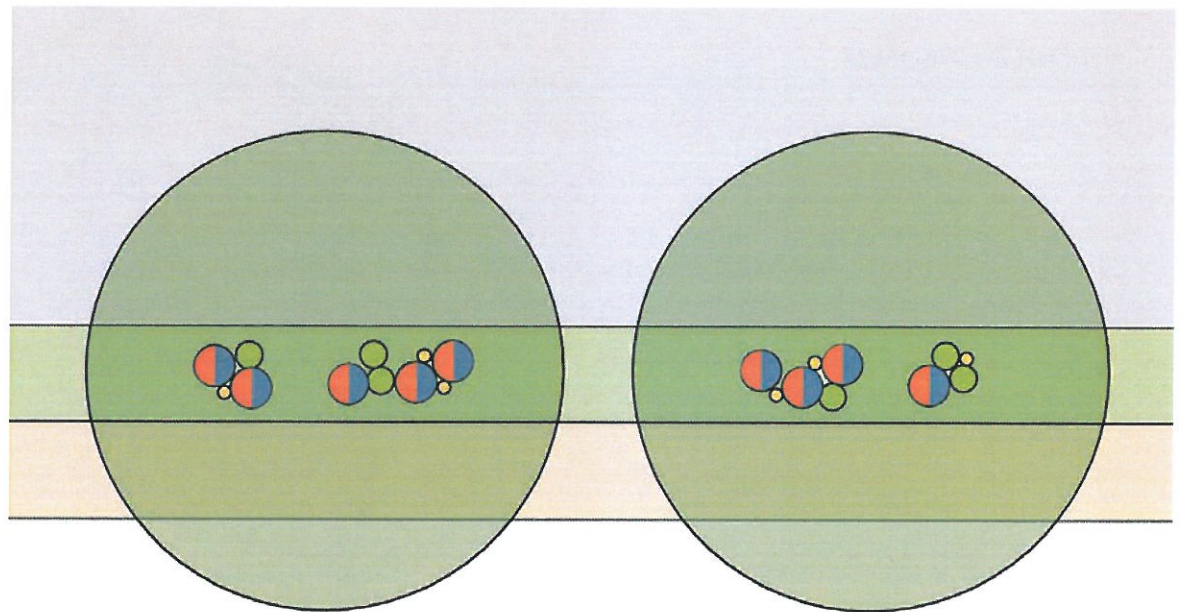
UNDERSTORY PLANTINGS

Each Palette identifies whether the understory plantings (shrubs, accents, grasses, and perennials) are laid out formally or informally. This sheet provides two examples of what those designs may look like.

- Tree
- Shrubs
- Accents
- Grasses
- Perennials



Example of a FORMAL arrangement. 80% understory coverage.

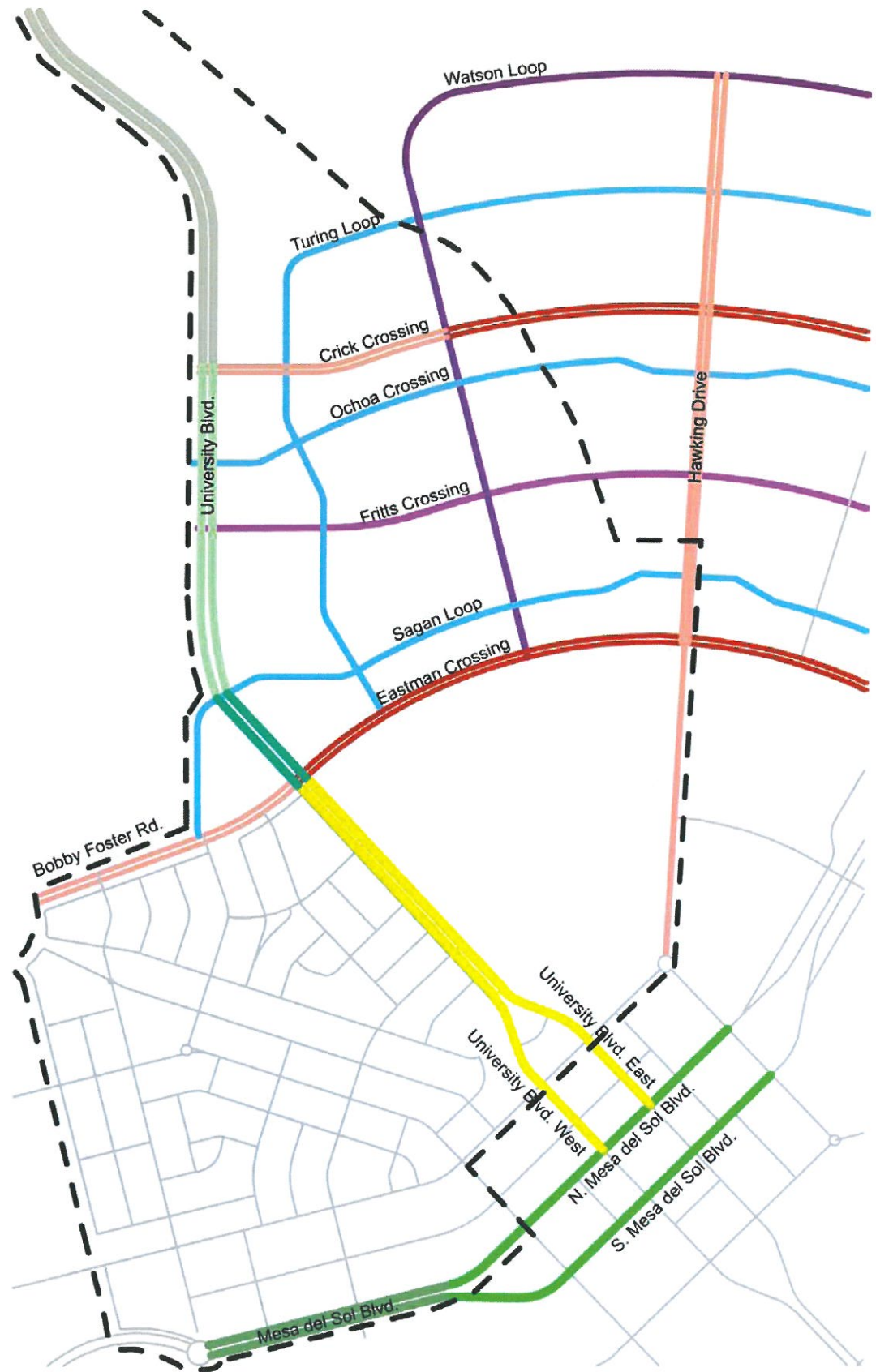


Example of an INFORMAL arrangement. 30% understory coverage.

STREET TREE PALETTES

- INNOVATION PARK
- TOWN CENTER

- Palette 1A
- Palette 1B
- Palette 6A
- Palette 6B
- Palette 2
- Palette 3A
- Palette 3B
- Palette 4A
- Palette 4B
- Palette 5
- Initial Development

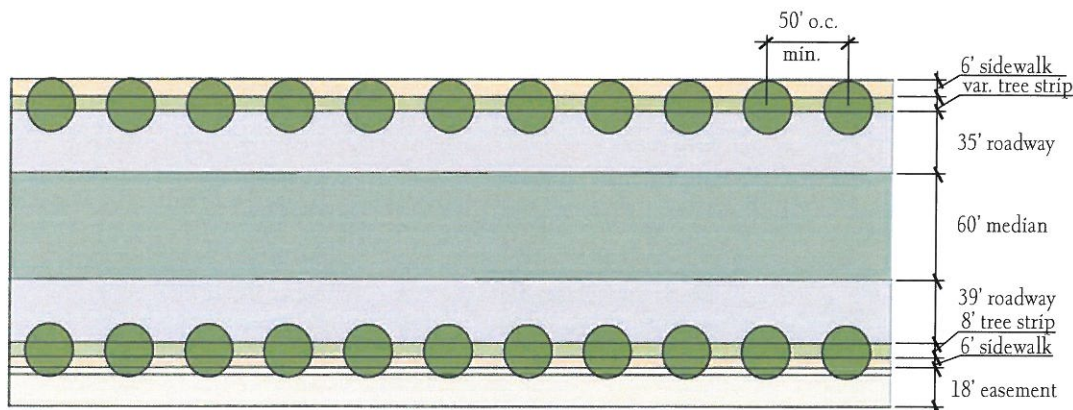
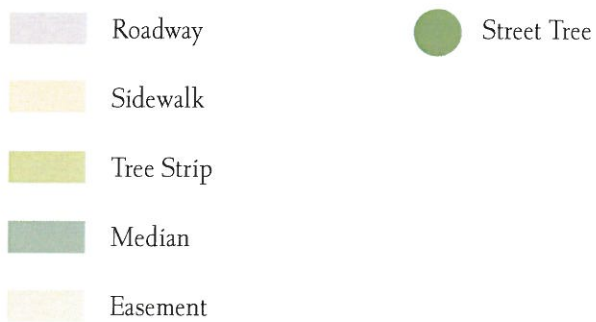


BOULEVARD

Palette 1A

The scale of large native oaks and their formal alignment help define a sense of entry into the development. Native plantings such as tall ornamental grasses and large clusters of understory plant material unite the design.

- University Blvd.
(to south entry drive of Advent Solar)
- Formal Design



BOTANICAL NAME

COMMON NAME

Tree

Quercus fusiformis Escarpment Live Oak

Shrubs

Artemisia filifolia Sand Sage
Chyrsothamnus depressus Dwarf Chamisa
Chyrsothamnus nauseosus Chamisa
Dalea greggii Trailing Indigo Bush
Ephedra viridis Mormon Tea
Ericameria laricifolia Turpentine Bush
Fallugia paradoxa Apache Plume
L. frutescens 'Green Cloud' Green Cloud Texas Ranger
Opuntia engelmannii Prickley Pear
Prunus besseyi "Pawnee Buttes" Pawnee Buttes Sand Cherry
Potentilla fruticosa Bush Cinquefoil
Rosmarinus officianalis 'prostratus' Prostrate Rosemary
Salvia chamaedryoides Mexican Blue Sage

Accents

Agave havardiana Havard's Century Plant
Agave parryi 'neomexicana' Mescal
Hesperaloe capanulata Bell Flower
Hesperaloe parviflora var. Red/Yellow Hesperaloe
Nolina microcarpa Beargrass
Yucca neomexicana New Mexico Yucca
Yucca rupicola Twisted Leaf Yucca

Grasses

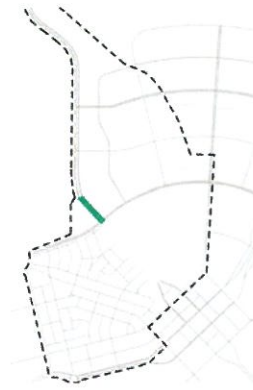
Andropogon gerardii Big Bluestem
M. capillaris 'Regal Mist' Muhley Grass
M. lindheimeri Autumn Glow Muhley
M. Rigida 'Nashville' Nashville Muhley Grass
Nassella tenuissima Mexican Feather Grass
Panicum virgatum "Heavy Metal" Heavy Metal Switch Grass
Panicum virgatum "Shenandoah" Shenandoah Switch Grass
Sporobolus wrightii Giant Sacaton
Sorghastrum nutans Indiangrass

Perennials

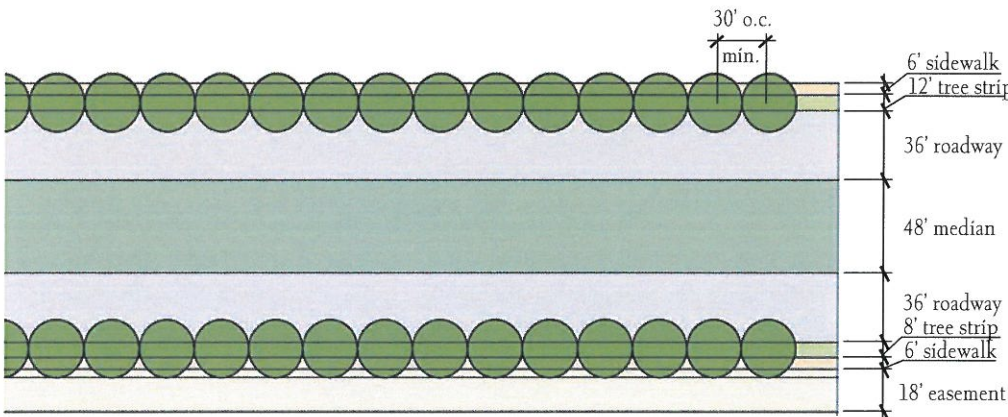
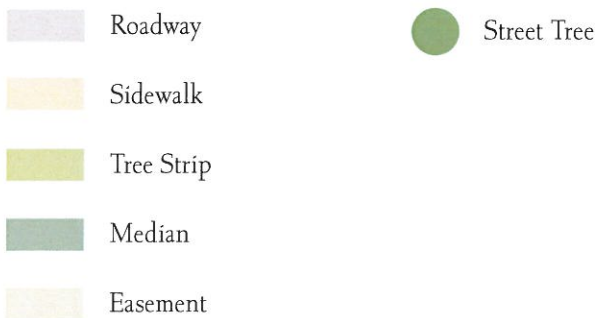
Achillea spp. Yarrow
Baileya multiradiata Desert Marigold
Echinacea purpurea Purple Coneflower
Lavandula spp. Lavender
Penstemon spp. Penstemon

BOULEVARD

Palette 1B



- University Blvd.
(from south entry drive of Advent Solar to Eastman Crossing)
- Formal Design



BOTANICAL NAME

COMMON NAME

Tree

Quercus buckleyi

Texas Red Oak

Shrubs

Artemisia filifolia

Sand Sage

Chyrsothamnus depressus

Dwarf Chamisa

Chyrsothamnus nauseosus

Chamisa

Dalea greggii

Trailing Indigo Bush

Ephedra viridis

Mormon Tea

Ericameria laricifolia

Turpentine Bush

Fallugia paradoxa

Apache Plume

L. frutescens 'Green Cloud' Green

Cloud Texas Ranger

Opuntia engelmannii

Prickly Pear

Prunus besseyi "Pawnee Buttes"

Pawnee Buttes Sand Cherry

Potentilla fruticosa

Bush Cinquefoil

Rosmarinus officianalis 'prostratus'

Prostrate Rosemary

Salvia chamaedryoides

Mexican Blue Sage

Accents

Agave havardiana

Havard's Century Plant

Agave parryi 'neomexicana'

Mescal

Hesperaloe capanulata

Bell Flower

Hesperaloe parviflora var.

Red/Yellow Hesperaloe

Nolina microcarpa

Beargrass

Yucca neomexicana

New Mexico Yucca

Yucca rupicola

Twisted Leaf Yucca

Grasses

Andropogon gerardii

Big Bluestem

M. capillaris 'Regal Mist'

Muhley Grass

M. lindheimeri

Autumn Glow Muhley

M. Rigida 'Nashville'

Nashville Muhley Grass

Nassella tenuissima

Mexican Feather Grass

Panicum virgatum "Heavy Metal"

Heavy Metal Switch Grass

Panicum virgatum "Shenandoah"

Shenandoah Switch Grass

Sporobolus wrightii

Giant Sacaton

Sorghastrum nutans

Indiangrass

Perennials

Achillea spp.

Yarrow

Baileya multiradiata

Desert Marigold

Echinacea purpurea

Purple Coneflower

Lavandula spp.

Lavender

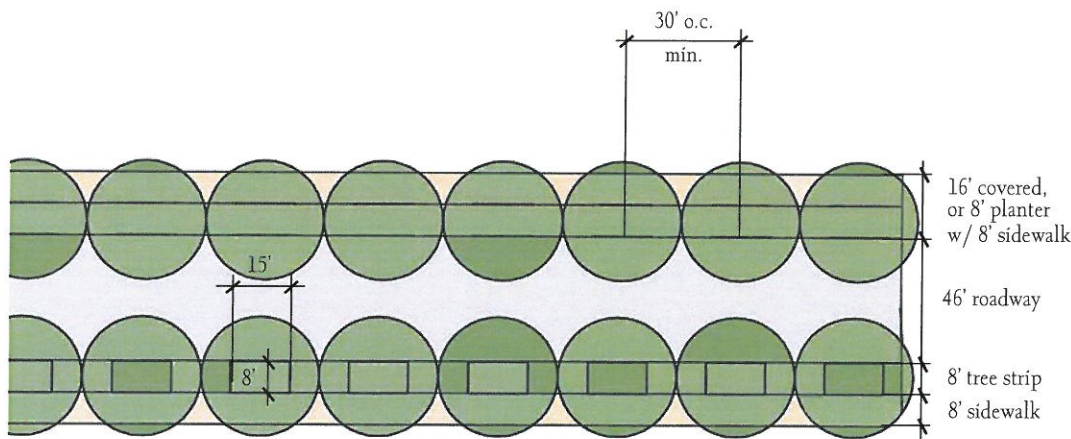
Penstemon spp.

Penstemon

UNIVERSITY & URBAN COUPLET

Plantings reflect the smaller scale of the urban environment. A higher volume of pedestrian traffic dictates more dense tree plantings to provide shade, while understory plantings are less dense and more compact in form. Tree grates or understory plantings can be used.

- University and University Couplet
- Formal Design



Perennials

Achillea spp.	Yarrow
Baileya multiradiata	Desert Marigold
Echinacea purpurea	Purple Coneflower
Lavandula spp.	Lavender
Penstemon spp.	Penstemon
Teucrium sp.	Germander
Zinnia grandiflora	Desert Zinnia

BOTANICAL NAME

COMMON NAME

Tree

Pistacia chinensis

Chinese Pistache

Shrubs

<i>Artemisia filifolia</i>	Sand Sage
<i>Artemisia 'Powis Castle'</i>	Powis Castle Sage
<i>Baccharis x 'Starn'</i>	Thompson Broom
<i>Chyrsothamnus depressus</i>	Dwarf Chamisa
<i>Chyrsothamnus nauseosus</i>	Chamisa
<i>Dalea greggii</i>	Trailing Indigo Bush
<i>Ephedra minima</i>	Dwarf Mormon Tea
<i>Ephedra viridis</i>	Mormon Tea
<i>Ericameria laricifolia</i>	Turpentine Bush
<i>Fallugia paradoxa</i>	Apache Plume
<i>L. frutescens 'Green Cloud'</i>	Green Cloud Texas Ranger
<i>Opuntia engelmannii</i>	Prickly Pear
<i>Prunus besseyi 'Pawnee Buttes'</i>	Pawnee Buttes Sand Cherry
<i>Potentilla fruticosa</i>	Bush Cinquefoil
<i>Rosmarinus officianalis 'prostratus'</i>	Prostrate Rosemary
<i>Salvia chamaedryoides</i>	Mexican Blue Sage
<i>Salvia greggii</i>	Cherry Sage
<i>Santolina chamaecyparissus</i>	Lavender Cotton

Accents

<i>Agave havardiana</i>	Havard's Century Plant
<i>Agave parryi 'neomexicana'</i>	Mescal
<i>Hesperaloe capanulata</i>	Bell Flower
<i>Hesperaloe parviflora</i> var.	Red/Yellow Hesperaloe
<i>Nolina microcarpa</i>	Beargrass
<i>Yucca neomexicana</i>	New Mexico Yucca
<i>Yucca recurvifolia</i>	Soft Leaf Yucca
<i>Yucca rupicola</i>	Twisted Leaf Yucca

Grasses

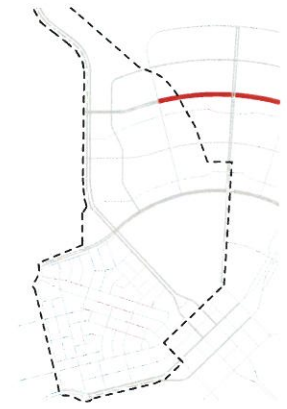
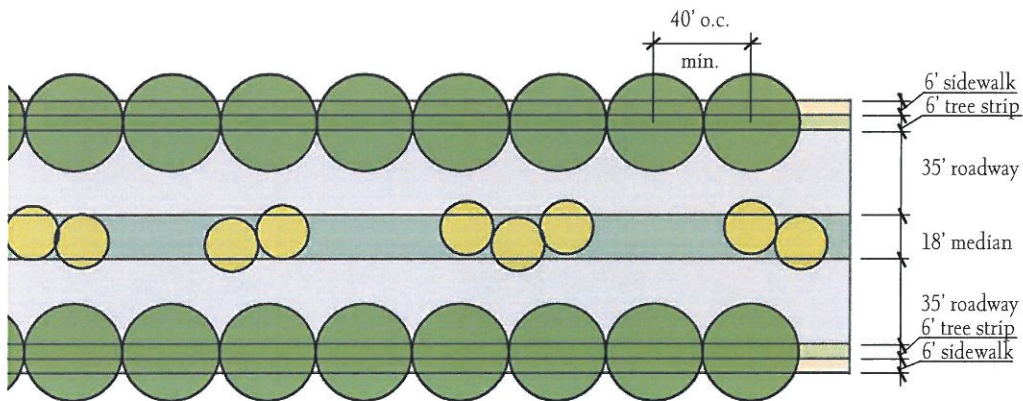
<i>Andropogon gerardii</i>	Big Bluestem
<i>Aristida purpurea</i>	Purple Three Awn
<i>M. capillaris 'Regal Mist'</i>	Muhley Grass
<i>M. lindheimeri</i>	Autumn Glow Muhley
<i>M. Rigida 'Nashville'</i>	Nashville Muhley Grass
<i>Nassella tenuissima</i>	Mexican Feather Grass
<i>Panicum virgatum 'Heavy Metal'</i>	Heavy Metal Switch Grass
<i>Panicum virgatum 'Shenandoah'</i>	Shenandoah Switch Grass
<i>Pennisetum alopecuroides</i>	Dwarf Fountain Grass
<i>Sporobolus wrightii</i>	Giant Sacaton
<i>Sorghastrum nutans</i>	Indiangrass

AVENUE

Palette 3A

The planting schemes for the tree strip and median differ. The tree strip remains somewhat formal due to the regular tree placement, which is reflected in the understory plantings. The median is more informal, with a tree that has a more open, shrub-like form (rather than upright), and irregular groupings of plant material.

- Crick Crossing (east of Watson)
- Informal Design



BOTANICAL NAME

COMMON NAME

Tree

Planters: *Robinia x ambigua* "Purple Robe"
 Median: *Sapindus drummondii*

Purple Robe Locust
 Soapberry

Shrubs

Artemisia ludoviciana
Chrysothamnus nauseosus var. *nauseosus*
Rhus trilobata
Rosmarinus officinalis
Santolina chamaecyparissus

Prairie Sage
 Dwarf Chamisa
 Three Leaf Sumac
 Huntington Carpet Rosemary
 Lavender Cotton

Accents

Agave harvardiana
Nolina microcarpa
Opuntia macrocentra
Yucca baileyi
Yucca rigida

Harvard Agave
 Beargrass
 Purple Prickley Pear
 Bailey's Yucca
 Blue Yucca

Grasses

Muhlenbergia rigens
Schizacrium scoparium
Muhlenbergia dubia

Deer Grass
 'Blaze' Little Bluestem
 Pine Muhley

Perennials

Achillea sp.
Oenothera sp.
Hymenoxys acaulis
Salvia chamaedryoides
Eriogonum wrightii

Yarrow
 Primrose
 Angelita Daisy
 Mexican Blue Sage
 Wright's Buckwheat

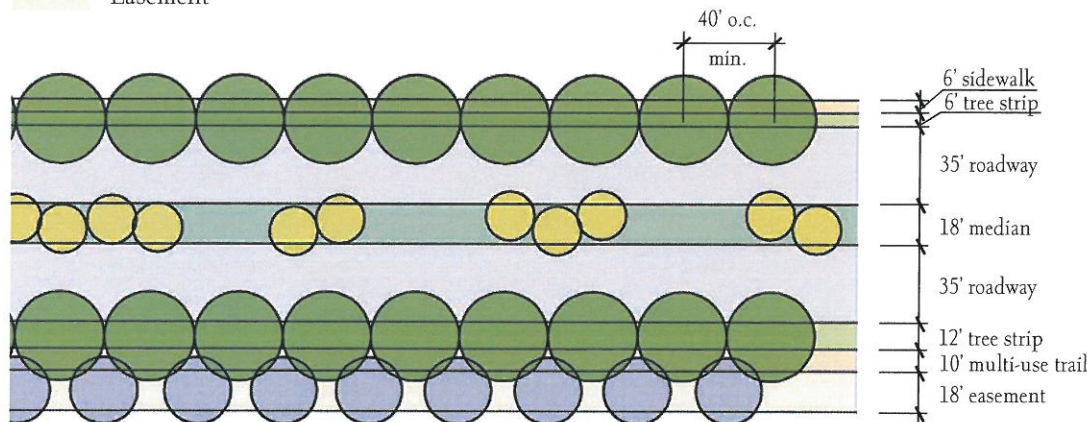
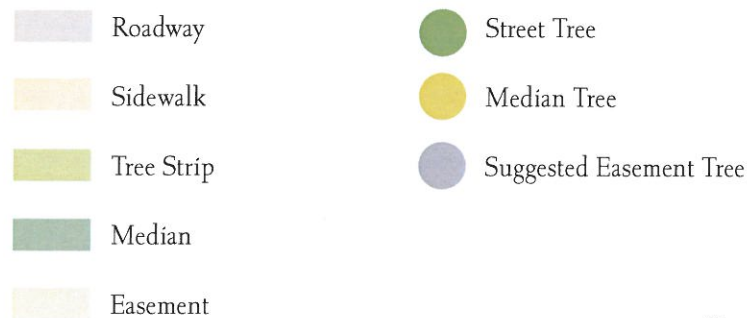
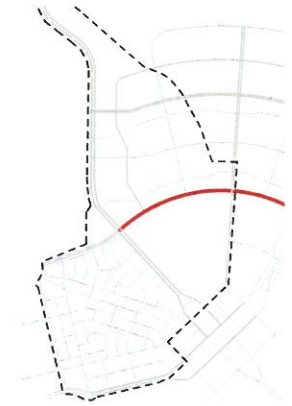
AVENUE

Palette 3A

While having the same palette as the eastern portion of Crick Crossing, Eastman has a different section, which includes an 18' easement. This easement links into the green space corridor.

*The 18' Tree Strip is outside the R.O.W. This is a suggested planting.

- Eastman Crossing
- Informal Design



BOTANICAL NAME

COMMON NAME

Tree

Planters: *Robinia x ambigua* "Purple Robe"

Purple Robe Locust

Median: *Sapindus drummondii*

Soapberry

*Easement: *Prosopis glandulosa* "Maverick"

Maverick Honey Mesquite

Shrubs

Artemisia ludoviciana

Prairie Sage

Chrysothamnus nauseosus var. *nauseosus*

Dwarf Chamisa

Rhus trilobata

Three Leaf Sumac

Rosmarinus officinalis

Carpet Rosemary

Santolina chamaecyparissus

Lavender Cotton

Accents

Agave harvardiana

Harvard Agave

Nolina microcarpa

Beargrass

Opuntia macrocentra

Purple Prickly Pear

Yucca baileyi

Bailey's Yucca

Yucca rigida

Blue Yucca

Grasses

Muhlenbergia rigens

Deer Grass

Schizacrium scoparium

'Blaze' Little Bluestem

Muhlenbergia dubia

Pine Muhley

Perennials

Achillea sp.

Yarrow

Oenothera sp.

Primrose

Hymenoxys acaulis

Angelita Daisy

Salvia chamaedryoides

Mexican Blue Sage

Eriogonum wrightii

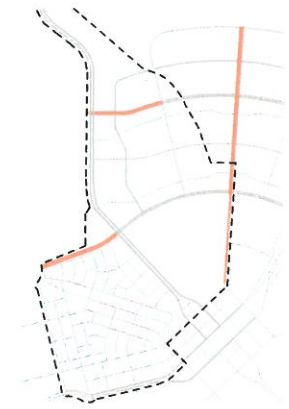
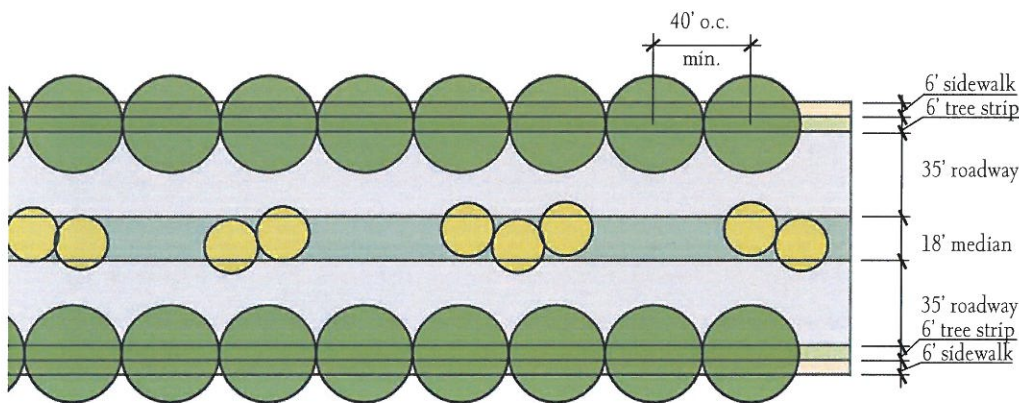
Wright's Buckwheat

AVENUE

Palette 3B

The planting schemes for the tree strip and median differ. The tree strip remains somewhat formal due to the regular tree placement, which is reflected in the understory plantings. The median is more informal, with a tree that has a more open, shrub-like form (rather than upright), and irregular groupings of plant material.

- Crick Crossing (west of Watson), Bobby Foster Rd., Hawking Dr.
- Informal Design



BOTANICAL NAME

COMMON NAME

Tree

Planters: *Robinia x ambigua* "Purple Robe"
 Median: *Forestiera neomexicana*

Purple Robe Locust
 New Mexico Olive

Shrubs

Artemisia ludoviciana
Chrysothamnus nauseosus var. *nauseosus*
Rhus trilobata
Rosmarinus officinalis
Santolina chamaecyparissus

Prairie Sage
 Dwarf Chamisa
 Three Leaf Sumac
 Huntington Carpet Rosemary
 Lavender Cotton

Accents

Agave harvardiana
Nolina microcarpa
Opuntia macrocentra
Yucca baileyi
Yucca rigida

Harvard Agave
 Beargrass
 Purple Prickly Pear
 Bailey's Yucca
 Blue Yucca

Grasses

Muhlenbergia rigens
Schizacrium scoparium
Muhlenbergia dubia

Deer Grass
 'Blaze' Little Bluestem
 Pine Muhley

Perennials

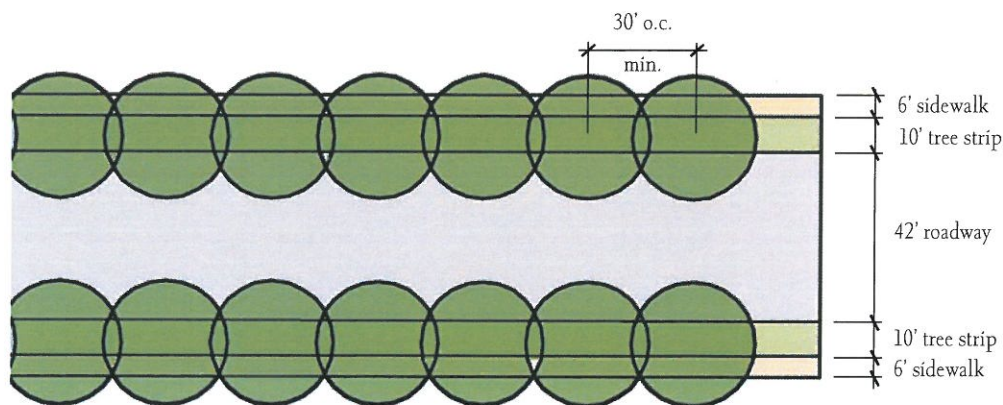
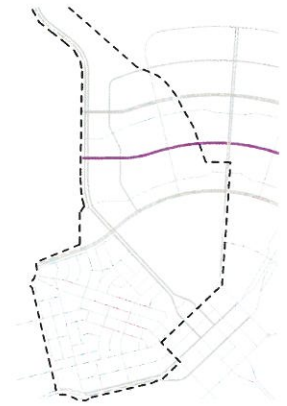
Achillea sp.
Oenothera sp.
Hymenoxys acaulis
Salvia chamaedryoides
Eriogonum wrightii

Yarrow
 Primrose
 Angelita Daisy
 Mexican Blue Sage
 Wright's Buckwheat

CONNECTOR: INDUSTRIAL

Palette 4A

- Fritts Crossing
- Formal Design



BOTANICAL NAME

COMMON NAME

Tree

Pistacia chinensis

Chinese Pistache

Shrubs

Salvia greggii

Cherry Sage

Rhus trilobata

Three Leaf Sumac

Fallugia paradoxa

Apache Plume

Prunus besseyi

Western Sand Cherry

Accents

Agave parryi

Parry's Agave

Dasyliirion wheeleri

Desert Spoon

Opuntia engelmannii

Beargrass

Yucca filamentosa

Adam's Needle Yucca

Grasses

Muhlenbergia rigens

Deer Grass

Muhlenbergia rigida "Nashville"

Nashville Muhley

Agropyron smithii

Western Wheatgrass

Perennials

Achillea spp.

Yarrow

Baileya multiradiata

Desert Marigold

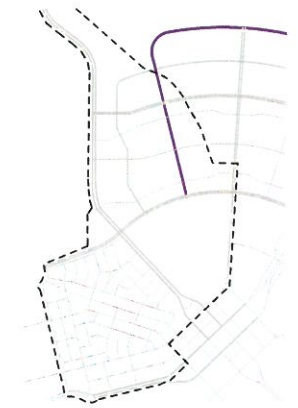
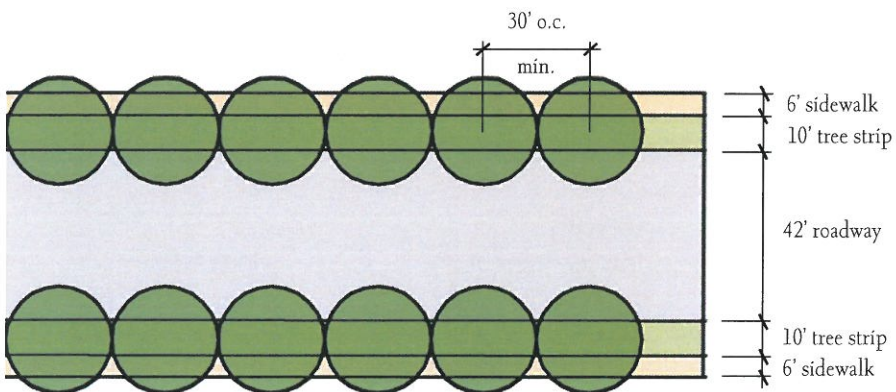
Verbena bipinnatifida

Fern Verbena

CONNECTOR: INDUSTRIAL

Palette 4B

- Watson Loop Dr.
- Formal Design



BOTANICAL NAME

COMMON NAME

Tree

Chitalpa tashkentensis

Chitalpa

Shrubs

Salvia greggii

Cherry Sage

Rhus trilobata

Three Leaf Sumac

Fallugia paradoxa

Apache Plume

Prunus besseyi

Western Sand Cherry

Accents

Agave parryi

Parry's Agave

Dasyliirion wheeleri

Desert Spoon

Nolina microcarpa

Beargrass

Yucca filamentosa

Adam's Needle Yucca

Grasses

Muhlenbergia rigens

Deer Grass

Muhlenbergia rigida "Nashville"

Nashville Muhley

Agropyron smithii

Western Wheatgrass

Perennials

Achillea spp.

Yarrow

Baileya multiradiata

Desert Marigold

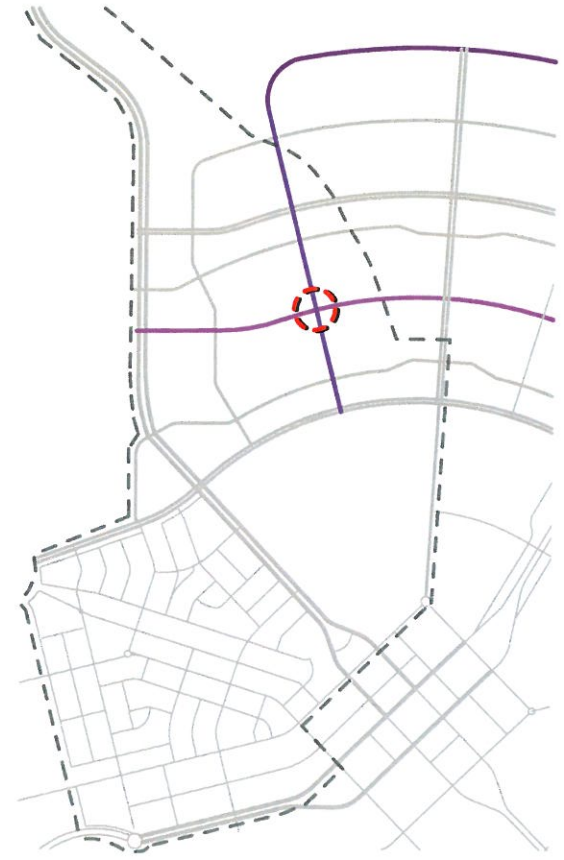
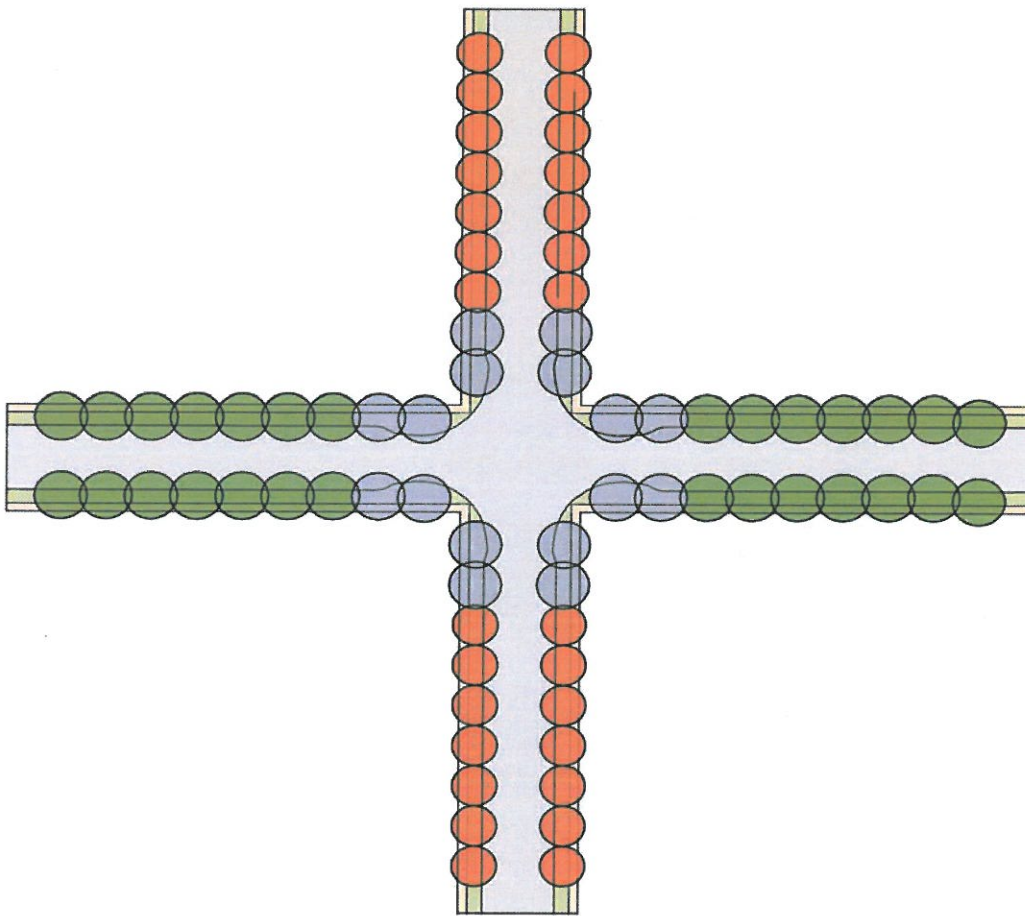
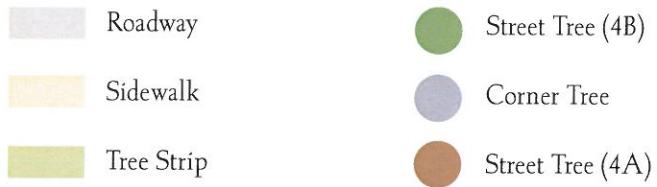
Verbena bipinnatifida

Fern Verbena

INTERSECTION:

Connector/Connector

There is one intersection of an Industrial Connector with another Industrial Connector in the Employment Center, where Fritts Crossing crosses Watson Loop. The intersection is punctuated with a different tree species at the corners.



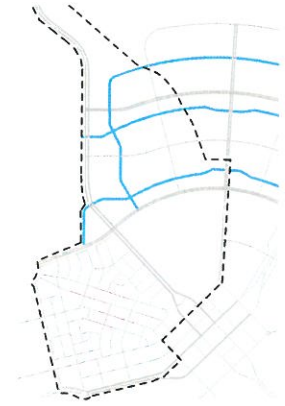
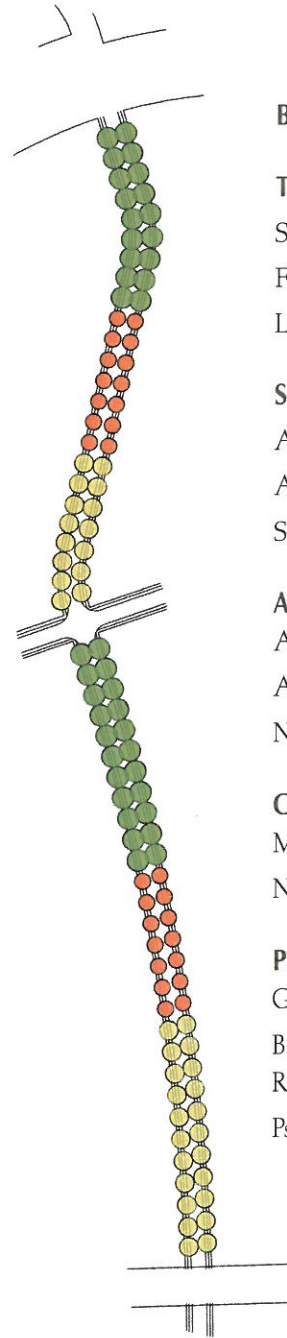
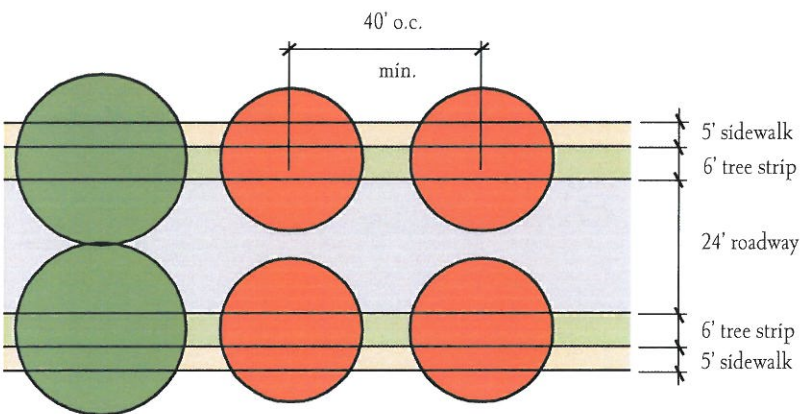
Watson Loop (North/South): Chitalpa
(Palette 4B)
Fritts Crossing (East/West): Chinese Pistache
(Palette 4A)
Corners: Thornless Honey Locust

LOCAL: INDUSTRIAL

Palette 5

Three tree species alternate in Palette 5: 400' Modesto Ash, 300' Sweet Gum, 400' Japanese Pagoda.

- Turing Loop Dr., Sagan Loop Ave., Ochoa Crossing
- Informal Design



BOTANICAL NAME

COMMON NAME

Tree

Sophora japonica
Fraxinus velutina 'Modesto'
Liquidambar styraciflua

Japanese Pagoda Tree
Modesto Ash
Sweet Gum

Shrubs

Artemisa frigida
Artemisa ludoviciana
Salvia chamaedryoides

Fringed Sage
Prairie Sage
Mexican Blue Sage

Accents

Agave palmeri
Agave utahensis
Nolina microcarpa

Palmer's Agave
Utah Agave
Beargrass

Grasses

Muhlenbergia rigens
Nassella tenuissima

Deer Grass
Threadgrass

Perennials

Gaura lindheimeri var.
Baileya multiradiata
Ratibida columnifera "Mexican Hat"
Psilostrophe tagetina

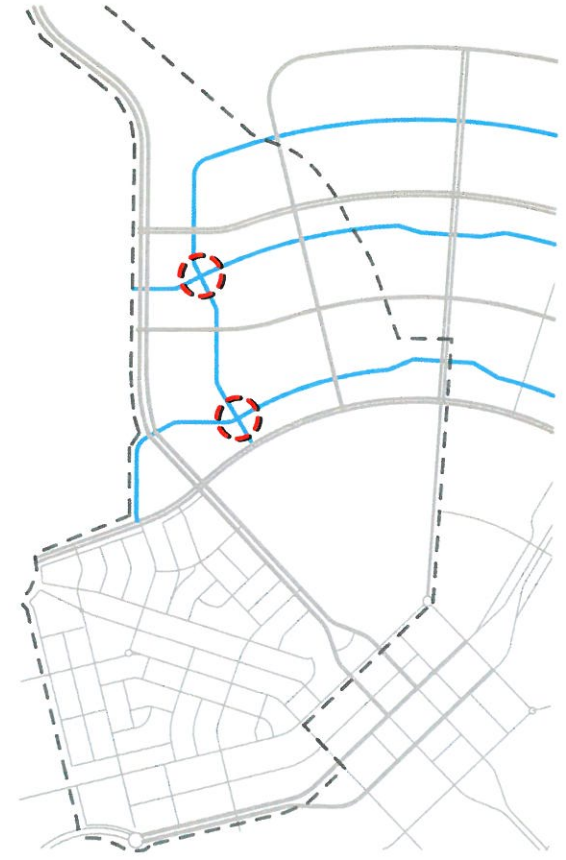
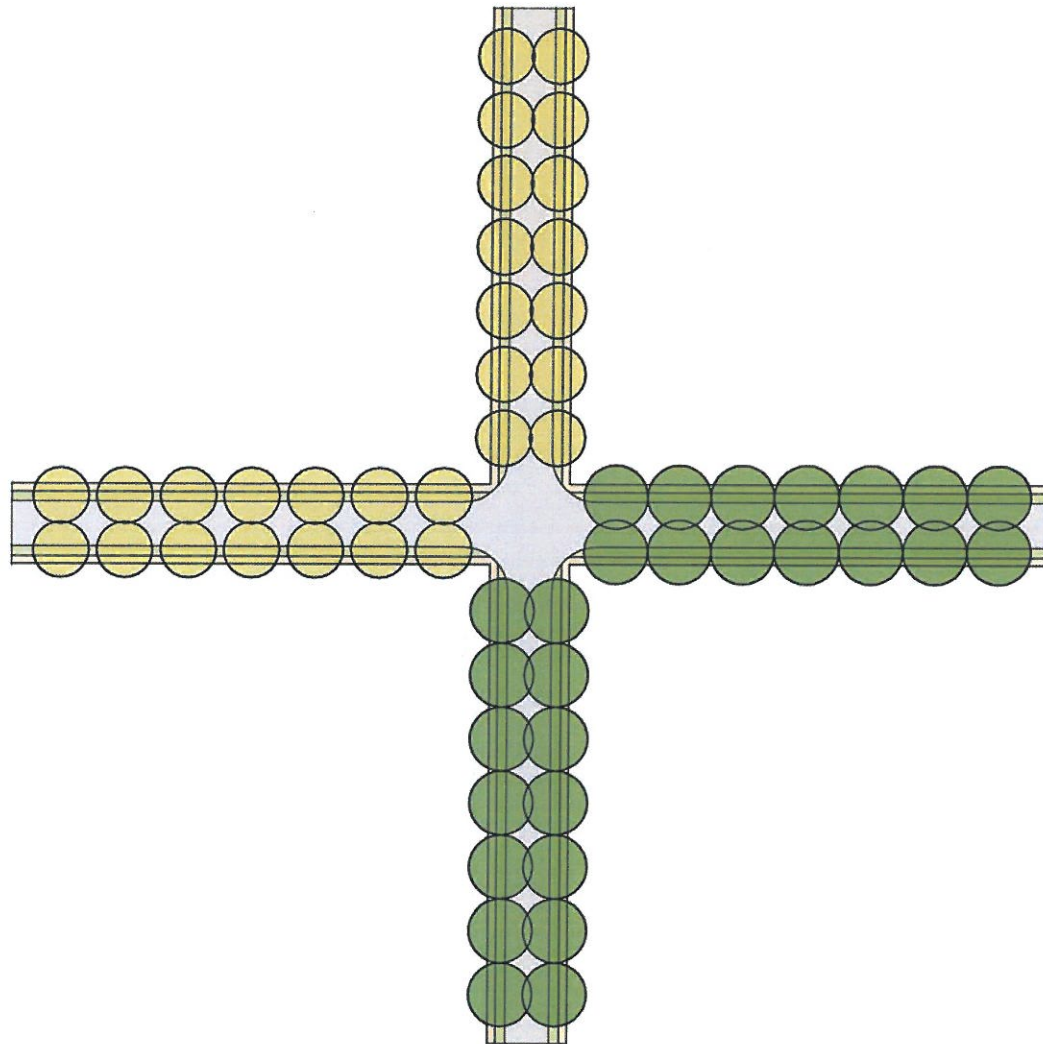
Gaura
Desert Marigold
Mexican Hat
Paperflower

INTERSECTION:

Local/Local

There are two instances of an Industrial Local crossing another Industrial Local. Since the palette for the locals (Palette 5) alternates between three tree species, the trees at the intersection will vary.

-  Roadway
-  Sidewalk
-  Tree Strip
-  Street Tree
-  Street Tree



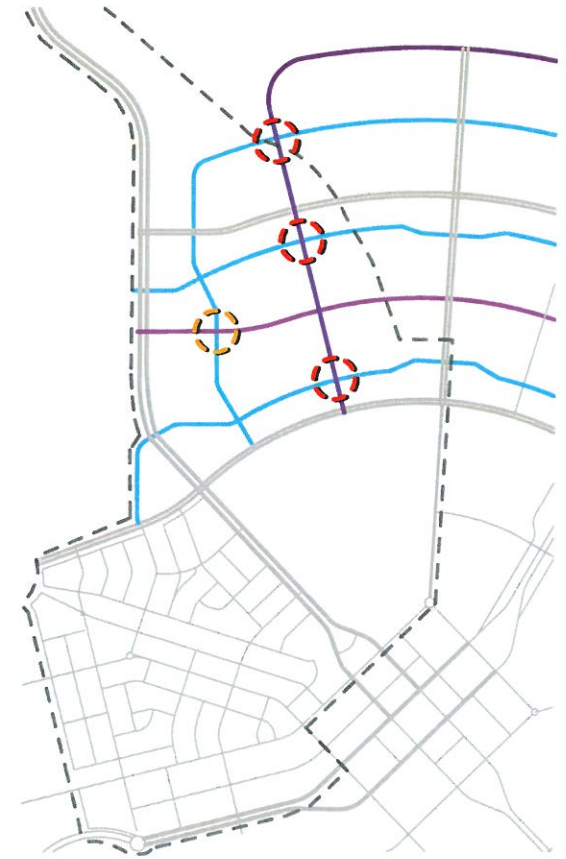
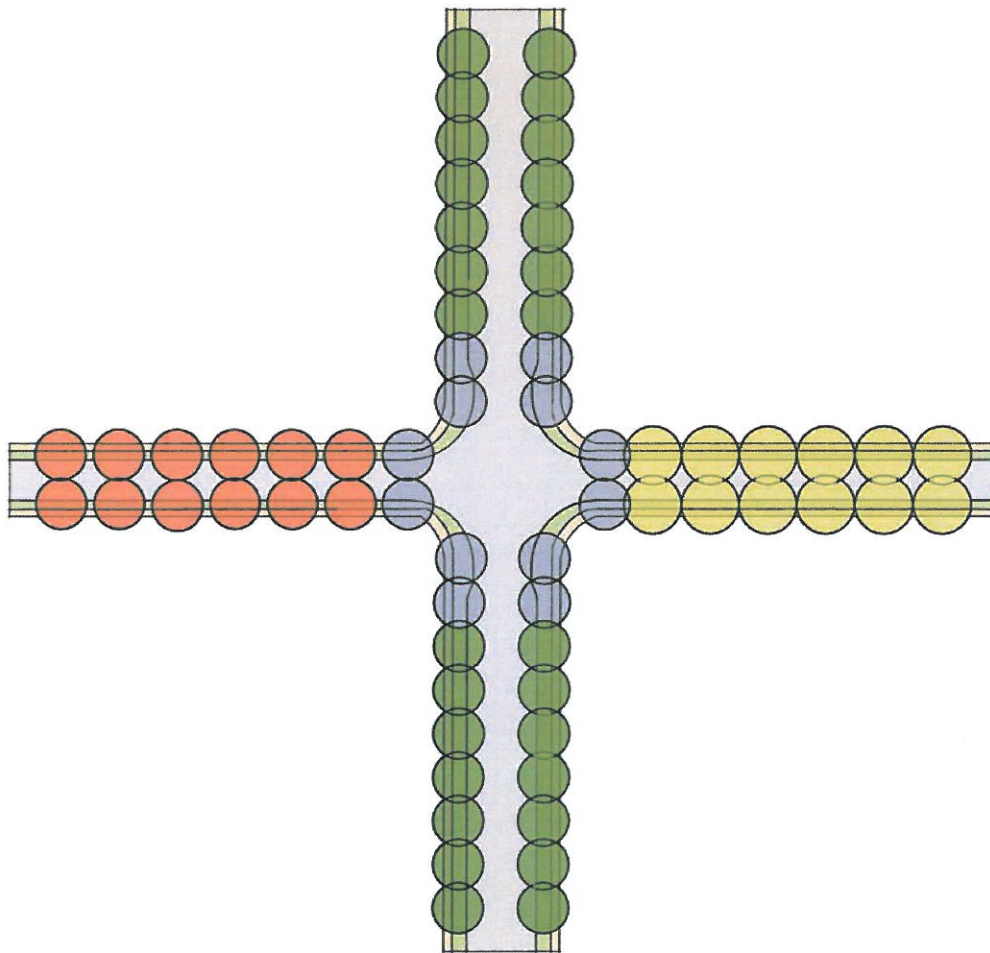
Palette 5


INTERSECTION:

Connector/Local

There are four intersections of Industrial Connectors with Industrial Locals. Three are intersections of Palette 4B with Palette 5, and one is an intersection of Palette 4A with 5. The Connectors have two Thornless Honey Locust trees at the corners while the Locals have one.

-  Roadway
-  Sidewalk
-  Tree Strip
-  Street Tree (Connector)
-  Street Tree (Local)
-  Street Tree (Local)
-  Corner Tree

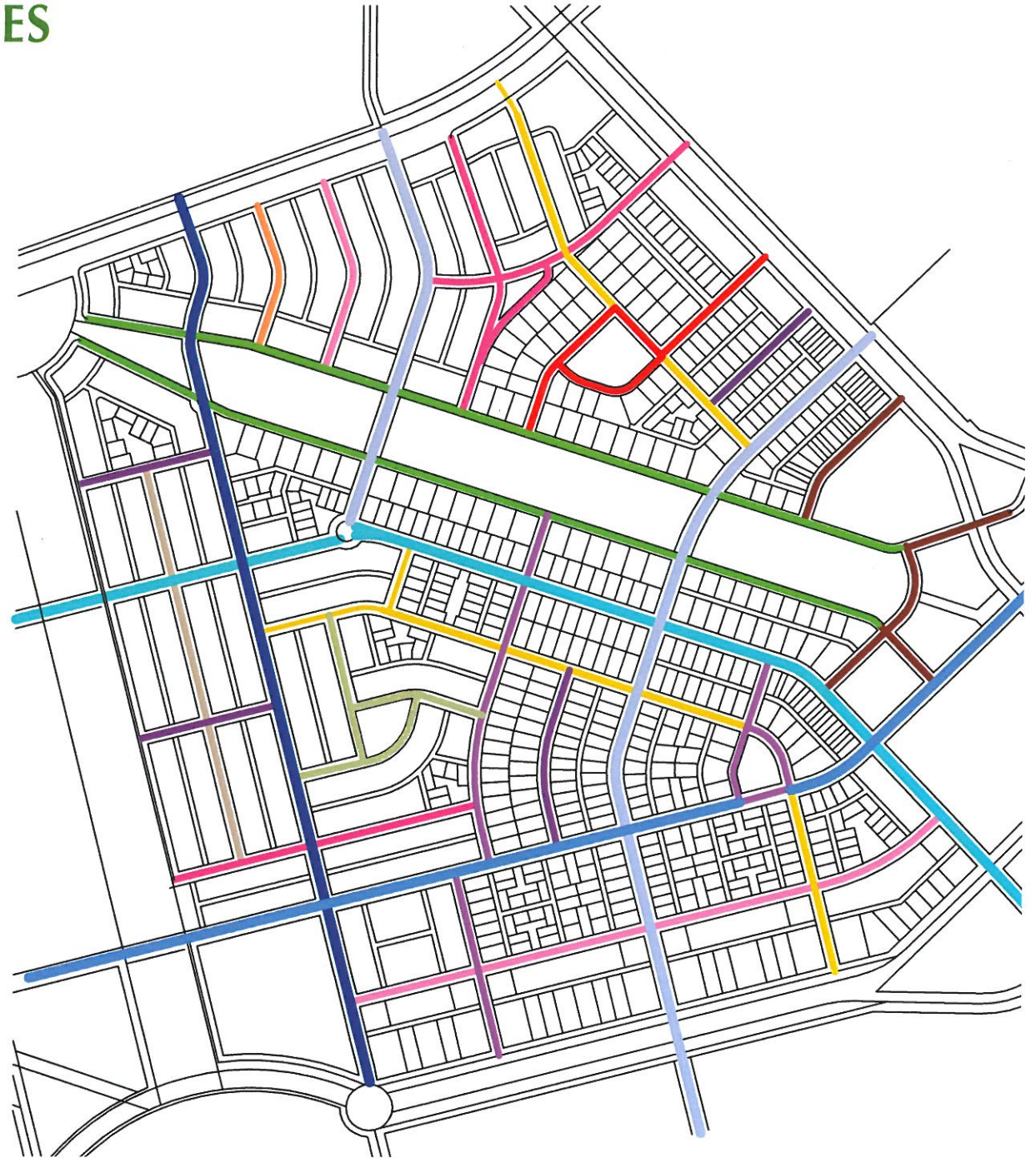


-  Connector: Chinese Pistache (Palette 4A)
Local: Japanese Pagoda/Modesto Ash/Sweet Gum (Palette 5)
Corners: Thornless Honey Locust
-  Connector: Chitalpa (Palette 4B)
Local: Japanese Pagoda/Modesto Ash/Sweet Gum (Palette 5)
Corners: Thornless Honey Locust

STREET TREE PALETTES

• 1st Neighborhood


- Palette 7A
- Palette 7B
- Palette 7C
- Palette 7D
- Palette 9
- Palette 8A
- Palette 8B
- Palette 8C
- Palette 8D
- Palette 8E
- Palette 8F
- Palette 8G
- Palette 8H
- Palette 8I
- Palette 8J




CONNECTOR: RESIDENTIAL

Palettes 7A, 7B, 7C, 7D

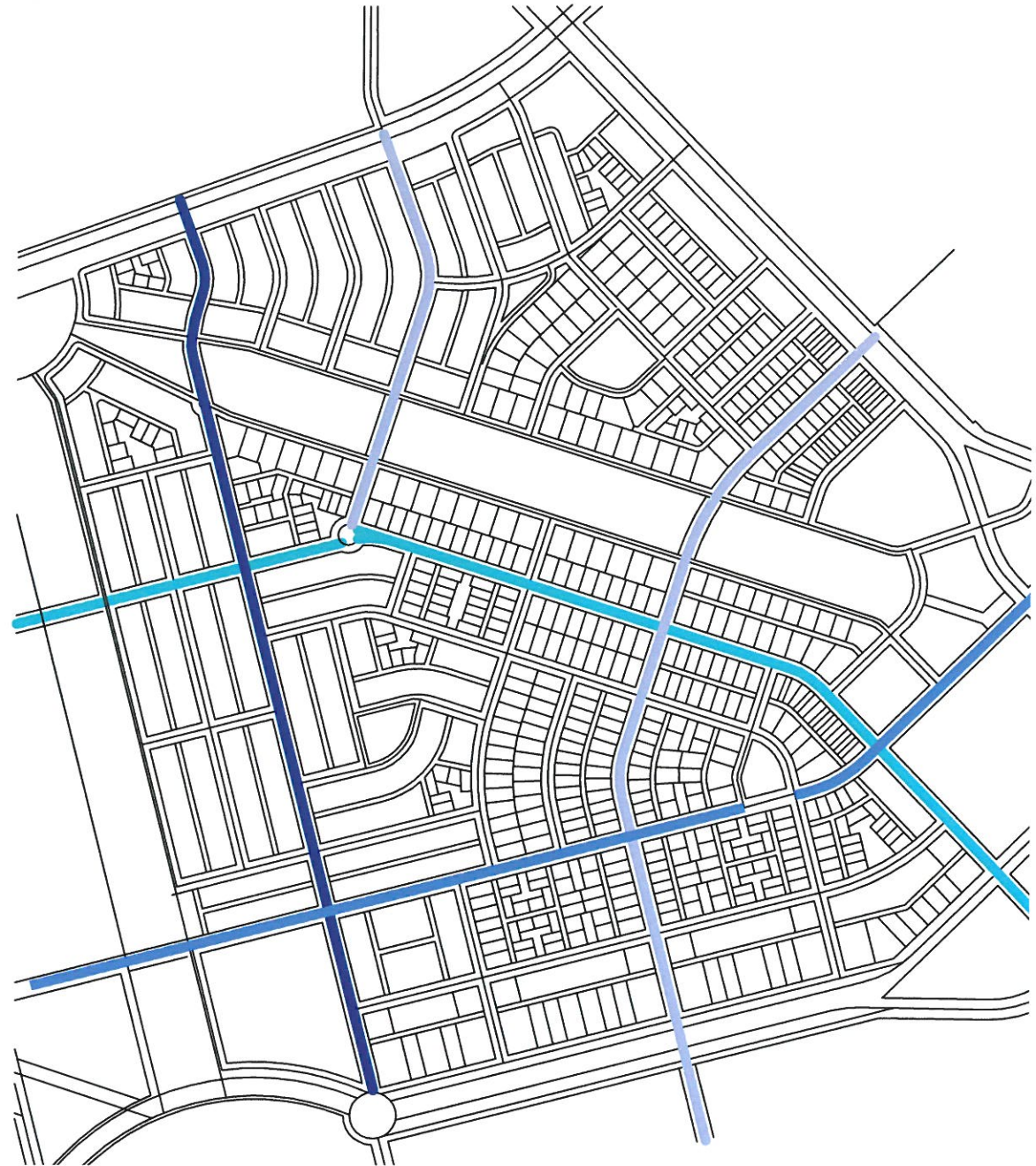
- 30% Understory Coverage
- Formal Design

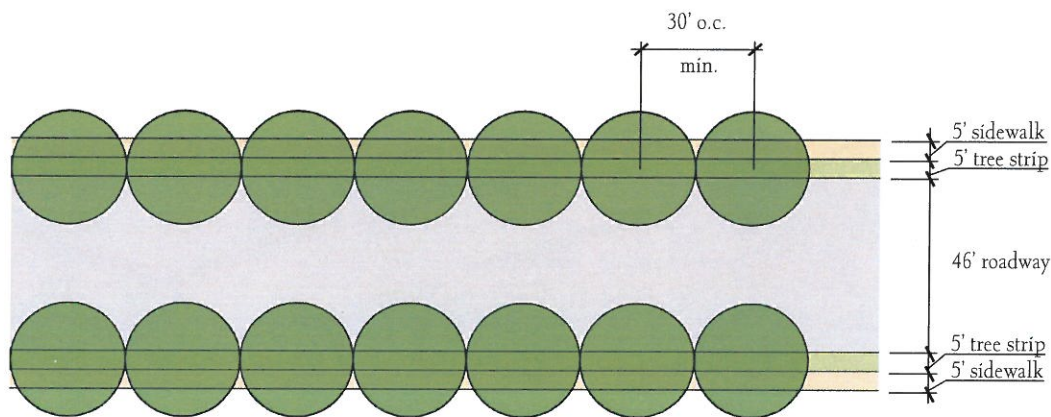
 **Palette 7A: Modesto Ash**
Strand Ave.

 **Palette 7B: Purple Robe Locust**
Stryker Crossing

 **Palette 7C: Japanese Pagoda Tree**
O'Keefe Dr.

 **Palette 7D: Idaho Locust**
Jiminez Ave., DeKooning Loop





BOTANICAL NAME

COMMON NAME

Tree

7A	<i>Fraxinus velutina</i> 'Modesto'	Modesto Ash
7B	<i>Robinia x ambigua</i> "Purple Robe"	Purple Robe Locust
7C	<i>Sophora japonica</i>	Japanese Pagoda Tree
7D	<i>Robinia x ambigua</i> "Idahoensis"	Idaho Locust

Shrubs

<i>Teucrium</i> sp.	Germander
<i>Lavendula</i> sp.	Lavender
<i>Baccharis x "Starn"</i>	Thompson Broom
<i>Caryopteris clandonensis</i> var.	Blue Mist Spirea
<i>Artemisa "Powis Castle"</i>	Powis Castle Sage
<i>Salvia gregii</i>	Cherry Sage

Accents

N/A

Grasses

<i>Muhlenbergia rigens</i>	Deer Grass
<i>Pennisetum</i> sp.	Dwarf Fountain Grass
<i>Muhlenbergia capillaries</i>	Regal Mist Muhly

Perennials

<i>Melampodium leucanthum</i>	Blackfoot Daisy
<i>Baileya multiradiata</i>	Desert Marigold
<i>Achillea</i> sp.	Yarrow
<i>Gaura lindheimeri</i> var.	Gaura
<i>Gaillardia aristata</i>	Blanket Flower
<i>Penstemon</i> sp.	Penstemon
<i>Psilostrophe tagetina</i>	Paper Flower

LOCAL: RESIDENTIAL

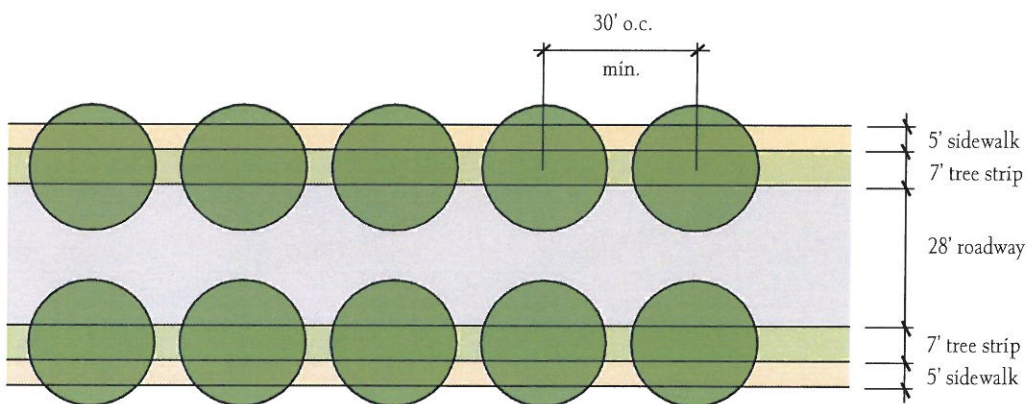
Palettes 8A - 8J

Understory plant material should be concentrated near the base of the tree to help prevent trunk damage.

- Informal Design

- Palette 8A: Raywood Ash**
Welles Dr., Dasburg Ave., Biddle Ave.
- Palette 8B: Mexican Redbud**
Scorcese Ave., Newhall Dr.
- Palette 8C: Desert Willow**
Man Ray Ave., Arbus Weegee Dr.
- Palette 8D: Golden Rain Tree**
Oldenburg Ave., Wyeth Dr., Unnamed St.
- Palette 8E: Chaste Tree**
Cunningham Ave., Nauman Ave., Un. St.
- Palette 8F: Chinese Pistache**
Motherwell Dr., Gandert Ave.
- Palette 8G: Texas Red Oak(multi-trunk)**
Diebencorn Dr.
- Palette 8H: Screwbean Mesquite**
Unnamed Street
- Palette 8I: Western Redbud**
Addis Ave., Avedon Ave.
- Palette 8J: Chitalpa(multi-trunk)**
Bourke White Ave., Lange Ave.





BOTANICAL NAME

COMMON NAME

Tree

<p> 8A Pistacia chinensis 8B Cercis mexicana 8C Chilopsis lineara 8D Koelreuteria paniculata 8E Vitex agnus-castus 8F Pistacia chinensis 8G Quercus buckleyi 8H Quercus buckleyi 8I Prosopis pubescens 8J Cercis occidentalis Chitalpa tashkentensis </p>	<p> Chinese Pistache Mexican Redbud Desert Willow Golden Rain Tree Chaste Tree Chinese Pistache Texas Red Oak Texas Red Oak Screwbean Mesquite Western Redbud Chitalpa </p>
---	---

Shrubs

<p> Anisacanthus quadrifidus var. wrightii Ceratoides lanata Ephedra viridis Dalea formosa Ericameria laricifolia Cistus sp. </p>	<p> Mexican Flame Winterfat Dwarf Mormon Tea Feather Dalea Turpentine Bush Rockrose </p>
--	---

Accents

N/A

Grasses

<p> Aristida purpurea Oryzopsis hymenoides Schizachrium scoparium "Blaze" Agropyron smithii </p>	<p> Purple Three Awn Indian Ricegrass 'Blaze' Little Bluestem Western Wheatgrass </p>
---	--

Perennials

<p> Zinnia grandiflora Hymenoxys acaulis Abronia fragrans Ratibida columnifera "Mexican Hat" Linum lewisii Ipomoea leptophylla Poliomintha maderensis </p>	<p> Desert Zinnia Angelita Daisy Sand Verbena Mexican Hat Blue Flax Bush Morning Glory Mexican Oregano </p>
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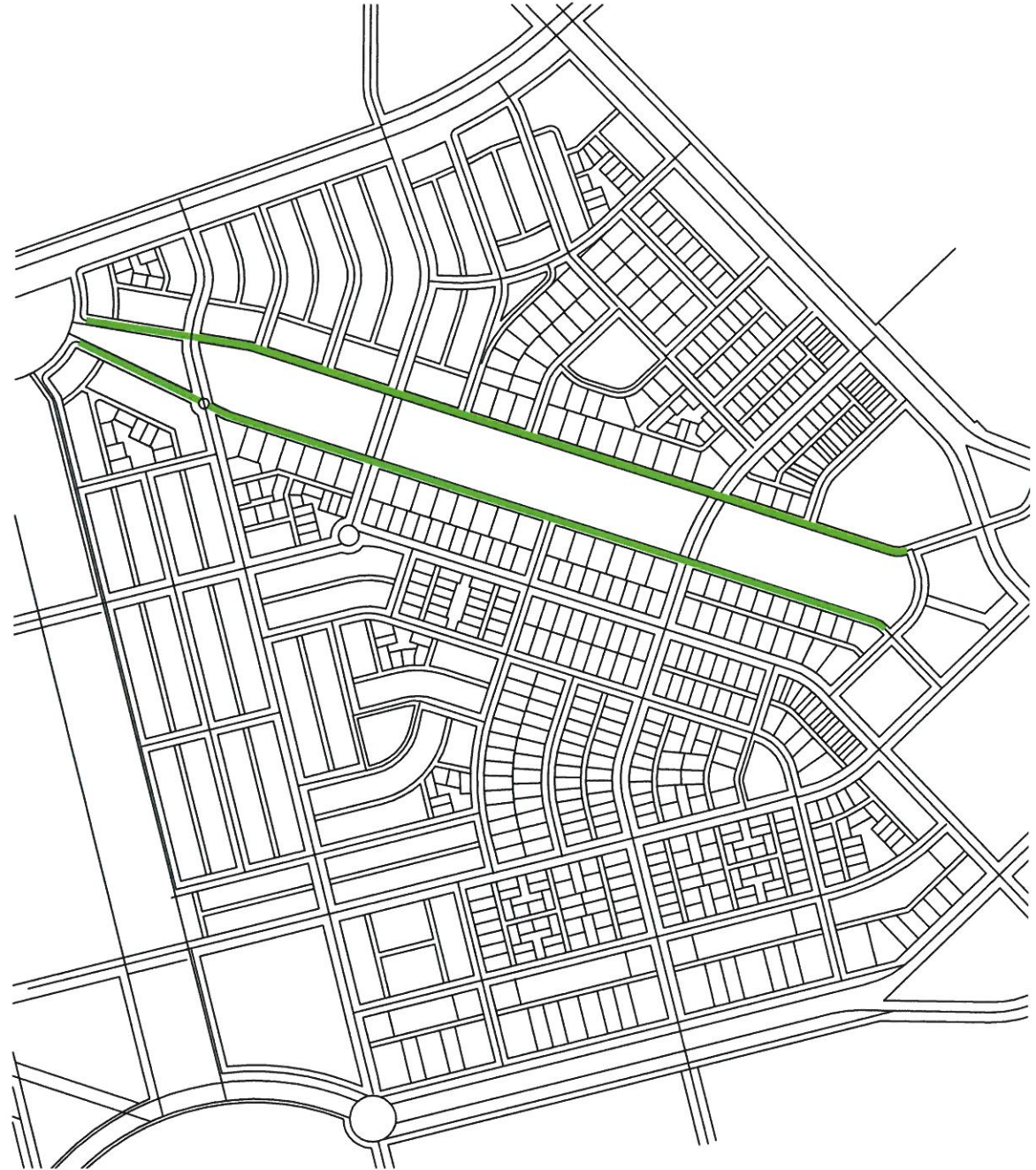
LOCAL: PARK

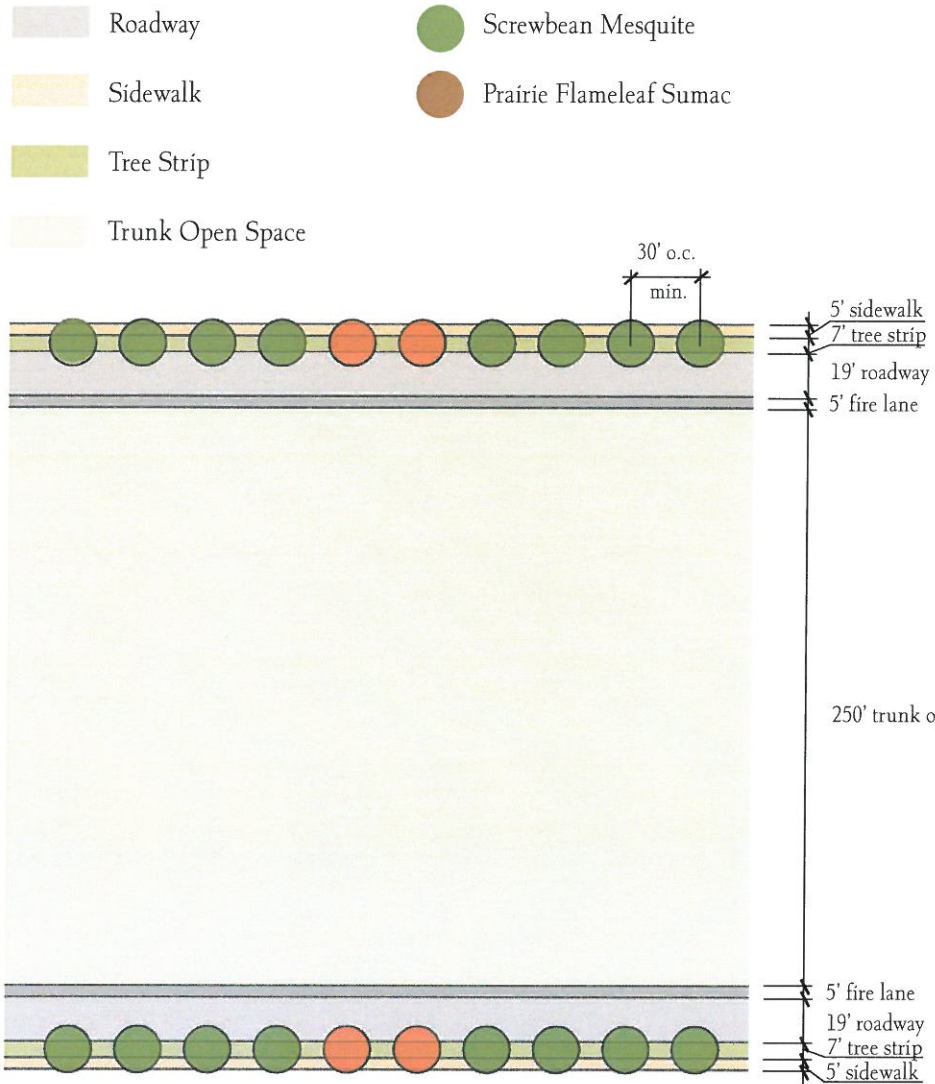
Palette 9

The street trees along both sides of the park are Screwbean Mesquite (4 trees), alternating with Prairie Flame Sumac (2 trees).

- Informal Design

■ Palette 9: Screwbean Mesquite,
Prarie Leaf Sumac
Stieglitz Drive, Rothko Drive





BOTANICAL NAME

COMMON NAME

Tree

- 9 *Prosopis pubescens*
- 9 *Rhus lanceolata*

- Screwbean Mesquite
- Prairie Flameleaf Sumac

Shrubs

N/A

Accents

N/A

Grasses

Festuca sp.

Fescue

Perennials

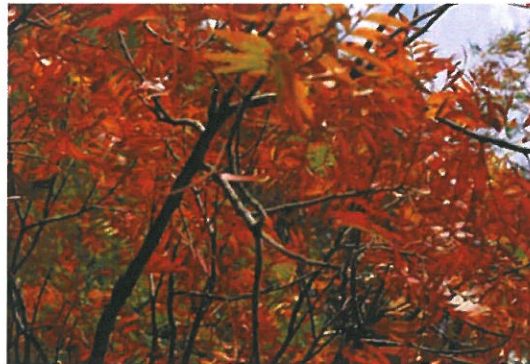
- Lavendula* spp.
- Penstemon* spp.
- Achillea* spp.
- Oenothera* sp.
- Calylophus hartwegii*

- Poppy Mallow
- Chocolate Flower
- Bee Balm
- Primrose
- Sundrops

APPROVED STREET TREE SPECIES

Large Trees

Botanical Name	Common Name	Height x Spread	Water Use	Evergreen	Native	Flower
<i>Fraxinus velutina</i>	Modesto/Arizona Ash	45' x 30'	M			
<i>Gleditsia triacanthos var. inermis</i>	Honeylocust	45' x 35'	M			
<i>Pinus pinea</i>	Italian Stone Pine	60' x 25'	M	X		
<i>Pistacia chinensis</i>	Chinese Pistache	40' x 30'	M			
<i>Platanus wrightii</i>	Arizona Sycamore	60' x 60'	M/H		X	
<i>Quercus fusiformis</i>	Escarpment Live Oak	40' x 40'	M		X	
<i>Quercus macrocarpa</i>	Bur Oak	60' x 40'	M		X	
<i>Quercus muhlenbergii</i>	Chinquapin Oak	50' x 40'	M		X	
<i>Quercus texana/buckleyii</i>	Texas Red Oak	40' x 30'	M		X	
<i>Quercus schumardii</i>	Schumard Oak	60' x 40'	M/H			
<i>Robinia pseudoacacia</i>	Black Locust	50' x 25'	M		X	X
<i>Robinia x ambigua</i>	Purple Robe Locust	40' x 30'	M		X	X
<i>Sophora japonica</i>	Japanese Pagoda Tree	40' x 30'	M			X
<i>Ulmus parvifolia 'Bosque'</i>	Bosque Lacebark Elm	50' x 35'	M			



Medium Trees

Botanical Name	Common Name	Height x Spread	Water Use	Evergreen	Native	Flower
<i>Chilopsis linearis</i>	Desert Willow	25' x 20'	L		X	X
<i>Chitalpa x tashkentensis</i>	Chitalpa	25' x 20'	M			X
<i>Koelruteria paniculata</i>	Golden Rain Tree	25' x 25'	M			X
<i>Prosopis glandulosa</i>	Honey Mesquite	35' x 35'	L		X	
<i>Sambucus mexicanus</i>	Mexican Elder	25' x 15'	M	SEMI	X	X
<i>Sapindus drummondii</i>	Western Soapberry	30' x 20'	L		X	
<i>Vitex agnus-castus</i>	Chaste Tree	25' x 20'	L/M			X
<i>Ziziphus jujuba</i>	Chinese Date	25' x 20'	M			

Small Trees

Botanical Name	Common Name	Height x Spread	Water Use	Evergreen	Native	Flower
<i>Acacia greggii</i>	Catclaw Acacia	15' x 15'	L		X	X
<i>Prosopis pubescens</i>	Screwbean Mesquite	20' x 15'	L/M		X	
<i>Rhus lanceolata</i>	Prairie Flameleaf Sumac	20' x 15'	M		X	
<i>Sophora secundiflora</i>	Texas Mountain Laurel	15' x 10'	L		X	X



APPROVED GROUND PLANE PLANTINGS

Shrubs

Botanical Name	Common Name	Height x Spread	Water Use	Evergreen	Native	Flower
<i>Amelanchier utahensis</i>	Utah Serviceberry	6' x 6'	M		X	X
<i>Anisacanthus thurberi</i>	Desert Honeysuckle	4' x 3'	L		X	X
<i>Arctostaphylos pungens</i>	Pointleaf Manzanita	3' x 6'	L/M	X	X	X
<i>Artemisia caucasica</i>	Silver Spreader	3' x 2'	L/M	X		
<i>Artemisia filifolia</i>	Threadleaf Sage	3' x 3'	L	X	X	
<i>Artemisia frigida</i>	Fringed Sage	1' x 1'	L	X	X	
<i>Artemisia ludoviciana</i>	Prairie Sage	2' x 4'	L	X	X	
<i>Artemisia pontica</i>	Roman Wormwood	1' x 1.5'	L/M	X		
<i>Artemisia Powis Castle</i>	Powis Castle Sage	2' x 5'	L	X		
<i>Artemisia tridentata</i>	Bigleaf Sage			X	X	
<i>Atriplex canescens</i>	Fourwing Saltbush	5' x 5'	L	X	X	
<i>Atriplex gardneri</i>	Gardner Saltbush	4' x 4'	L	X		
<i>Baccharis speciosa</i>	Broom Dalea	8' x 8'	M	X	X	
<i>Berberis haematocarpa</i>	Algerita	3'-8' x 3'-8'	L/M	X	X	X
<i>Buddleia speciosa</i>	Butterfly Bush	varies	L			



Shrubs, cont.

Botanical Name	Common Name	Height x Spread	Water Use	Evergreen	Native	Flower
<i>Caesalpinia gilliesii</i>	Bird of Paradise	8' x 6'	L	X		
<i>Caryopteris clandonensis</i>	Blue Mist Spirea	3' x 3'	M			X
<i>Ceratoides lanata</i>	Winterfat	3' x 2'	L	X	X	
<i>Cercocarpus montanus</i>	Mountain Mahogany	10' x 5'	L	X	X	
<i>Chamaebatiaria millefolium</i>	Fernbush	5' x 6'	L	X		X
<i>Chrysothamnus nauseosus</i>	Chamisa	6' x 6'	L	X		X
<i>Chrysothamnus nauseosus var. nauseosus</i>	Dwarf Chamisa	4' x 4'	L	X		X
<i>Cytisus speciosa</i>	Broom	5'-8' x 5'-8'	L			
<i>Dalea capitata</i>	Sierra Gold Dalea	8" x 4'	L/M	X		X
<i>Dalea formosa</i>	Feather Dalea	2' x 2'	L	X		X
<i>Ericameria laricifolia</i>	Turpentine Bush	3' x 4'	L	X	X	
<i>Fallugia paradoxa</i>	Apache Plume	5' x 5'	L	X		X
<i>Fendlera rupicola</i>	Cliff Fendlerbush	5' x 4'	M	X		X
<i>Genista speciosa</i>	Broom	2'-6' x 2'-6'	M			
<i>Hibiscus 'Moy Grande'</i>	Moy Grande Hibiscus	5' x 5'	M			
<i>Juniperus speciosa</i>	Juniper	varies	L	X		
<i>Larrea tridentata</i>	Creosotebush	6' x 6'	L	X	X	



Shrubs, cont.

Botanical Name	Common Name	Height x Spread	Water Use	Evergreen	Native	Flower
<i>Leucophyllum speciosa</i>	Leucophyllum	varies	M		X	X
<i>Pinus mugo mugo</i>	Dwarf Mugo Pine	4' x 8'	M	X		
<i>Potentilla fruticosa</i>	Shrubby Cinquefoil	1'4' x 2'-4'	M		X	X
<i>Prunus besseyi</i>	Western Sand Cherry	4' x 4'	M		X	X
<i>Psoralea scoparius</i>	Broom Dalea	2' x 3'	L		X	X
<i>Purshia mexicana</i>	Cliffrose	6' x 6'	M	X	X	
<i>Rhus glabra</i>	Scarlet Sumac	10' x 10'	L/M		X	
<i>Rhus microphylla</i>	Little Leaf Sumac	6' x 8'	L/M		X	
<i>Rhus ovata</i>	Sugar Bush				X	
<i>Rhus trilobata</i>	Three Leaf Sumac	5' x 5'	L/M		X	
<i>Rosa speciosa</i>	Rose	varies	M		X	X
<i>Rosmarinus speciosa</i>	Rosemary	varies	L	X		
<i>Salvia chamaedryoides</i>	Mexican Blue Sage	1.5' x 2'	L/M		X	X
<i>Salvia greggii</i>	Cherry Sage	3' x 3'	L/M		X	X
<i>Santolina speciosa</i>	Santolina				X	
<i>Syringa speciosa</i>	Lilac	6' x 6'	M			
<i>Vauquelinia californica</i>	Arizona Rosewood	15' x 8'	M	X	X	



Perennials

Botanical Name	Common Name	Water	Native
<i>Abronia fragrans</i>	Sand Verbena	L	X
<i>Achillea speciosa</i>	Yarrow		X
<i>Agastache speciosa</i>	Hyssop	L	X
<i>Alcea rosea</i>	Hollyhock	M	
<i>Anemopsis californica</i>	Yerba Mansa	L	X
<i>Aquilegia speciosa</i>	Columbine	M	X
<i>Argemone pleiacantha</i>	Prickly Poppy	L/M	X
<i>Baileya multiradiata</i>	Desert Marigold	L	X
<i>Berlandiera lyrata</i>	Chocolate Flower	L	X
<i>Callirhoe involucrata</i>	Poppy Mallow	L/M	X
<i>Calylophus hartwegii</i>	Sundrops	L	X
<i>Castilleja integra</i>	Indian Paintbrush	L	X
<i>Centranthus ruber</i>	Jupiter's Beard	M	
<i>Ceratostigma plumbaginoides</i>	Dwarf Plumbago	H	
<i>Coreopsis speciosa</i>	Coreopsis	L	
<i>Delosperma speciosa</i>	Iceplant	L	
<i>Dyssodia speciosa</i>	Dyssodia	L	X



Perennials, cont.

Botanical Name	Common Name	Water	Native
<i>Echinacea purpurea</i>	Purple Coneflower	M	X
<i>Euphorbia speciosa</i>	Spurge	L/M	X
<i>Gaillardia aristata</i>	Blanket Flower	L/M	X
<i>Gaura lindheimeri</i>	Whirling Butterflies	L/M	X
<i>Helianthus maximiliani</i>	Maximilian Sunflower	L	X
<i>Hemerocallis speciosa</i>	Daylily	H	
<i>Hymenoxys acaulis</i>	Angelita Daisy	L	X
<i>Ipomoea leptophylla</i>	Bush Morning Glory	L	X
<i>Iris</i>	Iris		X
<i>Lavendula speciosa</i>	Lavender	M	
<i>Liatris punctata</i>	Gayfeather	L	X
<i>Linum lewisii</i>	Blue Flax	L	X
<i>Machaeranthera bigelovii</i>	Purple Aster	L	X
<i>Melampodium leucanthum</i>	Blackfoot Daisy	L	X
<i>Mirabilis multiflora</i>	Giant Four O'Clock	L	X
<i>Monarda speciosa</i>	Beebalm	M	X
<i>Nepeta speciosa</i>	Catmint	M	



Perennials, cont.

Botanical Name	Common Name	Water	Native
<i>Oenothera speciosa</i>	Primrose	L	X
<i>Penstemon speciosa</i>	Penstemon	L	X
<i>Petalostemum purpureum</i>	Purple Prairie Clover	L	X
<i>Poliomintha incana</i>	Mexican Oregano	M	X
<i>Poliomintha maderensis</i>	Lavender Spcie	L	X
<i>Psilostrophe tagetina</i>	Paperflower	L	X
<i>Ratibida columnifera</i>	Coneflower	L	X
<i>Rudbeckia speciosa</i>	Brown-Eyed Susan		X
<i>Salvia speciosa</i>	Sage	L	X
<i>Sedum speciosa</i>	Sedum		X
<i>Senecio longilobus</i>	Silver Groundsel	L	X
<i>Sphaeralcea speciosa</i>	Globemallow		X
<i>Teucrium speciosa</i>	Germander	M	
<i>Thelesperma ambigua</i>	Hopi Tea	L	X
<i>Thymus speciosa</i>	Thyme	M	
<i>Verbena speciosa</i>	Verbena	L	X
<i>Veronica speciosa</i>	Speedwell	M	



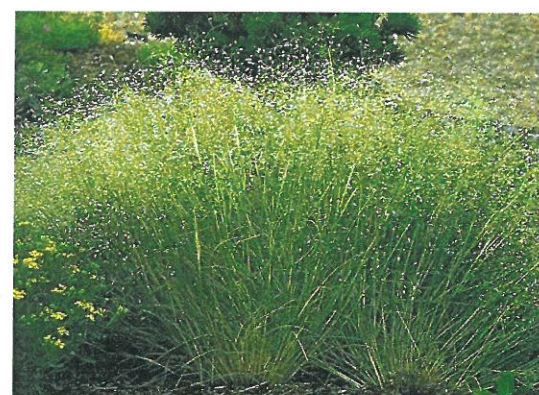
Perennials, cont.

Botanical Name	Common Name	Water	Native
<i>Viguiera speciosa</i>	Goldeneye	L	X
<i>Viola speciosa</i>	Violet	H	
<i>Wyethia scabra</i>	Desert Mule's Ear	L	X
<i>Zauschneria speciosa</i>	Hummingbird Bush	L	X
<i>Zinnia grandiflora</i>	Desert Zinnia	L	X



Ornamental Grasses

Botanical Name	Common Name	Water	Native
<i>Andropogon barbinodis</i>	Cane Bluestem		X
<i>Andropogon gerardii</i>	Big Bluestem	M	X
<i>Andropogon saccharoides</i>	Silver Beardgrass	L	X
<i>Andropogon smithii</i>	Western Wheat	L	X
<i>Aristida purpurea</i>	Purple Three Awn	L	X
<i>Bouteloua curtipendula</i>	Sideoats Grama	L	X
<i>Bouteloua gracilis</i>	Blue Grama Grass	L	X
<i>Buchloe dactyloides</i>	Buffalograss	M	X
<i>Calamagrostis x acutiflora</i> 'Karl Foerster'	Karl Foerster Grass	M	
<i>Cynodon dactylon</i>	Bermuda Grass	M	
<i>Deschampsia caespitosa</i>	Tufted Hair Grass	L/M	X
<i>Distichlis stricta</i>	Saltgrass	M	X
<i>Festuca speciosa</i>	Fescue	H	
<i>Helictotrichon sempervirens</i>	Blue Avena Grass		
<i>Hilaria jamesii</i>	Galleta	L	X
<i>Miscanthus sinensis</i>	Maiden Hair Grass	M	
<i>Muhlenbergia capillaries</i> 'Regal Mist'	Regal Mist Muhley	M	X



Ornamental Grasses, cont.

Botanical Name	Common Name	Water	Native
<i>Muhlenbergia dubia</i>	Pine Muhley	L	X
<i>Muhlenbergia emersleyi</i> El Toro	Bull Grass	M	X
<i>Muhlenbergia lindheimeri</i>	Autumn Glow	M	X
<i>Muhlenbergia rigens</i>	Deer Grass	M	X
<i>Muhlenbergia rigida</i>	Nashville	M	X
<i>Nassella tenuissima</i>	Threadgrass	L	X
<i>Oryzopsis hymenoides</i>	Indian Ricegrass	L	X
<i>Panicum virgatum</i>	Switch Grass	L	X
<i>Pennisetum speciosa</i>	Fountain Grass	M	
<i>Schizachrium scoparium</i>	Little Bluestem	M	X
<i>Sorghastrum nutans</i>	Indiangrass	M	X
<i>Sporobolus airoides</i>	Alkali Sacaton	M	X
<i>Sporobolus cryptandrus</i>	Sand Dropseed	L	X
<i>Sporobolus wrightii</i>	Giant Sacaton	M	X
<i>Stipa comata</i>	Needle-and-thread Grass	L	X



Accents & Succulents

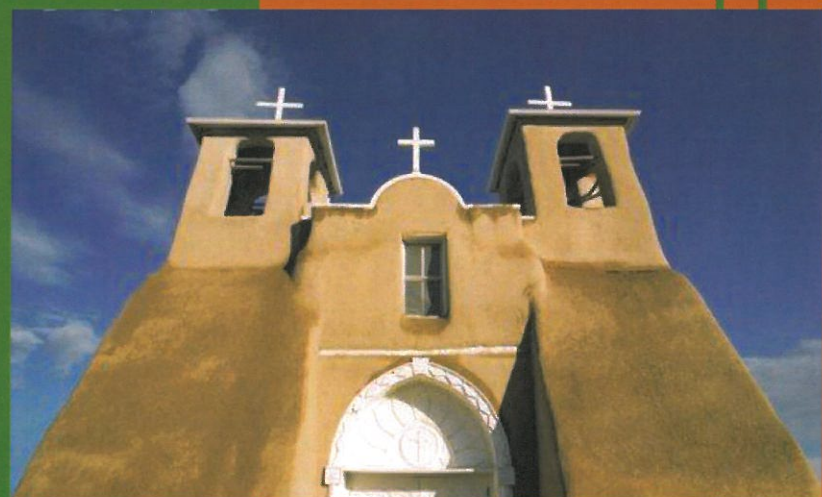
Botanical Name	Common Name	Water	Native
<i>Agave speciosa</i>	Agave	L	X
<i>Dasyliirion wheeleri</i>	Sotol	L	X
<i>Dasyliirion texanum</i>	Green Desert Spoon	L	X
<i>Ephedra viridis</i>	Mormon Tea	L	X
<i>Hesperaloe parviflora</i>	Hesperaloe	M	X
<i>Nolina microcarpa</i>	Beargrass	L	X
<i>Nolina texana</i>	Beargrass	L	X
<i>Opuntia engelmannii</i>	Engelmann Prickly Pear	L	X
<i>Opuntia imbricata</i>	Cholla	L	X
<i>Opuntia linguiformis</i>	Cow Tongue Prickly Pear	L	X
<i>Opuntia macrocentra</i>	Purple Prickly Pear	L	X
<i>Opuntia phaeacantha</i>	Prickly Pear	L	X
<i>Yucca speciosa</i>	Yucca	L	X



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Section 5

Streetscape Irrigation



IRRIGATION APPROACH

This irrigation master plan is based on the guidelines set forth in the Level B Master Plan, and is intended to identify the overall irrigation needs and system requirements. This masterplan addresses water supply and demand, irrigation system control, mainline routing, and typical methodologies. During this planning process, we have refined our understanding of the overall project site, established water sources and demands, mainline distribution and a schematic control system approach, which together make up a framework on which to build each segment of the irrigation system.

Rainwater Harvesting and Conservation

The overlying strategy within the planting areas will be to maximize the use of all available rainwater. The irrigation system proposed will supplement these efforts. In order to effectively utilize the available storm flows, rainwater harvesting will be accomplished through the use of active and passive methods. Active systems will collect and store rainwater for use between storm events. Passive methodologies will involve harvesting and redirection of storm runoff through proper grading to distribute and spread storm flows over planted areas.

Proven conservation methods will be employed to reduce the need for supplemental watering and to maximize the benefits of available storm water. Low water use xeric plantings will be utilized to reduce water needs. The use of proper mulching and soil amendments within the planting beds will maximize soil moisture retention between storm events. Low volume drip and low flow stream rotators will be utilized to efficiently distribute supplemental water to the specific plants based on water needs. Efficient ET driven control systems will adjust application rates daily based on the on-site weather conditions.

WATER SUPPLY

Potable & Reclaimed

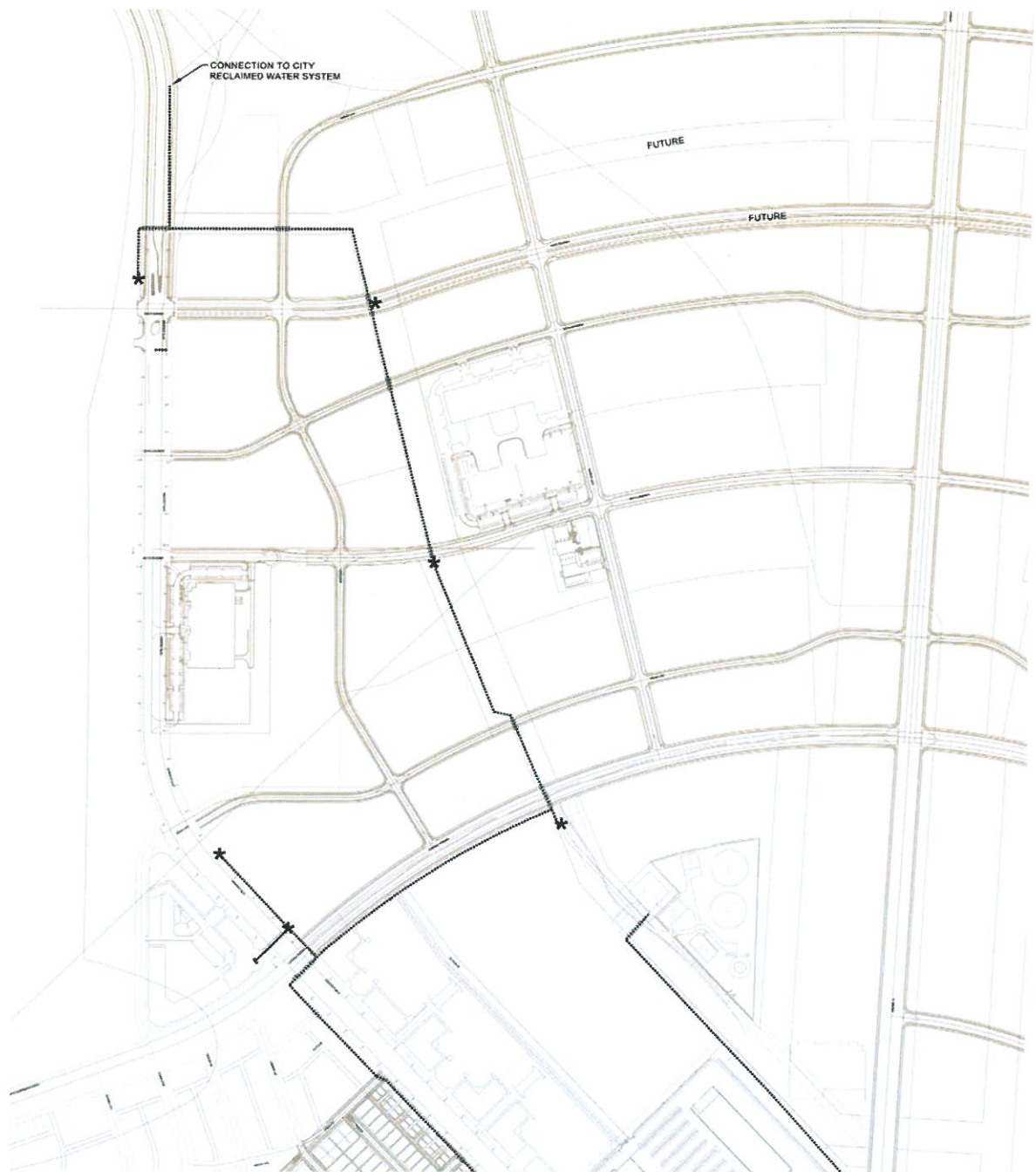
The initial irrigation water supply for the common area landscapes will come from the City's potable water system and from collected stormwater systems. The potable taps will be converted to a reclaimed water source when it becomes available. The city system will supply water at static pressure, currently understood to be approximately 50 PSI. Portions of the irrigation systems will require a minimum dynamic water pressure of 80 PSI at the master valve locations in order to operate the systems at the optimal level to achieve peak efficiency. This scenario will require that booster pumps be implemented at each tap location to boost pressure by approximately 40 psi. The anticipated pumps would be small, efficient, variable speed systems packaged in single enclosures near each tap location. These pumps could be programmed to operate only when required based on the pressure needs of each irrigation zone. This approach has been developed to minimize the number of taps and subsequent pumps by serving multiple landscape areas from each pump with a master valve as a control point for each area.

LEGEND

- * PROPOSED IRRIGATION TAP LOCATIONS.
SEE UTILITY PLANS FOR EXACT WATERLINE LOCATIONS
- RE-USE SUPPLY MAINLINE.
PURPLE CL-200 PVC
- ==== SLEEVE AT MAINLINE CROSSINGS

NOTES

1. PRESSURE AT THE POTABLE TAPS IS ASSUMED TO BE NO GREATER THAN 50 PSI.
2. BOOSTER PUMPS WILL BE REQUIRED AT EACH POTABLE TAP TO PROVIDE THE REQUIRED MINIMUM PRESSURE OF 80 PSI AT EACH MASTER VALVE LOCATION.
3. SEE CIVIL PLANS FOR STORMWATER SUPPLY SYSTEM THAT WILL SUPPLY THE APERTURE PARK (TAP-2) FROM THE ABQ STUDIO PONDS
4. LAYOUT INDICATED IS SCHEMATIC, FINAL LAYOUT FOR THE RECLAIMED WATER SUPPLY MAINLINE WILL BE BY OTHERS



Re-use 'purple pipe' system

WATER SUPPLY

Irrigation Mainline and Sub-Mainline

The irrigation systems will eventually be supplied from the re-use “purple pipe” system which is shown schematically. Final layout will be determined as the design process continues. Following the initial connection to the potable system the irrigation systems will be disconnected from the potable system and re-connected to the re-use supply mainline in close proximity to the original connection in order to minimize disruption to the system and built infrastructure.

Following the connection to the water source, the irrigation system distribution will be comprised of the mainline and sub-mainline. The mainline will distribute water from the source to the booster pump then from the pump to one or more master valves as indicated schematically. The irrigation sub-mainline will supply the irrigation system downstream from the master valve. The sub-mainline layout will be determined in the irrigation system design process and will be shown in the construction documents. All mainline and sub-mainline in the system will utilize “purple” PVC pipe and other appropriate designators to ensure safe distribution of the re-use water.

Mainlines shall normally be located in the tree planting strip between the sidewalk and the back of curb. Location shall be coordinated with other utilities required in the right of way. Locations of backflow preventers, meters and booster pumps shall be coordinated with landscape improvements and subject to approval of the Water use Authority for access and maintenance. Power for controls and pumps shall be coordinated with the developer.



Re-use 'purple pipe' system

LEGEND

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SEE UTILITY PLANS FOR EXACT WATERLINE LOCATIONS
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WATER DEMAND & TAPS

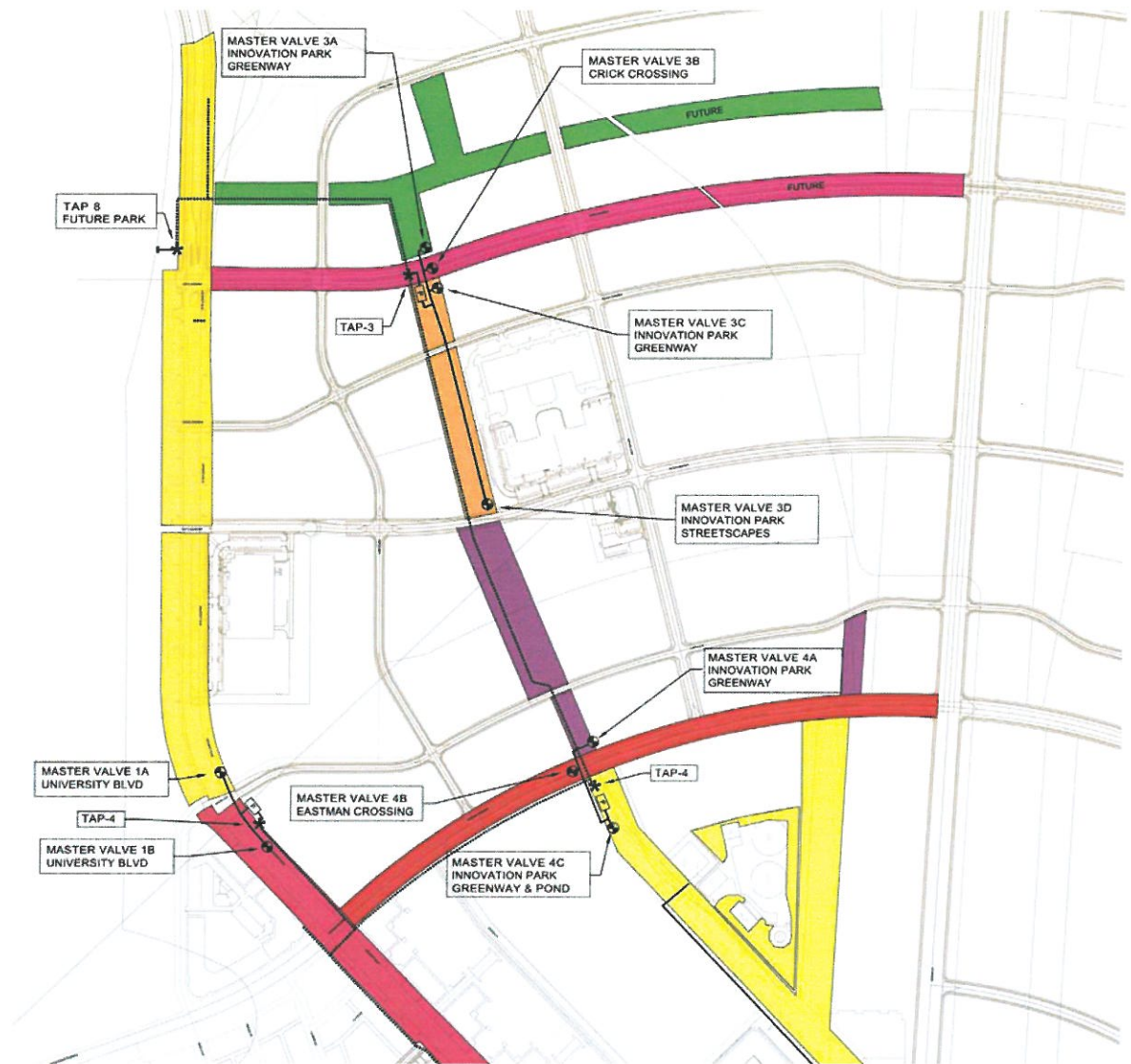
In order to understand the water needs for the project an estimate of peak flow requirements and annual irrigation water demands for each of the landscape areas has been developed. These estimates consider the proposed plant palettes, local evapotranspiration (ET) rates, appropriate irrigation methods and estimated system efficiencies. The landscape areas included in this study are as follows:

University Boulevard

University Boulevard will be served from two separate taps, one serving the north and another serving the south segments. Each segment is served through a master valve and flow sensor assembly.

IRRIGATION WATER TAPS

Area	TAP/MV	Description	Peak Flow GPM	Annual Water Req. Gallons
	TAP-1, POTABLE, 2-INCH			
	MV-1A	UNIVERSITY BLVD NO.	60	3,120,763
	MV-1B	UNIVERSITY BLVD SO.	45	2,120,183
	TAP-2, STORMWATER SUPPLY, 1-INCH			
	MV-2A	APERTURE PARK & POOL	25	600,000
	TAP-3, POTABLE, 3-INCH			
	MV-3A	INNOVATION PARK GREENWAY	60	4,300,000
	MV-3B	CRICK CROSSING	70	3,264,000
	MV-3C	INNOVATION PARK GREENWAY	45	2,750,000
	MV-3D	INNOVATION PARK STREETSCAPE	60	2,950,000
	TAP-4, POTABLE, 3-INCH			
	MV-4A	INNOVATION PARK GREENWAY	45	2,750,000
	MV-4B	EASTMAN CROSSING	60	3,050,200
	MV-4C	INNOVATION PK. PARK & POND	120	7,800,500
	TAP-5, POTABLE, 3-INCH			
	MV-5A	MONTAGE PARK	120	7,120,400
	MV-5B	MONTAGE PARK	80	5,200,000
	TAP-6, POTABLE, 2-INCH			
	MV-6A	PORTRAIT PARK	20	1,170,400
	MV-6B	FIRST NEIGHBORHOOD STREETS	45	2,500,000
	TAP-7, POTABLE, 2-INCH			
	MV-7A	VIGNETTE PARK	20	1,170,400
	MV-7B	FIRST NEIGHBORHOOD STREETS	50	2,700,000
	TAP-8	FUTURE COUNTY PARK (RECPLX)		



Innovation Park Taps

LEGEND

- ★ PROPOSED IRRIGATION TAP LOCATIONS.
SEE UTILITY PLANS FOR EXACT WATERLINE LOCATIONS
- ⊕ MASTER VALVE AND FLOW SENSOR ASSEMBLY.
SEE IRRIGATION PLANS FOR EXACT LOCATION AND DETAILING
- ⊞ BOOSTER PUMP
COORDINATE POWER SUPPLY REQUIREMENTS
- RE-USE SUPPLY MAINLINE.
PURPLE CL-200 PVC
- IRRIGATION SUB-MAINLINE.
PURPLE CL-200 PVC

NOTES

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3. LAYOUT INDICATED IS SCHEMATIC, TAP, METER AND MASTER VALVE LOCATIONS TO BE FIELD ADJUSTED IN KEEPING WITH THE INTENT IMPLIED ON THE IRRIGATION PLANS.
5. BACKFLOW PREVENTION WILL BE REQUIRED AT ALL TAP LOCATIONS PER LOCAL CODES.
6. SEE CIVIL PLANS FOR STORMWATER SUPPLY SYSTEM THAT WILL SUPPLY THE APERTURE PARK (TAP-2) FROM THE ABO STUDIO PONDS

Innovation Park Streetscapes

The common landscape areas which front each of the commercial lots and the enhanced landscape areas along Fritts Crossing, which will be a showcase street, will be developed prior to development of many of the commercial lots and will be managed and maintained by the Employment Center Association (ECA). These streetscape areas will share an irrigation tap and booster pump with the Innovation Park Linear Parks. Separate master valves for the streetscape areas will allow separate tracking and management of the water supply to the streetscapes. These landscapes will ultimately be the responsibility of the individual lot owners. The irrigation systems associated with each lot will be designed such that they can easily be removed from the common supply and control system and be connected to a private water tap and control system to be managed by the lot owner. The design will allow for continued common system service to remaining undeveloped lots as needed. (see figure 1, at right)

Innovation Park Streetscapes: Crick Crossing & Eastman Crossing

These two streetscape segments will be served by two taps which are shared with adjacent greenway areas. Each street segment between University Blvd. and Hawking Dr. will be served by a separate master valve and flow sensor assembly.

Innovation Park Linear Park

These greenway areas will be served from 2 separate taps that will also serve adjacent streetscape areas. The greenway is divided into 4 segments for the purpose of water supply. The south segment will also serve the landscape associated with the water reservoir area. Each segment will be served by a separate master valve and flow sensor assembly.

Aperture Park

The Aperture Park landscape will be irrigated from collected stormwater from 2 potential sources. An on-site stormwater collection and passive subsurface irrigation system will serve the lawn area with water collected on the lawn area and adjacent plaza and rooftop areas. Based on historical storm data, it is estimated that this system will provide 65% of the required annual irrigation needs for the lawn area.

A secondary water source will be needed to meet the irrigation needs of the remaining landscapes and to supplement the remaining 35% for the lawn area. This source will be provided from an off-site stormwater collection pond known as the "Albuquerque Studios Pond" where storm flows will be collected in a storage pond and pumped to the Aperture Park site.

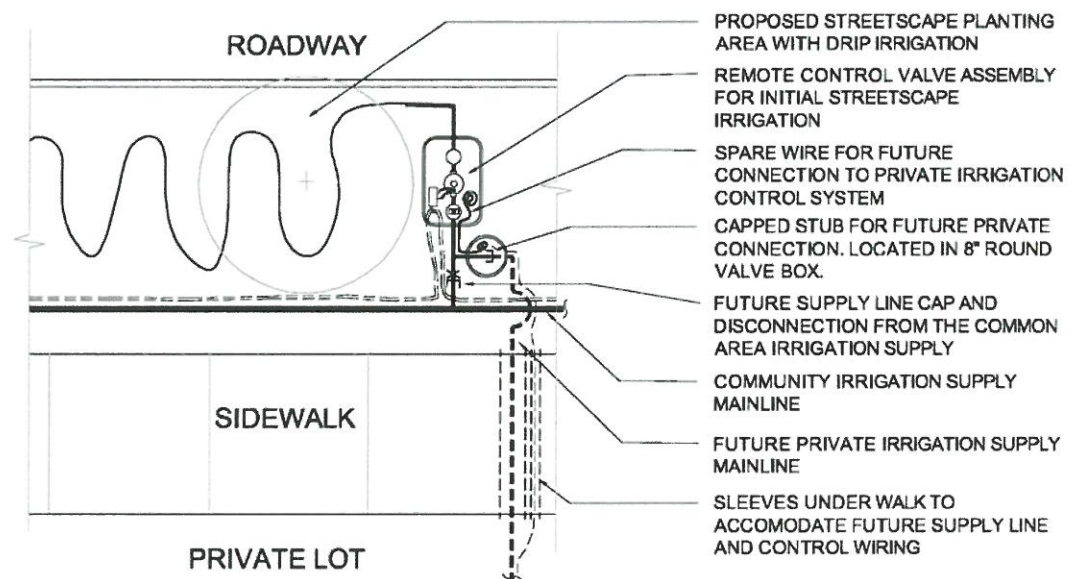


FIGURE - 1

First Neighborhood Streetscapes

The common landscape areas within the residential areas will consist of street trees and shrub plantings. All original plantings in these landscapes (see Section 4, Planting 'Maintenance Regime' under Planting Approach for information regarding homeowner-added plant materials) will be irrigated and managed by the Residential Community Association (RCA) in order to ensure consistent care and management of the streetscape plantings. These areas will be supplied from an irrigation taps and booster pumps shared with Portrait Park and and Vignette Park . The streetscape and park areas will be managed by separate master valves. These areas will ultimately be supplied from the re-use supply mainline. Irrigation systems within these areas will be controlled from a central control system managed by the RCA.

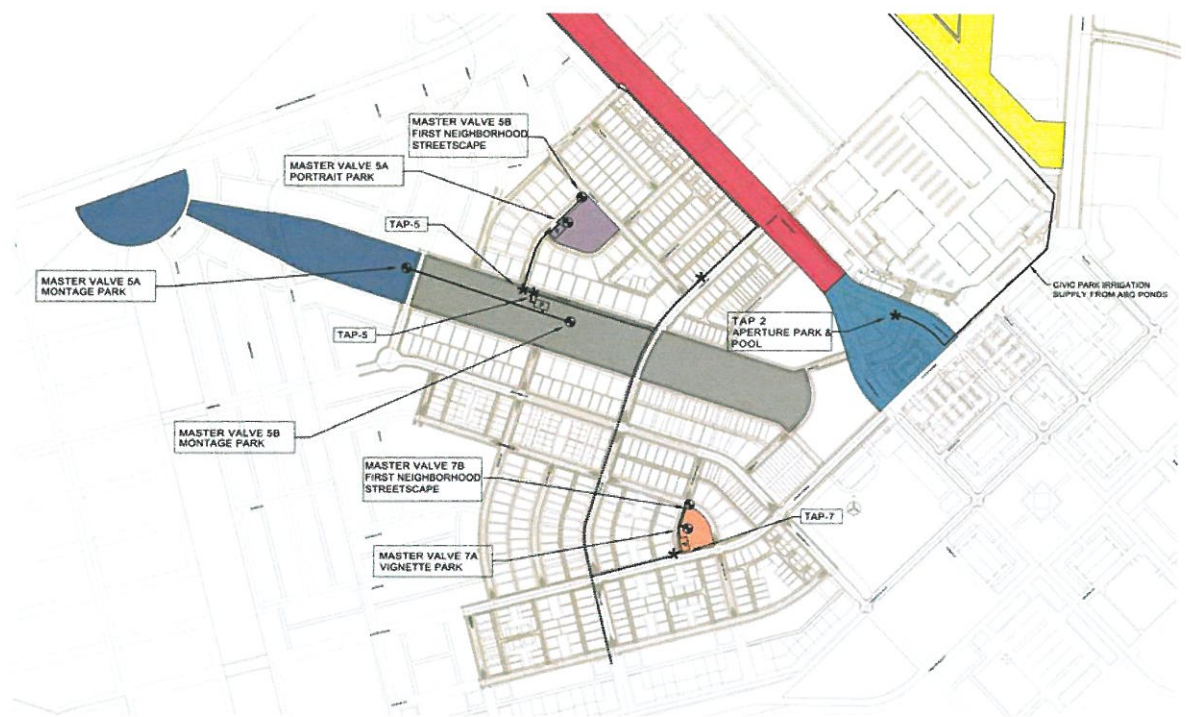
Montage Park

The trunk open space areas will be served from 1 tap. The Open space is divided into 2 segments for the purpose of water supply. Each segment will be served by a separate master valve and flow sensor assembly.

Portrait Park and Vignette Park

These small neighborhood parks will each include an irrigation tap. The taps in each park and the associated booster pump will serve two master valves; one master valve will serve the park areas and the other will serve adjacent the adjacent First Neighborhood streetscape irrigation.

Irrigation system within the parks will be controlled from a central control system managed by the RCA.



First Neighborhood Taps

IRRIGATION WATER TAPS

Area	TAP/MV	Description	Peak Flow GPM	Annual Water Req. Gallons
	TAP-1, POTABLE, 2-INCH			
	MV-1A	UNIVERSITY BLVD NO.	60	3,120,763
	MV-1B	UNIVERSITY BLVD SO.	45	2,120,183
	TAP-2, STORMWATER SUPPLY, 1-INCH			
	MV-2A	APERTURE PARK & POOL	25	600,000
	TAP-3, POTABLE, 3-INCH			
	MV-3A	INNOVATION PARK, GREENWAY	60	4,300,000
	MV-3B	CRICK CROSSING	70	3,264,000
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	MV-3D	INNOVATION PARK, STREETSCAPE	60	2,950,000
	TAP-4, POTABLE, 3-INCH			
	MV-4A	INNOVATION PARK, GREENWAY	45	2,750,000
	MV-4B	EASTMAN CROSSING	60	3,050,200
	MV-4C	INNOVATION PK. PARK & POND	120	7,800,500
	TAP-5, POTABLE, 3-INCH			
	MV-5A	MONTAGE PARK	120	7,120,400
	MV-5B	MONTAGE PARK	80	5,200,000
	TAP-6, POTABLE, 2-INCH			
	MV-6A	PORTRAIT PARK	20	1,170,400
	MV-6B	FIRST NEIGHBORHOOD STREETS	45	2,500,000
	TAP-7, POTABLE, 2-INCH			
	MV-7A	VIGNETTE PARK	20	1,170,400
	MV-7B	FIRST NEIGHBORHOOD STREETS	50	2,700,000
	TAP-8	FUTURE COUNTY PARK (RECPLX)		

LEGEND

- PROPOSED IRRIGATION TAP LOCATIONS. SEE UTILITY PLANS FOR EXACT WATERLINE LOCATIONS.
- MASTER VALVE AND FLOW SENSOR ASSEMBLY. SEE IRRIGATION PLANS FOR EXACT LOCATION AND DETAILING.
- BOOSTER PUMP. COORDINATE POWER SUPPLY REQUIREMENTS.
- RE-USE SUPPLY MAINLINE. PURPLE CL-200 PVC.
- IRRIGATION SUB-MAINLINE. PURPLE CL-200 PVC.

NOTES

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5. BACKFLOW PREVENTION WILL BE REQUIRED AT ALL TAP LOCATIONS PER LOCAL CODES.
6. SEE CIVIL PLANS FOR STORMWATER SUPPLY SYSTEM THAT WILL SUPPLY THE APERTURE PARK (TAP-2) FROM THE ABQ STUDIO PONDS.

RECLAIMED WATER

The Primary water source for irrigation of common area landscapes within the Mesa del Sol development will be treated sewer effluent or reclaimed water, referred to as re-use water. Early phases of development will utilize potable water initially with the provision to switch to the effluent source when it becomes available.

The current irrigation master plan has been developed in order to estimate the amount of water and peak flows that will be required to meet the needs of the proposed landscapes. A separate "Purple Pipe" mainline network will be installed to deliver reclaimed water for irrigation use.

Irrigating with Reclaimed Water

Irrigation of landscapes with reclaimed water in the Mesa del Sol development will conserve millions of gallons of potable water each year for domestic uses. Reclaimed water is partially treated and typically is free from debris that is detrimental to irrigation systems. Since it is only partially treated, it is non-potable and contains higher levels of salts and nutrients than potable water. There are some suggested best management practices users should be aware. Reclaimed water often has a higher content of salts than potable water and while the salinity levels may or may not be immediately detrimental to plant growth, the salts can accumulate in the soil over time to levels that may be harmful to plants if not managed properly.

Many local utilities sponsor research projects to assist reclaimed water users with proper management water conservation practices, and soil salinization prevention among others. Several studies have been conducted identifying plant responses to salinity, and recommending best management practices (BMP) for the management and irrigation of plants based on soil salinity levels.

Planning and Managing a Reclaimed-Water Irrigated Landscape

Proper planning including an understanding of soil types, will determine if the existing soils will have the capability to sustain the proposed landscape. Good drainage is critical for landscapes that will be irrigated with reclaimed water to allow for leaching of excess salts. Clay and caliche soils are less desirable since these prevent or reduce drainage. Removal or amendment of clay and caliche soils is highly recommended to improve the quality of the soil. Soil aeration must also be considered in the preparation and long term managing of the proposed landscape.

Based on the expected water salinity levels, salt tolerant species will be chosen for use in the proposed landscape. Some plants may be salt-sensitive at the root system while others may be salt-sensitive at the foliage (leaves). Not all drought-resistant plants are tolerant to water with higher salinity.

The proposed irrigation systems will be designed to deliver the right amount of water needed for the plant's optimal growth as well as additional water that may be required to ensure adequate leaching of salts, this additional amount will be determined by the potential salinity of the reclaimed water sources. System design must consider minimized overspray on foliage of plants that are leaf salt-sensitive through the use of low-angle nozzles and the use of bubbler or drip irrigation systems as needed.

Regulatory Requirements

State and local regulations require compliance with PURPLE color coding - specific to reclaimed water. All irrigation system pipeline used for reclaimed water must be colored PURPLE. Above-ground water faucets and quick-couplers must be enclosed in a lockable device. All irrigation valves must be in a purple locking box. All irrigation equipment specified will utilize the proper PURPLE color coding where required.

Warning Signs

All sites using reclaimed water (residential, commercial, parks, schools, etc.) must have reclaimed water warning-signs posted within the premise, as required by the State Regulations. Warning signs must be on purple-color background with white or yellow lettering in English and Spanish. The size must be adequate to provide easy visibility to visitors but no less than 12x24 inches. The number of signs needed in an establishment is based on the size of the property, the number of access points (entrances) and how many people access the site.



Irrigation System Management

The use of reclaimed water for irrigation will require proper maintenance practices in order to maintain proper plant health as well as protection of the public. Reclaimed water to be used for irrigation in public right-of-ways is typically disinfected to help protect the users and maintenance personnel. However it is not considered safe to drink and therefore must be managed as such. Proper irrigation system scheduling and maintenance are critical to reduce potential unnecessary human contact. Restricting irrigation times to times of the day when people are not present, irrigation at night is typical and is especially recommended with reclaimed water. Establishing buffer areas to separate high use areas may be appropriate.

Depending on the actual water quality of the reclaimed water provided it may be necessary to implement additional safeguards and controls to ensure public safety. These safeguards and control may include but are not limited to the following:

- No public access allowed during irrigation periods.
- No access allowed until the irrigation area is dry (a minimum drying period may be specified).
- Rain sensors and automated shutdown required during and following rain events (typical with a central control system).
- Do not use spray irrigation within a pre-determined distance from dwellings or public roadways.

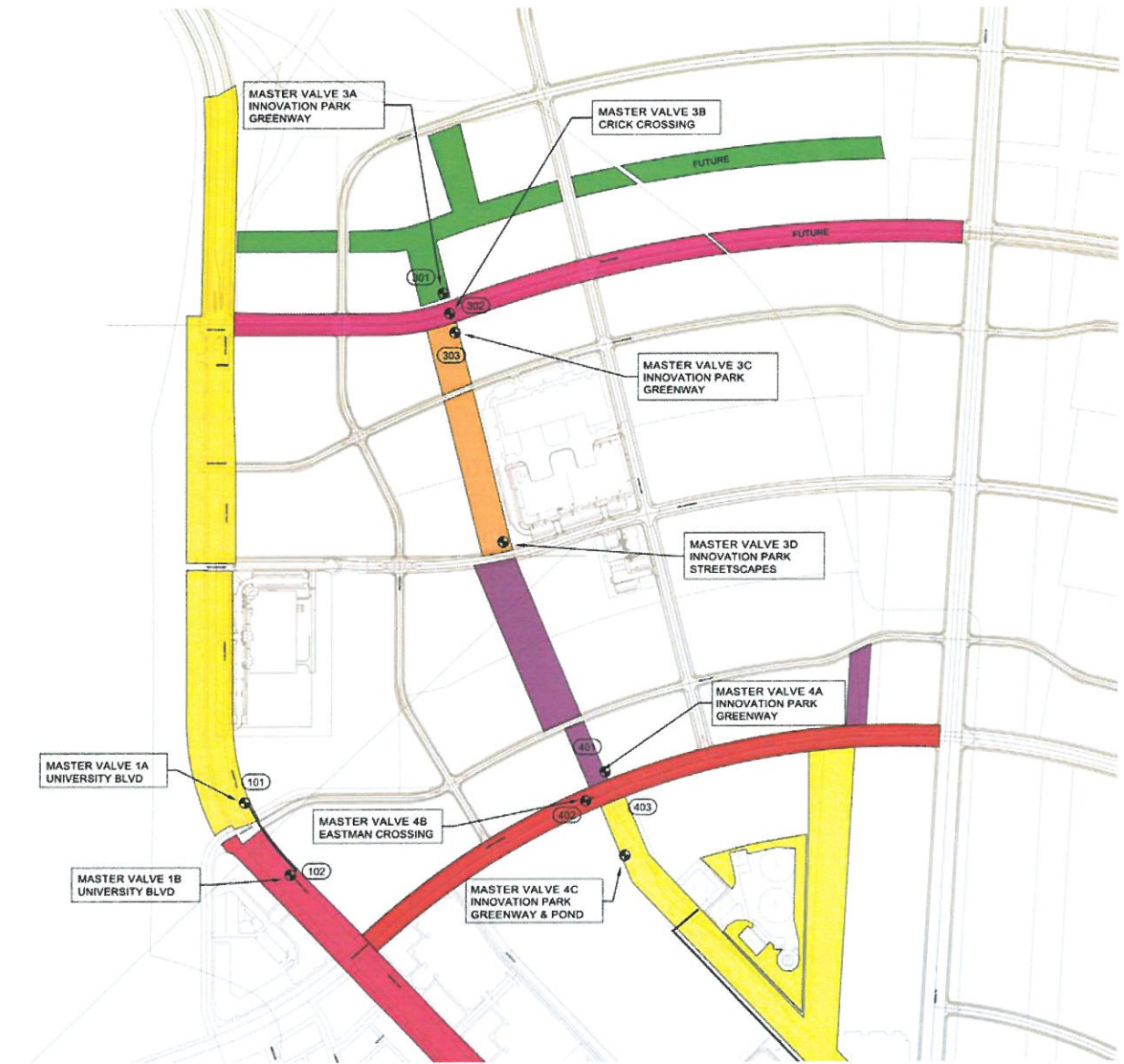
IRRIGATION CONTROL

System Description

The irrigation systems will be managed by means of a central irrigation control system with advanced water management and communications capabilities. This system will be capable of daily program adjustment based on real time local weather data or soil moisture levels.

The system will include satellite units, the on-site control unit where the remote control valves and sensors are connected. The satellite units communicate with one another to make up a single system which may be controlled and managed on-site at any one unit or remotely through a web based interface.

Each satellite unit will be associated with a master valve and flow sensor assembly and will be connected directly to the zone valves downstream from the master valve. This arrangement will enable the system to monitor flows and respond to abnormal flows by providing alerts to maintenance personnel, and/or shutting down all or portions of the system. Two wire decoder based control wiring will be utilized to allow for maximum system flexibility, expandability and upgrades as site development progresses. The decoder based system will reduce installation costs and the amount of costly control wiring by utilizing a two-wire data pair with decoders at each valve, valve cluster, flow sensor or moisture sensor. This approach simplifies maintenance and greatly enhances the expandability and flexibility of the system.



Innovation Park Controllers

IRRIGATION CONTROL SYSTEM

Area	MV No.	Description	Satellite Unit
Yellow	MV-1A	UNIVERSITY BLVD NO.	101
Pink	MV-1B	UNIVERSITY BLVD SO.	102
Blue	MV-2A	APERTURE PARK & POOL	201
Green	MV-3A	INNOVATION PARK, GREENWAY	301
Pink	MV-3B	CRICK CROSSING	302
Orange	MV-3C	INNOVATION PARK GREENWAY	303
Purple	MV-3D	INNOVATION PARK STREETSCAPE	303
Red	MV-4A	INNOVATION PARK GREENWAY	401
Orange	MV-4B	EASTMAN CROSSING	402
Yellow	MV-4C	INNOVATION PK. PARK & POND	403
Grey	MV-5A	MONTAGE PARK	501
Blue	MV-5B	MONTAGE PARK	502
Purple	MV-6A	PORTRAIT PARK	601
Purple	MV-6B	FIRST NEIGHBORHOOD STREETS	601
Orange	MV-7A	VIGNETTE PARK	701
Orange	MV-7B	FIRST NEIGHBORHOOD STREETS	701

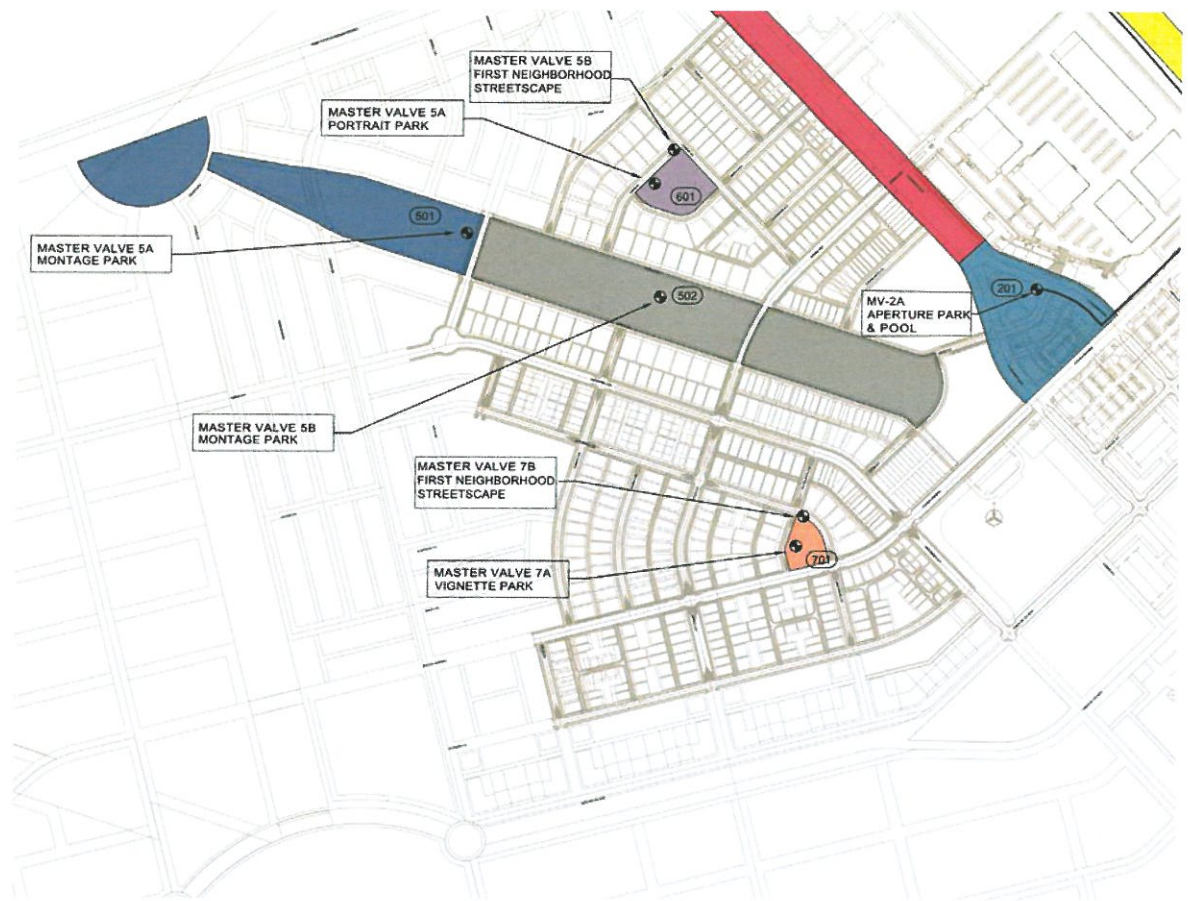
LEGEND

- MASTER VALVE AND FLOW SENSOR ASSEMBLY. SEE IRRIGATION PLANS FOR EXACT LOCATION AND DETAILING.
- IRRIGATION CONTROL SYSTEM SATELLITE UNIT. CENTRAL CONTROL SYSTEM PER CONSTRUCTION DOCUMENTS

NOTES

1. EACH CONTROL SYSTEM SATELLITE UNIT WILL CONNECT TO 1 FLOW SENSOR AND MASTER VALVE AS INDICATED
2. EACH SATELLITE UNIT WILL REQUIRE 120V. POWER
3. SATELLITE UNIT 101 WILL REQUIRE A TELEPHONE LINE CONNECTION. THIS CONNECTION WILL SERVE ALL UNITS IN THIS PHASE OF WORK.
4. SATELLITE UNIT LOCATIONS INDICATED ARE SCHEMATIC. FINAL LOCATIONS AND SPECIFICATIONS WILL BE INDICATED IN THE CONSTRUCTION DOCUMENTS FOR EACH PHASE OF WORK.

IRRIGATION CONTROL



First Neighborhood Controllers

IRRIGATION CONTROL SYSTEM

Area	MV No.	Description	Satellite Unit
Yellow	MV-1A	UNIVERSITY BLVD NO.	101
Red	MV-1B	UNIVERSITY BLVD SO.	102
Blue	MV-2A	APERTURE PARK & POOL	201
Green	MV-3A	INNOVATION PARK GREENWAY	301
Pink	MV-3B	CRICK CROSSING	302
Orange	MV-3C	INNOVATION PARK GREENWAY	303
Orange	MV-3D	INNOVATION PARK STREETScape	303
Purple	MV-4A	INNOVATION PARK GREENWAY	401
Red	MV-4B	EASTMAN CROSSING	402
Yellow	MV-4C	INNOVATION PK. PARK & POND	403
Grey	MV-5A	MONTAGE PARK	501
Blue	MV-5B	MONTAGE PARK	502
Purple	MV-6A	PORTRAIT PARK	601
Purple	MV-6B	FIRST NEIGHBORHOOD STREETS	601
Orange	MV-7A	VIGNETTE PARK	701
Orange	MV-7B	FIRST NEIGHBORHOOD STREETS	701

LEGEND

- MASTER VALVE AND FLOW SENSOR ASSEMBLY. SEE IRRIGATION PLANS FOR EXACT LOCATION AND DETAILING.
- IRRIGATION CONTROL SYSTEM SATELLITE UNIT CENTRAL CONTROL SYSTEM PER CONSTRUCTION DOCUMENTS

NOTES

1. EACH CONTROL SYSTEM SATELLITE UNIT WILL CONNECT TO 1 FLOW SENSOR AND MASTER VALVE AS INDICATED.
2. EACH SATELLITE UNIT WILL REQUIRE 120V. POWER.
3. SATELLITE UNIT 101 WILL REQUIRE A TELEPHONE LINE CONNECTION. THIS CONNECTION WILL SERVE ALL UNITS IN THIS PHASE OF WORK.
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Section 6

Streetscape Lighting



LIGHTING INTENT

Intent

Vision is vital to the safe and efficient movement of traffic on streets. During hours of darkness, dusk, and sometimes inclement weather, all traffic—motorists, cyclists, pedestrians—will rely on light provided by fixed roadway lighting systems to enhance vision and visibility. This roadway lighting will have secondary benefits as well, including user comfort and sense of security, crime deterrence and aid to law enforcement, and helping to create a nighttime visual identity for the lit areas.

On the flipside, nighttime roadway lighting has the potential to cause the undesirable effects of light pollution and light trespass, and glare. Lighting systems consume energy, and they may include components which introduce a waste stream of toxic materials such as mercury or lead in discarded lamps.

Initial lighting ownership and maintenance will fall to private entities, either the master developer or the appropriate Community Association). The intent, however, is to transfer ownership and maintenance to the City of Albuquerque and Power New Mexico (PNM) for all public street lights.

Criteria

The design of roadway lighting systems for Mesa del Sol will take into account the following concerns:

- Providing the appropriate level of lighting for each use area
- Economy of construction
- Energy efficiency (light output vs. power consumed)
- Maintenance life cycle costs
- Maintenance concerns (PNM acceptance)
- Color of light source, color rendition
- Control of light output distribution (full cut-off optics)
- Environmental impacts of products and materials
- Aesthetics of poles and fixtures
- Relation of street lighting and traffic signal poles
- City of Albuquerque DPM requirements for residential lighting

ILLUMINATION LEVELS

Boulevards & Avenues

The Mesa del Sol Level B Master Plan sets maximum allowable light levels and maximum light mounting heights for the different lighting zones in the development. In general, the Master Plan sets a 5.0 footcandle maximum for streets and requires all street lighting to be full-cutoff, as is required by state law. It recommends a 25 foot maximum mounting height for residential streets. In addition, it specifies a 15 foot maximum mounting height for pedestrian lighting in all areas.

Whereas the primary means to limit overall system energy consumption is to limit the overall illumination level, such an effort should be balanced with selecting an appropriate level of illumination for the purposes described at the outset.

To achieve the transition in light levels illustrated on the preceding pages, recommended illumination levels and ratios are shown in the table below.

Collectors and Locals





These lighting levels and uniformity ratios are in general conformance with the guidelines contained in *An Informational Guide for Roadway Lighting* published by AASHTO in 1984. While these levels may be used as the design criteria for the final roadway lighting system, it is recognized that it may not be possible to meet these criteria in every area and that some flexibility and discretion should be allowed. This will be the case particularly along the collectors, where the lighting layout will be dictated largely by the layout of the roads and individual properties, especially the residential properties where avoiding light trespass is necessary. Within the residential areas, intersections should be lit for safety, but the local roads will not need continuous lighting. no minimum illumination level nor uniformity ratio for the local streets is indicated, as there will be points of zero illumination and thus no defined uniformity.

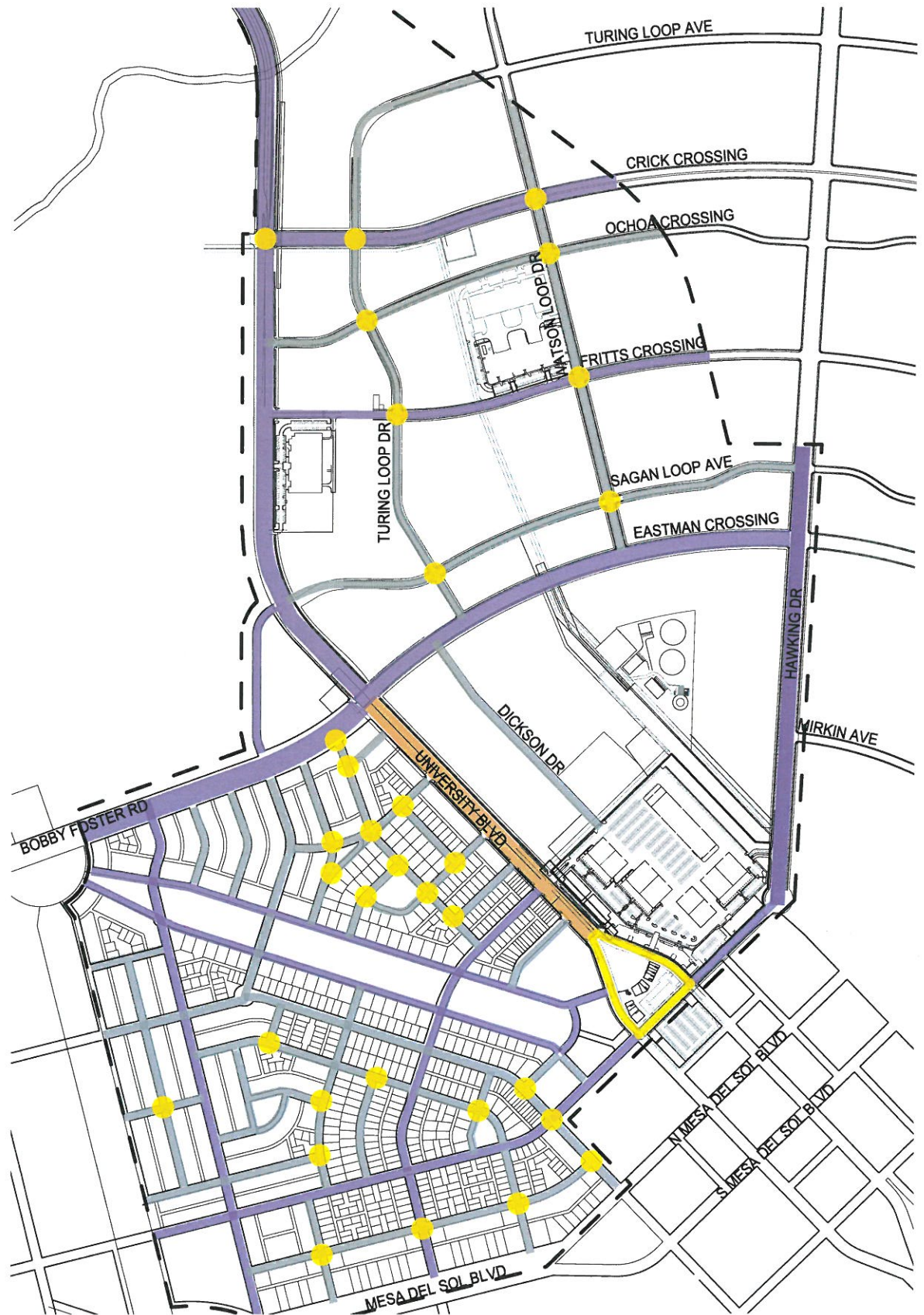
Area	Min	Avg	Max	Avg:Min
University Boulevard, north of Bobby Foster Road	0.2	0.9	3.0	5:1
University Boulevard, Bobby Foster Road to Community Center	0.3	1.2	4.0	4:1
University Boulevard, within Community Center	0.5	1.5	5.0	3:1
Connectors	0.2	0.8	3.0	6:1

LIGHTING APPROACH

Mesa del Sol will use a conservation-minded approach to public lighting. The lighting plan seeks to provide adequate light levels for safety and security, while preserving views of the night sky so that residents and visitors can experience connection with the natural environment. Keeping light levels as low as reasonable is also critical to the ongoing work of the nearby Starfire Optical Range.

Light levels will correspond with the street hierarchy established in this document. Local streets, in Neighborhood 1 and Innovation Park, will be lit only at intersections. Avenues and Connectors will be lit at low levels along their length. Higher levels of lighting, indicated on the diagram as 'medium' and 'high', will be used only along the main entry roadway, University Boulevard, and within the Town Center.

-  High
-  Medium
-  Low
-  No Lighting
-  Lighted Intersection
-  Initial Development



LIGHTING LAYOUT

Light spacing varies by roadway type and adjacent use. While light is intended to fall at generally even intervals, such as 200' on-center, lights on any individual block will be adjusted to allow for curb cuts, sight triangles, and other individual roadway features. For example, one block may see lights spaced at 197' on-center, while the next block may be 203' on-center.

Innovation Park

Street lights are spaced at approximately 200' on-center. On unlit streets, lights will be placed on one corner of the intersection (location to be determined with more advanced engineering).







University Blvd.

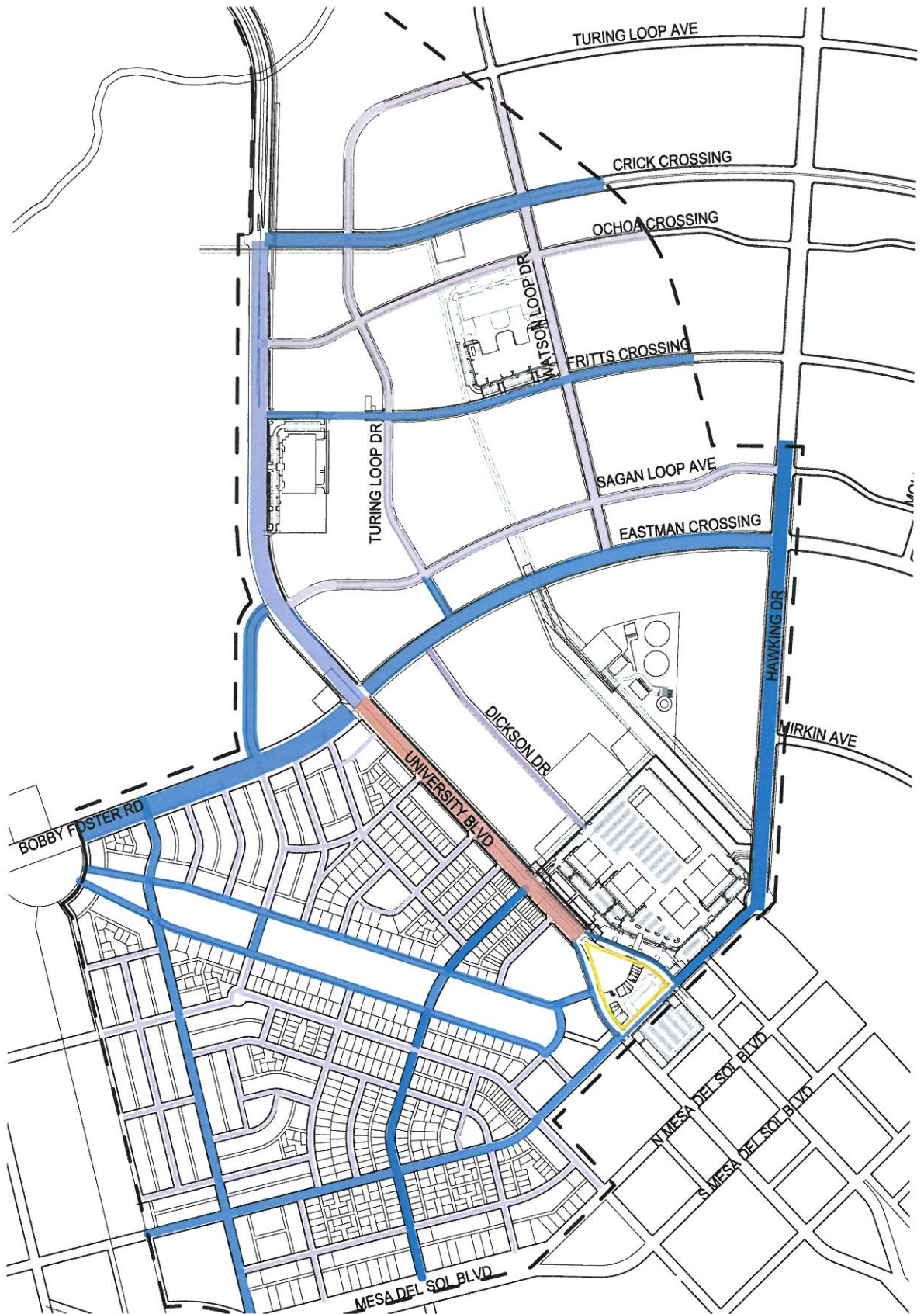
Lights are spaced at 130' on-center north of the Bobby Foster intersection, and 110' on-center south of the intersection.

Residential & Community Center

Street lights are located on the northeast corner of intersections. If the distance between intersections is greater than 500', the distance will be evenly divided by a street light at the midpoint of this distance.

Pedestrian lights are spaced at 60' on-center within the Community Center.

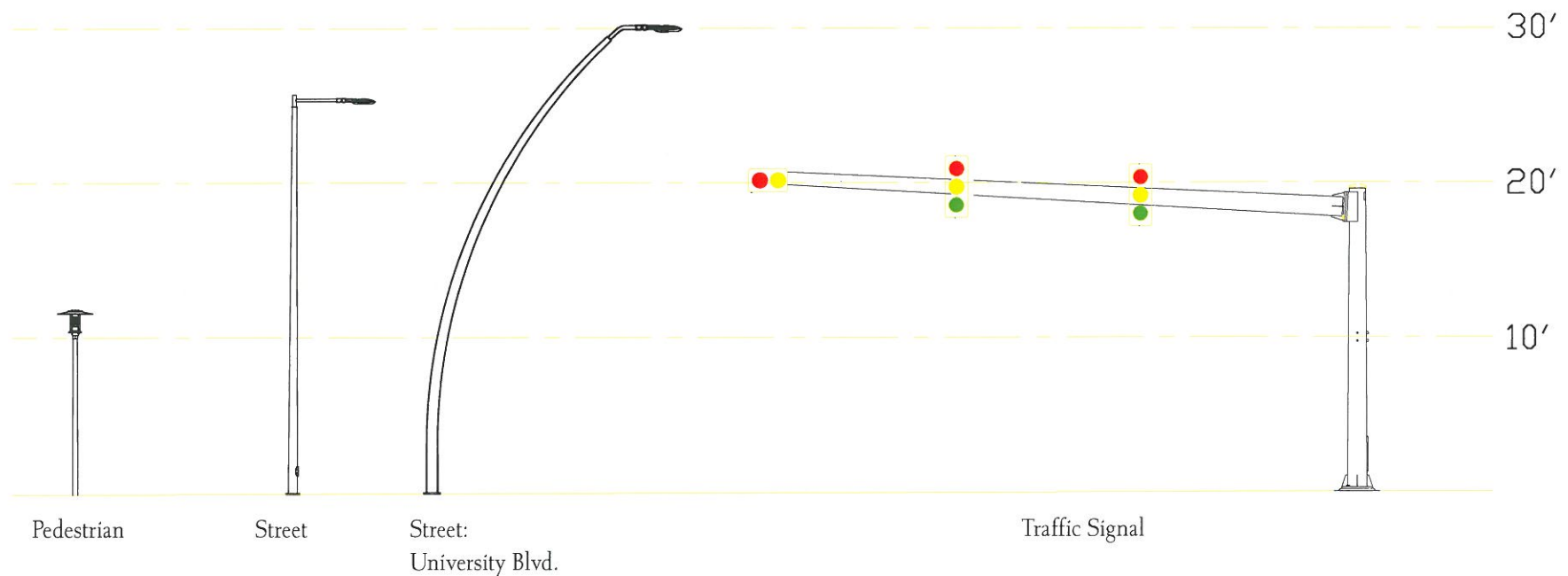
-  130' o.c. (both sides, facing)
-  110' o.c. (both sides, facing)
-  200' o.c. (one side)
-  Lit at intersections only
-  Pedestrian lights, 60' o.c.
-  Initial Development



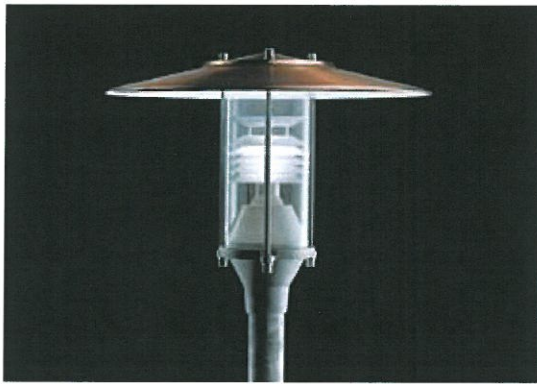
LIGHTING FAMILY & PERFORMANCE REQUIREMENTS

To achieve the goals set forth for the performance of the lighting system, the design team evaluated conventional fixtures as well as new technologies. After evaluating manufacturers' performance data for a range of products, The Edge fixture from Betal lighting was selected for installed performance testing on-site at Mesa del Sol. Evaluation of the fixture performance is on-going, but results thus far validate the selection of this fixture as the basis of design for street lighting in Mesa del Sol. The performance characteristics of this fixture are described at right.

Performance Characteristic	Specification
Light Source	Light Emitting Diode
Wattage	as shown on the construction plans for total system wattage including driver loss
Efficacy	80 Lumens per Watt minimum
Driver	Electronic, 100-277 VAC @ 50-60 Hz, auto-sensing
Power Factor	90% minimum
Operating Temperature	-40° F to +170° F
Restrike Time	1 second maximum
Color Rendition Index	70 minimum
Light Distribution	IESNA Type 3 and Type 5, Full Cutoff Provide independent photometric test report (.ies) Compliance with §74-12 NMSA 1978
Safety	Tested and Listed by UL, ETL, CSA or other independent agency for compliance with NFPA 70, NEC including listing for wet locations
Environmental	Contains no mercury or lead
Warranty	Repair or replace defective parts including LEDs, driver, and housing for 5 years Guarantee less than 30% lumen depreciation at 50,000 hours



PEDESTRIAN LIGHTS



Use: Phase I, as indicated on map

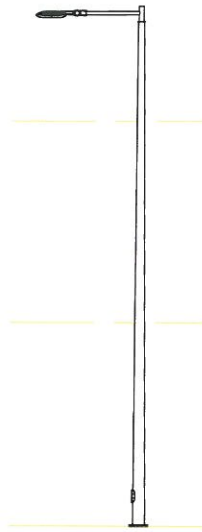
Pole & Luminaire:

Lumec
640 Boulevard Curé-Boivin
Boisbriand, QC, Canada
J7G 2A7
450.430.7040
www.lumec.com

Special Note:

Pedestrian lights must comply with Level B Plans, and maximize cutoff of upward light; LED luminaires are strongly preferred. Selection of pedestrian lights remains an open issue as of the publication of this document; further evaluation of other alternatives will take place as design progresses.

STREET LIGHTS



Use: Hardscaped Areas

Pole:

Beta
www.beta-lighting.com
800.236.6800

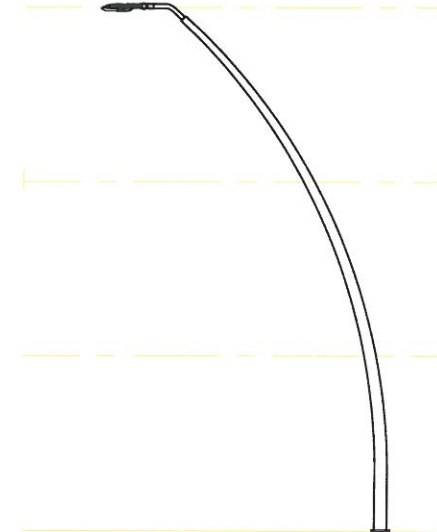
round tapered pole
medium bronze
25'

Luminaire:

Beta
www.betalcd.com
800.236.6800

'The Edge'
medium bronze

UNIVERSITY BLVD.



Use: University Blvd.
Mesa del Sol Blvd.

Pole:

Beta
www.beta-lighting.com
800.236.6800

special arc pole
medium bronze
30'

Luminaire:

Beta
www.betalcd.com
800.236.6800

'The Edge'
medium bronze

STREET LIGHTS: SIGNALIZED INTERSECTIONS



Signal pole assembly will be a custom fabrication, and will look similar but not identical to the picture above. Signal arm will include horizontally mounted traffic signals, street name sign, street light and traffic camera.

Use: University Blvd
Mesa del Sol Blvd

Pole: to be determined

Luminaire: Beta
www.betaled.com
800.236.6800

'The Edge'
tan powdercoat

Section 7

Signage & Wayfinding



SIGNAGE INTENT

Art, Signage & Wayfinding Components

The Level B Plan established a General Sign Code criteria that is more restrictive than the current City of Albuquerque sign code. As a city approved document, the Level B plan supercedes the City of Albuquerque sign code.

Purpose

The purpose of the signage master plan is to provide design compatibility for all signs and graphic elements and to integrate the signs with the architectural features, landscape design and natural environment. The signage master plan was developed to prevent or control visual clutter that distracts or otherwise inhibits safety and can detract from the sense of place.

Intent

The signage master plan provides a comprehensive sign program which is intended to encourage flexible signage that is appropriate to the character of the development (site, center, area), provide adequate identification and information, provide a (good) visual environment, promote traffic safety, encourage pedestrian traffic and create a unified information system.

Criteria

The proposed signage master plan exceeds most current standards for compliance, accessibility and legibility by establishing a holistic approach to the master plan so that all components work together harmoniously. The program incorporates current best practices of the environmental graphics industry for sign placement, sign visibility, font legibility and systems design.

Signage Program Function

The signage program is programmed to address the needs of both vehicular and pedestrian traffic.

Vehicular traffic is guided through the use of vehicular directional signs, traffic regulatory signs and street name signs.

Pedestrian and bicycle traffic is directed along pathways and public spaces to public amenities, parks, open space and a trail system.

Information Signage. A system of educational and information components are used to provide information on sustainable amenities, public events, trail information, historical and thematic interest.

FABRICATION, INSTALLATION & MAINTENANCE

Sign Fabrication

The program has been developed consistent with Mesa del Sol's growth plan, providing flexibility, durability, expandability and efficiency. Traffic and regulatory signage has been designed utilizing fabrication techniques compatible with the City of Albuquerque established vendors. The signage program will be fabricated and installed by both project fabricator and City of Albuquerque vendors.

Signage Maintenance

Any signage which is not a part of traffic and regulatory signage (traffic signage, regulatory signage and street name signs) will be maintained by the Homeowner's Association (HOA). Warranty will be provided by the preferred fabricator for a duration, yet to be determined.

Sign Code Standard

A comprehensive sign code standard is being developed which addresses all regulations for commercial signage within the site. The sign code ordinance is more restrictive than the City of Albuquerque Sign Code. All regulations are upheld and enforced by the Architectural Review Committee.

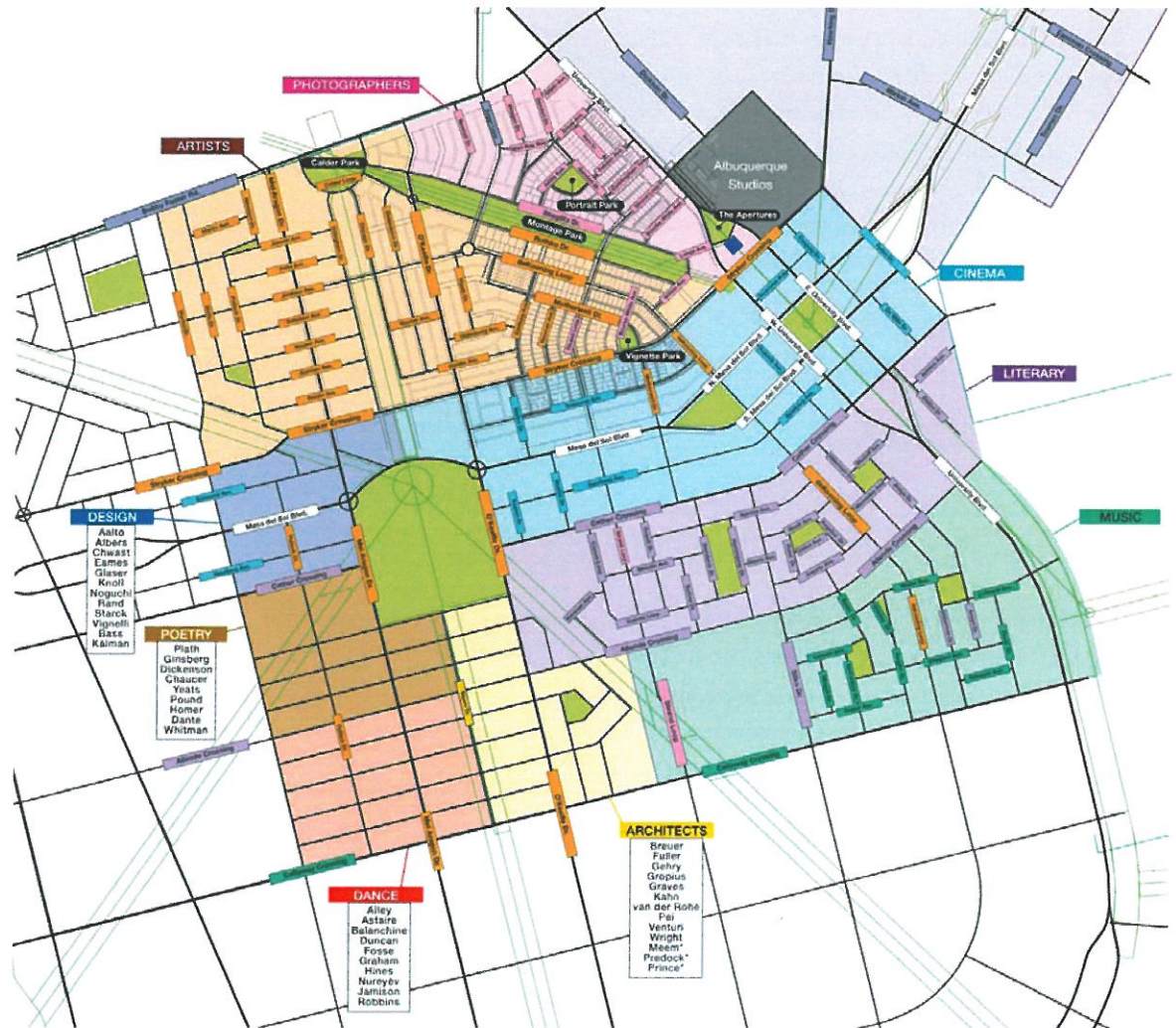
APPROACH & THEMING

Design Approach

The system is designed to be integrated into the landscape and architecture, incorporating pedestrian scale with lower profile components and imbedded graphics. An information system that provides educational information about sustainable features, and historical or conceptual significance, to reinforce a unique sense of place.

Thematic Overlay

The signage master plan distinguishes the industrial, commercial, community and neighborhoods using a thematic overlay. Innovation Park incorporates innovation and invention in the street naming system. Aperture Plaza was inspired by the theme of creativity & expression. Park naming and street naming within this area reflects the names of artists, photographers, painters, directors, writers as well as other creative disciplines.



First Neighborhood Theming

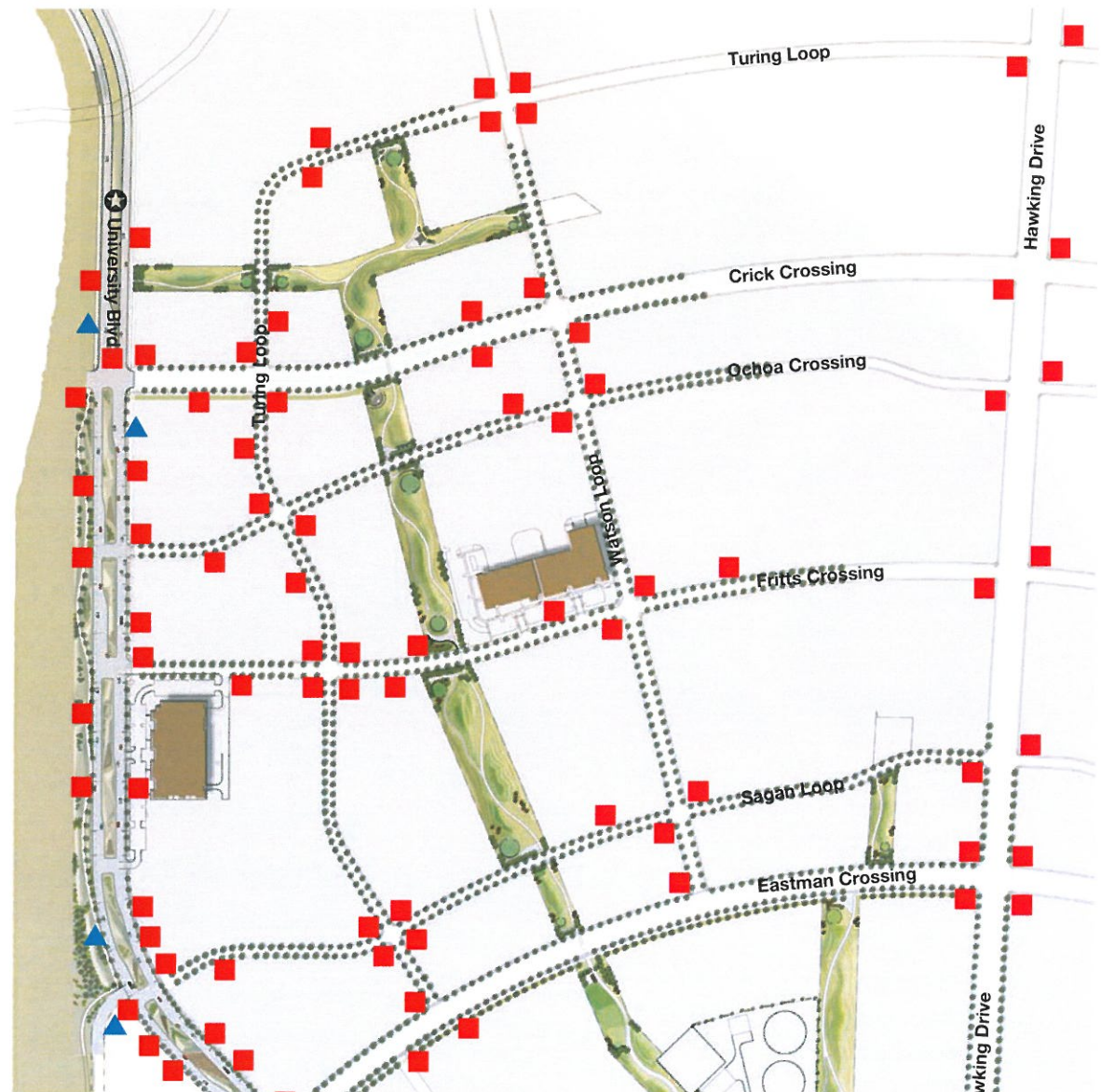
VEHICULAR WAYFINDING

Entry Monument Art

Entry Monuments are freestanding art components. They are located at the primary entrances to the site, within the median, or adjacent to the roadway. The components serve to identify the overall site. They are illuminated and planned to utilize solar technology. The components are planned to be approx. 20' wide by 5' tall, using architecturally compatible materials that are integrated into the landscape.

Vehicular Directional

Vehicular directional signs are single pole, freestanding sign components. They are located adjacent to the roadway, and/or median. The components will be fabricated per the MUTCD requirements for legibility. It is intended that the design will incorporate a flexible, changeable system using a modified post and panel construction. The signs will be a low profile, approximately, 4' wide by 4-5' tall. Signs will not be illuminated but will use MUTCD reflective lettering.



Vehicular Wayfinding: Innovation Park

Vehicular Wayfinding

- ★ Entry Monument
- ▲ Vehicular Directional
- Traffic Regulatory

Traffic Regulatory

Traffic regulatory signs are freestanding sign components. They are located adjacent to the roadway and/or median. The components will be fabricated per the MUTCD requirements for traffic and regulatory signage, using custom U channel, powder coated poles. Some components will be mounted to proposed light poles, where applicable. Types of signs include stop, yield, speed limit, parking, etc.



Vehicular Wayfinding: First Neighborhood

- Vehicular Wayfinding**
- ★ Entry Monument
- ▲ Vehicular Directional
- Traffic Regulatory

REGULATORY SIGNAGE

Pedestrian Safety

Pedestrian safety signs are single pole, freestanding sign components. They are located adjacent to the roadway and/or median. The components will be fabricated per the MUTCD requirements for traffic and regulatory signage, using custom U channel, powder coated poles. Some components will be mounted to proposed light poles, where applicable. Types of signs include pedestrian crossing, bicycle lane, etc.







Street Name Signs (freestanding & traffic light armature mounted)

Street name signs are freestanding sign components. They are located at intersection of streets and placed adjacent to the roadway and/or median. The components will be fabricated per the MUTCD requirements for legibility, but will deviate from the City of Albuquerque standard. The design will incorporate requirements per the MUTCD, on legibility, but will utilize a custom shape, font and color. The design may include a custom 'topper' detail, to be determined. In most cases, the signs will be mounted to U channel, powder coated poles, but in some cases, the signs will have custom poles or mounting technique, to be determined. Sign will never be mounted to existing poles, but will have a designated pole, and/or be combined with traffic and regulatory signs.



Pedestrian Wayfinding: Innovation Park

Pedestrian Wayfinding

-  Pedestrian Safety
-  Street Name Signs
-  Park Identification
-  Information Signs
-  Trail Markers
-  Light Poles

Street Name Signs (embedded plaques)

Embedded street name plaques to be located at intersections of streets, adjacent to accessible ramps. Signs intended to include a precast concrete or stamped method of fabrication, and be embedded directly into the pavement, flush with the surface.

Park Identification

Park identification signs to be located at strategic locations adjacent to pedestrian entrances. Signs to be designed at a later date. Design considerations include possible embedding park name graphics into pavement surface, freestanding signs and/or some other graphic treatment.

Information Signs

Information signs to be fabricated using high quality, durable materials appropriate for outdoor use. Information signs to provide descriptive text (didactic) information within public areas. Signs to be integrated into the landscape where appropriate, and freestanding.







Trail Markers

Trail markers to be fabricated using high quality, durable materials appropriate for outdoor use. Markers to be located adjacent to pedestrian paths. Signs to be integrated into the landscape where appropriate. Types of signs could include mile markers, bicycle lane indicators, running path markers, end of trail markers, etc.



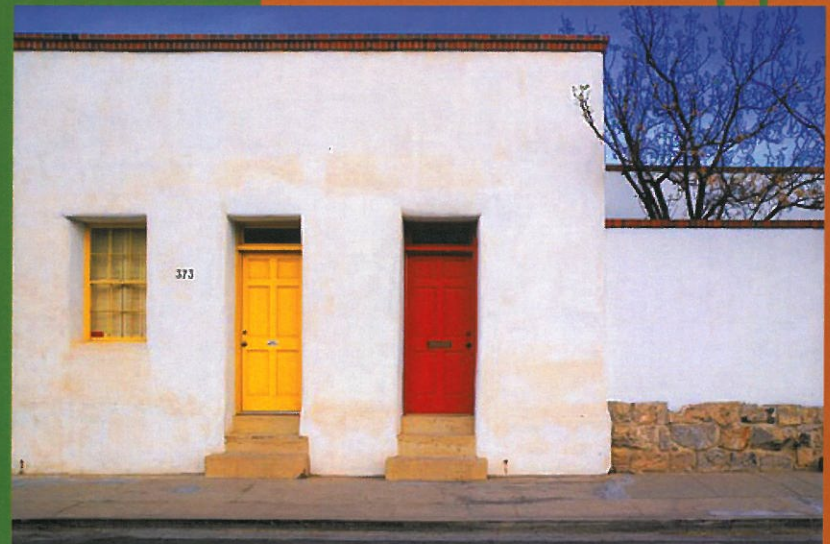
Pedestrian Wayfinding: First Neighborhood

Pedestrian Wayfinding

-  Pedestrian Safety
-  Street Name Signs
-  Park Identification
-  Information Signs
-  Trail Markers
-  Light Poles

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Appendices



APPENDIX A:

GLOSSARY OF TERMS

AASHTO: American Association of State Highway and Transportation Officials

ABQ Ride: City of Albuquerque transit agency providing public transportation alternatives to the single occupant vehicle.

Level A Plan: Required by the City of Albuquerque's Planned Community Criteria (PCC, see below), a Level A Plan provides large-scale vision and planning for new developments. The Level A Plan encompasses the whole of a planned development.

Level B Plan: Required by the City of Albuquerque's Planned Community Criteria (PCC, see below), a Level B Plan provides area-specific planning for a specifically defined phase of a new development. A planned community is likely to have several Level B plans that correspond with development phases of a project.

New Urbanism (New Urbanist): A planning and design approach that emphasizes walkability and economic and environmental sustainability. New urbanism supports a regional approach to planning, appropriate architecture, and the balanced development of jobs and housing. New urbanism seeks to reduce traffic congestion, increase the supply of affordable housing, and rein in urban sprawl. Also known as traditional neighborhood design and neotraditional design.

PCC: Planned Community Criteria. This document is part of the City of Albuquerque's Comprehensive Plan vision for guiding the development. The PCC contains design and development policies and establishes organizing principles and submittal requirements for land use, open space and infrastructure planning of integrated new communities.

Right-of-Way: the land used for the construction of public infrastructure, such as roadways. A roadway right-of-way generally includes all improvements between the outside curbs of the street, as well as the land used for street landscaping and pedestrian sidewalks. Medians, if present, are included in the right-of-way.

ROW: see Right-of-Way

Sight Triangle: the area behind the curb, at an intersection of roadways, that must remain free of objects that would impede a motorist's view of oncoming traffic on the intersecting roadway. Obstructing objects are generally defined as objects between 36" and 96" in height. The horizontal parameters of the sight triangle vary with the speed and geometry of the roadways in question.

Streetscape: the amenity zone behind the curb of a roadway. Streetscape may include such items as trees, shrubs, perennial plantings, sidewalk, bike racks, benches, bus stops and similar items.

Street Tree Planting Zone: the area between the back of curb and edge of sidewalk. This area is usually included in the public right-of-way.

Underplanting: plant materials such as shrubs, grasses and perennials that are used to enhance the street tree planting zone.

APPENDIX B: REFERENCE STANDARDS

Green Building:	US Green Building Council	www.usgbc.org
Irrigation:	Irrigation Association	www.irrigation.org
Lighting:	<i>An Informational Guide for Roadway Lighting (1984, AASHTO)</i>	
Mid-Block Crossings:	<i>Guide for the Planning, Design and Operation of Pedestrian Facilities (2004, AASHTO)</i>	
Native Plantings:	Rio Grande Growers Association Xeriscape Council of New Mexico	www.SVEDC.com/RGGA www.xeriscapenm.com
Urban Forestry:	City of Albuquerque	www.cabq.gov/sustainability/green-goals/trees/urban-forestry

APPENDIX C:

MESA DEL SOL MASTER SIDEWALK AGREEMENT

THIS MESA DEL SOL MASTER SIDEWALK AGREEMENT (“Agreement”) is entered into as of the ___ day of _____, 200_, by and between MESA DEL SOL, LLC, a New Mexico limited liability company (“Mesa”) and the CITY OF ALBUQUERQUE, a New Mexico municipal corporation (the “City”).

BACKGROUND INFORMATION:

- A. Mesa is the developer of the Mesa del Sol mixed use development (the “Project”) as regulated by the Mesa del Sol Level “A” Plan (the “Level A Plan”) and the Phase I Level “B” Plan (the “Level B Plan”) for the ±3,000 acres of the Project defined in Exhibit “A” (the “Level B Property”).
- B. The Level A Plan establishes certain principles for the development of the Project including certain concepts of “new urbanism” to encourage an inviting pedestrian environment.
- C. The Level B Plan in its description of Mixed Use Centers, specifically provides that “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. In order to ensure that the sidewalks within, and on both sides of the streets adjacent to, Mixed Use Centers are actively used spaces, Mesa, and the owners of the adjacent properties must have the right to use sidewalks for these activities.

NOW THEREFORE, the parties agree as follows:

1. **Applicability.** The terms of this Agreement shall apply to the portions of the Level B Property which: (a) are located within a Mixed Use Area, as that term is defined in the Level B Plan, or on both sides of a street which forms a boundary between a Mixed Use Area and any other development district within the Level B Property, (b) are within the portion of the right-of-way between the back of the curb and the property line (the “Outside-of-Curb-Area”) and (c) is within a public right-of-way dedicated to the City by a plat which expressly makes the public rights-of-way subject to this Agreement.

2. **Minimum Clearance.** The Outside-of-Curb-Area shall be developed with a Sidewalk, as that term is defined in the City’s Sidewalk, Drive Pad, Curb and Gutter Ordinance (the “Sidewalk”). All Sidewalks shall at all times provide for a suitable corridor for the passage of pedestrians which meets the following standards:
 - (a) The Sidewalk shall be improved with a solid walking surface, which may include, but is not limited to concrete, brick, rock, wood, or other suitable building material;
 - (b) The Sidewalk shall have an unobstructed width of at least eight feet (8’) and shall have a height clearance of at least eight feet (8’) which path may vary from time to time;
 - (c) The Sidewalk shall satisfy the requirements of the American with Disabilities Act; and
 - (d) The Sidewalk may be located outside of the right-of-way, but, if so, it shall require the granting of a sidewalk easement in a form acceptable to the City, which sidewalk easement shall be subject to the terms of this Agreement.

3. Permitted Uses. The portions of the Outside-of-Curb-Area not used for the Sidewalk, from time to time, are reserved for the use by the Benefited Owner for the installation and maintenance of active or passive uses which may include, but are not limited to, kiosks, seating, receptacles, bicycle stands, outdoor retail activity, outside dining, including consumption of alcoholic beverages for "on site consumption", news stands, street art, signage, columns, shade structures, planter pots, landscaping enhancements, site furnishings and street vendors. In addition, the Benefited Owner, at its expense, shall have the right, from time to time, to relocate the Sidewalk within the Outside-of-Curb-Area provided the Sidewalk, as relocated, satisfies the conditions set forth in Paragraph 2 above. The Benefited Owner may, during periods of construction and reconstruction occurring within the Outside-of-Curb-Area, temporarily close the Sidewalk in order to meet OSHA and other safety requirements.

4. Maintenance. All of the Outside-of-Curb-Area shall be maintained by the Benefited Owner. The Benefited Owner of the Outside-of-Curb-Area shall have no obligation to pay any encroachment, or other use, fees.

5. Insurance. During the term of this Agreement, the Benefited Owner shall obtain and maintain liability insurance in an amount of not less than \$1,000,000.00 combined single limit for accidents or occurrences which cause bodily injury, death or property damage to any member of the public caused by or related to the construction, installation, operation, maintenance, replacement, removal or other activity related to the Benefited Owner's use of the Outside-of-Curb-Area. The insurance policy shall name the City of Albuquerque, its employees and elected officials, as their interest may appear, as additional insured. Any cancellation provision must provide that if the policy is canceled during the term of this Agreement, materially changed or not renewed, the issuing company will mail thirty (30) days written notice to the City, Attn. Risk Management. A certificate of insurance in compliance with the above must be furnished to the City prior to use of the Outside-of-Curb-Area.

6. Indemnity/Liability. At all times, the Benefited Owner shall defend, indemnify and save harmless the City, its officers, agents and employees against all claims, demands, damages and causes of action which results from or arises out of the Benefited Owner's use of this Outside-of-Curb-Area, including any loss, damage or expense arising out of loss of or damage to property, injury to or death of persons, or mechanics' or other liens of any character, or taxes or assessments of any kind, except to the extent or degree that the City itself is found contributorily negligent. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees proscribed thereby.

7. Benefited Owner. The term "Benefited Owner" shall mean Mesa with respect to the Level B Property, and the successor owners of the portions of the Level B Property adjacent to applicable portions of the Outside-of-Curb-Area. The Beneficial Owners' rights pursuant to this Agreement may be assigned to a duly constituted association of property owners, but such assignment shall not relieve the Benefited Owners of its obligations hereunder.

8. Approval. This Agreement shall not be effective until approved by the City Engineer for the City in the signature block below.

Executed as of the day and year first set out above.

MESA DEL SOL, LLC, a
New Mexico limited liability company

By: FC Covington Manager, LLC, a New Mexico
limited liability company, Member

By: FC Mesa, Inc., a New Mexico
corporation, Member

By:

APPROVED

Richard Dourte, City Engineer
Dated

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on the ___ day of _____, 2007, by _____, President of FC Mesa, Inc., a New Mexico corporation, Member, of FC Covington Manager, LLC, a New Mexico limited liability company, Member of Mesa del Sol, LLC, a New Mexico limited liability company.

Notary Public

My Commission Expires: _____

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Richard Dourte, City Engineer

Dated

STATE OF NEW MEXICO)

)ss.

COUNTY OF BERNALILLO)

This instrument was acknowledged before me on the ___ day of _____, 2007, by _____, President of FC Mesa, Inc., a New Mexico corporation, Member, of FC Covington Manager, LLC, a New Mexico limited liability company, Member of Mesa del Sol, LLC, a New Mexico limited liability company.

Notary Public

My Commission Expires: _____

APPENDIX D: UNIVERSITY BOULEVARD MAINTENANCE AGREEMENT TEMPLATE

(Form A)
STREETSCAPE
GIFT AND FREE WORK AGREEMENT

THIS AGREEMENT is made and entered into this _____ day of _____, _____, by and between the City of Albuquerque, a New Mexico municipal corporation ("City"), P.O. Box 1293, Albuquerque, New Mexico 87103 and MESA DEL SOL, LLC, a New Mexico limited liability company ("Owner"), whose address is 801 University Blvd., Albuquerque, New Mexico 87106 and whose phone number is 505-400-3021.

WHEREAS, in consideration of both limited City finances and public desire for an enhanced living environment, the City welcomes support from civic entities and individuals for the development, improvement and/or maintenance of City parks, medians and streets at the expense of such groups and individuals;

WHEREAS, such development, improvement or maintenance promotes the general welfare by aesthetically improving City parks, medians and streets and by enhancing their use; and

WHEREAS, the landscaping on the property will be installed by Owner and will be continuously maintained by the owners; and

WHEREAS, Owner is currently developing certain lands within Bernalillo County known as (See Exhibit C) ("the Property"); and

WHEREAS, Owner desires to "adopt" a park, median or streetscape by donating and providing certain installations and/or personal services to the City without charge to the City; and

WHEREAS, the City wishes to accept the offer of the Owner.

NOW THEREFORE, the parties agree:

I. Work on Public Property Authorized

A. Public Property Subject to this Agreement. The parties hereto agree that the services to be performed pursuant to this Agreement relate to the following described property, hereinafter referred to as "Public Property":

<Description of location and improvements.>

B. Authorization for Work on Public Property.

1. Permission Granted. The City grants permission to Owner to landscape, beautify and maintain the Public Property, subject to the terms and conditions of this Agreement. Owner is allowed access to the Public Property by the City for the purpose of a) installing landscaping and appurtenant fixtures ("Streetscape"), if, and to the extent described below, and b) for maintaining the Streetscape or Public Property as described herein.
2. Guidelines, Standards Adopted. Owner agrees to install the Streetscape and/or maintain the Public Property, as indicated in this Agreement, in accordance with applicable ordinances, laws and regulations and with the following specific guidelines and standards (together "Maintenance Standards"), the contents of which are incorporated herein by reference:
 - a) "Maintenance Standards for Parks/Streetscapes", latest edition; and
 - b) "Traffic Controls for Streets and Highway Construction and Maintenance", Section 6F-3 of Part 6, Manual on Uniform Traffic Control Devices, latest edition, hereinafter called "Uniform Traffic Control Manual". A copy of I.B.2 a) and b) has been provided to Owner.

II. Improvements and Work

If indicated below, Owner will provide the following installations and/or work on the Public Property:

A. Installation of Improvements. This Section II.A. applies to this Agreement only if "Applicable" is checked below:

Applicable Not Applicable

1. Streetscape Plan, Approvals. Owner, at its sole expense, has developed a Streetscape plan for the Public Property, which is detailed in City Project # _____ and/or attached hereto as Exhibit A ("Plan") and is incorporated in this Agreement. The Plan will be approved by the City's Design Review Committee ("DRC") and the City's Streetscape Committee unless waived in writing by the Chairman of the DRC. The Plan includes the installation of all required plant materials and irrigation systems. The Owner will not be bound by the Plan requirements until this Agreement has been signed.

2. **Contractors.** In order to complete the Plan, if the DRC or the Parks and Recreation Department requires specific work to be done by licensed contractors or other licensed professionals and either so states in writing which is delivered to the Owner before or at the time of Plan approval by the DRC, then, following Owner's execution of this Agreement, Owner will enter into such contracts with licensed contractors or subcontractors (including engineers and architects) as may be necessary to perform the specified work. All engineers, architects, contractors and subcontractors utilized by Owner must be properly licensed by the State of New Mexico and the City. Owner will obtain all required permits or cause them to be obtained. Owner will require all Contractors to provide performance bonds and labor and materials bonds to assure satisfactory completion of the work and will deliver copies to the City.
3. **Notice to the City When Work Begins, Completion Date.** Owner will notify the Director of Parks and Recreation or his or her designee when work begins on constructing or installing the Streetscape according to the Plan ("Development"). The Development work will be completed no later than _____, _____ ("Completion Deadline").
4. **Drawings, Documents.** Owner will deliver, or have delivered to the City copies of any written guarantees issued as a result of development according to the Plan and will deliver to the City copies of all other related documents reasonably requested by the City, including a set of record-reproducible drawings, all without charge to the City.
5. **Inspections, Correction of Deficiencies.** The City has the right to make periodic inspections of the Streetscape during development, as the City deems necessary. After each inspection, the City will indicate in writing its approval or disapproval of the Owner's work and improvements. If any part of the work or improvements does not conform to the Plan, the Owner, at the Owner's sole expense, will make, or cause to be made changes necessary to remedy the deficiency. The City will not be responsible for construction means, methods, techniques, sequences or procedures.
6. **Owner to Supervise.** The City does not have the right to control the course of performance of Owner or any contractors or subcontractors of Owner. The contractors, subcontractors or Owner will not be, for any purpose whatsoever, agents, employees or independent contractors of the City, but will be under the control and/or employment of Owner.
7. **Utilities.** Owner will pay the cost of installation of any water or electric meter or meters as is necessary for the development of the Streetscape according to the Plan, and will pay for the cost of any water or electricity utilized during any Owner Maintenance Period established in Section II. B. 1 of this Agreement.

8. Inspection, Acceptance by City. After Owner completes the Development according to the Plan and notifies the City, the City will inspect the Streetscape. If the Development conforms with the accepted Plan and applicable ordinances, laws and regulations, the City will issue a written "Notice of Acceptance" to Owner. Upon the City's issuance of a Notice of Acceptance, the City will own any and all Owner improvements to the Public Property, including any utility meter or meters, although Owner will continue to keep any utility service in its name during any Maintenance Period established in this Agreement.

If the Development is not accepted by the City for any reason, the City will inform the Owner in writing, stating what problems remain which prevent the City from issuing a Notice of Acceptance. Owner will have thirty (30) days to cure. If the reasons for disapproval are not cured within thirty (30) days, the City may remove, or request the Owner to remove the Streetscape or portions thereof from the Public Property. Removal by the City or Owner will be at Owner's sole expense. The City's issuance of a Notice of Acceptance will not be withheld unreasonably.

- B. Maintenance of Public Property. This Section II. B applies to this Agreement only if "Applicable" is checked below:

Applicable Not Applicable

1. Maintenance by Owner. At its sole expense, Owner, or its assignee pursuant to Section IV(H), will maintain the Public Property and Streetscape until terminated by the City pursuant to Paragraph I ("Maintenance Period").
2. Payment of Maintenance Costs by Owner in Case of Default. If Owner desires to discontinue maintenance before the end of the Maintenance Period, Owner shall make a written request to the City unless the City is required by law or ordinance to assume Owner maintenance obligations, in which event the City shall release Owner from its obligations under this Agreement. In any event, the City will not assume maintenance until it has conducted appropriate inspections of the Public Property and Streetscape and has confirmed in writing that it will maintain the Public Property or Streetscape.
3. Maintenance to Conform to City Standards. Owner's maintenance will conform to the City park maintenance standards referred to in Section I.B.2.a, which includes watering; trimming; weeding; insect, weed and litter control; care of vegetation; and maintenance, repair and necessary replacement of any equipment, including the irrigation systems. If the maintenance standards are revised during the term of this Agreement, Owner agrees to abide by all reasonable new standards upon request by the City.
4. Notice of Noncompliance with Maintenance Standards; Reimbursement to City. If Owner's maintenance does not comply with the City maintenance standards during the Maintenance Period, the City may provide written notice to Owner of the areas of noncompliance ("Notice of Noncompliance"). If the noncompliance is not substantially cured by Owner within thirty (30) days after the date of the Notice of Noncompliance, the City may thereafter assume all Streetscape maintenance duties, at the City's expense, and/or the City may remove the Streetscape. If the City elects to remove the Streetscape, the City shall bill the Owner for the expense of the removal. Owner will repay the City for its costs within thirty (30) days of billing.

C. Repairs or Improvements by City.

1. Right of Entry to City for Repairs, Work. Owner agrees not to impede any repairs or other work on the Public Property which the City deems is necessary, such as, but not limited to, installation, repair, or replacement of water or sewer lines. The City has the right to enter the Public Property at any time and perform whatever inspection, installation, repair, modification or removal it deems appropriate without liability to Owner. If work performed by the City on the Public Property affects the landscaping or fixtures or other improvements installed by Owner, the City will not be financially or otherwise responsible for replacement, rebuilding or repair. However, the City agrees to act reasonably in performing any work. If the City chooses to replace or repair the Streetscape substantially to its original condition, Owner's maintenance obligations will continue as before.
2. Termination of Agreement if City Substantially Changes Public Property. If the City significantly changes the size or location of any median on the Public Property or makes any other change to the Public Property which renders the preservation of the Streetscape as described in the Streetscape Plan substantially impossible, then this Agreement will terminate and neither party will have any rights or obligations hereunder.
3. Termination of Agreement for a Public Hazard or Nuisance. If, in the opinion of the City Engineer, the continued maintenance and operation of the streetscape creates a public hazard to the infrastructure or creates a continued maintenance nuisance to the infrastructure, which creates an undue burden of maintenance on the City or Owner, this agreement will terminate and neither party will have any rights or obligations hereunder.

III. Recognition of Owner

In recognition of the Owner's efforts, the City, at City cost, will install a sign at the Public Property stating the name of the Owner and that the Streetscape has been installed by the Owner, or other wording requested by the Owner which is acceptable to the City. The sign will be designed and maintained by the City at the Public Property for as long as the Owner continues to comply with the terms of this Agreement. The sign will be the property of the City.

IV. Other Terms and Conditions

- A. Owner Not Employee of City. The Owner (and its members, agents, employees, contractor and subcontractors, if Owner is not an individual), is not considered an employee or agent of the City for any purpose whatsoever, and is not entitled to any benefits from the City under the provisions of the Workers' Compensation Act of the State of New Mexico or to any of the benefits granted to employees of the City under the provisions of the Merit System Ordinance as now enacted or hereafter amended.
- B. Assumption of Risk by Owner. Owner understands that performing the terms of this Agreement may involve some risk of injury to the Owner. Owner agrees to assume the risks which accompany the performance of the terms and will make no claim of any kind against the City, its agents or employees for any injuries or damages which may arise from the activities of the Owner. Owner will advise any members, agents, employees, contractor and subcontractors of Owner who will be on the Public Property of the risks, and, before such person does any work for Owner on the Streetscape, will require each such person to sign and date a copy of the Waiver attached hereto as Exhibit B. Owner will deliver all signed, original Waivers to the City Parks and Recreation Department.
- C. Supervision. The City is under no obligation to supervise Owner's performance of the terms of this Agreement, except as expressly provided in this Agreement. Owner's duty to defend and indemnify the City applies to any claim alleging the City failed to supervise Owner's actions.

D. **Indemnification.** The Owner agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of the Owner's use of the City's property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of any liability, claims, damages, losses or expenses resulting from the negligence of the City.

E. **Right of Way, Safety Procedures.** The Public Property is within the public right-of-way and will be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair. The Owner, its agents or employees, will obey all traffic regulations of the City and will follow regulations and guidelines of the City traffic engineer and park land management director relating to the safety of persons at the Public Property site, including but not limited to procedures for securing permits, standards for materials to be worn by persons working on the Public Property as specified in the Uniform Traffic Control Manual (Section I.B.2.b herein), and regulations governing installations, conditions and visibility of traffic control or warning devices. The City will not be responsible for providing or enforcing required or recommended safety precautions or programs for Owners working on the Public Property or Streetscape.

F. **ADA Compliance.** In its use of the Premises, Donor agrees to meet all applicable requirements of the American's With Disabilities Act of 1990 ("ADA"), and all applicable rules and regulations which are imposed directly on Donor or which would be imposed on the City as a public entity. Donor agrees to be responsible for knowing all applicable requirements of the ADA and to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of any acts or omissions of Donor or its agents in violation of the ADA.

G. **Insurance until Termination of Agreement.** From the date Owner begins work on the construction or installation or maintenance of the Public Property (whichever date occurs first), until termination of Owner's installation and maintenance obligations under this Agreement, the Owner will procure and maintain insurance in the kinds and amounts hereinafter required, with insurance companies authorized to do business in the State of New Mexico, covering all operations under this Agreement, whether performed by it or its employees, agents or contractors. The coverage will begin no later than the date of starting development and installation of the Streetscape, as provided to the City by the Owner to meet the requirements of Section II.A.3 of this Agreement. The Owner will furnish to the City a certificate or certificates of insurance in a form satisfactory to the City showing that it has complied with this section. All certificates of insurance will provide that thirty (30) days written notice be given to the Director, Risk Management Department, City of Albuquerque, P.O. Box 1293, Albuquerque, New Mexico 87103, before a policy is canceled, materially changed or not renewed. The kinds and amounts of insurance required are:

Comprehensive General Liability Insurance Including Automobile. Comprehensive general liability and automobile insurance policy with liability limits in amounts not less than \$1,000,000 combined single limit of liability for bodily injury, including death, and property damage in any one occurrence.

The policies of insurance must include coverage for all operations performed by the Owner, coverage for the use of all owned, non-owned, hired automobiles, vehicles and other equipment both on and off the Public Property, and contractual liability coverage which will specifically insure the hold harmless provisions of this Agreement. The City will be named an additional insured.

H. **Assignment or Subcontract.** Owner may not assign or subcontract any interest in or responsibility under this Agreement without the prior written approval of the City, except as provided herein. The City acknowledges that the Owner intends to encumber the property within Innovation Park (the "Subdivision") with covenants, conditions and restrictions (the "CC&R's"), which among other things mandate that the owners of lots within the Subdivision shall automatically be members of an incorporated association of property owners (the "POA") and shall be obligated to pay mandatory assessments to fund activities of the POA. The Owner intends to assign to the POA its rights and obligations pursuant to this Agreement. The City consents to this assignment. Upon the City being presented with a written assignment of their Agreement to the POA wherein the POA agrees to assume all of the Owner's obligations hereunder, the City agrees that the Owner shall be released of all further obligations hereunder. Upon such assignment, the term "Owner" as used herein shall mean the "POA".

I. Termination. The City may terminate this Agreement at any time for noncompliance or default of the Agreement by Owner, by giving at least thirty (30) days written notice to Owner in advance of the proposed termination date. The City may terminate this Agreement for any other reason by notifying the Owner at least sixty (60) days prior to the proposed termination date, but may terminate only if Owner's installation efforts (if any are contemplated by this Agreement) are not in progress. The Owner may terminate only in accordance with the terms of this Agreement and then only if Owner's development efforts (if any are contemplated by this Agreement) are not in progress, and if such development or maintenance has been accepted by the City as provided herein, by the Owner giving written notice to the City Chief Administrative Officer and the Parks and Recreation Director thirty (30) days in advance of the proposed termination date. If Owner is within the Maintenance Period, Owner must meet the requirements of Section II.B.2 herein.

J. Severability. If any part of this Agreement is held to be illegal, invalid or unenforceable, such holding will not affect the legality, validity or enforceability of any other part of this Agreement as long as the remainder of the Agreement is reasonably capable of completion.

K. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith. Any changes to this Agreement shall be reduced to writing and signed by both parties.

L. Wording Not Changed. The wording of this form has been approved by the City Legal Department. No changes to the form wording will be binding on the City unless the changes are approved in writing and in advance by the City Legal Department.

M. Signatures Required. This Agreement is not binding on the City until all signatures required herein have been obtained. The date of this Agreement will be the date it is signed by the City's Chief Administrative Officer.

CITY OF ALBUQUERQUE:

Chief Administrative Officer

Date:

APPROVED

Director, Parks & Recreation

Date: _____

OWNER:

Mesa del Sol, LLC, a
New Mexico limited liability company

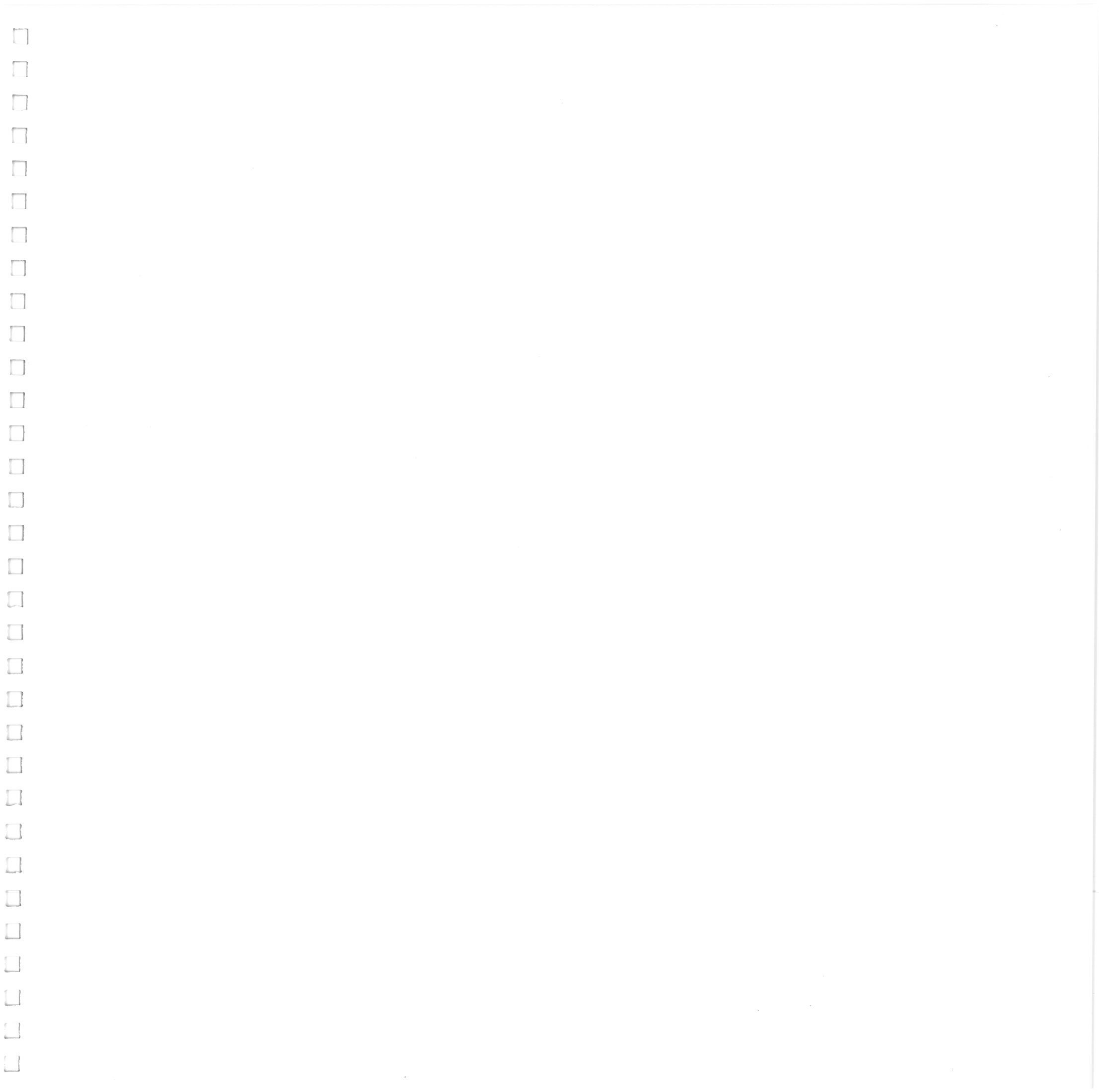
By: FC Covington Manager, LLC, a
New Mexico limited liability company, Member

By: Forest City NM, LLC, a
New Mexico limited liability company, Member

By: Forest City Commercial Group, Inc., an
Ohio corporation, Member

By:

Its:



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