



# Landscape Aesthetics Assessment and Multi-Use Opportunities Assessment



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## INTRODUCTION

**Purpose:** The purpose of this report is to document data collected in regards to landscape aesthetics and multi-use opportunities in the project area.

**Objective:** The objectives of this report is to identify ways in which landscape aesthetics and multi-use opportunities can be incorporated into existing and future flood control facilities as well as be a tool in identifying sites for future flood control facilities; provide insights into the existing character of the watershed so that flood control projects can blend with the existing landscape character and provide consistent landscape aesthetics and themes; and to evaluate existing flood control facilities and to what extent they do or do not conform to the DISTRICT's policy for aesthetic treatment and landscaping of flood control projects.

**Approach/Methodology:** The approach/methodology used for this report is based upon the United States Department of Agriculture - Agriculture Handbook Number 701 "*Landscape Aesthetics – A Handbook for Scenery Management*".

**Project Area:** The Loop 303 Corridor / White Tanks Area Drainage Master Plan Update study area is located in the northwestern portion of the Phoenix Metropolitan Area. The project area is defined by the ridgeline in the White Tanks Mountains on the west, McMicken Dam/Deer Valley Road on the north, the Agua Fria River on the east, and the Gila River on the south. The study area spans across the majority of Townships 1N-4N and Ranges 1W-3W which includes the Cities of Avondale, Buckeye, El Mirage, Glendale, Goodyear, Litchfield Park, Peoria, Sun City, and Surprise, and as well as unincorporated areas of Maricopa County. The project area is approximately 220 square miles. The entire study area lies within the jurisdiction of Maricopa County. Lands within the study area are generally privately owned with large pockets of State Land located throughout. Refer to *Figure 1.1 – Vicinity Map* located within the *Loop 303 Corridor / White Tanks ADMP Update Draft Data Collection Report* for a map identifying the location of the project.

**Report Layout:** This report is broken into three (3) main categories: Data Collection and Existing Conditions Analysis; Visual Resources Assessment; and Multi-Use Opportunities Assessment.

1. The Data Collection and Existing Conditions Analysis identifies information that was collected and reviewed and identifies what activities took place during site visits/field reconnaissance.
2. The Visual Resource Assessment identifies aesthetic features and areas of the project area that may be preserved, enhanced or improved. This section is broken out into eight (8) categories to help identify the aesthetic features and areas.
  - A. *Existing Landscape Character* – This category offers a brief narrative description of the characteristics of landform, rock formations, vegetation, and water features and cultural features which give each unit an identifiable character and sense of place.
  - B. *Scenic Quality* – This category assesses the Scenic Quality of structural, natural and cultural features in the study area taking into consideration the degree of variety or uniqueness of the features.
  - C. *Existing Visual Conditions/Visual Integrity* – This category identifies the relative visual intactness of natural and cultural features within the study area.
  - D. *Assessment of Existing DISTRICT Facilities* – This category assesses the extent to which existing flood control facilities and their related features incorporate the aesthetic treatment guidelines contained in the DISTRICT's "*Policy for Aesthetic Treatment and Landscaping of Flood Control Projects*".

- E. *Viewing Analysis* – This category offers a brief narrative describing the major views and focal points to be preserved, enhanced, and taken advantage of within and adjacent/outside the study area.
  - F. *Historic Character* – This category assesses the historic character of historic and prehistoric landscapes of the study area.
  - G. *Future Desired Landscape Character* – This category assesses the future desired landscape character by compiling developer, agency and municipal plans as well as through public sensing.
  - H. *Landscape Character Themes* – This category develops landscape character themes and aesthetic design guidelines that protect and enhance local community character and create aesthetic value.
3. The Multi-Use Opportunities Assessment identifies opportunities and limitations of integrating multiple-use functions into the study area. This section is broken out into five (5) categories to help identify the potential opportunities and limitations.
- A. *Inventory of Existing and Future Planned Land Uses* – This category inventories existing and future planned land uses, including recreation sites, open spaces, natural areas, transportation systems and nodes, and residential, commercial, educational, and employment centers, within the project area as a part of the Data Collection Phase.
  - B. *Identification of Multi-Use Opportunities* – This category briefly describes and identifies the types of multi-uses that might be appropriately incorporated into the project.
  - C. *Assessment of Existing DISTRICT Facilities for Multi-Use Potential* – This category assesses the suitability of existing DISTRICT facilities for multi-uses.
  - D. *Identification of Possible Partners and Funding Sources* – This category briefly describes possible partners and funding sources for implementation of multi-use opportunities.
  - E. *Implementation Guidelines* – This category briefly describes design standards / implementation guidelines for integration of multi-use opportunities with flood control facilities.

## LANDSCAPE AESTHETICS ASSESSMENT AND MULTI-USE OPPORTUNITIES ASSESSMENT

### 1.01 DATA COLLECTION AND EXISTING CONDITIONS ANALYSIS

#### 1.01.1 Data Collection and Review

Various information was collected and reviewed during the preparation of the Landscape / Aesthetics Assessment and Multi-use Opportunities Assessment. Information collected and reviewed included an aerial photo of the study area, general plans from the various cities and towns in the study area identifying proposed land use, site visits to collect existing land uses, proposed development plans from the various developers in the study area, a report describing the El Rio project currently being proposed adjacent to the Gila River, mapping identifying existing District facilities, District standards for flood control facilities, and cultural and biological surveys for the study area.

#### 1.01.2 Site Visits / Field Reconnaissance

Several site visits / field reconnaissance trips were made to the study area to collect data and verify information received as well as document existing site conditions. During these visits photos of the site were taken to document the study area. In addition, during these site visits the existing landscape character and existing land uses were developed. Existing District facilities were observed to determine their adherence to District policies and to determine their multi-use opportunities. Scenic quality of the

study area was observed as well as the visual integrity of the study area. Opportunities to enhance or improve public viewing were also a component considered during these site visits.

## 1.02 VISUAL RESOURCES ASSESSMENT

### 1.02.1 Existing Landscape Character

Landscape Character as defined by Agriculture Handbook Number 701 *'Landscape Aesthetics – A Handbook for Scenery Management'* is defined as an overall visual and cultural impression of landscape attributes – the physical appearance and cultural context of a landscape that gives it an identity and 'sense of place'. Landscape character gives a geographic area its visual and cultural image, and consists of the combination of physical, biological and cultural attributes that make each landscape identifiable or unique. Landscape character embodies distinct landscape attributes, such as line, form, color, and texture, which exist throughout an area.

The Phoenix Metropolitan Area, which includes the Loop 303 Corridor / White Tanks ADMP Update study area, lies within Arizona's Basin and Range geologic province. The Basin and Range province is characterized by rocky mountain ranges that alternate with desert basins as the primary landform organization. The White Tank Mountains and the Estrella Mountains, visible to the west and south respectively, are large formations characteristic of the Basin and Range province and are major landforms within and adjacent to the project area.

The study area is typically flat, sloping to the south/southeast, except for the steep slopes of the White Tank Mountains located in the western/northwestern portions of the study area. Elevations within the study area range from approximately 2,288 feet above mean sea level within the White Tanks Mountains to approximately 1375 feet above mean sea level at the intersection of Grand Avenue and Loop 303 to approximately 950 feet above mean sea level at the Agua Fria River confluence with the Gila River. Minor elevation differences within the study area provide panoramic views of distant vistas, adjacent landforms, undeveloped desert areas and urban development.



Sonoran Desertscrub

Two vegetation communities, the Lower Colorado River and the Arizona Upland subdivisions of the Sonoran Desert Biome, are present within the study area. In addition, xeroriparian vegetation is present along washes and riparian vegetation can be found adjacent to the Gila and Agua Fria Rivers. Due to the development of agricultural fields and urban areas much of the native desert vegetation has been removed or altered. Refer to Section 4.1.2 – Vegetation of the Loop 303 Corridor / White Tanks Area Drainage Master Plan Update for in-depth descriptions, maps, and tables regarding the vegetation communities found in the project study area.

The Lower Colorado River subdivision of Sonoran Desertscrub is typically flat, with a one (1) to two (2) percent slope. Plant material found in this subdivision include Creosotebush (*Larrea tridentata*), Triangle-Leaf Bursage (*Ambrosia deltoidea*), Saltbush (*Atriplex spp.*), Jimmyweed (*Happlopappus heterophyllus*), Blue Paloverde (*Cercidium floridum*), Western Honey Mesquite (*Prosopis glandulosa*), Ironwood (*Olneya*

tesota), Catclaw Acacia (*Acacia greggii*), Barrel cactus (*Ferocactus wislizenii*), Ocotillo (*Fouquieria splendens*), and Saguaro (*Carnegiea gigantea*). The dominant shrubs in this subdivision are the Creosotebush and Triangle-Leaf Bursage and the dominant tree is the Blue Paloverde. Trees in this area are typically found along the xeroriparian washes.

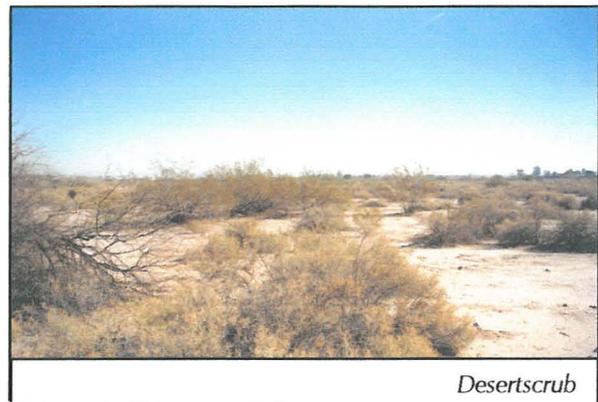
Higher densities of tree species and cacti characterize the Arizona Upland subdivision of Sonoran Desertscrub. This plant subdivision is typically found on steeper slopes and higher elevations of the White Tank Mountains. Plant material found within this subdivision include Saguaro (*Carnegiea gigantea*), Foothill Paloverde (*Cercidium microphyllum*), Blue Paloverde (*Cercidium floridum*), Ironwood (*Olneya tesota*), Western Honey Mesquite (*Prosopis glandulosa*), Catclaw Acacia (*Acacia greggii*), Triangle-Leaf Bursage (*Ambrosia deltoidea*), and several species of cholla and prickly pear cactus (*Opuntia* spp.). The dominant plant species for this subdivision are the Saguaro and Blue Paloverde.

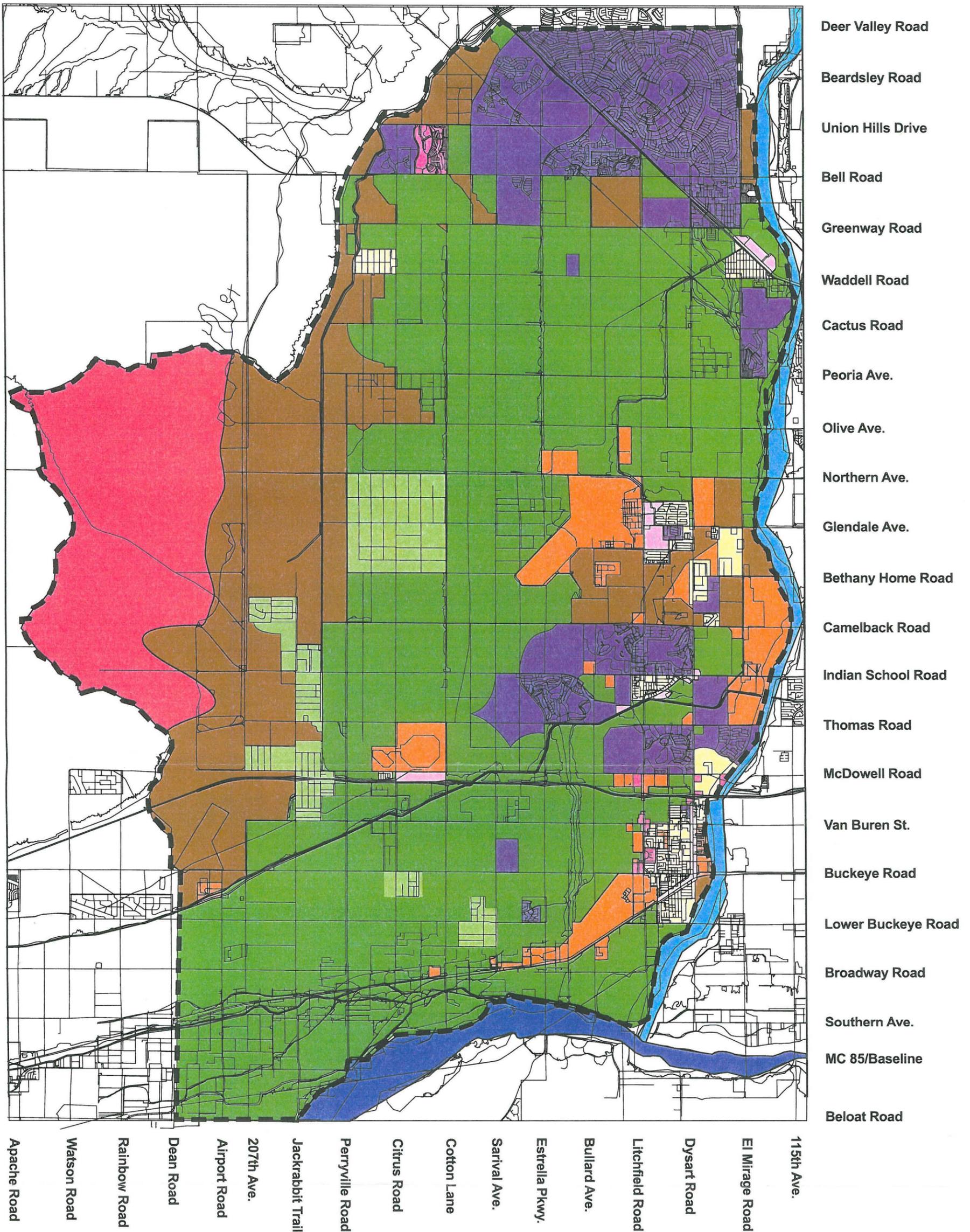
Also present in the Arizona Upland subdivision of Sonoran Desertscrub are Xeroriparian habitats. These typically occur along ephemeral washes. They are long narrow corridors with plant material that is similar to those found in the Arizona Upland, but have higher densities of Ironwood (*Olneya tesota*), Western Honey Mesquite (*Prosopis glandulosa*), and Blue Paloverde (*Cercidium floridum*).

Segments of Riparian Deciduous Forest can be found adjacent to the Gila River and the lower end of the Agua Fria River. Tall, deciduous trees and understory shrubs characterize this habitat. Typical trees found in this habitat include Fremont Cottonwood (*Populus fremontii*) and Goodding Willow (*Salix gooddingii*). Understory shrubs found in this habitat include Desert Willow (*Chilopsis linearis*), Willows (*Salix* spp.), Desert Broom (*Baccharis sarothroides*), and non-indigenous Salt Cedar (*Tamarix* spp.).

To further describe the visual resources of the Loop 303 Corridor / White Tanks ADMP, the study area has been broken into broad-based landscape character units. Landscape character is the physical appearance of the landscape including the natural, physical, and architectural/cultural features that give it an identity and "sense of place." Landscape character units are based on the presence of vegetation, changes in land use, degree of spatial enclosure, and the presence of notable landform or architectural/cultural patterns in the landscape. The resulting units are areas of similar visual character. Each unit has been named and described in terms of its vegetative cover, landform, land use, and special features in the foreground, middle ground, or background. Figure 1 identifies the location of eleven units delineated within the study area.

**Desertscrub.** The predominant characteristic of lands within this unit is one of relatively undisturbed native desert. This unit predominantly occurs in the western portion of the study unit adjacent to the White Tanks Mountains. Smaller areas of desertscrub occurs south and southeast of Luke Air Force Base and in a few locations in the northern reaches of the study area. The terrain is moderately rolling. The irregularity, texture, and color of native vegetation make it readily distinguishable from that of surrounding agricultural fields and urban development. Mature light green palo verde trees and dark green mesquite and creosote are prevalent and dominate the setting. Built elements are isolated visual features, including: transmission lines and canals and a few residences. However, these individual features do not affect the overall visual character created by the native desert. Distant views of the White Tank Mountains to the west form a distinct background for the project area.





Key

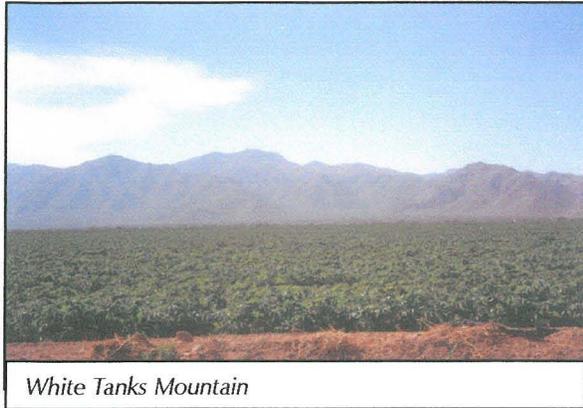
	Rural/Farmland/Ag.		Rural
	Industrial/Instit.		White Tanks Mountains
	Commercial		Agua Fria River
	RV/Multi-Family		Gila River
	PAD		ADMP Limit
	Neighborhood		Desert Scrub

**Figure 1. Existing Landscape Character**

Loop 303 ADMP Corridor/White Tanks ADMP Update

April 2000

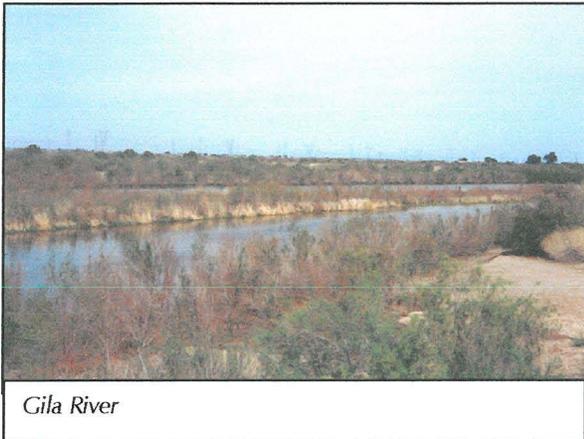




White Tanks Mountain

**White Tanks.** This unit is located in the western portion of the study area and is characterized by the bold, massive peaks and ridgelines of the White Tanks Mountains. This unit is visible from throughout the study area and creates a distinctive backdrop for views to the west and northwest. This unit contains the highest elevation (2,288 feet above mean sea level) in the study area. Vegetation found in the unit is typical of the Sonoran Desert. The predominant color of the unit is tan from the mountains with the vegetation ranging from gray to green. Structures and roadways are typically not found in the unit. However, some

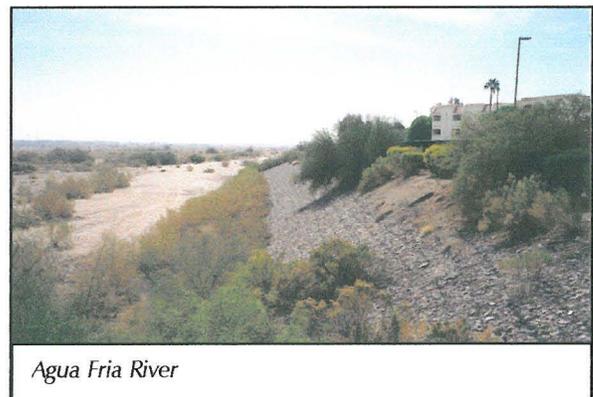
structures and roads can be found within the White Tanks Regional Park. These structures and roadways are not visible from the distance. Ground disturbance is visible in a portion of the unit. This area of disturbance is identified by the distinctive change in color from the surrounding area. This ground disturbance is the result of Caterpillar proving grounds.



Gila River

**Gila River.** This unit is located along the southern edge of the study area. The main characteristic of this unit is water. Both pools and streams of water can be found in this unit. Lush green vegetation of varying heights is evident along the banks of the river creating strong vertical and horizontal lines. The tall Cottonwoods and Willows can be seen from a distance.

**Agua Fria River.** This unit is located along the eastern edge of the study area. A typical characteristic of this unit is the uniform edge and bottom of the channelized river. The sides of the river have a consistent, hardened slope and create strong linear lines up and down the channel. Various portions of the river, primarily in the southern reaches, have been disturbed by sand and gravel operations. Vegetation within this unit contains primarily shrubs and grasses. Gray from the river rock is the predominant color of this unit. Pockets of lush green wetland habitat are visible within the unit, but are not a dominant feature.



Agua Fria River



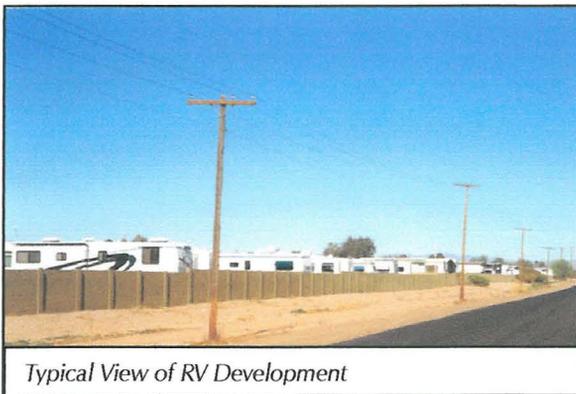
Two views of a P.A.D. One from within (top) and one from outside (bottom)

**P.A.D.** The P.A.D. (planned area development) unit typically has a uniform residential character. Concrete block walls enclose the residential developments. These block walls create a strong linear form within the suburban surroundings. The P.A.D. unit has similar architectural elements, narrow lots, mixed ornamental and desert landscaping, masonry block walls, lakes or water bodies, and street lights typical of a modern suburban neighborhood setting. These modern, residential developments have similar materials and colors, typical of the stucco and tiled-roof, suburban architectural genre. Residences within the unit include one and two-story homes. The second floor of these homes provides views to the surroundings. The building and wall structures dominate the setting. Vegetation is predominately ornamental and turf is used frequently to create open space and connect the various built facilities within the subdivision. The vegetation is also consistently manicured to create a sense of organization and formality.

**Neighborhood.** Moderate to large open lots, scattered single-story, ranch style residences having a variety of materials and colors and a mixture of mature ornamental and desert vegetation are typical in this unit. There are a few overhead utilities on single wood poles, but in general, the appearance and character of this unit is one of mature, well-established neighborhoods. Seldom are vertical block walls used to delineate property boundaries, instead vegetation, wood, or chain-link fencing are used. Ornamental tree species within the yards include eucalyptus, evergreen elm, and pine. Orchard trees are also evident at some locations. The vegetation and building structures are prominent in the setting.



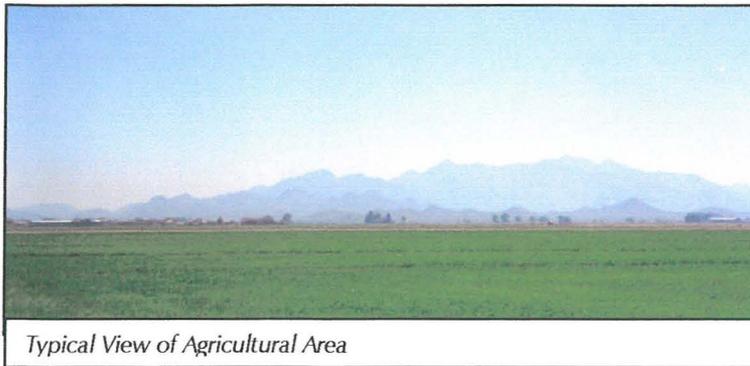
Typical Neighborhood Setting



Typical View of RV Development

**RV/Multi-Family.** The character of this unit is a mixture of high-density, pre-manufactured dwelling units common in suburban areas of the Phoenix Metropolitan Area. Overhead utilities, street signage and lighting are built features that dominate and are readily visible in the landscape. The closeness of the existing structures creates a sense of high visual enclosure. Vegetation is very limited and subordinate to the built features. The architectural styles of the multi-family residences vary

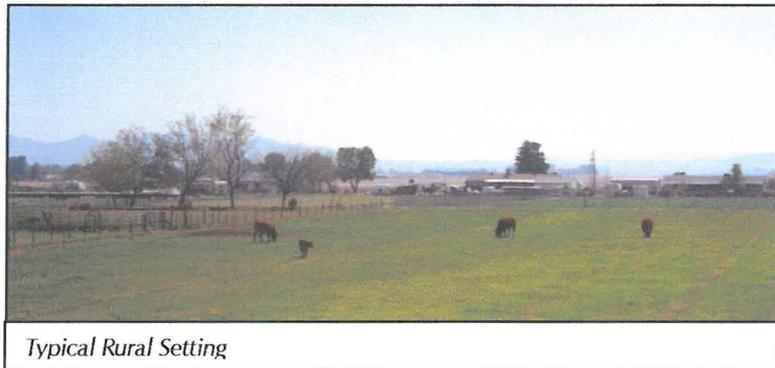
substantially, and there is a general lack of cohesive of shape or textures. In the RV units, the building scale, form, color and style are relatively uniform.



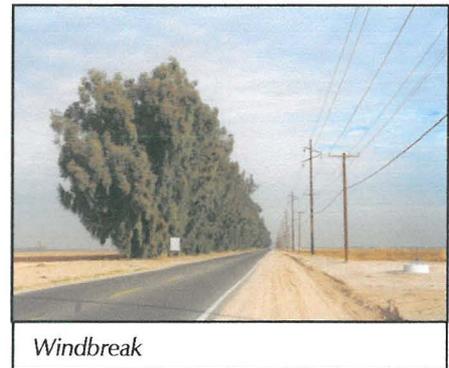
Typical View of Agricultural Area

**Agricultural.** Agriculture characterizes this unit. This unit is depicted by flat terrain with expansive views in all directions with agricultural patterns and colors dominating the landscape. Agricultural features found within this unit include: planted and unplanted fields, dairies, fencing, linear windrow tree plantings, and irrigation ditches. The various canals and tailwater/irrigation ditches are built features adding to the unit's rural character.

**Rural.** Low-density single-family residences create a rural setting which characterizes the unit. This unit is depicted by flat terrain with expansive views in all directions. Residences are scattered throughout the unit though some areas are developed more densely than others. The residences are predominantly located on the west side of the unit. Open perimeter fencing typically surrounds lots. Seldom are vertical block walls used to delineate property boundaries, instead vegetation, wood, or chain-link are used. Pastures and corrals are also typical. The residential structures are conventionally constructed, single-story type residences of varying materials and colors such as wood, brick, and block.

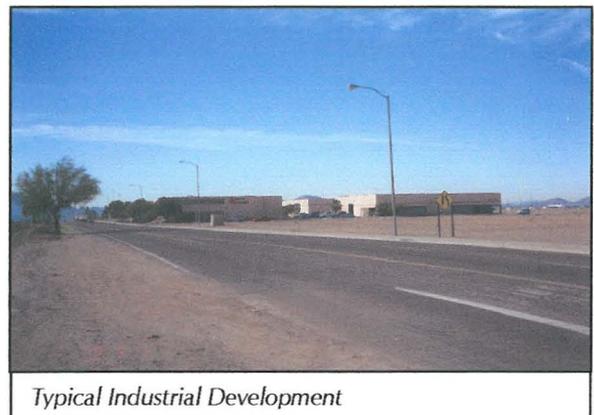


Typical Rural Setting



Windbreak

**Industrial/Institutional.** Industrial and institutional uses and activities characterize this unit. Large buildings, tall block walls, security fences, and towers are the prominent visual elements within the unit. These structures create strong vertical and horizontal elements and contrast in color and material with their surroundings. The terrain is relatively flat and vegetation is scarce. The vertical scale and color of some of the facilities, such as water towers, airport control towers, aircraft hangers, and transmission lines combine to create distinct features in the landscape.



Typical Industrial Development



Typical Commercial Development

**Commercial.** The character of this unit is a mixture of development including office, retail, service-oriented, and restaurant uses common to suburban development along major arterial roadways. Billboards, building signs, overhead utilities, and street signage and lighting are built features that dominate and are readily visible in the landscape. Commercial areas most frequently occur along the major transportation corridors and at major intersections and are predominantly located along the east side of the project area.

The existing structures create high visual enclosure because of the presence of two-story buildings, signs, and other built features. Vegetation is limited and subordinate to the built features. Architectural styles vary and there is a general lack of cohesive materials, textures, or colors. The terrain is relatively flat.

### 1.02.2 Scenic Quality

Areas of high scenic quality that occur in, or immediately adjacent to, the study area include the White Tanks and Estrella Mountains, riparian habitat located along the Gila River and isolated locations along the Agua Fria River, the various citrus orchards and vineyards in the north portion of the study area, portions of the native desert, and the agricultural fields and windrow tree plantings. All are significant pieces to the landscape in providing high scenic quality to the study area. There are several structures throughout the study area related to agriculture, airports, and utilities but are not considered elements that contribute in providing high scenic quality.

Areas of low scenic quality that occur in, or immediately adjacent to, the study area include the various canals that cross the study area, the Arizona Department of Transportation detention basins located on the north side of I-10, the sand and gravel operations located in the Agua Fria River, the White Tanks #3 and #4 structures, Morton Salt mining facility, an aluminum manufacturing facility, towers and structures at Luke Air Force Base, and the major utility corridors that cross the south portion of the study area. All are significant elements in the landscape that degrade the scenic quality of the study area. However, these areas provide opportunities, through the implementation of various treatments, to improve their scenic quality.

### 1.02.3 Existing Visual Conditions / Visual Integrity

The existing visual resources of the study area are described below based on readily accessible viewpoints along existing roadways and accessible locations within the study area. The visual conditions analysis included an identification of distinct features, a demarcation high/low visual diversity, a delineation of the relative visual intactness of natural or cultural resources within the study area, and an identification of major viewpoints. Distinct features are those features comprised of contrasting landscape natural or built elements that, when combined, make a memorable visual impression or striking visual pattern. Diversity is considered to be a qualitative measure of the scenic value of a landscape; landscapes with the greatest variety (or diversity) have the greatest correlation with high scenic value. For the Loop 303 Corridor / White Tanks ADMP Update visual study it is assumed that landscapes of low diversity represent opportunities for enhancement when implementing the proposed action. Conversely, highly diverse landscapes should be preserved where possible to retain their valuable qualities. Visual intactness relates to the cohesion of visual order in the natural and human built

landscape and the extent to which the landscape is free from visual encroachment by conflicting uses or activities.



*Positive Distinct Feature (Cotton Gin)*

Figure 2 graphically represents the existing visual conditions within the Loop 303 Corridor / White Tanks ADMP. There are numerous natural and built distinct features that contribute to the visual conditions of the study area. Distinct features are features that stand out in the landscape. These distinct built features have been categorized as features within the landscape that might be enhanced, based upon their visual appearance.

Distinct built features include the orchards and vineyards, dairy/farm lands, eucalyptus windbreaks, palm nurseries, and cotton gins. Estrella Mountain Community College, Sundome, World Wildlife Zoo, and Duncan Family Farm are cultural/educational centers within the study area and are seen as positive distinct built features. These facilities are unique due to several factors. Examples of these factors include architecture, landscape, location, type of service offered, and product provided.

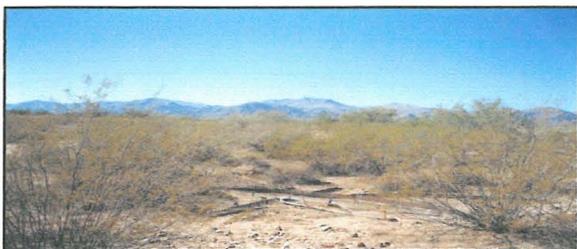
Distinct built features that could be enhanced include the Perryville Prison, Morton Salt mining operation, aluminum manufacturing facility, Rubbermaid plant, Luke Air Force Base, Goodyear Airport, trotting track, McMicken Dam, White Tanks #3 and #4 structures, various irrigation canals, and miscellaneous drainage conveyance structures. Other distinct built features that could be enhanced include major overhead transmission lines and towers, sand and gravel extraction sites, the urban arterial street network, existing and proposed transportation corridors/facilities such as the Loop 303, Grand Avenue (US 60), AT & SF Railroad.



*Negative Distinct Feature (Aluminum Recycling Plant)*

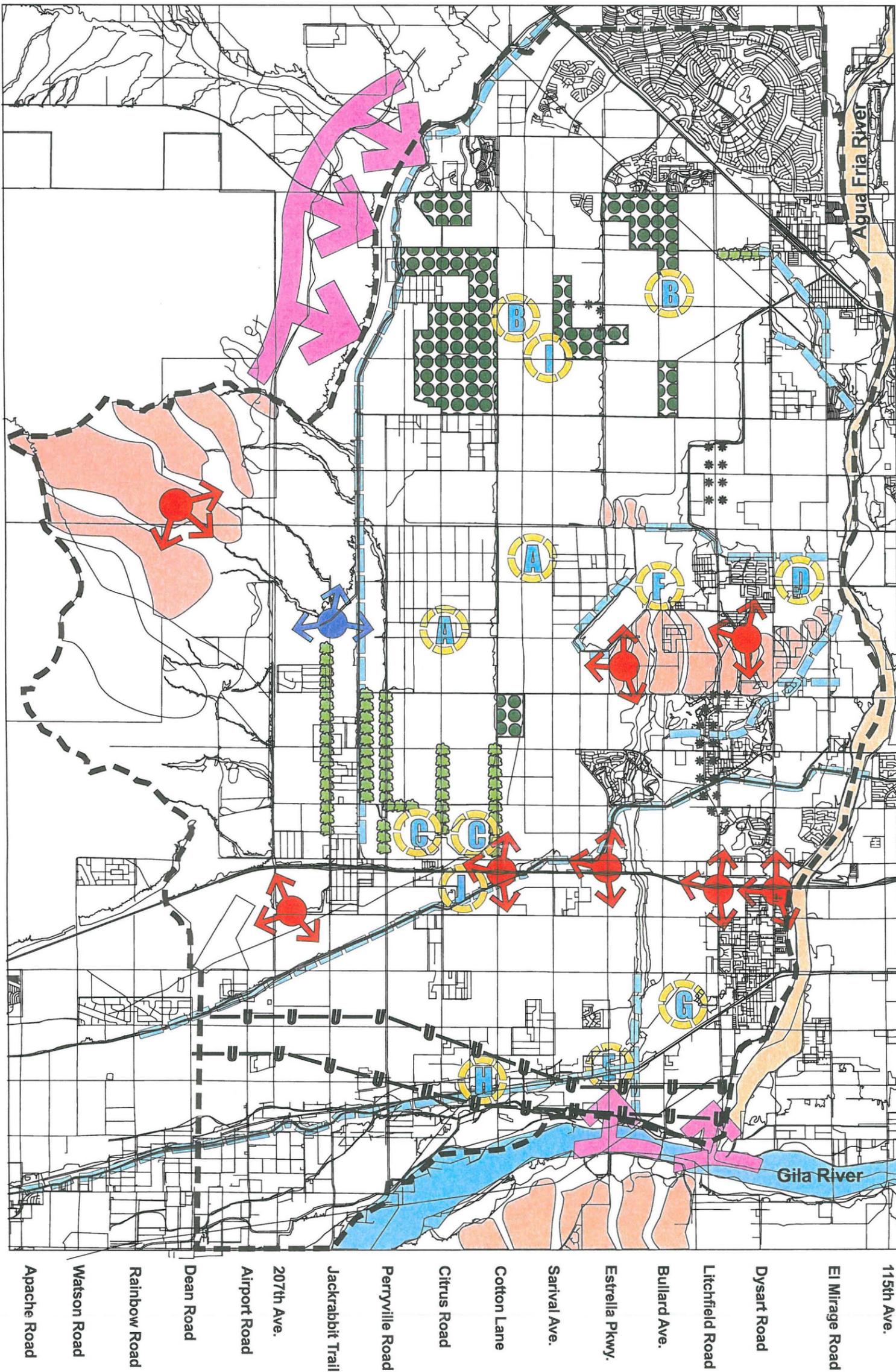
Areas of low visual diversity are landscapes highly uniform in character. Within the study area, the expansive agricultural areas constitute low diversity landscapes because of their uniform character.

High diversity landscapes are those that contain a diverse array of natural species and landforms or a combination of built features that indicate a high level of biological or cultural value. Examples of high diversity landscapes in, or adjacent to, the study area include the riparian vegetation of the Gila River, the small, isolated wetlands along the Agua Fria River, the natural washes coming out of the White Tanks Mountains, and the mountain landforms of the White Tanks Mountains and Estrella Mountains.



*Desertscrub*

There are three major intact landscape areas within the study limits, desertscrub, P.A.D., and agriculture. The desertscrub environment located in the White Tanks Mountains and small pockets around Luke Air Force Base and in the northern portions of the study area represent a unique resource within the study area; they could be lost in the future to the advancing suburban development. The agriculture environment, located



- Deer Valley Road
- Beardsley Road
- Union Hills Drive
- Bell Road
- Greenway Road
- Waddell Road
- Cactus Road
- Peoria Ave.
- Olive Ave.
- Northern Ave.
- Glendale Ave.
- Bethany Home Road
- Camelback Road
- Indian School Road
- Thomas Road
- McDowell Road
- Van Buren St.
- Buckeye Road
- Lower Buckeye Road
- Broadway Road
- Southern Ave.
- MC 85/Baseline
- Beloat Road

- 115th Ave.
- El Mirage Road
- Dysart Road
- Litchfield Road
- Bullard Ave.
- Estrella Pkwy.
- Sarival Ave.
- Cotton Lane
- Citrus Road
- Perryville Road
- Jackrabbitt Trail
- 207th Ave.
- Airport Road
- Dean Road
- Rainbow Road
- Watson Road
- Apache Road

Key					
	Orchard		Distinct Feature-Cotton Gin		Distinct Features-Track
	Palm Plantings		Distinct Feature-Prison		Canal/Channel
	Distinct Features-Eucalyptus Windbreak		Distinct Feature-Salt Mining		Utility Corridor
	Notable Landforms		Distinct Feature-Aluminum Manufacturing		ADMP Limit
	Major Viewpoint		Distinct Feature-Towers at L.A.F.B.		
	Minor Viewpoint		Distinct Feature-Goodyear Airport		
	Off-Site Views		Distinct Feature-Industry		
	Distinct Features-Palm Nursery		Distinct Feature-Pond		

**Figure 2. Visual Analysis**

Loop 303 Corridor/White Tanks ADMP Update

April 2000



throughout a majority of the study area, represent an era that settled the area. This rich environment will also be lost in the future to the advancing suburban development. The P.A.D. with its uniform architectural character, which is located primarily in the middle portion of the study area, will become the major landscape over time. A majority of the study area is currently planned to be developed as P.A.D's.

#### **1.02.4 Assessment of Existing DISTRICT Facilities**

The District's *Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects* provides general guidance for incorporating aesthetic features as an integral part of the planning, design and construction of flood control projects. This document also promotes consideration of aesthetics in the design of new structures, alterations to existing structures and other projects developed by the District. According to the Policy, aesthetic features of flood control projects shall be designed in consideration of the following: the structural integrity and function of the facility are not compromised; the safety of the site and the public is not diminished, maintenance requirements for the facility are not hindered or significantly increased; there is no significant cost increase for real estate; costs to the District are within acceptable budgetary constraints; the aesthetic treatment is compatible with the prevailing features in the surrounding area; and the aesthetic features will not increase the District's liability regarding personal safety and/or property. Multi-purpose uses are also encouraged to the extent that they do not interfere with the operations of the facility. The Policy also requires that an Aesthetics Advisory Committee be formed for each project.

The existing drainage facilities in the study area include dams, channels/washes, and an overchute and siphon. These facilities are located throughout the project area. DISTRICT facilities located in the area include Dysart Drain, Colter Channel, Bullard Wash Outfall Channel, Roosevelt Irrigation District Overchute, White Tanks #3 and #4 structures, and White Tanks #4 Inlet Channel Improvement.

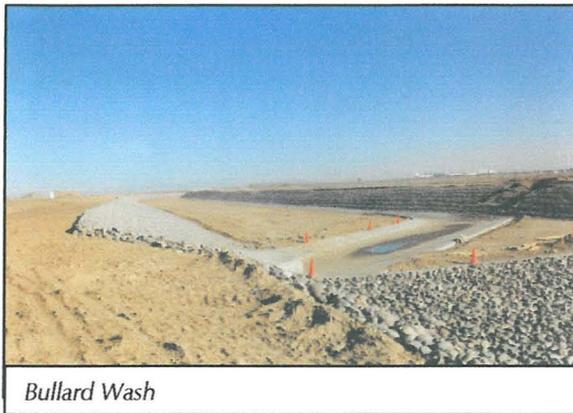
The existing facilities appear to not have included provisions for landscape aesthetics or multi-use opportunities. In general, the facilities need to incorporate some type of landscape plantings consistent with the District's policy. In addition, all facilities should incorporate some type of multi-use activity if appropriate for the facility.

Dysart Drain is a large concrete lined channel void of vegetation and provides no access to the public. Approximately thirty percent of this channel is located within Luke Air Force Base and thus restricts opportunities for public usages. The remaining portions of Dysart Drain are fenced and gated off to the public. The entire channel is located within a narrow right-of-way. Significant changes would need to occur to retrofit this channel to comply with District policies and to provide opportunities to the public. First would be the incorporation of appropriate plant material. Currently the channel is void of vegetation due to its proximity to the existing runways and lack of space. Additional right-of-way needs to be acquired along the length of the channel so that vegetation can be incorporated. Second would be the location of the channel. Major portions of the channel would need to be relocated outside of Luke Air Force Base property. This would provide for the possibility of pedestrian access and multi-use opportunities. Currently there is no public access to the channel adjacent to Luke Air Force Base due to security and safety issues. Third would be provisions to allow access to the top of the channel for the general public by means of entry points and a multi-use path.

It could be argued that since portions of this facility are within industrial areas, it complies with the DISTRICT's requirement that it be "Compatible with the prevailing features in the surrounding area." Further improvements to this facility to accommodate vegetation, pedestrian access and multi-use

opportunities would be significantly expensive, require right-of-way for relocation and increase maintenance costs.

Colter Channel is located approximately ¼ mile north of Camelback Road. It extends from just east of Litchfield Road eastward to the Agua Fria River. This facility is an earthen lined channel with a concrete low flow channel. Various shrubs are scattered throughout the channel that have naturally grown in the area. The facility is fenced off and allows no public access. Minor changes to the channel would need to be incorporated to comply with District policies and to provide opportunities to the public. First would be the incorporation of appropriate plant material throughout the channel. This would soften the channel and make it more aesthetically pleasing to the passing public. Second would be access points for the public and the incorporation of a multi-use trail that meanders through the channel. A multi-use trail would provide a west-east link in the study area.



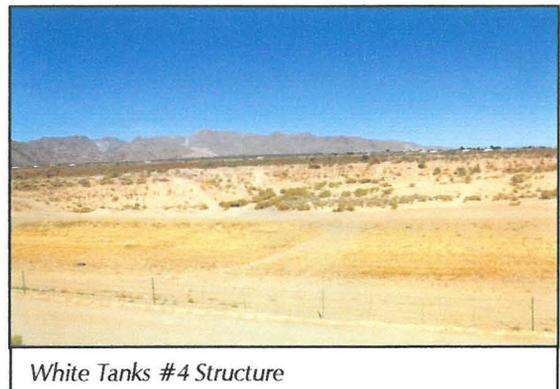
*Bullard Wash*

Bullard Wash Channel extends from the Gila River north to a point between Lower Buckeye Road and Buckeye Road. This facility was recently completed but appears to provide no provisions for landscape aesthetics. Provisions for a future trail/path were built into the drop structures. The channel is comprised of an earthen lined bottom with a concrete lined low flow channel and river rock filled gabions along the sides. The channel is fenced and gated to limit public access. Minor changes to the channel would need to be incorporated to comply with District policies and to provide opportunities to the public. First would be the

incorporation of landscape material. It appears that sufficient area is available to incorporate trees and shrubs within the existing right-of-way without affecting maintenance activities. This landscape material would help soften the strong edges created by the rock filled gabions. Second would be provisions for public access and the incorporation of a meandering multi-use trail along the top of the channel, channel banks, and channel bottom. Again, it appears that there is sufficient right-of-way for incorporation of a multi-trail. This would provide an opportunity for access to the Gila River.

White Tanks #3 structure is a large earthen structure that provides retention on the northwest side. There is no formal landscape associated with the structure but over time the native vegetation has established itself throughout. The current facility provides no multi-use opportunities to the public. Because the area is so large there are many opportunities available for landscape aesthetics and multi-use. Access to the site needs to be provided for the public. With access to the area this facility could offer many different types of multi-use. Multi-use opportunities range from creation and enhancement of wildlife habitat and multi-use trails to BMX courses and ballfields.

White Tanks #4 structure is a large structure with a retention area located on the north side. There is no formal landscape associated with the structure and the surrounding area has somewhat reestablished itself over time. The entire area is gated off to the public thus providing no multi-use opportunities. Minor changes to the facility would need to be incorporated to comply with District policies and to provide opportunities to the

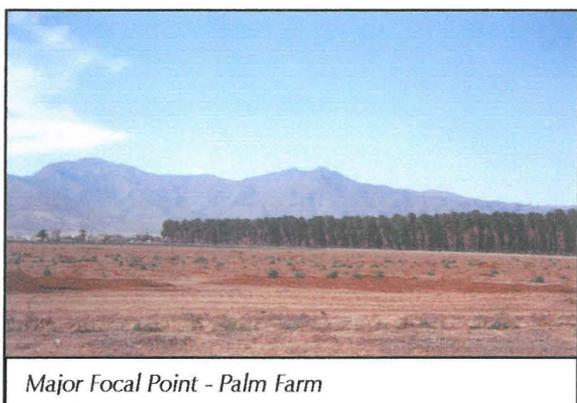


*White Tanks #4 Structure*

public. First would be the incorporation of additional landscape material. This would help to visually soften the facility. Second would be to provide access points to the public. With access to the area this facility could offer many different types of multi-use. Multi-use possibilities include wildlife habitat, ballfields, open space, BMX course, etc. Because the area is so large there are many opportunities available for landscape aesthetics and multi-use.

### 1.02.5 Viewing Analysis

There are various ways to enhance viewing opportunities. Viewing opportunities can be enhanced through the design, orientation, and location of a facility. If a channel was to be constructed as a needed facility and a major focal point is located to the northeast, it may be possible through the orientation and location of the channel to capitalize on this view. It may be possible to locate and orientate the channel at an angle that would optimize views to the major focal point. The landscape features of the channel could then be used to direct and frame views of the major focal point. If the channel could not be located and orientated at an angle to maximize views to the major focal point, it may be possible to create view corridors to the major focal point utilizing earth mounding and landscape material. Because of the relatively flat nature of the study area, the use of earth mounding could also be utilized to elevate viewing points along a facility. This would enable users to potentially rise above the surrounding area and structures to see the distant features/focal points.



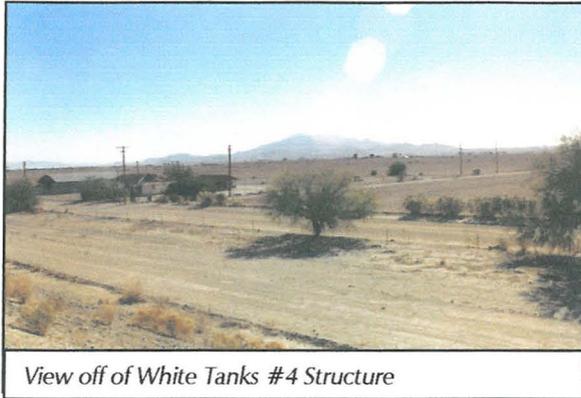
Major focal points within the study area that should be preserved include the Estrella and White Tanks Mountains, orchards and vineyards, dairy/farm lands, eucalyptus windbreaks, palm nurseries, cotton gins, golf courses, various schools, libraries, Estrella Mountain Community College, Sundome, World Wildlife Zoo, and Duncan Family Farm. New facilities that are constructed and existing facilities that are rehabbed should take advantage of these focal points. Views should be captured or linkages should be established to these major focal points.

Due to the relatively flat nature of the study area there are few major viewing points within the study area. Major viewing points in the study area occur from the overpasses along I-10, the White Tanks Mountains, White Tanks #3 and #4 structure, and locations just south of and east of Luke Air Force Base.

Views from the overpasses along I-10 include the White Tanks and Estrella Mountains, the various agricultural fields, and the urban development. Views from the White Tanks Mountains include the native desert, agricultural fields, various landforms to the east, White Tanks Mountains to the north, and the Estrella Mountains to the south. The White Tanks #4 structure offers views to the White Tanks and Estrella Mountains, I-10, desertscrub areas, and agricultural fields. Locations south and east of Luke Air Force Base offer views of the aircraft arriving and departing from the air base, agricultural fields, and urban development.

The views from I-10, because of the type of facility, looking out to the Estrella Mountains and White Tanks Mountains will be preserved. The only view that may disappear from I-10 will be that of the agricultural fields. Views of the agricultural fields will be replaced with new urban development.

Views from the White Tanks Mountain Regional Park should be preserved. Views from the park are that of the study area as well as distant views of the Phoenix metropolitan area. Views from the planned developed areas of the White Tanks Mountains, south of the park, should also be preserved. This could be accomplished through the location of houses and creation of viewing corridors. However, views of the White Tanks Mountains from within the study area will be altered by this proposed development. Housing developments are proposed to be built around the base and up the slopes of the White Tanks Mountains. This will degrade the views of the White Tanks Mountains from the study area.



View off of White Tanks #4 Structure

Views from White Tanks #4 structure include the native desert, agricultural fields, I-10, and the Estrella and White Tanks Mountains. The views to the Estrella and White Tanks Mountains should be preserved. However, these views will be altered depending upon the development that will occur in the area. As in other cases throughout the study area, the surrounding land around White Tanks #4 is identified as future urban development. The elevation of White Tanks #4 will allow for views over traditional housing developments with only the foreground view being altered.

#### 1.02.6 Historic Character

Two vegetation communities, the Lower Colorado River and the Arizona Upland subdivisions of the Sonoran Desert Biome, dominate native vegetation within the study area. Within these two areas, small pockets of riparian and xeriparian areas occur. These two basic communities as well as the riparian and xeriparian areas are typical of what the area would have been like prior to being altered by human activities.

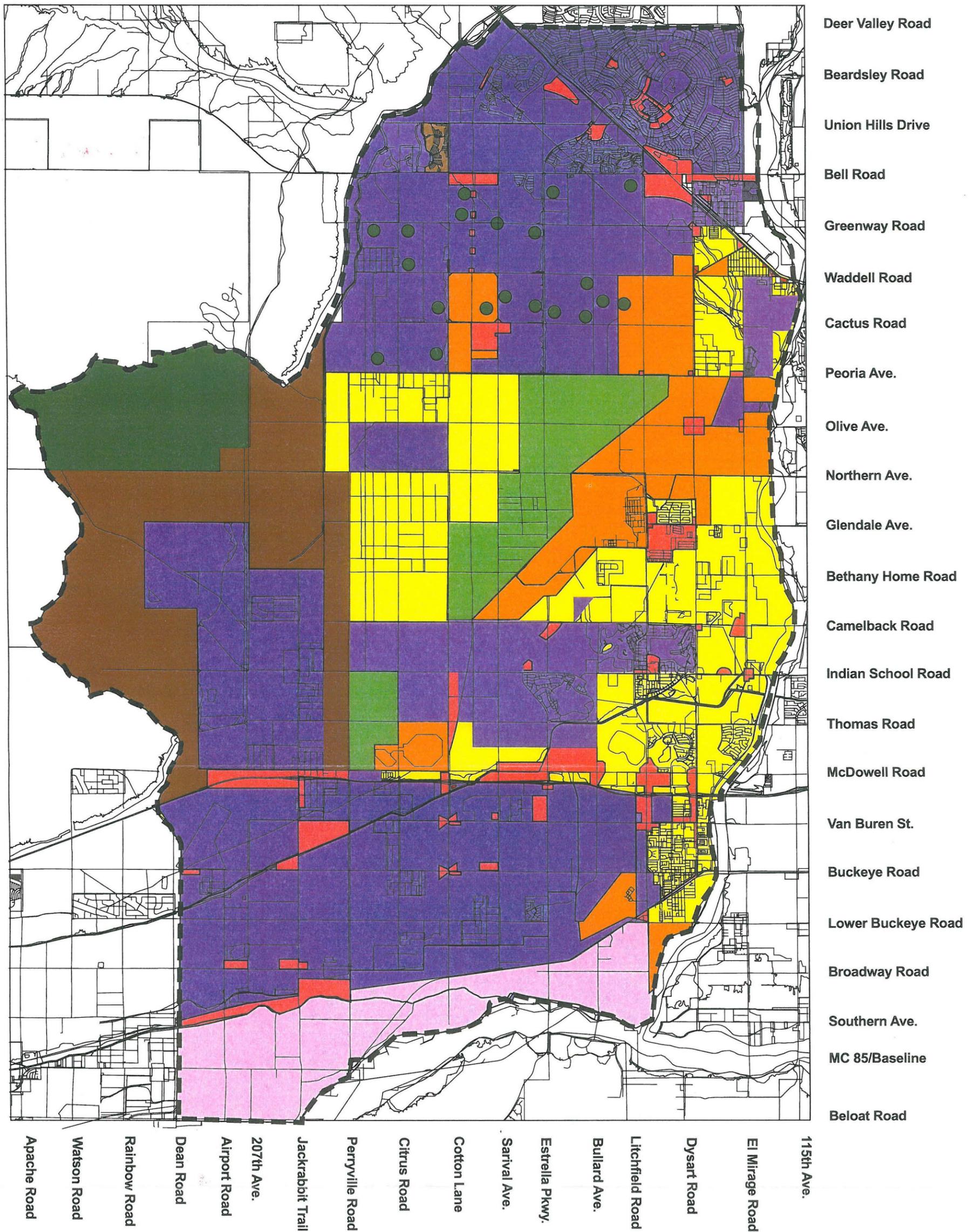
The visual character of the area for the early Hohokam settlements would have been that of an undisturbed desert. The Hohokam would have cleared small areas of the desert for construction of their villages, canals, and crop fields. The scale of these disturbances would have been minimal based upon the overall population of the area.

Over time the visual character of the area would have remained very similar to that which the Hohokam settlements would have experienced. However, in the early 1900's the visual character of the area began to change dramatically. Large tracts of land were cleared for agriculture, specifically the production of cotton. Soon, with the development of the railroad facilities, other large tracts of land were cleared for agriculture, towns (Goodyear, Surprise, etc.), and airfields (Luke and Goodyear). Today, most of the native desert has been removed with only small pockets remaining. Agriculture and urban development have replaced the native desert.

Refer to *Section 4.2 Cultural Resource Assessment and Historic/Prehistoric Themes* in the Loop 303 Corridor / White Tanks Area Drainage Master Plan Update Draft Data Collection Report for further information regarding the cultural resources and history of the project area.

#### 1.02.7 Future Desired Landscape Character

Figure 3 graphically represents the future desired landscape character within the Loop 303 Corridor / White Tanks ADMP. Information collected from developers and the Town and City general plans



**Figure 3. Future Desired Landscape Character**

Revised October 2002 April 2000

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indicate a future desired landscape character that leans toward a more urban character as opposed to the current agricultural / suburban character.

The FCDMC has begun an initial study to restore the land adjacent to the Gila River. Current General Plans indicate that this area will be developed as urban residential. However, a future plan has been developed for this area by multiple agencies and is known as the El Rio Vision. The objectives outlined by the agencies for the development of the Gila River and associated area lean towards a more natural character. The objectives include to restore and maintain the natural functions within the river corridor as a riparian habitat; focus on multi-use facilities and functions; maintain or enhance flood control elements or mitigate; focus on public/private partnerships; and link functional compatibility outside the riparian habitat limits.

Two public meetings were held to present flood control alternatives and proposed aesthetic treatments. Few comments were received from the public due to the low turnout at the meetings. However, of the comments received a majority were for softer more natural looking facilities/structures.

### 1.02.8 Landscape Character Themes

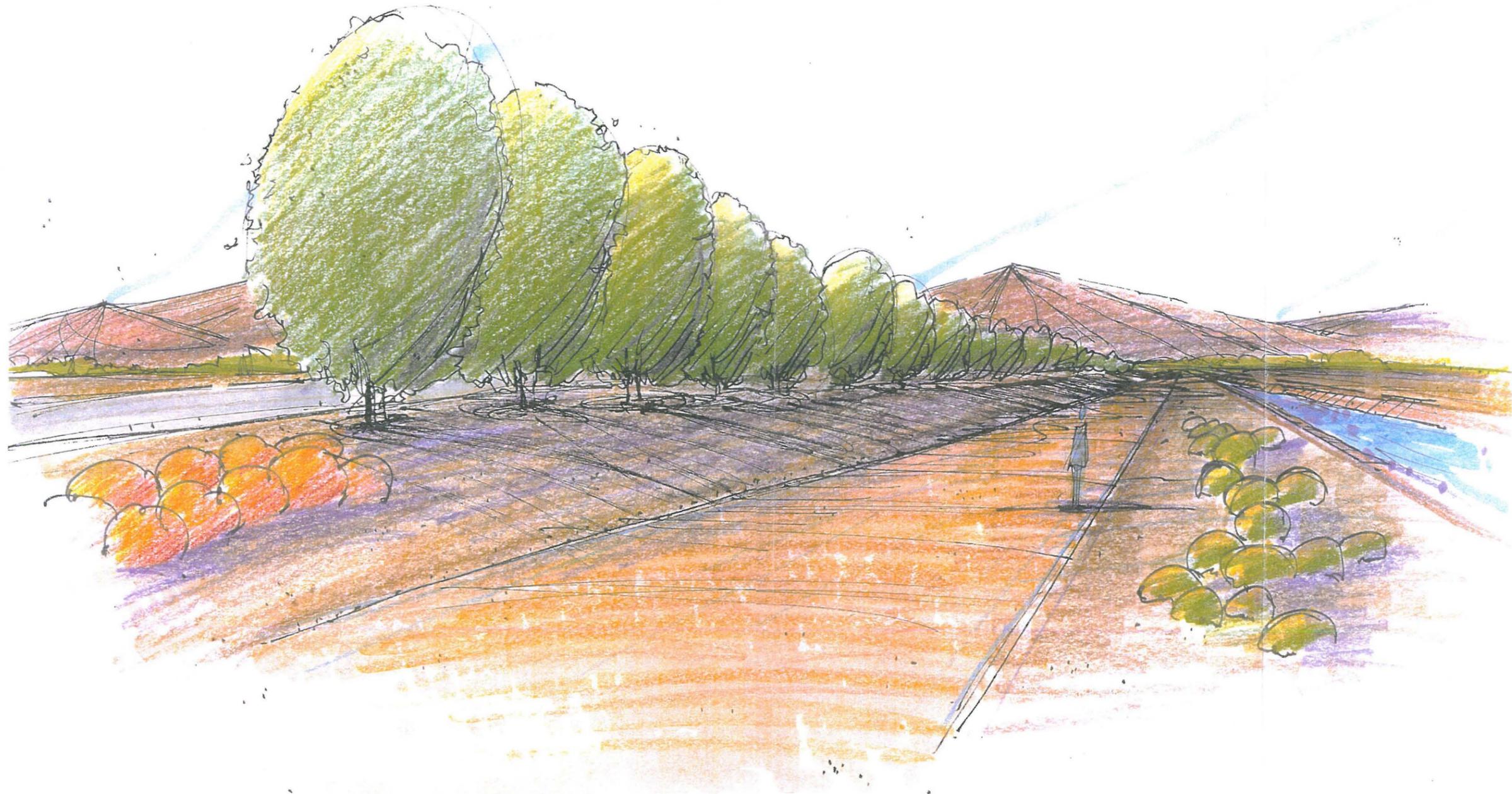
Various landscape character themes were developed based upon the existing and proposed landscape character of the study area. Following are descriptions of the various landscape character themes.

**Agricultural Theme:** The landscape character theme associated with agriculture reinforces the pastoral landscape through: (1) planting of large shade tree species with few shrubs and no turf; (2) creating linear windbreaks with tall trees (3) creating small groves of trees representing the surrounding orchards; (4) maintaining open views to the surrounding area; (5) utilizing native material for pathways and trails such as stabilized decomposed granite; (6) incorporating where appropriate, enhanced wildlife habitats and small ponds of water; and (7) creating a regular pattern of elements interwoven with occasional sinuous features such as pathways.

**Industrial Theme:** The landscape character theme associated with the industrial area would visually mitigate the horizontal and vertical scale of the adjacent industrial or institutional land uses through: (1) planting of specimen and exotic/native trees, and shrubs, but no turf; (2) utilizing large, bold masses of plant material; (3) mimicking distinct features on a smaller scale and incorporating them into structures and hardscape elements; (4) interpreting industrial/institutional land uses in materials and colors; and (5) creating simple, yet bold pattern of elements.

**Urban Theme:** The landscape character theme associated with the Urban area would integrate the proposed facilities as an extension of the subdivision's streetscape character through: (1) planting specimen exotic and native trees, installation of shrubs, and the introduction of turf at various locations; (2) repeating the adjacent hardscape elements utilizing small walls and concrete pathways; (3) incorporating stucco and tile materials and colors associated with adjacent development; (4) integrating the existing concrete block walls as art elements to add interest and identity to individual subdivisions, and (5) creating a well organized, repetitive pattern of elements.

**Neighborhood Theme:** The landscape character theme associated with the neighborhood area would be for the proposed facilities to be a continuation of the residential "yard" through: (1) planting of large shade tree species with shrubs used as accent plantings; (2) selective use of turf in special use areas; (3) utilizing a variety of materials such as brick, wood, and masonry in hardscape elements; (4) incorporating



**Graphic 1. Agricultural Theme**

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DESIGN INC.



**Graphic 2. Industrial Theme**

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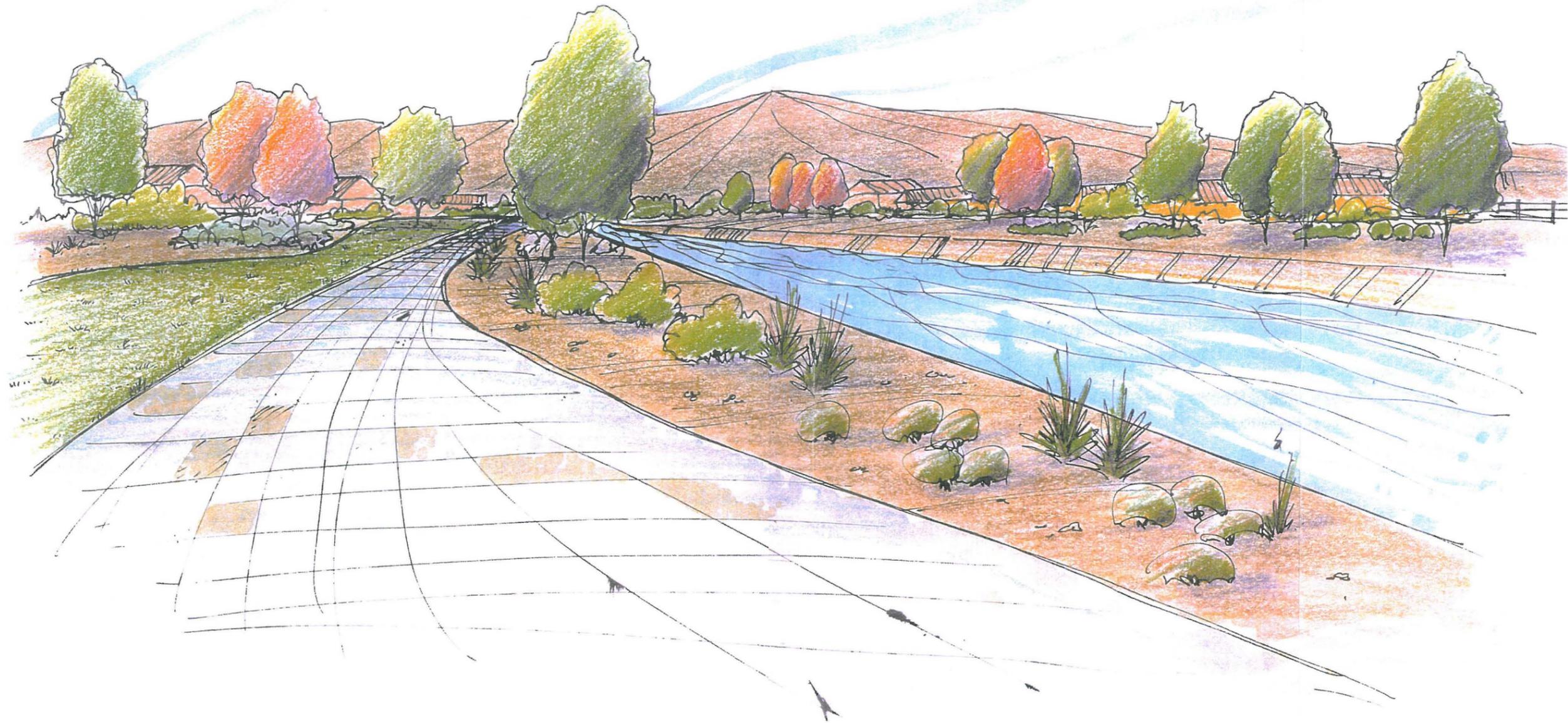


**Graphic 3. Urban Theme**

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**Graphic 4. Neighborhood Theme**

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**Graphic 6. Aircraft Theme**

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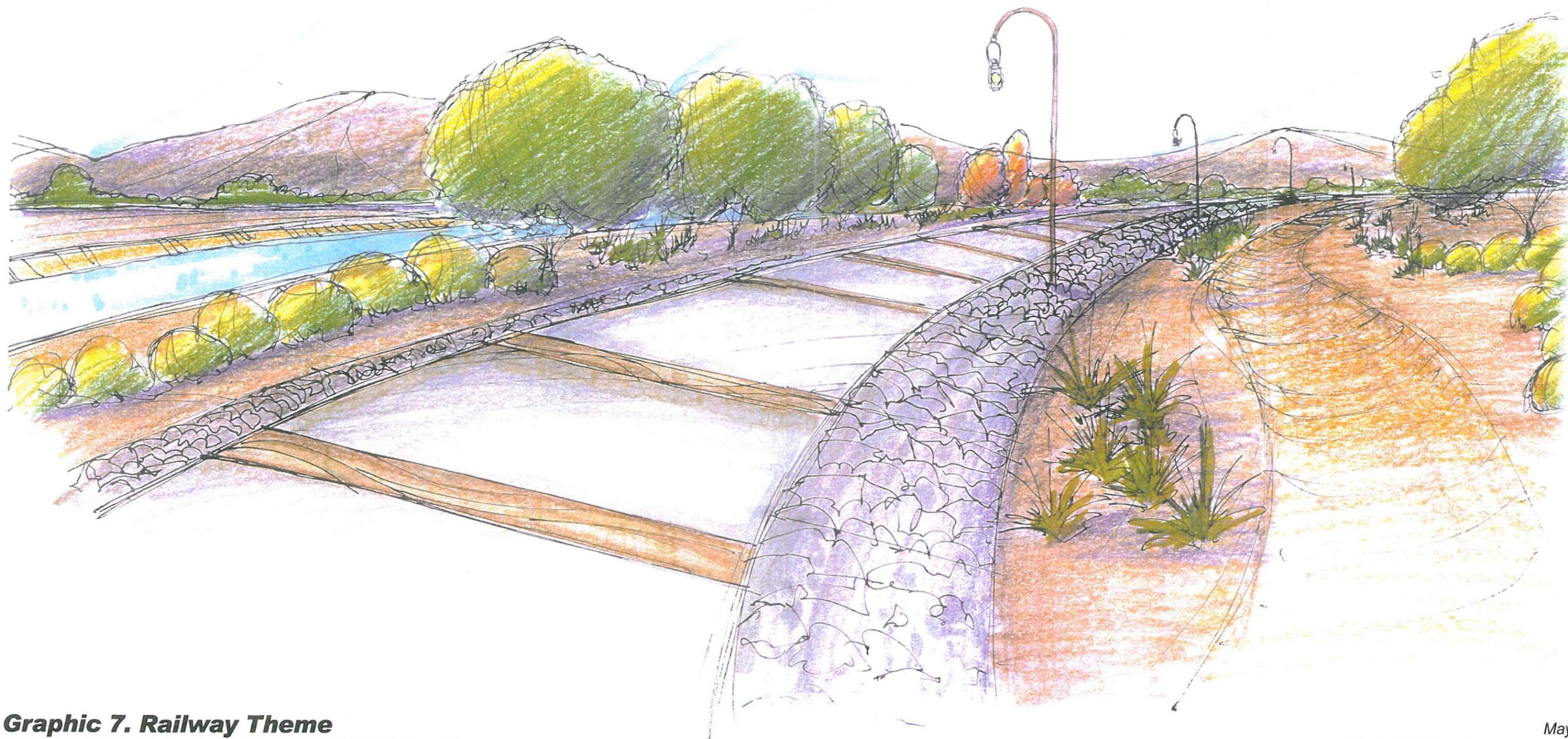


**Graphic 6. Aircraft Theme**

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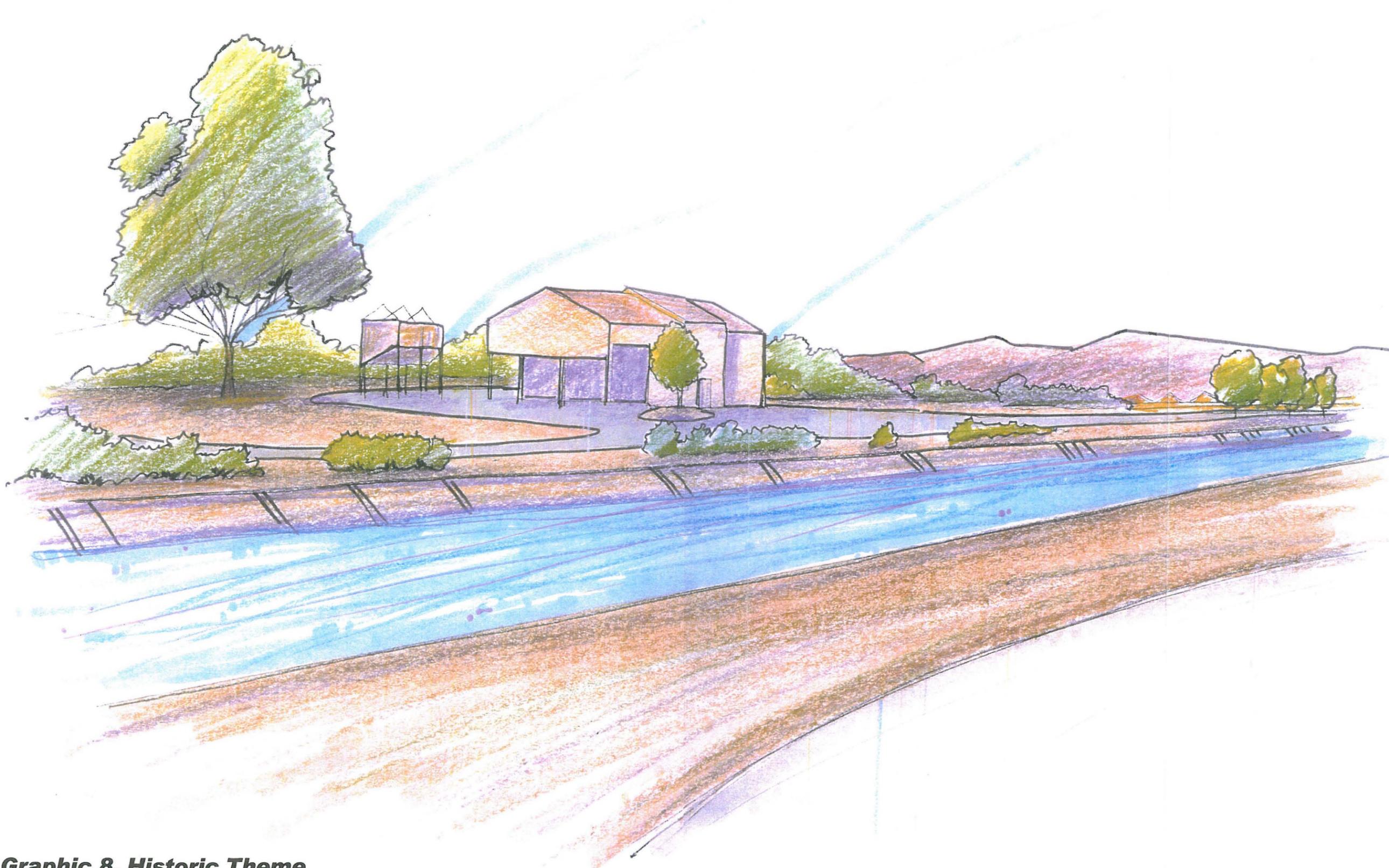


**Graphic 7. Railway Theme**

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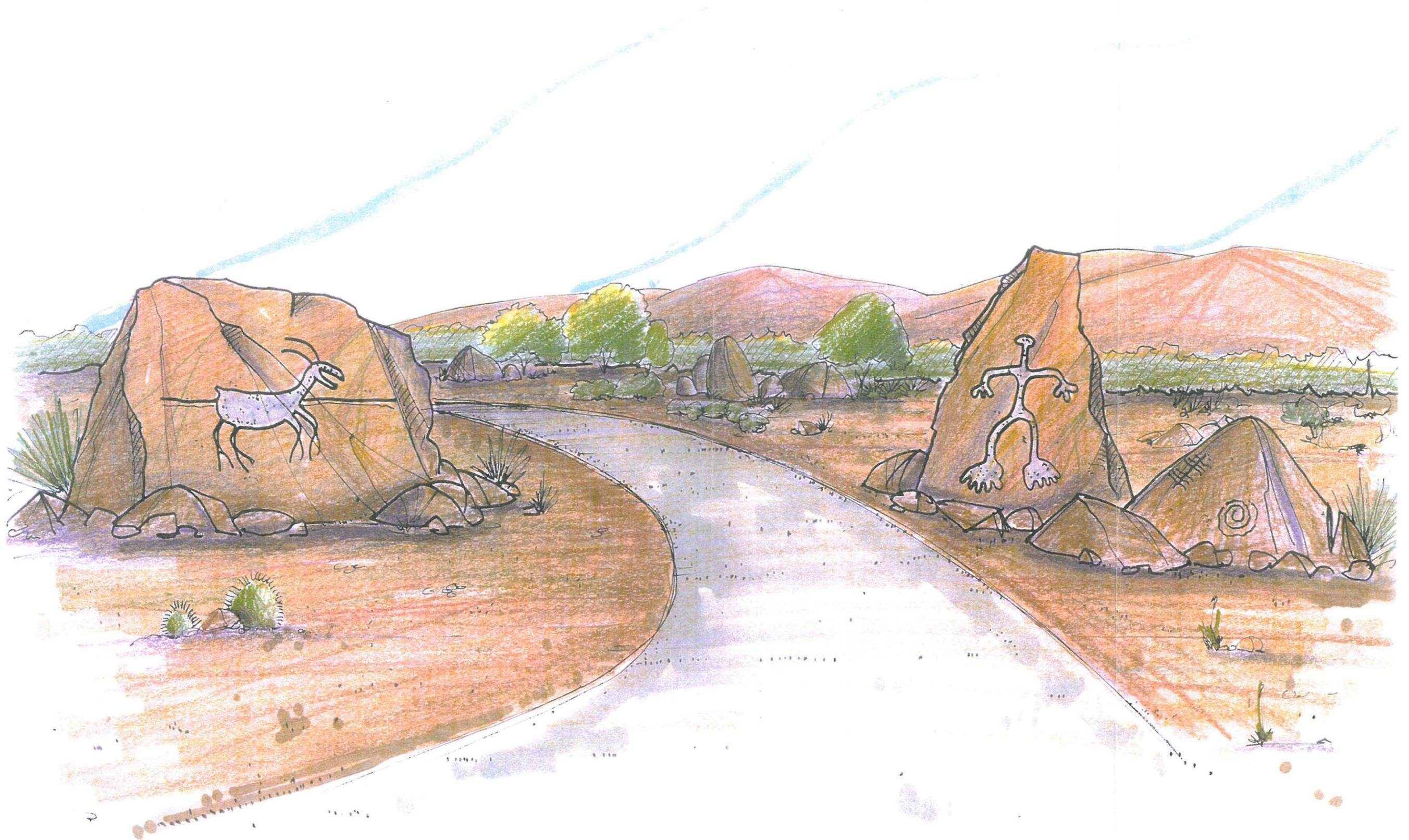


**Graphic 8. Historic Theme**

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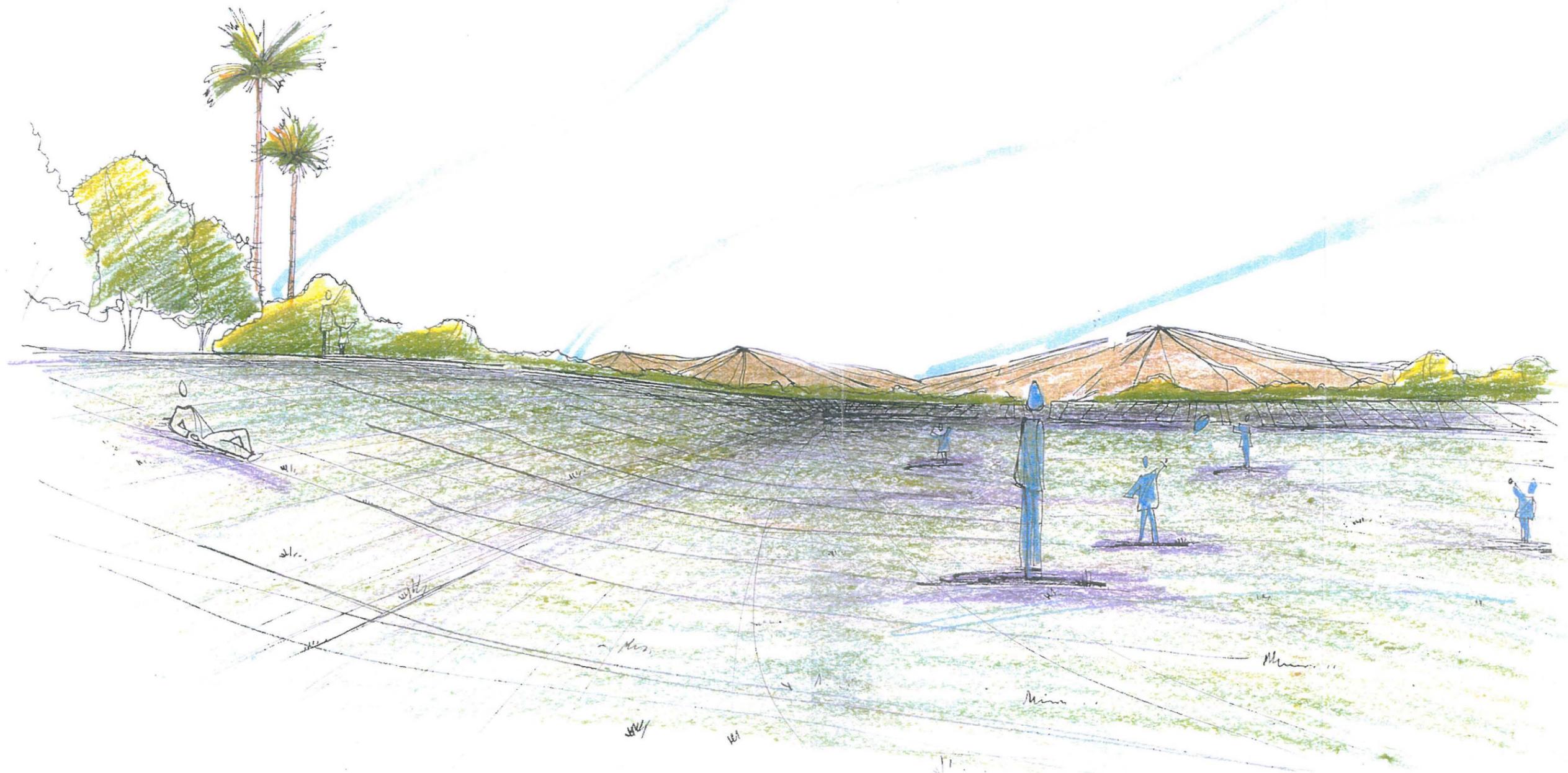


**Graphic 9. Cultural Theme**

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**Graphic 10. Recreational Theme**

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native materials for pathways and trails such as stabilized decomposed granite, and (5) creating an informal pattern of elements.

**Sonoran Desert Theme:** The landscape character theme associated with the Sonoran Desert area would reinforce the native Sonoran Desertscrub Biotic Community through: (1) planting of native trees, shrubs, and grasses, but no turf; (2) maintaining open views to the surrounding area; (3) utilizing native material for pathways and trails such as stabilized decomposed granite; and (4) creating an irregular more organic pattern of elements.

**Aircraft Theme:** This theme would reinforce the various aircraft facilities in the area through: (1) incorporating flood control facilities with existing airports and flight paths; and (2) incorporating elements of the various airports and airfields (old propellers, hanger facilities, jet engines, metal and fabric, etc.) throughout the study area.

**Railway Theme:** This theme would reinforce the various railway corridors in the area through: (1) incorporating flood control facilities with existing railway corridors; and (2) incorporating elements (railroad ties, steel rails, etc.) of the potentially abandoned railway corridors.

**Historic/Heritage Theme:** This theme would reinforce the various historic/heritage elements/sites found in the study area through: (1) incorporation of historic elements (structures, cotton, etc.) discovered through research of the site; and (2) incorporation of interpretive sites regarding the history of water, cotton, aircraft, and Goodyear Tire and Rubber Company etc.

**Cultural Theme:** This theme would reinforce the various cultural sites in the study area through: (1) incorporation of elements (Hohokam symbols, structures, etc.) found at the cultural sites; and (2) incorporation of interpretive sites regarding the early canals from the Hohokam to the present.

**Recreational Theme:** This theme would reinforce the various canals, flood control facilities, basins, and washes that could be: (1) modified to include new flood control measures as well as multi-use opportunities; (2) loop systems utilizing existing and proposed canals, basins, and washes could be used for local and regional races as well as linkages to other areas within the study area; and (3) to interpret the importance of water to the valley and this area.

### 1.02.9 Assessment of Visual Impacts

This task assesses the visual impacts of each alternative based upon evaluation criteria designed to measure the alternative's landscape aesthetic characteristics and benefits. This task will be completed in detail during the development and evaluation of alternatives.

## 1.03 MULTI-USE OPPORTUNITIES ASSESSMENT

### 1.03.1 Inventory of Existing and Future Planned Uses

#### Existing Land Use:

Review of current aerial photographic maps for the greater Phoenix area, several field reviews of the study area and a "windshield survey" along major streets and transportation routes were the methods used to identify the existing land uses. This research identified the existing land uses in the general categories of residential, commercial, agriculture, park/open space, industrial, public/quasi-public, and

vacant (Figure 4). The predominant land use throughout the study area is agricultural. Agriculture extends from the northern limits of the study area to the southern limits adjacent to the Gila River. Most development, as well as park/open space, occurs along the eastern and northern edges of the study area. Vacant/Undeveloped land typically occurs in the western portion of the study area adjacent to the White Tanks Mountains. Industrial areas occur south of I-10 along Litchfield Road and Buckeye Road.

### **General Plan Land Use:**

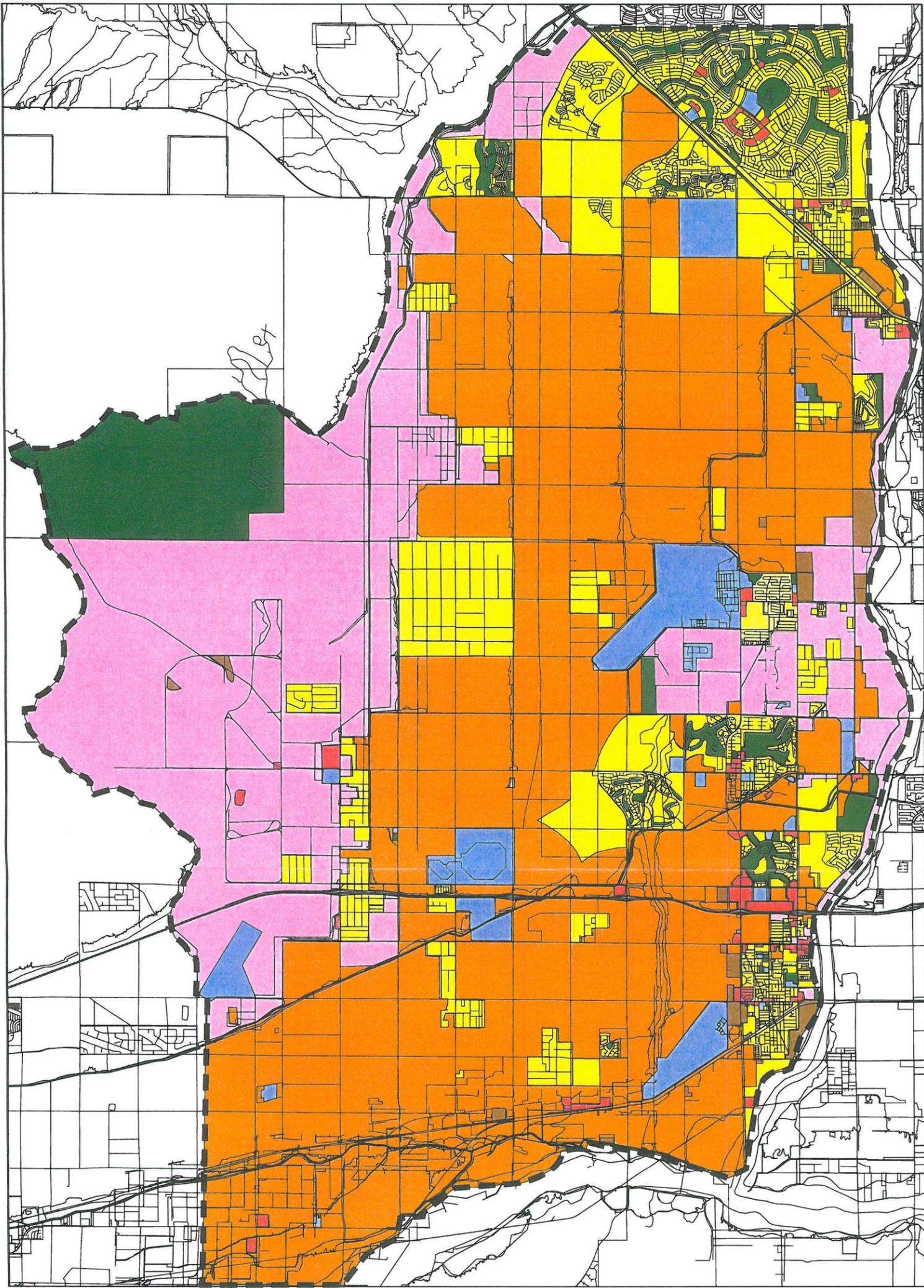
Adopted general plans from the respective municipalities of Buckeye, Goodyear, Avondale, Litchfield Park, Glendale, Surprise, El Mirage, and Maricopa County identify the general planned land uses within the Loop 303 Corridor / White Tanks ADMP Update study area. These land uses are divided into the categories of residential, commercial, mixed use, park/open space, general industrial, public/quasi-public, agricultural land, and vacant/undeveloped (Figure 5). As planned, almost all of the vacant/open space and agricultural areas are anticipated to convert to residential uses in the future. Only the lands surrounding Luke Air Force Base will not be converted to residential uses. These lands will either stay as agricultural or be converted to general industrial. Large pockets of general industry are also planned in the northern areas of the study area north of Peoria Avenue. Commercial strips are planned along the I-10, Grand Avenue, and Buckeye Road corridors. Pockets of commercial development are also anticipated to develop throughout the residential areas at major intersections and along major arterials.

### **1.03.2 Identification of Multi-Use Opportunities**

The information identifying multi-use opportunities was generated using the General Plans for each of the affected cities and site visits to the area. Existing and planned multi-modal transportation links were identified and include existing and planned multi-use pathways, existing canals, existing and planned bike lanes/trails, existing transit routes, and existing/proposed Loop 303. Major utility corridors were also identified.

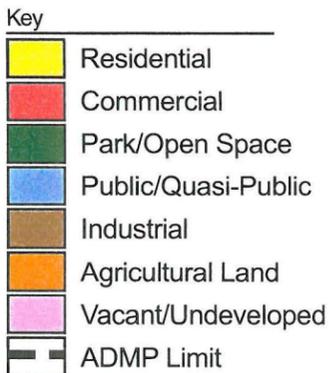
In general, identified multi-use trails available to the public are few, mostly associated with the Litchfield Park area. A segment of multi-use trail exists along the Agua Fria River between Indian School Road and McDowell Road. Another small segment of multi-use trail exists adjacent to El Mirage Road between Greenway Road and Waddell Road. Several proposed multi-use trails are planned to occur throughout the area. Multi-use trails are planned to be constructed along the Gila River and Agua Fria River as well as down Trilby Wash. The multi-use trail proposed along the Agua Fria River is planned to connect into the Lake Pleasant Regional Park. The Sun Circle trail is proposed to occur along Olive Avenue from Airport Road to Jackrabbit Trail north to Peoria Avenue, east along Peoria Avenue to El Mirage Road then south back to Olive Avenue where it will continue east. New flood control facilities could be located to help link these proposed and existing multi-use trails. New facilities should have sufficient right-of-way to allow for a meandering trail and earth contouring within the facility.

Existing parks/open spaces, and existing golf courses, flood control basins, utility corridors, schools, and retail/cultural/social centers have been identified in the study area. Significant parks in or adjacent to the study area include the White Tanks Mountains Regional Park, Estrella Mountain Regional Park, and the Bill Casey Recreation Area. In addition to these major regional facilities, both proposed and existing parks are located throughout the study area. These predominantly occur along the eastern side of the study area. New flood control facilities could be located to connect these major parks/open spaces. In addition, new flood control basins should be located at the proposed park locations identified in the study area. These flood control basins should be designed to accommodate future park uses such as soccer, softball, and court sports. These basins could also be designed to allow for some use during a



- Deer Valley Road
- Beardsley Road
- Union Hills Drive
- Bell Road
- Greenway Road
- Waddell Road
- Cactus Road
- Peoria Ave.
- Olive Ave.
- Northern Ave.
- Glendale Ave.
- Bethany Home Road
- Camelback Road
- Indian School Road
- Thomas Road
- McDowell Road
- Van Buren St.
- Buckeye Road
- Lower Buckeye Road
- Broadway Road
- Southern Ave.
- MC 85/Baseline
- Beloat Road

- 115th Ave.
- El Mirage Road
- Dysart Road
- Litchfield Road
- Bullard Ave.
- Estrella Pkwy.
- Sarival Ave.
- Cotton Lane
- Citrus Road
- Perryville Road
- Jackrabbitt Trail
- 207th Ave.
- Airport Road
- Dean Road
- Rainbow Road
- Watson Road
- Apache Road

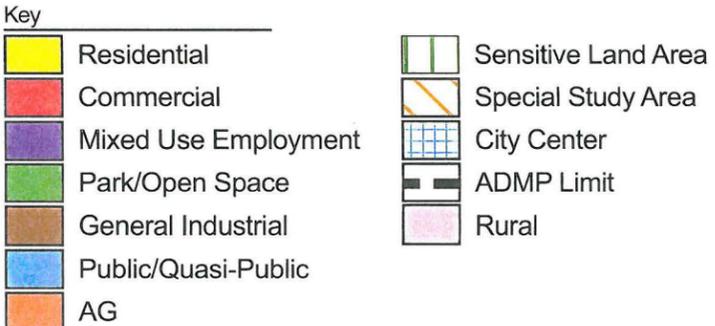
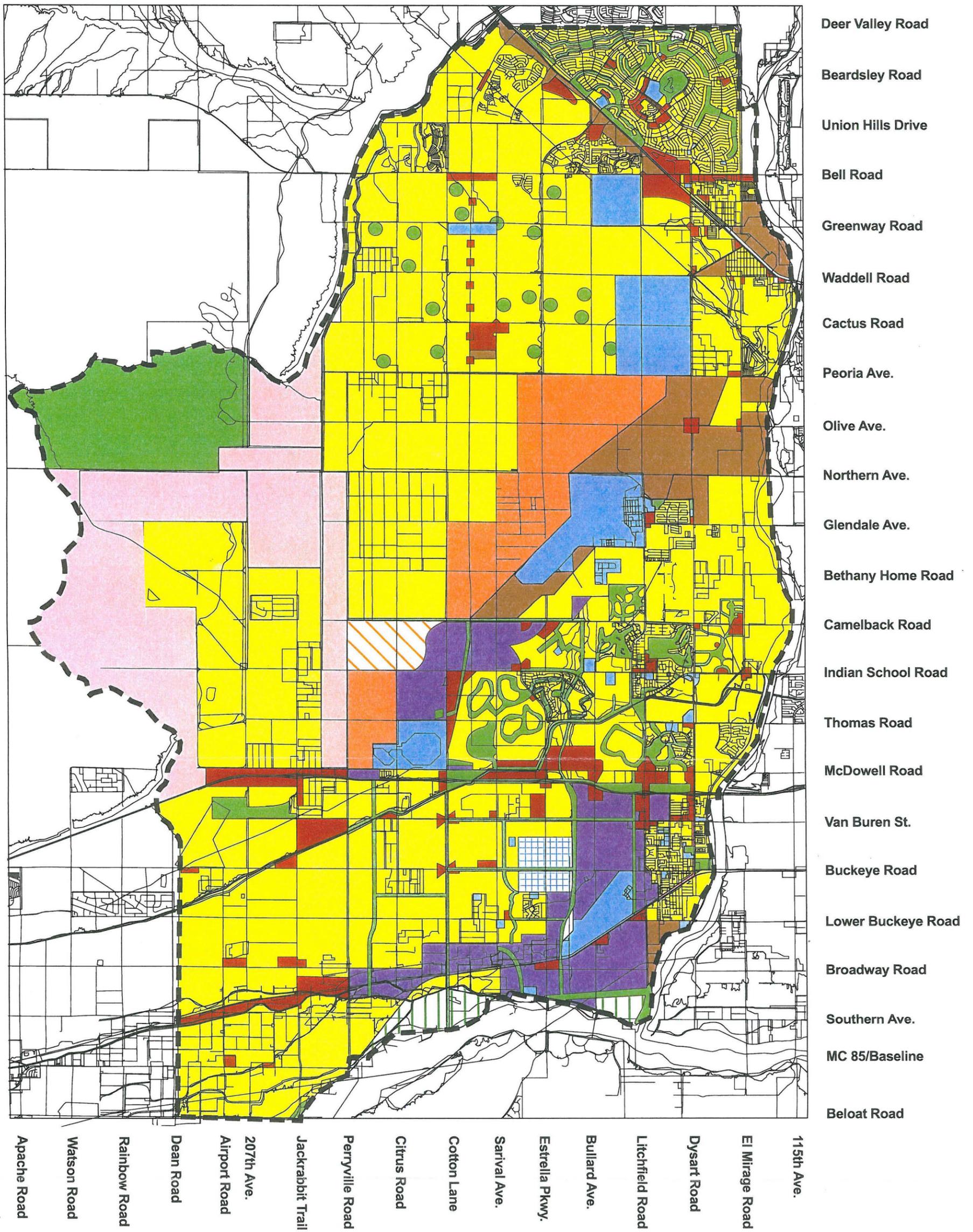


**Figure 4. Existing Land Use**

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**Figure 5. General Plan Land Use**  
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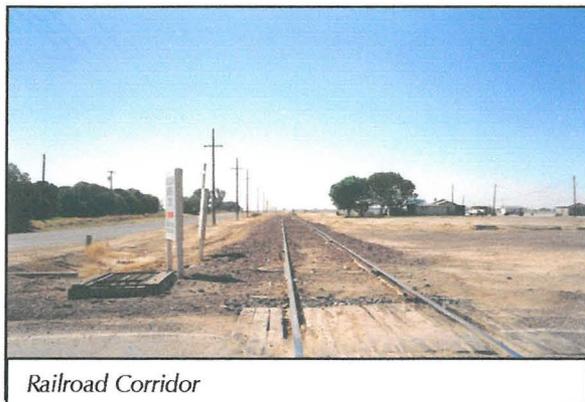
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ten year, two hour storm event. This could be accommodated through the design of varying levels within the basin. Sufficient land should be acquired to allow for basins with varying levels, varying side slopes, as well as for ground contouring along the top of the basin.

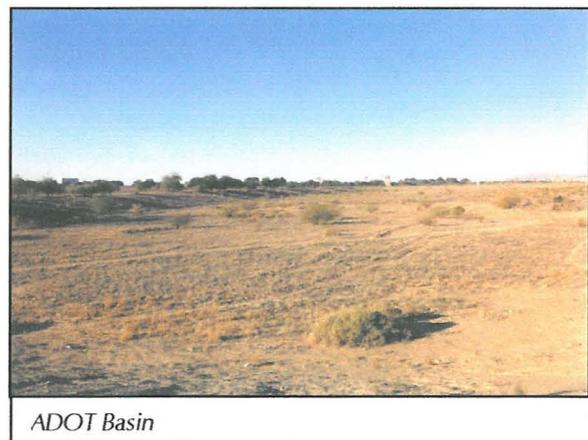
White Tanks #4 structure is a large earthen structure with a basin located on the north side. This facility could be reconfigured to possibly accommodate an amphitheater for performances. White Tanks #3 structure could be reconfigured to be a regional recreation facility. Multiple ballfields could be developed to accommodate regional tournaments.

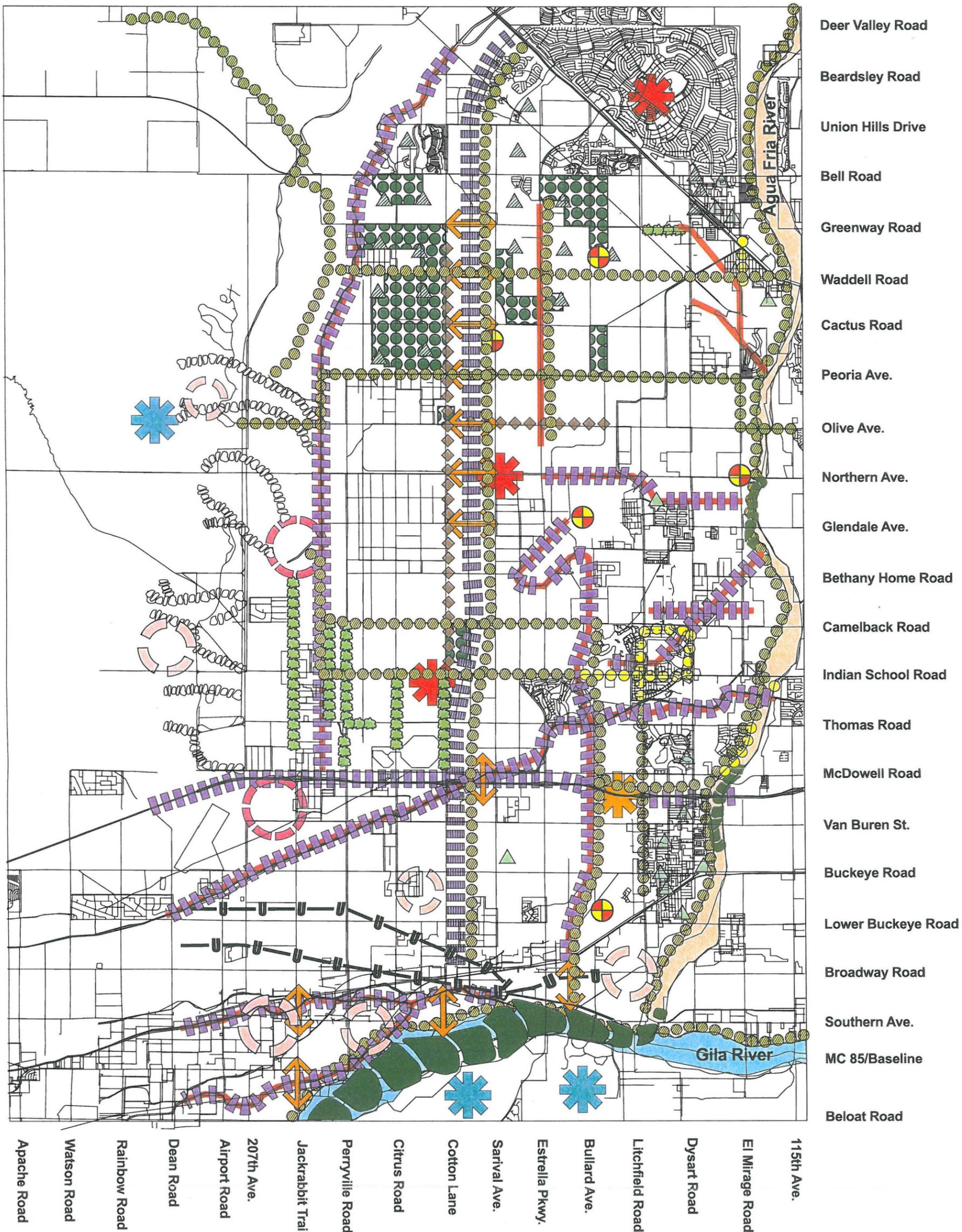
The inventory and evaluation of the environmental considerations associated with the Loop 303 Corridor / White Tanks ADMP Update study area was synthesized to identify the opportunities and constraints (planning influences) on the development of flood control measures and multi-use facilities (Figure 6). Opportunities for multi-use recreation include adding trail and pathway segments along the Agua Fria and Gila Rivers. There are few east-west connections between the White Tanks Mountains and the Agua Fria River. Therefore, it is recommended that a pedestrian linkage be constructed along Olive and Peoria avenues (Sun Circle Trail alignment) and an Intergovernmental Agreement (IGA) be established with the Roosevelt Irrigation District (RID) to allow for a pedestrian linkage to occur along the RID canal. A new drainage channel could be located along the proposed route of the Sun Circle trail. Sufficient right-of-way should be acquired so that a meandering multi-use trail can be incorporated into the design. This would provide a west-east connection from the White Tanks Mountains to the Aqua Fria River. It is also recommended that north-south pedestrian linkage connections be established, particularly between the Gila River and the White Tanks Mountains. Bullard Wash, Loop 303, and Jackrabbit Trail could be connected by a multi-use trail. These facilities could be designed or retrofitted to accommodate multi-use trails.



Portions of existing railroad corridors are abandoned. It is recommended that these corridors be utilized for flood control facilities, be developed with multi-use trails, and used to help establish linkages between use areas if practical.

Existing and planned transportation routes have a substantial affect on the development of multi-use and recreation opportunities within the study area (Figure 7). Transportation corridors are both a physical constraint and visual barrier that create opportunities specific to their physical characteristics. The Loop 303 corridor presents numerous challenges for the development of multi-use facilities, particularly for east-west oriented pedestrian trails due to the high roadway traffic volumes. However the Loop 303 corridor provides an opportunity for north-south pedestrian trails. Interstate 10 presents challenges in development of north-south corridors. The interstate is elevated and is fenced off and only allows for crossings under the





- Deer Valley Road
- Beardsley Road
- Union Hills Drive
- Bell Road
- Greenway Road
- Waddell Road
- Cactus Road
- Peoria Ave.
- Olive Ave.
- Northern Ave.
- Glendale Ave.
- Bethany Home Road
- Camelback Road
- Indian School Road
- Thomas Road
- McDowell Road
- Van Buren St.
- Buckeye Road
- Lower Buckeye Road
- Broadway Road
- Southern Ave.
- MC 85/Baseline
- Beloat Road

- Apache Road
- Watson Road
- Rainbow Road
- Dean Road
- Airport Road
- 207th Ave.
- Jackrabbit Trail
- Perryville Road
- Citrus Road
- Cotton Lane
- Sarival Ave.
- Estrella Pkwy.
- Bullard Ave.
- Litchfield Road
- Dysart Road
- EI Mirage Road
- 115th Ave.

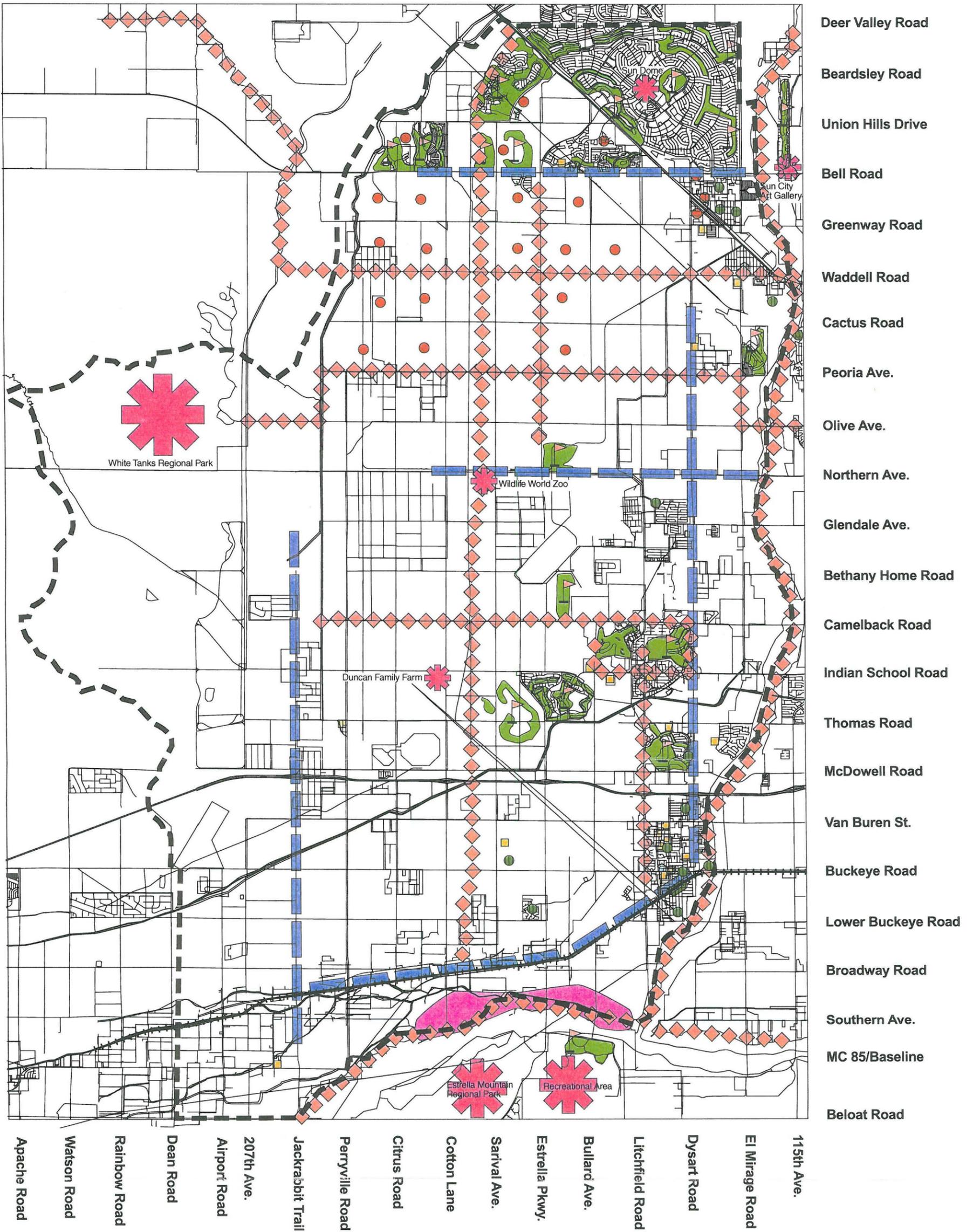
Physical/Visual Barrier	Natural Wash	Eucalyptus Windbreak
Future Physical/Visual Barrier	Point-of-Interest	Interpretive Opportunities
Existing Park/Open Space	Archaeological Sites (High Concentration)	ADOT Basins
Proposed Park/Open Space	Regional Parks/Recreational Areas	Existing Canals
Existing Trail	Orchard (Preservation)	ADMP Limit
Proposed Trail	White Tanks #3 and #4 Structures (Potential Recreation Areas)	
Riparian Habitat (Preservation)	Potential Abandoned Rail Corridor (Multi-Modal Opportunity)	
Potential Pedestrian Links	Utility Corridor	

**Figure 6. Planning Influences**

Revised October 2002 April 2000

Loop 303 Corridor/White Tanks ADMP Update





**Figure 7. Transportation, Land Use, Links & Nodes**

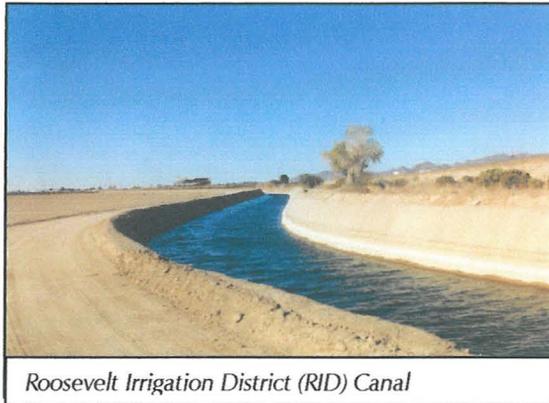
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freeway at major mile locations. However, because of the interstate, several large potential detention basins were created as borrow sites with the additional benefit to accommodate drainage. An IGA or purchase could be negotiated with ADOT and others to convert these basins into public use. Potential uses could include a golf course, soccer fields, softball/baseball fields, wildlife habitat, BMX courses, or large open space.

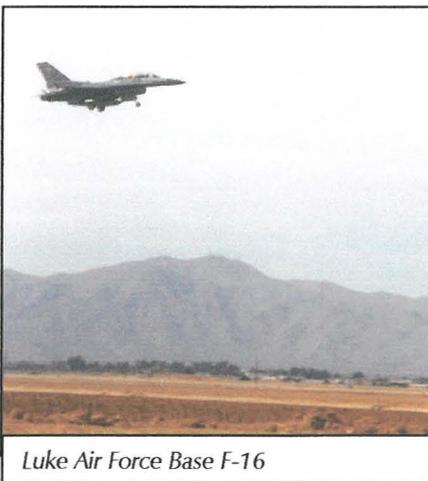
Existing canals and channels offer potential multi-use links both north-south and east-west. As mentioned previously, the RID could be retrofitted to include a multi-use trail connecting the west side of the study area to the Agua Fria River. Other canals and channels such as the Beardsly canal, Jackrabbit Wash Channel, Bullard Wash, Colter Channel, and the Buckeye Canal could also be utilized to offer multi-use trails connecting the various areas of the study area.



Roosevelt Irrigation District (RID) Canal

The study area contains substantial natural and cultural resources, which can enhance the recreation experience of users of any new trails, or path systems created as a result of this study. The known resources include xeriparian areas along the Agua Fria River, riparian areas along the Gila River, and numerous cultural sites. In particular, the Gila River is an important natural resource that contains high quality wildlife habitat and offers recreation opportunities. This resource is unique to the study area, and other similar riparian habitats are rapidly being lost in the Phoenix Metropolitan area due to urban encroachment. Even though other interests may alter the

resources during the expansion of suburban development, they should be avoided where possible (or minimally affected) by actions proposed by the District. The District's actions could establish the prototype for how to address drainage issues along the Gila River. The District is currently involved in a study known as the El Rio Vision that identifies this area and proposes the restoration of the river as well as providing multi-use activities.



Luke Air Force Base F-16

There are numerous areas throughout the study area that could be developed as interpretive areas. Examples would be around Luke Air Force Base and Goodyear Airport. Interpretive areas could be developed along the Dysart Drain and Bullard Wash to interpret the types of aircraft and the Air Force Base. This type of interpretive area could be created farther down Bullard Wash adjacent to Goodyear Airport. Interpretive areas could be developed revolving around the agricultural history of the area. There are existing cotton gins, orchards, vineyards, and rose fields that could be interpreted for the public. Potential location for these interpretive areas could occur along Reems Road Channel, Beardsley Canal, and Buckeye Canal. Another area of interest that could be interpreted throughout the study area is the railroad facilities. Major railroad

facilities occur adjacent to Grand Avenue and MC 85 along with spurs occurring adjacent to Cotton Lane, Olive Avenue, from Grand Avenue to Luke Air Force Base, and from MC 85 to I-10.

Other potential multi-use opportunities for new and existing flood control facilities include the restoration/preservation of wildlife habitat, creation of wildlife corridors, creation of agricultural heritage zones, mitigation banking, water quality remediation/improvements, and groundwater recharge.



Goodyear Airport

### **1.03.3 Assessment of Existing DISTRICT Facilities for Multi-Use Potential**

Refer to Section 4.12.2.4 Assessment of Existing DISTRICT Facilities.

### **1.03.4 Identification of Possible Partners and Funding Sources**

Potential partners and funding sources for multi-use facilities in the study area include the various Towns and Cities, various Developers located in the study area, Caterpillar, TEA-21 funds available from the Arizona Department Of Transportation (ADOT), County Parks and Recreation Department, Corp of Engineers, and Heritage funding from the Arizona Game and Fish Department. Several funding sources have been located through the Internet. These and other partners and funding sources will be explored during the development of alternatives for the study area. Partners and funding sources will be determined based upon the type of facility or activity that is being desired.

### **1.03.5 Implementation Guidelines**

Design standards and implementation guidelines for the integration of multi-use opportunities will be developed based upon the final alternative selected for the study area. These design standards and implementation guidelines will be utilized in project planning and design in subsequent phases of the project.

In general, flood control channels should be designed to incorporate some type of multi-use facility as well as provide visual interest through the use of plant material and ground contouring. Sufficient land should be acquired to accommodate a channel with meandering side slopes and channel bottom, a meandering multi-use trail, potential interpretive sites, and ground contouring.

Flood control basins should be designed to facilitate multi-use options as well as provide visual interest through the use of plant material and ground contouring. Sufficient land should be acquired to accommodate a basin that has varying levels and side slopes, provides sufficient open space for activities, and provides a buffer space at the top of the basin for ground contouring.

The design standards and implementation guidelines developed for the study area will tie the various proposed themes identified in this document with the desired landscape character for each area.