

# NORTH AREA CIRCULATION STUDY

## 1.0 INTRODUCTION

This report, the North Area Circulation Study, documents an analysis of potential transportation improvements to effectively manage traffic circulation and future demand in Scottsdale's predominantly rural, low density northern area. The purpose of this work is to develop and recommend strategic solutions that will maximize safety, travel options, and efficiency, and that will ensure transportation solutions in concert with the environmental sensitivity and aesthetic guidelines of the area. There is a diversity of viewpoints and "visions" for the North Area's transportation future: some residents would like to see speed limits on some streets increased, while others would like to see speed limits decreased. Noise is becoming an increasingly important issue to residents, as is access to Downtown, as well as design aesthetics. Residents of the northern area also recognize that there are trade-offs regarding access and maintaining a rural environment. The recommendations developed in this report are based on analyses that combine community, land use, economic, environmental, and traffic considerations, and are incorporated into the elements of the Scottsdale *Transportation Master Plan*.

The study area boundary for what is referred to as the North Area is: the City's municipal boundary north of the Central Arizona Project (CAP) Canal and the Loop 101 Freeway. Abutting this area is the city of Phoenix to the west; the towns of Cave Creek and Carefree, and the Tonto National Forest to the north; the Maricopa County McDowell Mountain Regional Park, Maricopa County lands, and the Tonto National Forest to the east; and Salt River Pima-Maricopa Indian Community to the south. The study area encompasses approximately 134 square miles, which accounts for approximately 70 percent of the City's entire land area (Figure 8-1). In general, this study area is coordinated with lands that are subject to the Environmentally Sensitive Lands Ordinance (ESLO) zoning overlay district.

## 2.0 NORTHERN SCOTTSDALE BACKGROUND

### 2.1 Scenic and Desert Preservation

The City of Scottsdale annexed much of this area from Maricopa County in the early to mid-1980s, with a goal to minimize development and preserve the rural and equestrian character, consistent with the Sonoran Desert. In many respects, this goal has been achieved. For example, Scottsdale Road, north of Happy Valley Road, was designated by Maricopa County in the early 1960s as the Desert Foothills Scenic Drive. Today this 17-mile route runs through four municipalities – Scottsdale, Cave Creek, Carefree, and Phoenix. Residents have created plant identification signs and entry monuments to welcome visitors and residents alike to the "most beautiful desert in the world." This roadway has retained its status as a preeminent scenic corridor for more than four decades, and it is expected that this status will be maintained well into the future. Other scenic roadways will be discussed in more detail later in this report.

The 13,423-acre<sup>1</sup> McDowell Sonoran Preserve (within Scottsdale; 860 acres in Fountain Hills are also protected), deemed a natural preservation area through past City Council action and community support, serves as a natural buffer from development encroachment. An additional 13,000+/- acres of State Trust Land within the Recommended Study Boundary of the McDowell

<sup>1</sup> As of March 2007; <http://www.scottsdaleaz.gov/preserve.asp>

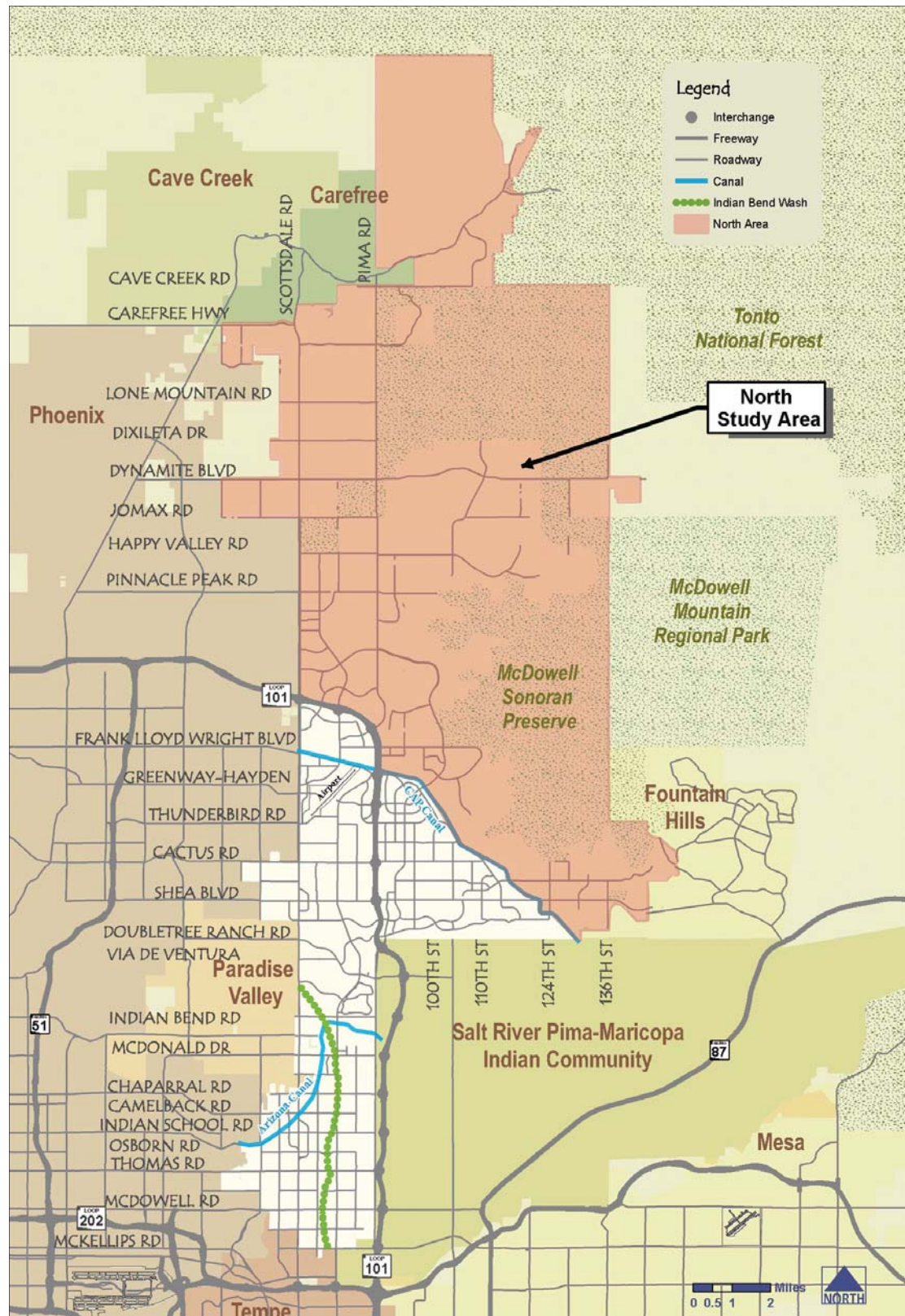


FIGURE 8-1: North Area Study Area



Sonoran Preserve was reclassified as suitable for preservation by the State Land Commissioner in 2001. The total land area desired for the McDowell Sonoran Preserve is 36,400 acres, or approximately one third of the City's entire land area.

## 2.2 Development Patterns and Planning

The City has grown from south to north, with distinctly different development patterns and characteristics between southern, central, and northern Scottsdale. These differences require transportation improvement responses tailored to the needs of each area.

Northern Scottsdale's land use is predominantly low density, single-family residential, with limited commercial centers. Newer residential development, such as DC Ranch, ranges from three units to the acre to less than one unit per acre, and offers extensive trails and paths within each project. Older subdivisions are predominantly large lot, single family developments. Other development includes metes and bounds lots, usually one acre or larger and often accessed by unpaved roads. Commercial development is predominantly located at arterial intersections, such as the Scottsdale Road/Carefree Highway, Scottsdale Road/Dove Valley Road, Scottsdale Road/Pinnacle Peak Road, and Pima Road/Pinnacle Peak Road intersections.

Key destinations within northern Scottsdale include, but are not limited to the following (Figure 8-2 – reference numbers in parenthesis):

- ▶ Shopping opportunities at: El Pedregal, The Summit, Scottsdale and Pinnacle Peak roads, Pima and Pinnacle Peak roads, and Market Street in DC Ranch (identified by red stars on map);
- ▶ Resort facilities at the Boulders (1), the Four Seasons (3), and Princess (6) resorts ;
- ▶ Heard Museum North (2)
- ▶ Scottsdale Healthcare Thompson Peak Hospital (4);
- ▶ One Scottsdale (planned) (5);
- ▶ WestWorld (7);
- ▶ McDowell Mountain Ranch Aquatic and Fitness Center and Arabian Library (8);
- ▶ Mayo Clinic (9);
- ▶ McDowell Sonoran Preserve (10);
- ▶ Cave Creek Unified and Scottsdale Unified School District schools (identified by school symbol);
- ▶ Parks and trail facilities;
- ▶ Golf courses at master planned communities; and
- ▶ Access to the McDowell Sonoran Preserve (♦).

Key master planned development areas within northern Scottsdale include McDowell Mountain Ranch, DC Ranch, Troon North, Troon Village, Troon Ridge Estates, Estancia, the Boulders, Terravita, Bellasera,

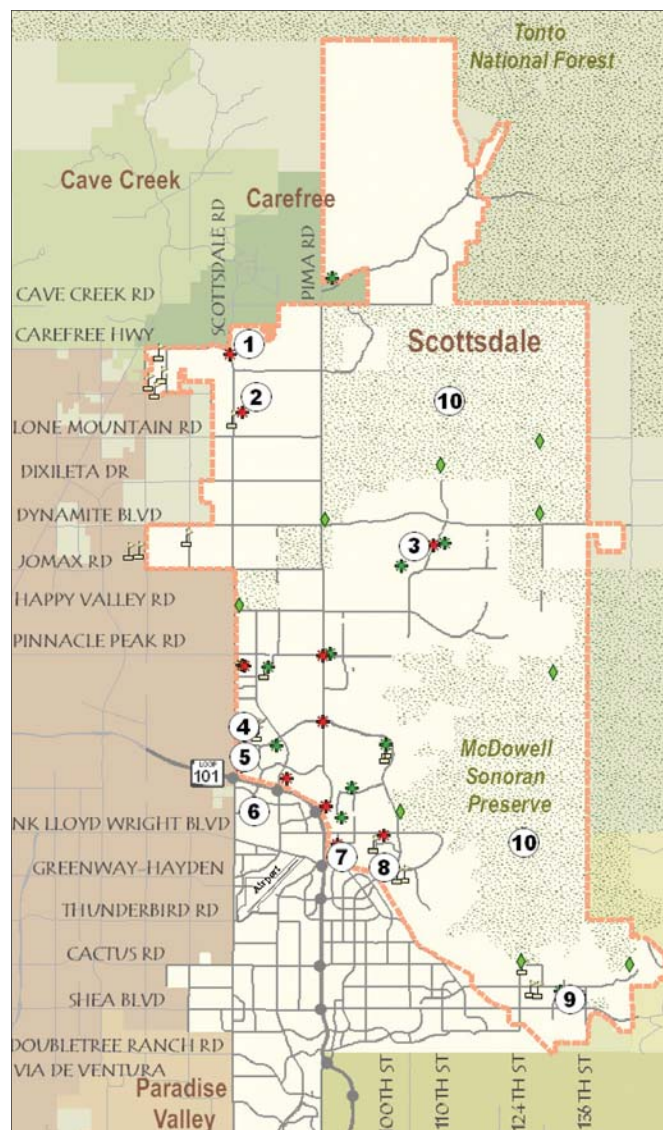


FIGURE 8-2: Key Destinations

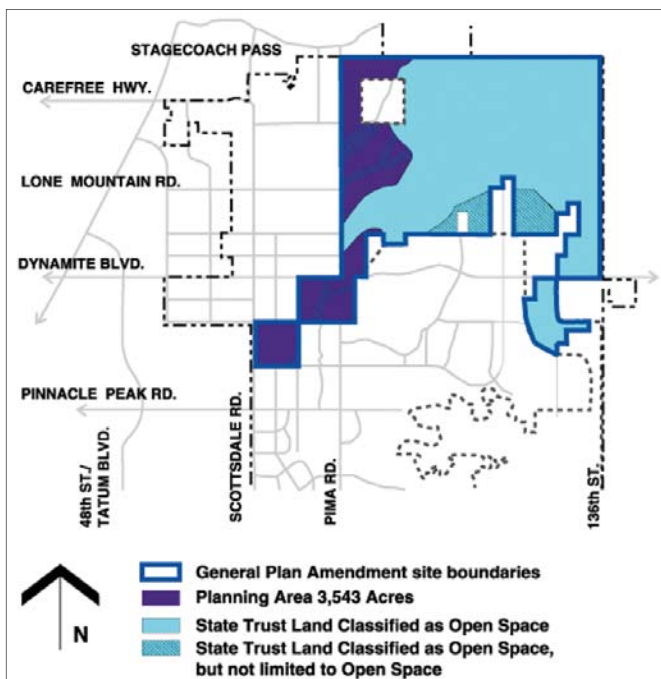
Desert Highlands, Scottsdale Mountain, Winfield, Whisper Rock, Legend Trail, Grayhawk, and Desert Mountain. (Figure 8-3)

## 2.3 The General Plan and Character Area Plans

Throughout the Scottsdale *General Plan*, an acknowledgement of the diversity of the City is apparent. Different types of land uses, transportation facilities, designated growth areas and activity centers, and character are supported through the goals and policies of the *General Plan*. When looking at the transportation system, the *General Plan* discusses goals of neighborhood mobility in terms of local character and the needs and lifestyle of the area. For example, in much of the North Area the equestrian lifestyle is celebrated and maintained through equestrian facilities, both commercial and residential, and trails for riding. Throughout the *Transportation Master Plan*, context-sensitive design is encouraged, and its application will be apparent in the North Area.

Character Area Plans were developed following the CityShape 2020 process (1996) which addressed citywide planning issues, development of character areas and neighborhood plans as part of the three-level *General Plan*. Character areas were intended to help guide future development patterns throughout Scottsdale by defining, maintaining, or enhancing a desired “character” for each area. Two of the adopted character areas, Desert Foothills and Dynamite Foothills, are located in the North Area (Figure 8-4).

The Scottsdale City Council adopted the Desert Foothills Character Area Plan in July 1999, and the Dynamite Foothills Character Area Plan in March 2000. Both of the Character Area Plans contain guidelines regarding the design of public roadways (scenic corridors, collector streets, and local streets), shared-use trails and paths, and public school roadways. The implementation of the Desert Foothills Character Area Plan included the establishment of a zoning overlay district that was applied to the Desert Foothills area in March 2003.



General Plan Amendment, October 2002

### 2.3.1 General Plan Amendment, October 2002

In October 2002, the City Council approved a major *General Plan* amendment for approximately 16,600 acres of State Trust Lands within the Recommended Study Boundary of the McDowell Sonoran Preserve. The project area included State Trust Lands that were the subject of the City’s Arizona Preserve Initiative application in 1998 and the State Land Commissioner’s decision regarding that application in 2001. The 16,600 acres are located generally between Scottsdale Road on the west, 136th Street on the east, Stagecoach Pass on the north, and Happy Valley Road on the south (see map to the left). In 2001, the State Land Commissioner responded to the City’s application by reclassifying 13,021 of the approximately 16,600 acres (in light blue on map) as land “suitable for conservation purposes,” and identified the remaining 3,543 acres (in purple on the map) as State Trust Land that can potentially be developed. Through the *General Plan* amendment, a little over 6,200 dwelling



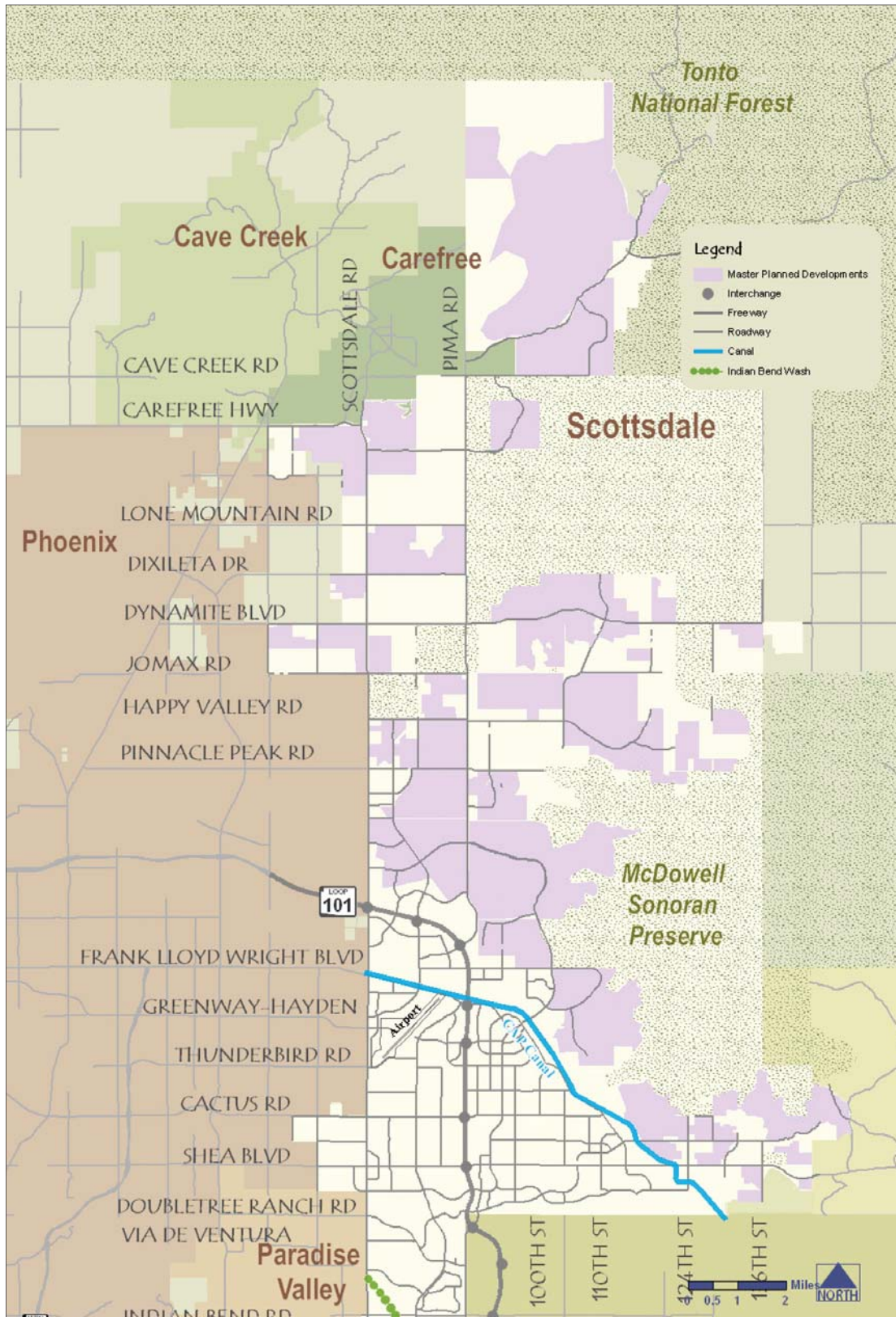


FIGURE 8-3: Master Planned Developments in Northern Scottsdale

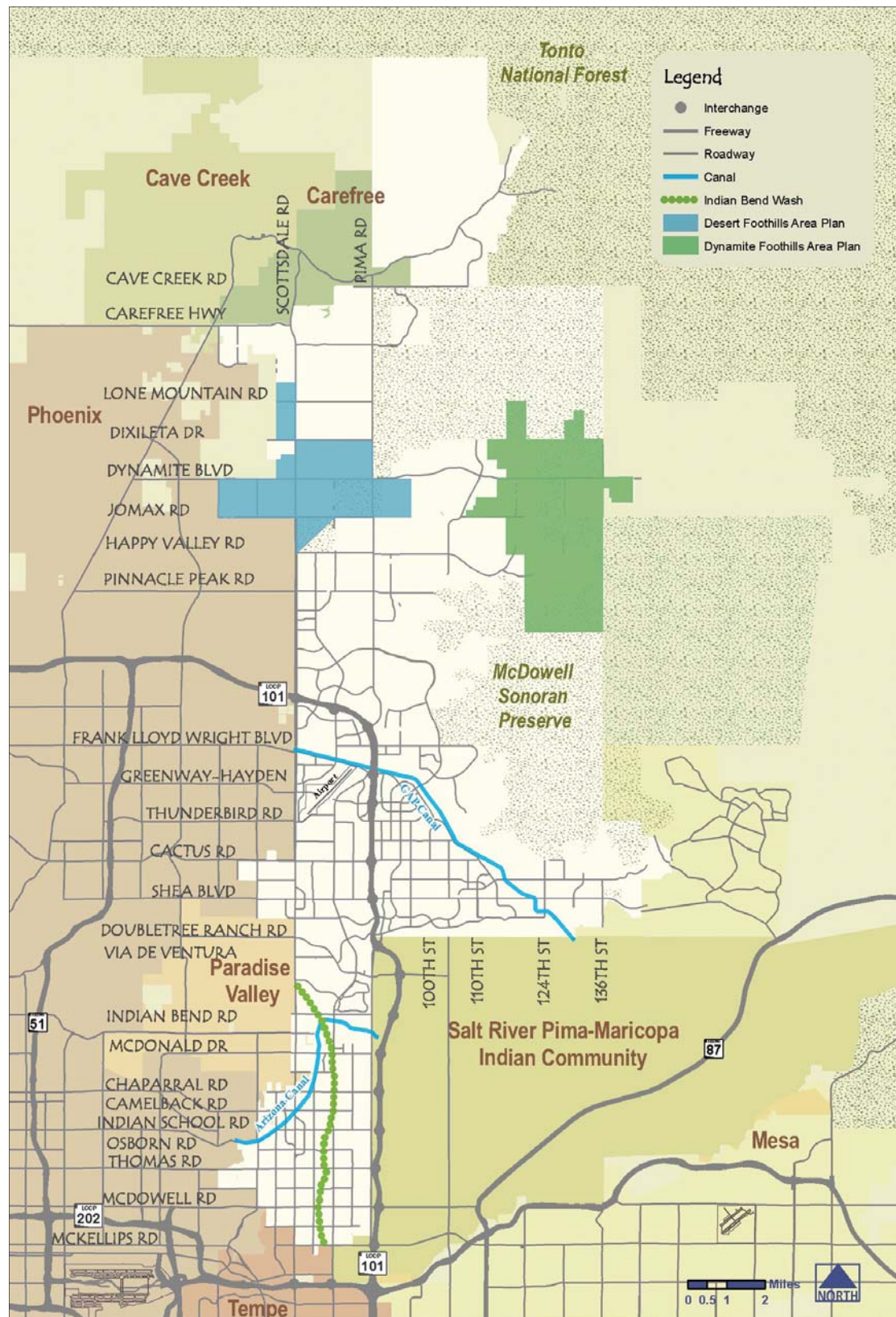


FIGURE 8-4: Adopted Character Area Plans



units were approved for the planning area that could be developed. The previous *General Plan* would have allowed approximately 7,850 dwelling units. Exact zoning and dwelling unit count will be determined through any future rezoning and was beyond the scope of this *General Plan* amendment. Through this *General Plan* amendment, Lone Mountain Parkway through the McDowell Sonoran Preserve (from Pima northeast to Stagecoach Pass) was removed from *General Plan* base maps, indicating the Council's desire to remove roads from the McDowell Sonoran Preserve other than those roads designated for Preserve access.

### 2.3.2 Desert Foothills Character Area Plan (1999) Summary

The Desert Foothills character area is approximately 8 square miles, generally located between Dixileta Drive to the north, Jomax Road to the south, the City's western boundary, and 96th Street to the east. Goals for this area are:

1. Preserve the natural, visual qualities of the lush upper Sonoran Desert by using desert-sensitive building techniques that retain and blend with the natural desert character of the area.
2. Promote connected areas of desert open space and trails through visual and functional linkages within and between local neighborhoods and a regional open space network.
3. Identify and celebrate the rural desert character experienced in the Desert Foothills study area that will result in or maintain a unique desert community distinguished from other parts of Scottsdale and the metropolitan area.

During the process of creating the *Desert Foothills Character Area Plan*, residents, property owners, and local interests consistently stated their desire to maintain the rustic, rural qualities in the area while preserving the dominance of the lush upper Sonoran Desert. The residents and property owners stated they must be the "caretakers" of this desert to ensure that it can be enjoyed by future generations.

The Design Guidelines and the Foothills Overlay (discussed in Section 2.4.2 Foothills Overlay) illustrate building alternatives in the Desert Foothills area that preserve the dominance of the natural desert setting and maintain a low scale, openness to the neighborhoods.

### 2.3.3 Dynamite Foothills Character Area Plan (2000) Summary

The Dynamite Foothills area is located in northeast Scottsdale between the McDowell Mountains and the Lone Mountain Road alignment, and east of 112th Street to the City boundary primarily at 136th Street. The area contains desert vistas, broad open spaces, and an attractive desert environment. It remains primarily undeveloped. A portion of the area is included in the Recommended Study Boundary of the McDowell Sonoran Preserve. Because of the Dynamite Foothills' remote location, its isolation from urban centers of the Valley, and its environmental features and constraints, the vision for this area is that of a rural desert character. Key to maintaining and achieving this vision is the element of openness, through undisturbed desert, minimal impact of development, open view corridors, low buildings heights, and maintaining natural desert vegetation. Guidelines for the Dynamite Foothills focus on these elements of openness. Goals for the Dynamite Foothills character area are:

1. Preserve the existing rural desert character for the Dynamite Foothills which will result in a unique desert community distinguished from other parts of Scottsdale and the Valley.

2. Recognize the topographic diversity of the Dynamite Foothills area and provide guidelines for balancing the relationship of different types of development to the unique environmental nature of the area.
3. Promote open space in accordance with the CityShape 2020 Guiding Principles and the recommendations of the Desert Preservation Task Force, and support the efforts of the McDowell Sonoran Preserve Commission to provide open space.

The Design Guidelines for the Dynamite Foothills Character Area illustrate building alternatives that preserve the natural desert setting and a feeling of openness.

### 2.3.4 Local Area Master Plans – Local Area Infrastructure Plans

In addition to the Character Area Plans developed for sections of the North Area, local area infrastructure plans have been drafted for some areas of the City outside of master planned communities. The purpose of these plans is to guide local decisions for infrastructure improvement (streets, water, trails, etc.) and related development, and to help coordinate the efforts of various City departments (Transportation, Water Resources, Emergency Services, Preservation, Planning) in providing these necessary services. These plans have not been approved or adopted by an official body, but serve as guides for City staff when reviewing development proposals.

A set of goals were developed for local area infrastructure plans to help guide the need and location of planned service infrastructure and are based on the City of Scottsdale *General Plan* and the City Council's goals:

- ▶ Coordinate infrastructure (streets, water, trails, etc.) so that they are not planned independently of one another.
- ▶ Create a neighborhood design that establishes a balance between accessibility and access control and builds only the streets that are needed to serve each parcel.
- ▶ Coordinate the location of utilities and public access improvements to reduce long-term costs and minimize disruptions to neighborhoods.
- ▶ Provide predictability for City budgeting and maintenance programs.
- ▶ Provide consistency in decision making across the City while also allowing for the ability to make informed site decisions that would alter the plans.
- ▶ Increase public awareness about what may happen in their neighborhood regarding infrastructure.
- ▶ Provide property owners with consistent information regarding planned service infrastructure as it relates to their property.

Additionally, specific goals and objectives were created for each infrastructure area including transportation, trails, water resources, and environmental. The transportation goals and objectives are:

Transportation local area infrastructure goals:

- A. Provide a safe and efficient transportation system;
- B. Maintain and improve traffic flow on the major street network;
- C. Protect neighborhoods from unwanted through traffic;
- D. Maintain existing/utilized street layout whenever possible; and
- E. Minimize the cost of the infrastructure/street improvements.



## Transportation Objectives and Policies

- a) Provide at a minimum, one City-maintained access to each lot that meets City emergency access standards. (Goal A, C, D).
- b) Reduce the number of access points along the arterial street system to improve safety and increase capacity. (Goal A, B).
- c) Promote a local circulation system that creates connections from local streets to collector streets that have controlled access to the arterials. (Goal A, B, C).
- d) Limit direct residential access to arterial and collector streets to reduce the negative effects of through traffic to the residents. (Goal A, B, C).
- e) Provide short residential streets that do not provide convenient cut through routes for through traffic. (Goal A, C)
- f) Use the existing roads, ROW, and Government Land Office patent easements locations, as well as minimize new roads wherever feasible. (Goal D, E)
- g) Coordinate streets with existing and planned infrastructure such as water lines, sewer lines, utility lines and trails. (Goal D, E)
- h) Avoid street crossings of large washes. (Goal A, D, E)
- i) Provide the minimum amount of disturbance to the natural desert and the neighborhood. (Goal B, C, D)
- j) In the event of changes to local area infrastructure plan maps or when requests for right-of-way abandonment occur, the City should maintain existing dedicated street right-of-way unless alternative street easements have been secured to maintain local circulation needs. (Goal A,D,E)

These general goals and specific transportation goals are also included in the Policy Element of the *Transportation Master Plan* and the goals and policies of the local area infrastructure plans are adopted as part of the *Transportation Master Plan*. The maps displaying recommended infrastructure are appended to the Streets Element of the *Transportation Master Plan* and adopted by reference. Significant public outreach will be required prior to finalizing the maps, which will be revised when/if conditions change.

## 2.4 City Zoning Ordinances and Development Regulations

In the developed portions of northern Scottsdale, the City zoning ordinances and development regulations, such as the ESLO, are more stringent than the ordinances and regulations from when this area was the jurisdiction of Maricopa County. These requirements have resulted in minimal commercial development and primarily large acreage residential property. It is likely that this land would have developed with a greater intensity had the land remained within the jurisdiction of Maricopa County which had an overall zoning category of one dwelling unit per acre. Soon after annexation, the City rezoned a large area of the newly annexed lands to 2-, 3-, and 5-acre lot zoning districts. One of the contrasts in this portion of Scottsdale occurs along Scottsdale Road. Generally, west of Scottsdale Road is the jurisdiction of the city of Phoenix and east of Scottsdale Road is the jurisdiction of the City of Scottsdale. The Phoenix side of

Scottsdale Road is planned to develop greater intensity than the Scottsdale side (development to date in Phoenix is outside of the North Area).

### **2.4.1 Environmentally Sensitive Lands Ordinance (ESLO)**

The ESLO is a set of zoning regulations adopted by the City Council in 1991 (amended in 2001, 2003, and 2004) to guide development throughout the 134 square miles of desert and mountain areas of Scottsdale. These areas are located north and east of the CAP Canal. The intent and purpose of the ESLO is to identify and protect environmentally sensitive lands in the City and to promote public health and safety by controlling development on these lands. The ordinance requires that a percentage of each property be permanently preserved as natural area open space (NAOS) and that specific environmental features, including vegetation, washes, mountain ridges and peaks, are protected from inappropriate development.

### **2.4.2 Foothills Overlay (F-O)**

The Foothills Overlay (F-O) zoning district provides a means to recognize and preserve the rural desert character in the low density unsubdivided and undeveloped lands of the Desert Foothills area (generally between Dixileta Drive to the north, Jomax Road to the south, 56th Street to the west, and 96th Street to the east). The Foothills Overlay defines additional standards over and above the base zoning that help to result in minimum visual impact of development and furthers the purposes of the ESLO as it relates to preservation of the desert and blending the built form into the desert environment.

## **2.5 Population**

Although northern Scottsdale's population is projected to increase 150 percent from approximately 45,500 people in 2000 to 113,000 people in 2030, and increased densities are anticipated from .51 persons per developed residential acre in 2000 to a projected 1.27 persons per developed residential acre in 2030, the northern area will still be Scottsdale's least populated area, consisting of smaller households than other sections of the City (Figure 8-5). According to the 2000 Federal Decennial Census, approximately 22 percent of the City's total population, 19 percent of total households, and 12 percent of the City's employment were in the North Area. The community demographics, coupled with the low-density land use patterns imply an area that is less likely to be transit-dependent. Detailed discussion on demographics is contained in the *Transportation Master Plan Existing Conditions Report*.

## **2.6 Scenic Roadway Designations**

Throughout the northern area of Scottsdale, roadways have been designated scenic roadways through the *General Plan* since 1976, and have been further defined through *Scenic Corridor Design Guidelines* adopted by the Development Review Board in 2003. The *General Plan* Open Space and Recreation Element map designates Scenic Corridors and Buffered Roadways.

Existing Scenic Corridors are:

- ▶ Scottsdale Road (north of the CAP Canal)
- ▶ Pima Road (north of the Loop 101 Freeway)
- ▶ Dynamite Boulevard
- ▶ Shea Boulevard
- ▶ Carefree Highway
- ▶ Cave Creek Road

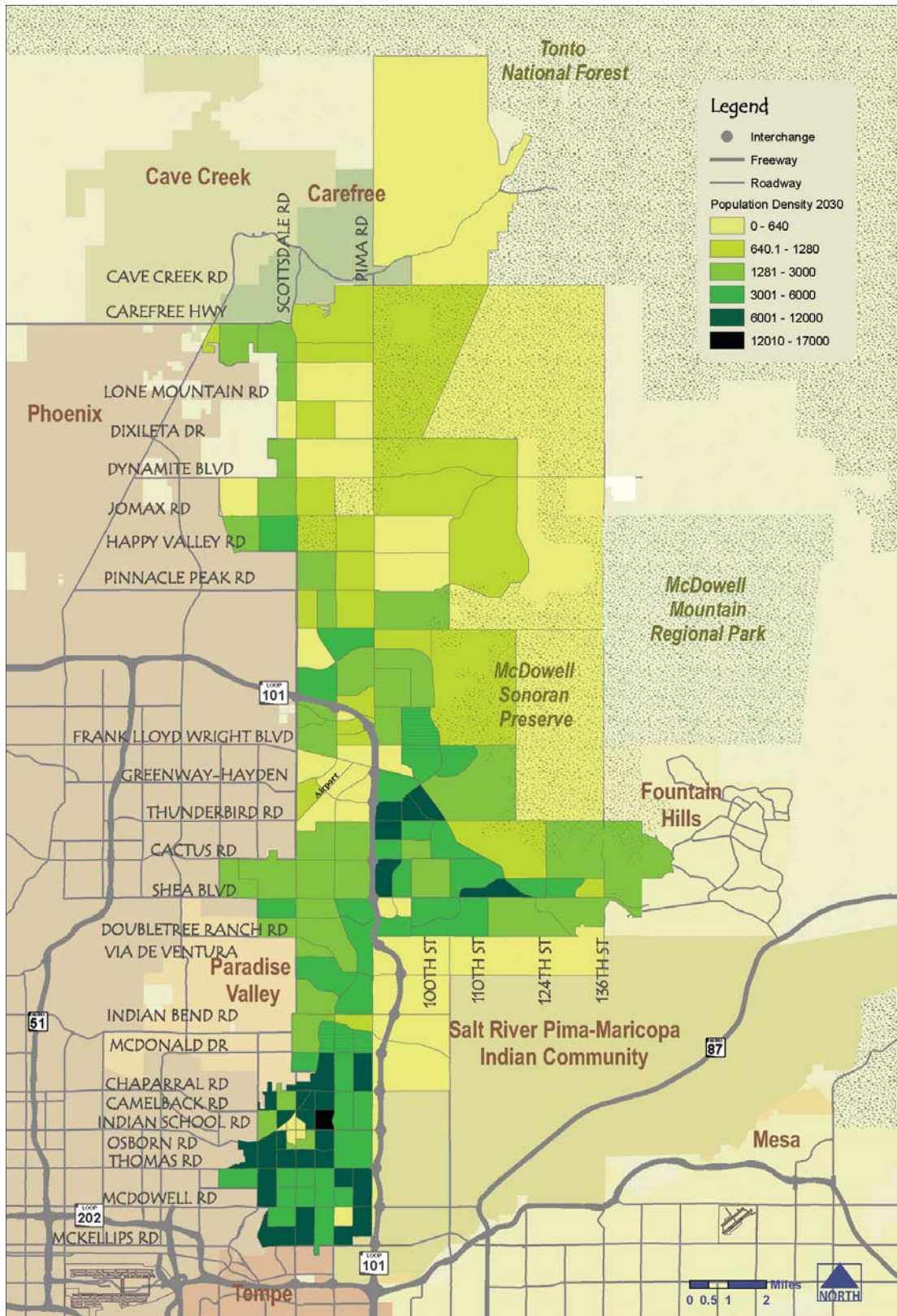


FIGURE 8-5: 2030 Projected Citywide Population



Existing Buffered Roadways include:

- ▶ Via Linda
- ▶ Frank Lloyd Wright Boulevard
- ▶ Hayden Road through the Airpark
- ▶ Thompson Peak Parkway
- ▶ Happy Valley Road
- ▶ Lone Mountain Road
- ▶ Desert Mountain Parkway
- ▶ Bell Road

The designation of Scottsdale's scenic roadways (Scenic Corridors and Buffered Roadways) is established as a hierarchy. Scenic Corridors are the largest roadways, with regional connectivity for both traffic and trails. The scenic setbacks of Scenic Corridors are also the largest, at 100 feet. Buffered Roadways are also major roadways, but smaller in scale (usually minor arterials or major collectors), with citywide rather than regional traffic and trails. The setbacks of Buffered Roadways are usually 40 to 50 feet. Buffered Roadways do not currently have specific design guidelines like the *Scenic Corridor Design Guidelines*.

Throughout 2002–2003, *Scenic Corridor Design Guidelines* were developed and taken through a public process and hearing with the Development Review Board for adoption. These guidelines clearly identify the setbacks (100 feet with some exceptions) and design elements for Scenic Corridors. The setback is measured from the back of planned ultimate right-of-way with some exceptions. Development within the setback is limited to revegetation, non-vehicular travel ways (e.g., shared-use paths, walks, and trails with a meandering alignment), regional drainage structures, limited cross-access, and limited signs (as allowed by the sign ordinance). The scenic setback may be used as NAOS and counted as required open space. No walls should be located within the scenic setback; walls abutting Scenic Corridors should be low, meandering, and unobtrusive to enhance the visual open space aesthetic. The guidelines were adopted by the Development Review Board in February 2003.

In October 2004, the City Council adopted a *General Plan* amendment to add Bell Road to the Buffered Roadway designation and add a third level of scenic roadway designation called “Desert Scenic Roadway.” Desert Scenic Roadways apply to the one-mile and half-mile roads within the City's ESLO district (similar in area to the North Area) that are not already designated as a Scenic Corridor or Buffered Roadway. The setbacks of these roadways vary based on the topography and specific site conditions and rely on the placement of required NAOS and zoning setbacks to achieve the open space corridor along the roads. The City Council also adopted the application of a 100-foot scenic buffer along streets within and adjacent to the Recommended Study Boundary of the McDowell Sonoran Preserve on undeveloped (as of October 4, 2005) properties of 25 acres or larger.

These scenic roadways have an influence on northern area roadways and provision of non-motorized transportation facilities due to the larger setbacks and design considerations that acknowledge the unique topography and natural features of the desert character northern area.

## 2.7 The Great Sonoran Desert Design Concepts

In October 1996, a group of citizens presented to the City a set of principles and guidelines for planning, landscaping, architectural design, and lighting called *The Great Sonoran*. These desert design concepts were proposed to achieve minimum visual impact of the built environment on the natural desert setting. The City worked to incorporate these ideas into existing efforts to enhance and elevate desert and mountain preservation, such as the ESLO and the Foothills Overlay.

## 3.0 EXISTING AND FUTURE CONDITIONS

### 3.1 Streets and Circulation

The City of Scottsdale currently classifies roadways as major or minor arterials, major or minor collectors, and local streets (collector, residential, and commercial/industrial). This system does not identify roadways more specifically than these general classifications. The *Streets Master Plan* Street Classification Map, adopted in 2003, shows the roadways that are classified major or minor collectors, major or minor arterials, and freeways. The *Design Standards and Policies Manual (DS&PM)* identifies sub-classifications of rural, suburban, and urban, but does not indicate the location of these sub-classifications. The following discussion will focus on the general classifications of arterial and collector streets in the North Area of Scottsdale, the characteristics of which are outlined in Table 8-1.

**TABLE 8-1: Functional Classification Characteristics**

Existing Typical Section

Street Type	Right-of-Way	Lanes	Bike Lane	Sidewalk (Trail optional in Rural/ESL character)
Major Arterial	150'	6	Yes	Yes
Minor Arterial	110'	4	Yes	Yes
Major Collector	Varies	4	Yes	Yes
Minor Collector	Varies	2	Yes	Yes
Minor Collector with Rural/ESL with Trails	Varies	2	Yes	Trail Optional

#### Major Arterials

- ▶ Serve regional needs
- ▶ Travel through and beyond the City borders
- ▶ Provide continuous links between Scottsdale and its neighbors
- ▶ Serve larger traffic volumes (35,000- 50,000 ADT)
- ▶ Limit access to abutting land uses

#### Minor Arterials and Major Collectors

- ▶ Serve citywide needs
- ▶ Efficiently move people within the community
- ▶ Provide connectivity between regional and citywide streets
- ▶ Serve medium traffic volumes (5,000—35,000 ADT)
- ▶ Balance emphasis on access to abutting land uses and mobility

### Minor Collectors

- ▶ Serve citywide and local/neighborhood needs
- ▶ Efficiently move people within the community
- ▶ Provide connectivity between citywide and local streets
- ▶ Balance emphasis on access to abutting land uses and mobility

The *DS&PM* includes cross sections for each of the sub-classifications of urban, suburban, and rural for each of classifications, with these three sub-classifications defined as follows:

- ▶ Urban Areas: downtown, commercial, and industrial
- ▶ Suburban Areas: land uses have been generally designed as auto-oriented and distinct from different land uses
- ▶ Rural Areas: lower density/intensity areas of the community

The appropriate sub-classification is currently left up to the development review process.

One of the biggest transportation challenges in the North Area is to “right-size” the roadway network. This is a challenge in other parts of Scottsdale too; but in northern Scottsdale it means making sure major streets, especially Pima and Scottsdale roads and Dynamite Boulevard, carry a functional classification that matches future travel demand. Nearly all of the roadway system north of the Loop 101 Freeway to Pinnacle Peak Road is planned to be improved by 2010. Therefore, what happens to the major north/south streets, north of Pinnacle Peak, is a main focus of the North Area Circulation Study. Long-term projections for land use and travel demand in northern Scottsdale have been updated since the current functional classifications were assigned in the 2003 *Streets Master Plan*. Therefore a review of the classifications for road segments north of Pinnacle Peak needs to be made. This review will rely to a great degree on the 2030 traffic volume forecasts produced by Scottsdale’s recently developed travel demand model.

The two major north/south roadways in northern Scottsdale are Scottsdale Road and Pima Road. Both Scottsdale and Pima roads north of Loop 101 were constructed prior to the area’s annexation by the City of Scottsdale in the mid-1980s. Both roads, initially constructed with one lane in each direction, were widened to two lanes per direction in the late 1980s and early 1990s (except for the portion of Pima Road north of Dynamite Boulevard). Today Scottsdale Road is a four-lane undivided roadway from the Loop 101 to Deer Valley Road. From Deer Valley to Dixileta Drive a two-way left-turn lane is added; and from Ashler Hills Drive to Carefree Highway it is divided by a landscaped median. Pima Road was realigned and widened to six lanes from the Loop 101 to south of Deer Valley Road in the winter of 2007. It is a four lane road, with a two-way left turn lane in some places, from Pinnacle Peak Road to Dynamite Boulevard; north of Dynamite it is still a two-lane road.

At one time Thompson Peak Parkway and Alma School Parkway were considered possible north/south alternatives to Scottsdale and Pima roads. Thompson Peak’s curvilinear alignment was developed as an adaptation to local development patterns and to local topography, specifically the McDowell Sonoran Preserve. This roadway alignment serves the residents of DC Ranch, Windgate Ranch, and McDowell Mountain Ranch well, but it does not work as a through route that could reduce the traffic demand on Scottsdale and Pima roads. Alma School Parkway runs parallel to Pima Road from Happy Valley Road to Dynamite Boulevard. Just like Thompson Peak it serves local developments but cannot work as a through route because of Preserve land on



both the north and south. Before the McDowell Sonoran Preserve was established Thompson Peak Parkway and Alma School Parkway might have been connected to provide a north/south connection to the east of Pima Road from Shea Boulevard to Dynamite Boulevard. However, such an alignment would have required construction through the foothills of the McDowell Mountains, which is a scenario the City has historically rejected in favor of preservation.

During a 2002 *General Plan* amendment process for the approximately 16,600 acres of State Trust Lands, *General Plan* base maps were revised to remove the Lone Mountain Road extension east of Pima Road. The entire 16,600 +/- acres of this amendment is included within the City's Recommended Study Boundary of the McDowell Sonoran Preserve, which identifies lands the City intends to acquire for permanent open space in the McDowell Sonoran Preserve. The removal of this roadway through the McDowell Sonoran Preserve area was not a *General Plan* Community Mobility Element amendment; however, it was removed from all *General Plan* base maps with the approval of the amendment. Community desire to restrict or prohibit roadways through or abutting the McDowell Sonoran Preserve is an additional consideration for streets in the northern area.

The overall traffic patterns in the North Area are firmly established: traffic flows south toward the Loop 101 during the morning peak and flows north, away from the freeway, in the afternoon. There are localized exceptions to this pattern, mostly around school sites and commercial locations; and the regional east-west streets (Dynamite Boulevard/Rio Verde Drive, Pinnacle Peak Road and Carefree Highway) carry traffic across to and from Phoenix and unincorporated Maricopa County. But for the most part, on a typical weekday, drivers use local streets to get to east-west collectors and minor arterials (Thompson Peak Parkway, Happy Valley Road, Jomax Road, Dixileta Drive, etc.) that connect them to the major north/south roads (Scottsdale Road, Pima Road and to a lesser extent Hayden Road), to access the freeway.

This general flow of traffic helps explain the high traffic counts on road segments as they approach the Loop 101 corridor and it also helps determine the order in which roadway improvements are done in the North Area, where roadway segments close to the freeway are improved first. For example, Thompson Peak Parkway, Bell Road to Union Hills Drive, was completed in fall 2006; the realigned Pima Road from the freeway to south of Deer Valley was widened to six lanes in early 2007; and Scottsdale Road north of the freeway will be widened to six lanes by summer 2008. Planned improvements on segments farther from the freeway, on the other hand, are not scheduled until 2010 or later. A listing of currently planned projects follows in Section 4.0 Planned Improvements.

### 3.1.1 Future Roadway and Land Use Conditions

Most of the developable land in the North Area, both residential and commercial, is already built out or will be in the foreseeable future – 10 to 20 years. Large mixed-use developments like One Scottsdale will be located on State Trust lands along the north side of the Loop 101 from Scottsdale Road to Bell Road. Relatively small retail and office developments will occur at a limited number of locations. Any new master planned communities are likely to be smaller than existing ones and the metes and bounds areas, such as Desert Foothills and Whisper Rock, have limited potential for increased density, but will likely build low-density residential.

### 3.1.2 Existing and Forecast Traffic Volumes

In the spring and summer of 2007, the City of Scottsdale developed a stand-alone sub-regional travel demand model. The model was programmed with a base year (baseline) of 2006 and a forecast year of 2030; the model used the latest socioeconomic projections from Maricopa Association of Governments (MAG) to estimate growth in population and employment. Those socioeconomic projections included the most up-to-date estimates on the Desert Ridge areas in the city of Phoenix and the employment growth planned for the Salt River Pima-Maricopa Indian Community. In order to reflect voter and Council approved policies, the model assumed that no development will take place within the Recommended Study Boundary of the McDowell Sonoran Preserve.

Table 8-2 lists current and projected traffic volumes for some of the major roadways in the North Area. A complete listing of all street segments can be found in Appendix 4-A.

TABLE 8-2: Existing and Future Traffic Forecasts on Selected Streets in the North Area				
Location			2006 daily trips (as modeled)	2030 projections
Street Name	From	To		
Scottsdale Rd	Loop 101	Thompson Peak Pkwy	48,400	62,200
	Thompson Peak Pkwy	Deer Valley Rd	32,000	58,600
	Deer Valley Rd	Pinnacle Peak Rd	28,800	51,400
	Pinnacle Peak Rd	Happy Valley Rd	29,700	43,500
	Happy Valley Rd	Jomax Rd	29,000	43,300
	Jomax Rd	Dynamite Blvd	26,000	43,200
	Dynamite Blvd	Dixileta Dr	25,200	39,400
	Dixileta Dr	Lone Mountain Rd	24,100	34,200
	Lone Mountain Rd	Carefree Hwy	22,400	26,900
Pima Rd	Princess Dr	Thompson Peak Pkwy	34,900	45,800
	Thompson Peak Pkwy	Pinnacle Peak Rd	39,700	60,500
	Pinnacle Peak Rd	Happy Valley Rd	33,600	55,900
	Happy Valley Rd	Jomax Rd	18,800	30,700
	Jomax Rd	Dynamite Blvd	18,500	31,900
	Dynamite Blvd	Lone Mountain Rd	13,200	26,200
	Lone Mountain Rd	Stagecoach Pass	10,300	19,400
Dynamite Blvd	56th St	64th St	8,400	24,500
	64th St	Scottsdale Rd	8,700	25,300
	Scottsdale Rd	Pima Rd	7,800	20,300
	Pima Rd	Alma School Rd	13,300	30,300
	Alma School Rd	136th St	7,100	26,200

**TABLE 8-2: Existing and Future Traffic Forecasts on Selected Streets in the North Area (continued)**

Location			2006 daily trips (as modeled)	2030 projections
Street Name	From	To		
Pinnacle Peak Rd	Scottsdale Rd	Pima Rd	12,500	21,500
	Pima Rd	East of Pima Rd	9,000	9,900
Carefree Hwy	56th St	Scottsdale Rd	13,000	26,200
Shea Blvd	110th St	120th St	39,600	51,800
	120th St	City limits	38,800	50,600

## 3.2 Equestrian and Shared-use Trails and Paths

Equestrian and shared-use trails contribute to the overall quality and character of life in Scottsdale and provide avenues of appreciation of Scottsdale's natural and cultural resources. Equestrian activity is enjoyed by many residents in the northern area. There are a variety of equestrian facilities, both at residential and commercial scales. Functional connections exist and are desired to be maintained through shared-use trails that provide access to a multitude of non-motorized user groups. These links informally connect local neighborhoods to a regional shared-use trail system and other destinations such as the McDowell Sonoran Preserve.

The City adopted a *Trails Master Plan* in February 2004 which outlines the development and prioritization of a citywide trails network. An inventory of existing and planned trails was mapped to help identify gaps in the trails system and to identify projects and expenditures that maximize the function of the overall system. The trails were analyzed and ranked using different attributes such as use/demand, linkages, safety, etc. Following the assessment of trails, and using public input and firsthand knowledge of the trails, the final trail system plan was produced (see Figure 8-6).

Equestrian connections within the City of Scottsdale, (except for roadway crossings) are off-street, in many instances they are provided adjacent to the street and within the public right-of-way or scenic corridor. While these off-street trails are not specifically designated for equestrian use only, all unpaved trails in the City's *Trails Master Plan* are designed to accommodate equestrian uses. The McDowell Sonoran Preserve provides extensive opportunities for riding as do several designated trails throughout the City.

As part of the *Trails Master Plan*, focus groups identified key areas of interest. These include requests for trail crossings of Dynamite, Pima and Scottsdale roads, comments that equestrian access is lost when roads are paved and no unpaved path is provided in its place, and an interest in using trails without having to cross major streets at grade. To address some of these concerns, the *Trails Master Plan* recommends equestrian signals and grade-separated crossings throughout the North Area. Through the *Transportation Master Plan* review of the *Trails Master Plan*, it is recommended that equestrian push buttons at existing traffic signals be installed where feasible.

Also relevant to the North Area are key trail corridors identified in the *Trails Master Plan*. These key corridors are important as they may ultimately affect the roadway cross sections designed



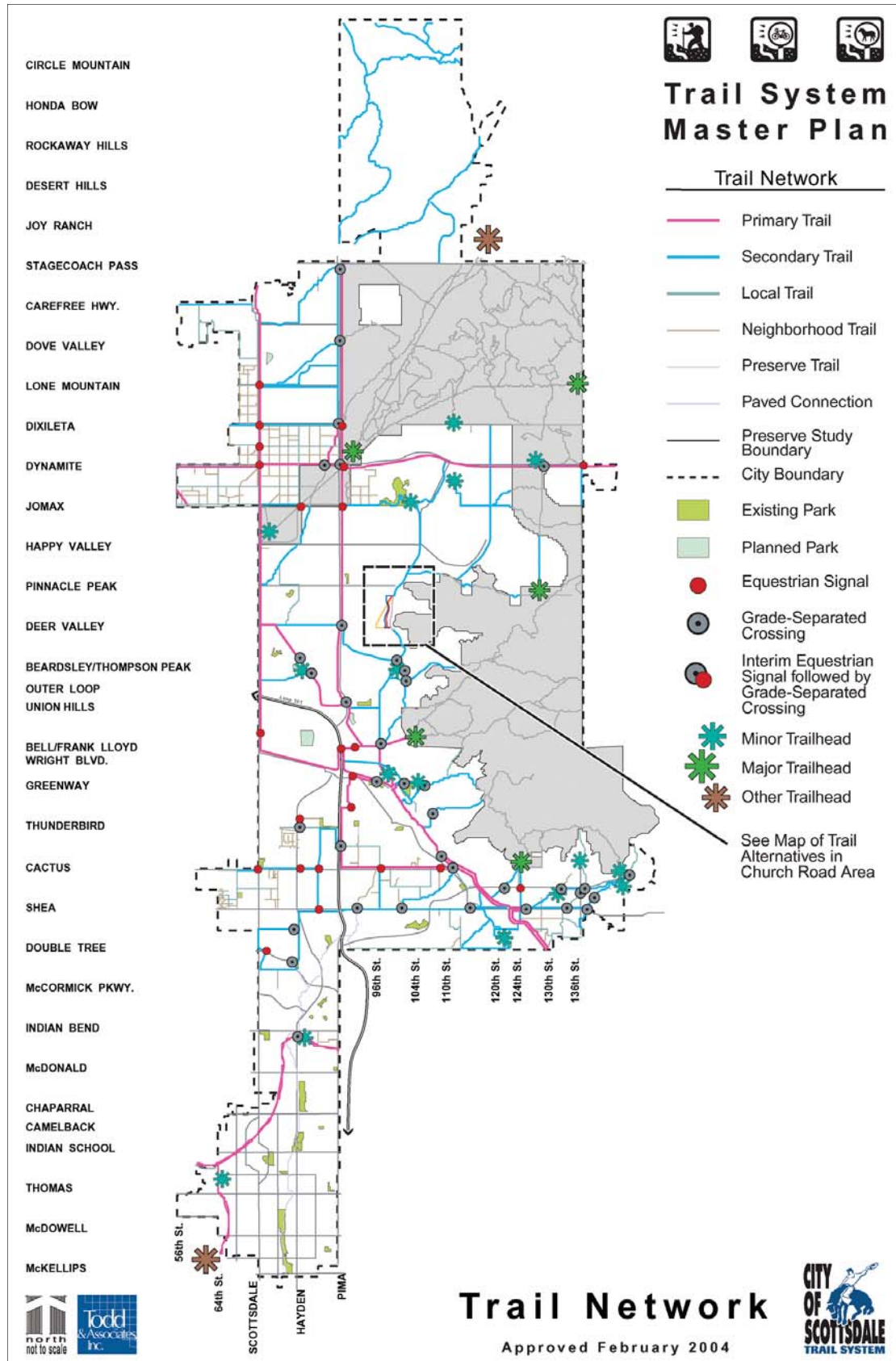


FIGURE 8-6: Trail System, Trail Network

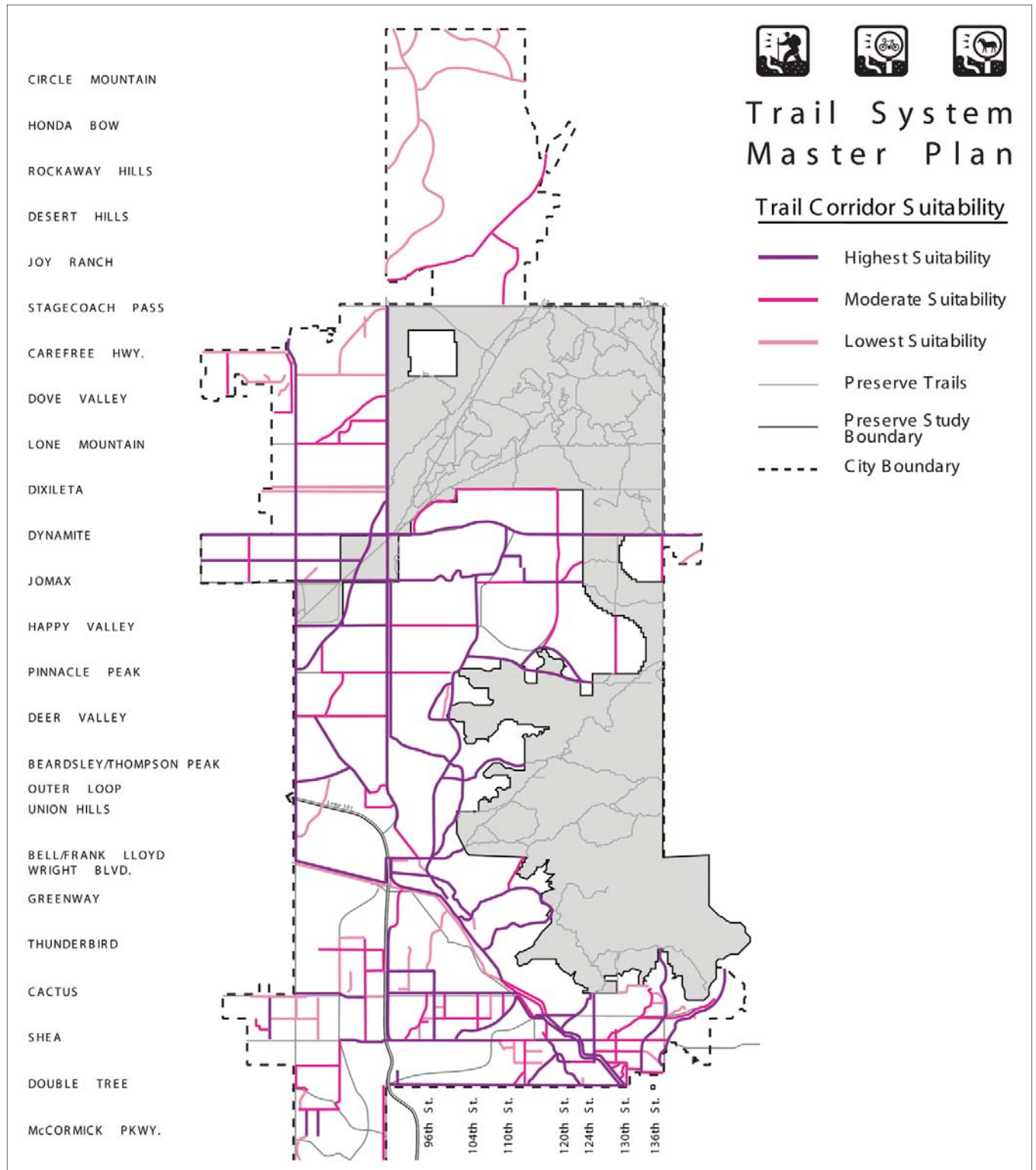


FIGURE 8-7: Trail Corridor Suitability

for the North Area. Dynamite Boulevard, Jomax, Scottsdale and Pima roads throughout the North Area are identified as those transportation corridors that also have the highest suitability for trails (Figure 8-7 - previous page). Other roadways, including Cave Creek, Pinnacle Peak, Deer Valley and Happy Valley roads, are identified as corridors that are moderately suited for trails.

Since the adoption of the *Trails Master Plan*, the City has been tracking the progress of trail development. Figure 8-8 shows the improvement status of trails in the area north of Happy Valley Road. The blue lines indicate existing trails, the orange lines indicate those trails that are soon to be improved, and the yellow lines indicate unimproved trails.

As new communities are constructed, equestrian and other non-motorized trails are often provided as part of master development plans. Once constructed, these additional trails will enhance connectivity between the City's McDowell Sonoran Preserve and equestrian communities.

City-operated equestrian facilities are currently available at:

- ▶ Mescal Park, at 11015 N. 68th Place, 1/4 mile north of 68th Place and Shea Boulevard; a 10-acre park with an equestrian arena. There is also a trail for hikers and horseback riders. This facility is located outside of the North Area.
- ▶ Stonegate Park. 9555 N. 120th Street, southeast of Mountain View Road and 120th Street; a 23-acre facility with two equestrian arenas and a round pen area.

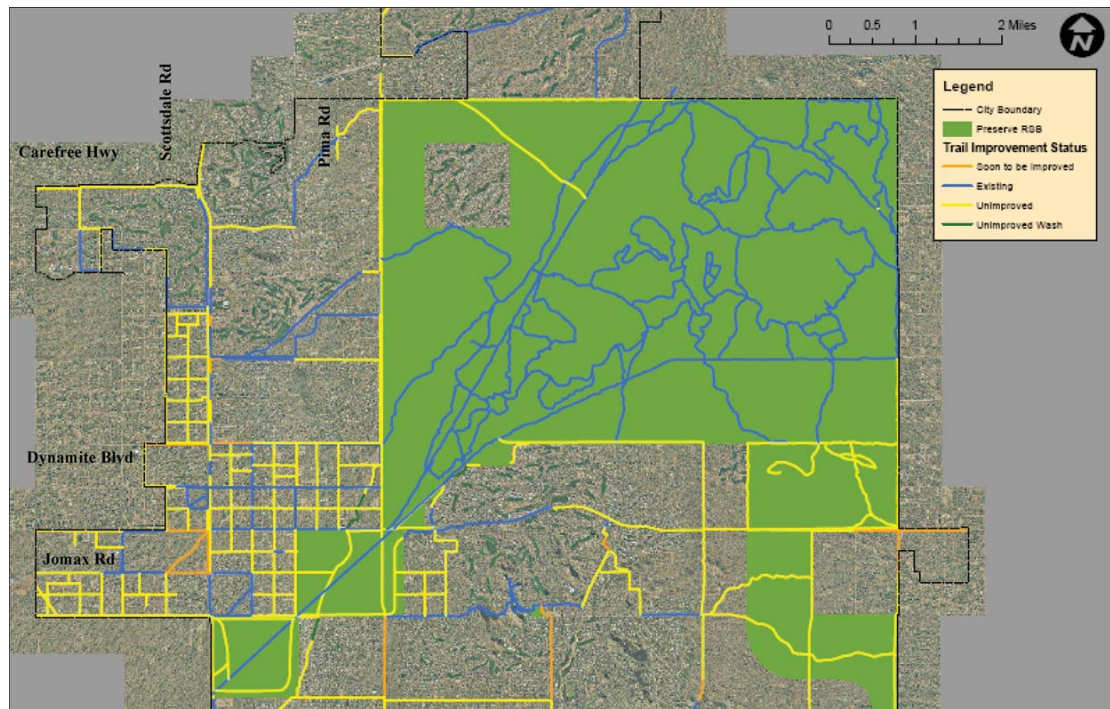


FIGURE 8-8: Trail System, Trail Improvement



In addition to these facilities, City park-related trailheads and/or trails can be found at:

- ▶ Pinnacle Peak Park at 26802 N. 102nd Way (one mile south of Dynamite and Alma School);
- ▶ Rio Montana Park at 11180 N. 132nd Street (southwest of Via Linda and 130th Street) (trailhead to wash only);

and are planned for:

- ▶ DC Ranch Community Park;
- ▶ DC Ranch Neighborhood Park; and
- ▶ Troon North Park.

### 3.3 Access to the McDowell Sonoran Preserve

Designated points of entry into the McDowell Sonoran Preserve are discussed in the City's *Preserve Access Area Design and Site Standards* manual. The future access areas will make it possible for Scottsdale residents and visitors to experience the McDowell Sonoran Preserve through hiking, horseback riding, biking, nature studies, bird watching, scenic viewing, picnicking, rock climbing and more. Access areas of differing size and level of amenities are located at strategic and appropriate points in the McDowell Sonoran Preserve (on the periphery) for users' convenience.

Currently, two access areas are open for public use:

- ▶ Sunrise Trailhead is located at 144th Street and Via Linda. There is an upper parking lot and a lower parking lot.
- ▶ Lost Dog Wash Access Area was the first major access area to be created. It is located north of Via Linda off of 124th Street. Lost Dog Wash contains a full compliment of amenities for users.

There are also additional parking areas outside of but near the McDowell Sonoran Preserve that connect by way of trails to the McDowell Sonoran Preserve trail system. A number of access areas are also planned on State Trust Land that the City has not yet acquired. Access to State Trust Land is restricted to individuals with permits.

### 3.4 Pedestrian

North of Frank Lloyd Wright Boulevard and the CAP Canal, the pedestrian environment along Scottsdale Road, Pima Road, and Hayden Road becomes more "recreation-oriented" or informal, with meandering, unpaved paths instead of paved sidewalks, set back from the roadway within desert landscaped setbacks adjacent to developed areas, and no sidewalk within undeveloped areas.

Actual pedestrian counts within the North Area are not available. However, anecdotal reports from residents indicate that as the area has developed with more projects that include design elements such as extensive setbacks and landscaping that convey a rural flavor, the potential for meaningful pedestrian activity has increased.

For the *Transportation Master Plan*, a pedestrian latent demand study was conducted along arterial streets in Scottsdale (Figure 8-9). The study shows areas where high concentrations of uses could potentially generate high levels of pedestrian activity, given an appropriate walking

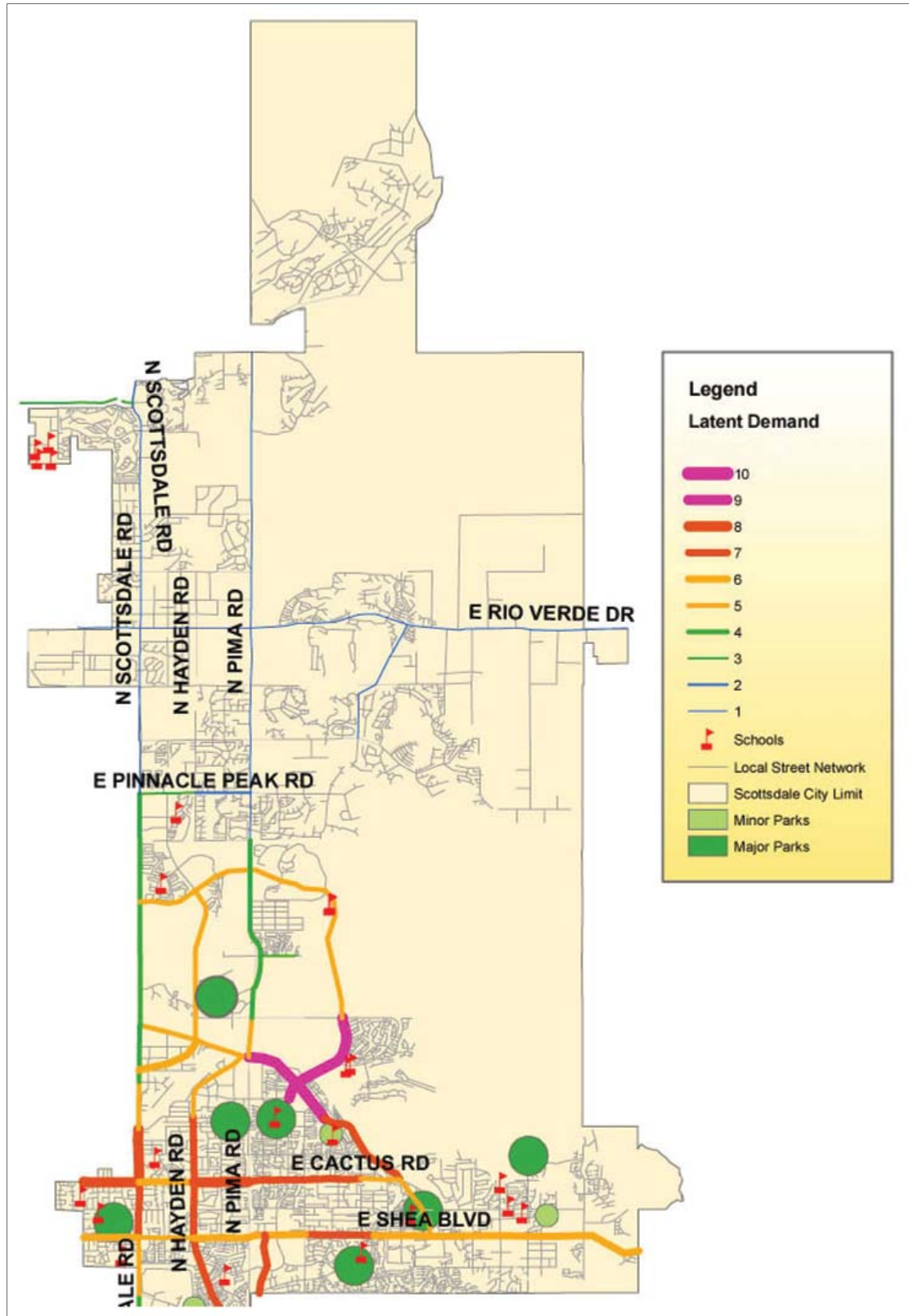


FIGURE 8-9: Pedestrian Latent Demand in Northern Scottsdale

environment. The latent demand study indicates that for the North Area the areas along Frank Lloyd Wright Boulevard, and Thompson Peak Parkway south of Bell Road offer some of the most significant opportunities to encourage pedestrian activity within the City. These areas are the focus of intense commercial and denser residential development.

Areas generally north of Thompson Peak Parkway are shown as areas of lowest pedestrian demand within the City. This finding is commensurate with generalized low density and low intensity land uses within the North Area.

### 3.4.1 Future Pedestrian Conditions

In addition to the latent demand study, existing and planned commercial and residential development at several northern area intersections (Pinnacle Peak and Pima roads, and Scottsdale Road and Westland Drive) and select road segments (Dove Valley Road to Ashler Hills Drive, Dixileta Drive, Dynamite Boulevard, Pinnacle Peak Road, and Thompson Peak Parkway) could support localized pedestrian activity. The primary pedestrian activities in these areas will likely be local trips from immediately adjacent residential areas as well as trips between commercial developments at each corner of the intersection. In addition, future parks (DC Ranch Community Park, DC Ranch Neighborhood Park, Troon North Park, Desert Mountain Park, and Whisper Rock Park) and schools may show increased pedestrian demand. Continued recreational walking and hiking to and within the McDowell Sonoran Preserve is not specifically noted in a latent demand study for pedestrians, but is a significant activity in the North Area.

## 3.5 Bicycling

The City of Scottsdale currently maintains a wide network of on-street (designated bike lanes and bike routes) and off-street (shared-use paths) bicycle facilities. The City also has an extensive system of unpaved trails that provide cyclist mobility. Bicycle facilities in the North Area consist primarily of bike lanes, usually on major roadways, and shared-use paths. There are paved pathways in the major subdivisions of DC Ranch, Grayhawk, and McDowell Mountain Ranch but they do not connect to each other or to the main path network south of the CAP Canal.

The extent of bicycle facilities citywide is shown in the Existing Bicycle Facilities Map (Figure 8-10). The mileages of the component parts of the City's entire existing bicycle network are as follows:

- ▶ Bike Lanes = 86 miles
- ▶ Paved Shoulders = 10 miles
- ▶ Bike Routes = 50 miles
- ▶ Paved Paths = 61 miles
- ▶ Unpaved Trails = 268 miles

The City's *DS&PM* and *Standard Details* contain extensive bicycle facility guidelines, including the provision of bicycle lanes on major arterials, minor arterials, major collectors, minor collectors, and certain special neighborhood and rural streets. Regarding Scottsdale's off-street bicycle system, all new shared-use paths must have a minimum width of 10 to 12 feet. In addition, the City's zoning ordinance requires bicycle parking within 50 feet of the building entrance at all businesses, except in Downtown areas where less than 40 vehicular spaces are required.



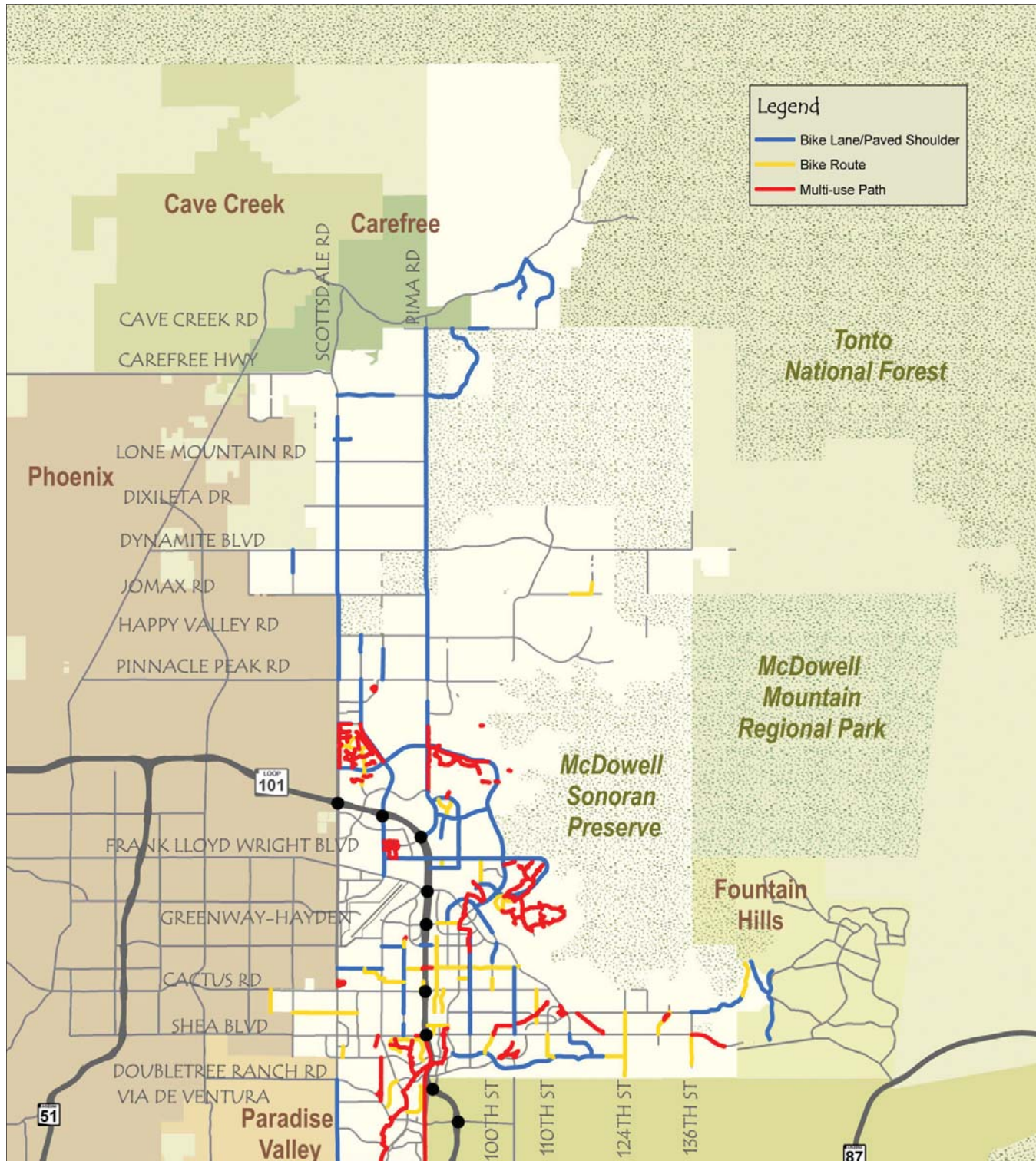


FIGURE 8-10: Existing Bicycle Facilities

The quantity of bicycle parking is based on the number of vehicle spaces required. The City has recently updated its bicycle map, which shows the City's current bicycle facility network as well as other pertinent bike-related information. The MAG *Regional Bikeway Master Plan*, which will be approved soon, will set regional goals and provide bicycle program, policy, and guideline recommendations for local member jurisdictions, including Scottsdale.

### 3.5.1 Future Bicycling Needs

The idea of providing multi-modal choice through an accessible transportation network encourages bicycling as a mode of transportation. It should be easy and comfortable to bicycle from home to work, school, shopping, trailheads, and other activity centers, accessing many destinations by bicycle. This can be accommodated with a seamless network of streets, paths, and trails. Where they do not already exist, bicycle lanes or paved shoulders should be added over time to all major and minor arterial and collector streets. Paved and unpaved paths and trails should be built along wash and power line corridors. Existing facilities north of the CAP Canal should be connected to each other and to the existing facilities south of the CAP Canal. These connections are identified further in the Bicycle Element of the *Transportation Master Plan*.

## 4.0 PLANNED IMPROVEMENTS

### 4.1 Capital Improvements Plan

Transportation related capital improvement projects are identified by the City based on the extent to which they meet the City Council's goal of providing for the safe, efficient, and affordable movement of people and goods throughout the City. Planned transportation projects meet the desired outcome of providing multi-modal options, and therefore include, but are not limited to, roads, noise mitigation where needed, transit, bicycle, and pedestrian improvements. Northern Scottsdale roadway and intersection programmed projects for fiscal years 2008 through 2012 are shown in Table 8-3. Many of these projects are currently underway or will be underway soon.

**TABLE 8-3: Planned Roadway, Pedestrian, and Bicycle Improvements**

Project/Street	Project Description
<b>S0501</b> Bell Road — 94th St to Thompson Peak Pkwy	Construct the remaining two travel lanes, a landscaped median, bicycle lanes, sidewalks, and a new wash crossing.
<b>S0601</b> Freeway Frontage Rd north Hayden Rd to Pima Rd	Construct a westbound frontage road on the north side of Pima Fwy between the Hayden Rd and Pima/Princess freeway interchanges. The project will include two travel lanes, a bicycle lane, a sidewalk, street lights, and drainage improvements.
<b>NEWB3</b> Freeway Frontage Rd south Hayden Rd to Pima Rd (see note RE this project on page 304)	Construct an eastbound frontage road on the south side of Pima Fwy between the Hayden Rd and Pima/Princess freeway interchanges. The project will include two travel lanes, a bicycle lane, a sidewalk, street lights, and drainage improvements.
<b>S0602</b> Pima Rd — Deer Valley Rd to Pinnacle Peak Rd	Design and construct a six-lane parkway cross section with landscaped median, turn lanes, grade-separated path crossing, bicycle lanes, sidewalks, curb and gutter, roadway drainage, intelligent transportation system facilities, and noise mitigation.

**TABLE 8-3: Planned Roadway, Pedestrian, and Bicycle Improvements (continued)**

Project/Street	Project Description
<b>S2104</b> Pinnacle Peak Rd — Miller Rd to Pima Rd	Design and construct to four-lane minor arterial standards with landscaped median, turn lanes, bicycle lanes, curb and gutter, sidewalks. Additional turn lanes will be constructed at the Pima Rd intersection.
<b>S7005</b> Scottsdale Rd — Frank Lloyd Wright Blvd to Thompson Peak Pkwy	Design and construct a six-lane major arterial cross section with landscaped median, turn lanes, bicycle lanes, sidewalks, curb and gutter, roadway drainage, and intelligent transportation system facilities. Additional turn lanes at Frank Lloyd Wright Blvd and a new pedestrian crossing of the Central Arizona Project Canal will also be included.
<b>S0311</b> Scottsdale Rd — Thompson Peak Pkwy to Pinnacle Peak Rd	Design and construct a six-lane major arterial cross section with landscaped median, turn lanes, bicycle lanes, sidewalks, curb and gutter, roadway drainage, intelligent transportation system facilities, and a new all-weather crossing of Rawhide Wash.
<b>S0404</b> Center Dr - Scottsdale Rd to Hayden Rd (One Scottsdale)	Design and construct a four-lane roadway with landscaped medians, turn lanes, wider outside lanes and curb and gutter, and roadway drainage from the One Scottsdale development boundary to Hayden Rd. Sidewalks are planned to be installed by future developments.
<b>S0405</b> Pima Fwy north Frontage Rd — Scottsdale Rd to Hayden Rd (One Scottsdale)	Design and construct a frontage road of two westbound lanes, with roadway drainage, on the north side of the Pima Freeway from the Scottsdale Road freeway off-ramp to the Hayden Road freeway on-ramp.
<b>T9902</b> Loop 101 Park-and-Ride Lot	Complete site selection and environmental clearance process to meet federal grant requirements. Once location is identified, purchase, design and construct park-and-ride lot.

Source: City of Scottsdale Capital Improvement Program FY 2006-2012.

## 4.2 Other Planned Improvements

In addition to capital improvement projects, the City does intersection modifications and smaller roadway projects. These projects may include turning lanes at intersections, installation of curbs, deceleration lanes, removal of bumps or dips in the roadway, and other intersection modifications to improve traffic flow. These improvements are mainly identified by City staff, but are often requested by citizens. The North Area has approximately 20 such requests in the future work program.

## 5.0 OPPORTUNITIES/RECOMMENDATIONS

### 5.1 Street Classification

One of the goals of the *Transportation Master Plan* is to define each segment of roadway at an appropriate street functional classification and sub-classification. In the spring and summer of 2007, the City of Scottsdale developed a stand-alone sub-regional travel demand model. The model was programmed with a base year (baseline) of 2006 and a forecast year of 2030; the model used the latest socioeconomic projections from MAG to estimate growth in population and employment. Based on this travel demand modeling effort, future roadway classification has been determined through 2030. The recommended future classification, which is shown in Figure 8-11 (map and information included in the Streets Element of the *Transportation Master Plan*), includes the recommended sub-classification of urban, suburban, and rural for streets in



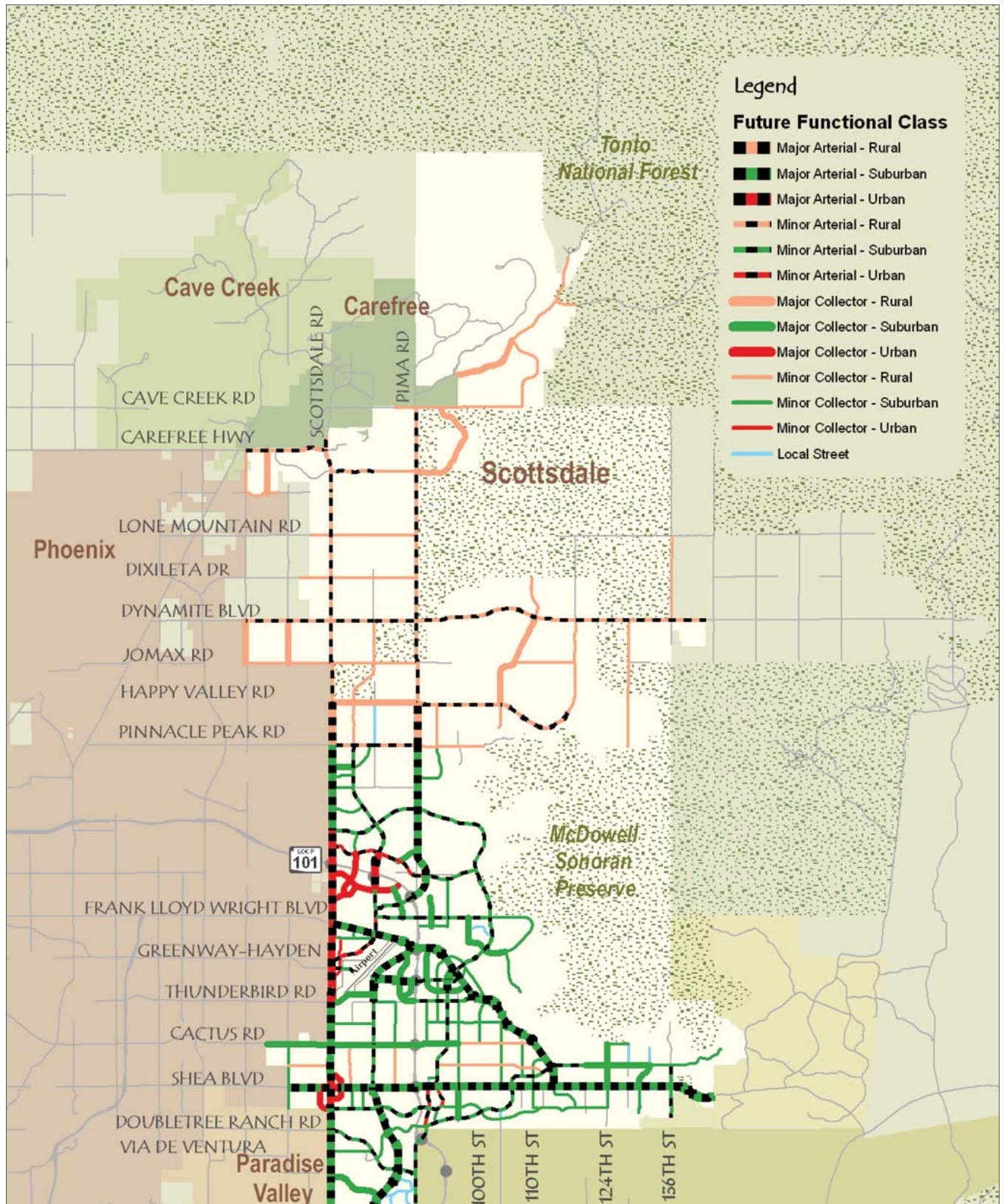


FIGURE 8-11: Recommended Classifications and Subclassifications (North Area)

the northern area. A complete table of each street segment, current classification and number of lanes, recommended classification, and number of lanes, as well as the sub-classification for each street segment, can be found in Appendix 4-A.

All roadways north of Pinnacle Peak Road are designated as “rural” in character and those south of Pinnacle Peak Road are, for the most part, designated as “suburban” in character. Segments of Scottsdale Road (Loop 101 to Thompson Peak Parkway), Hayden Road (Loop 101 to Thompson Peak Parkway), Center Drive (Scottsdale Road to Loop 101), and Union Hills Drive (Scottsdale Road to Hayden Road) are designated as “urban” in character.

Currently, four roadways, Scottsdale Road, Hayden Road, Pima Road, and Dynamite Boulevard, are designated as six-lane major arterials for some of their length in northern Scottsdale. Each of these roadways is discussed briefly below.

### **Scottsdale Road**

Scottsdale Road is a major arterial consisting of six through-lanes south of Frank Lloyd Wright Boulevard and four through-lanes currently north of Frank Lloyd Wright. Widening of the roadway from Frank Lloyd Wright Boulevard to Pinnacle Peak Road to a six-lane cross section with landscaped median, turn lanes, bicycle lanes, sidewalks, a pedestrian crossing of the CAP Canal, roadway drainage, and intelligent transportation systems (ITS) facilities is included in the FY 2008-2012 Capital Improvement Program. The proposed classification of Scottsdale Road in the northern area of Scottsdale is a six-lane major arterial-urban from Loop 101 to Thompson Peak Parkway, a six-lane major arterial-suburban from Thompson Peak Parkway to Pinnacle Peak Road, a six-lane major arterial-rural from Pinnacle Peak Road to Happy Valley Road, and a four-lane minor arterial-rural from Happy Valley Road to the City’s northern boundary with right-of-way preserved at 150 feet throughout.

### **Hayden (Hayden-Miller) Road**

Hayden (Hayden-Miller) Road is a four-lane roadway from Loop 101 to Pinnacle Peak Road and is partially built to four lanes south of Happy Valley Road. There has been discussion over the years to extend Hayden-Miller Road north as a continuous corridor from Pinnacle Peak Road to Dynamite Boulevard. As there are limited north-south corridors in northern Scottsdale, it is recommended that Hayden-Miller Road be extended as a minor collector-rural to Dynamite Boulevard. The recommended classification is a six-lane major arterial-urban from Loop 101 to Center Drive, a four-lane minor arterial-suburban from Center Drive to Pinnacle Peak Road, and a two-lane minor collector-rural to Dynamite Boulevard. Care will need to be given to specific alignment options of this roadway adjacent to the Recommended Study Boundary of the McDowell Sonoran Preserve. Continuing north of Dynamite Boulevard with the Hayden or Hayden-Miller roadway is not recommended because of the topography and the existing low densities in this area. Parallel to Hayden/Miller Road along the Hayden Road alignment, Hayden Road currently is classified as a minor collector. Given the projected volumes of this roadway segment, Hayden Road in this location should be designated a local collector and removed from the functional classification map.

### **Pima Road**

Pima Road is currently programmed for widening to a six-lane roadway with landscaped median, turn lanes, grade-separated path crossing, bicycle lanes, sidewalks, roadway drainage,

ITS facilities, and noise mitigation in the FY 2007-2012 Capital Improvement Program between Loop 101 and Pinnacle Peak Road. The recommended classification on Pima Road is a six-lane major arterial-suburban for Loop 101 to Pinnacle Peak Road, a six-lane major arterial-rural north to Happy Valley Road, and a four-lane minor arterial-rural north from Happy Valley Road to Stagecoach Pass.

### **Pima Road/Loop 101 Interchange**

Pima Road/Loop 101 Interchange currently has a diamond interchange. At this interchange, Loop 101 curves from an east/west direction to a north/south direction and has frontage roads with a forced merge between the frontage road and the westbound off-ramp on the approach to the diamond interchange. The City is working with Arizona Department of Transportation (ADOT) to examine feasibility of options for the interchange.

### **Dynamite Boulevard**

Dynamite Boulevard is currently two lanes from 56th Street to Pima Road and four lanes from Pima Road to 118th Street. The recommended functional classification is a four-lane minor arterial-rural from 56th Street east to the City limits.

## **5.1.1 Street Classification Summary Recommendations**

Communities are often faced with the need to add additional travel lane capacity to the transportation network to address congestion issues. This need must be weighed against neighborhood impacts and community character or context issues. In Scottsdale, the primary roadway network consists of two-lane collectors, four-lane collectors and arterials, and six-lane arterials. The City currently limits local roadway widths to six lanes, and this plan proposes to continue this long-standing policy. One measure that is often used to assist in making decisions regarding adding travel lanes is the volume to capacity ratio, which compares average daily traffic lane volumes to a predetermined standard. As discussed in the Policy Element of the *Transportation Master Plan*, volumes of 8,000 vehicles per lane per day for two-lane roads and 10,000 vehicles per lane per day for four-lane roads will provide guidance on the threshold for roadway widening. These planning volumes are further adjusted based on adjacent land use, to consider widening of roadways designated as rural in character when forecasted volumes reach 90 percent of the target threshold and widening of roadways designated as suburban in character would be considered when forecasted volumes reach 100 percent of the target threshold. Widening of roadways designated as urban in character would be considered when forecasted volumes reach 120 percent of the target threshold. Roadway widening will typically be limited to minimum 1-mile segments.

Considering the forecast volumes and general capacity guidelines listed above, the following North Area roadways\* should maintain the current street classifications from the 2003 *Streets Master Plan*:

- ▶ Pima Road from Loop 101 to Happy Valley Road - major arterial
- ▶ Hayden Road from Center Drive to Thompson Peak Parkway – minor arterial
- ▶ Pinnacle Peak Road from Scottsdale Road to existing four-lane section near Pima Road - minor arterial
- ▶ Via Linda between 120th Street and 132nd Street – major collector
- ▶ 124th Street north of Shea Boulevard – major collector
- ▶ 124th Street south of Shea Boulevard – minor collector



- ▶ Jomax Road between 56th Street and Pima Road – minor collector
- ▶ Dixileta Drive from 66th Street to Pima Road – minor collector
- ▶ Westland Drive between Scottsdale and Pima roads – minor arterial<sup>1\*\*</sup>
- ▶ 132nd Street between Shea Boulevard and Via Linda – major collector<sup>\*\*</sup>

<sup>\*</sup>Not all roadways are listed.

<sup>\*\*</sup>These corridors were built prior to the McDowell Sonoran Preserve designation within the City and present a possible opportunity for “right-sizing” or reducing the size in the future.

The following North Area roadways should be revised from their current street classifications from the 2003 *Streets Master Plan*. There should be some consideration given to maintaining the required current right-of-way for these roadway segments to enable provision of drainage and additional non-motorized transportation facilities, such as trails, shared-use paths, and pedestrian walkways in a way more in character with the surrounding desert.

- ▶ Scottsdale Road north of Happy Valley Road – minor arterial
- ▶ Pima Road north of Happy Valley Road – minor arterial
- ▶ Dynamite Boulevard from 56th Street to 136th Street – minor arterial
- ▶ 118th Street south of Dynamite Boulevard – minor collector (with phased construction)
- ▶ Lone Mountain Road from Scottsdale Road to Pima Road – minor collector (Lone Mountain Road is designated a Buffered Roadway and this designation would not be revised)
- ▶ Jomax Road from Alma School Road to 118th Street – minor collector
- ▶ Stagecoach Pass – minor collector.
- ▶ Lone Mountain Parkway from Cave Creek Road to Stagecoach Pass – minor collector
- ▶ Cave Creek Road east of Lone Mountain Parkway – minor collector
- ▶ Hayden-Miller from Pinnacle Peak Road to Dynamite Boulevard – minor collector
- ▶ Hayden Road from Pinnacle Peak Road to Happy Valley Road – local collector
- ▶ Happy Valley Road from Scottsdale Road to Pima Road – major collector
- ▶ 92nd Street south of Happy Valley Road – local collector
- ▶ Williams Drive east of Hayden Road – minor collector
- ▶ Thompson Peak Parkway from the CAP Canal bridge to Bell Road – minor arterial
- ▶ Via Linda east of 132nd Street – minor collector.
- ▶ 136th Street from Shea Boulevard to Via Linda Road – minor collector

In addition, it appears that the roadway system will have enough capacity to defer or delete capital improvements project NEWB3, to provide an eastbound frontage road on the south side of the Loop 101, between Hayden and Pima roads.

## 5.2 Transportation Corridor Rights-of-Way

An item for further discussion is the possibility of creating a specific “rural” cross section that includes larger rights-of-way to be used to provide additional buffers, and accommodate trails and shared-use paths that may require more horizontal space due to topography and environmental sensitivity of the surrounding desert.

The 2030 traffic volumes for the northern portions of Scottsdale and Pima roads and all of Dynamite Boulevard are not anticipated to require six-lane roadways; however, additional right-of-way in a “rural” cross section could provide flexibility for drainage, additional travel lanes, and alternative transportation modes should such measures prove necessary in the future.

Where existing right-of-way accommodates a wider cross section, this right-of-way should be retained.

### 5.3 Bicycle and Pedestrian Facilities

A comprehensive list of proposed facilities is included in the Bicycle Element and Pedestrian Element of the *Transportation Master Plan*. Special care will be taken to identify bicycle connections from bike lanes to shared-use paths and trails; to promote pedestrian level lighting; and to make connections from the bike lane and shared-use path system in the North Area to the bicycle and pedestrian systems south of the CAP Canal.

Within the northern area, over 40 miles of roadways have been identified as potential locations for on-street bicycle facilities. This mileage includes locations where paved shoulders could be added and locations where restriping the existing roadway can be performed to include bike lanes. In addition, more than 20 unique shared-use path corridors have been identified in this part of the City. The roadways and shared-use path corridors collectively comprise approximately 60 miles of facilities and make numerous connections to the existing bicycle network. Potential paths have been identified along Scottsdale Road, Pima Road, Cave Creek Road, Dynamite Boulevard, and Via Linda.

By 2009, the City should complete an analysis regarding public restrooms for path/trail users in areas where commercial facilities are not available for use by business patrons. Items to examine include construction and maintenance costs, security needs, as well as other available alternatives. Restroom facilities are currently provided at most City parks.

### 5.4 Additional Issues and Preliminary Recommendations

A number of issues have been raised during community discussions on the northern area of Scottsdale. These issues and preliminary recommendations are discussed below.

#### 5.4.1 Wildlife Crossings

The low densities and desert environment in northern Scottsdale provide wildlife habitat to many desert wildlife species. To enhance driver awareness of possible wildlife crossing the major roadways, “watch for animals” signs should be placed next to wash corridors.

#### 5.4.2 Managing Event Traffic

WestWorld is a large event center located east of Loop 101 and south of Bell Road. (The general location of WestWorld is shown in Figure 8-2.) This facility hosts large events including the Barrett-Jackson Auto Auction, the Arabian Horse Show, the Parada del Sol Rodeo, and the McDowell Mountain Music Fest. These events generate daily attendance of 10,000 or more. Each event varies as to duration, days of the week, hours of operation, and degree of traffic management. Weekly events generating 1,000 to 5,000 daily attendees occur from October through June. In addition to WestWorld, the Scottsdale Princess Tournament Players Club golf course is home to the FBR Open in January each year drawing hundreds of thousands of people during the week to the area. A traffic operations plan is developed for each large event to accommodate peak traffic demand for the duration, day of week, and time of day variables.

Through Proposition 400, the City is planning a park-and-ride in the vicinity of Scottsdale Road/ Loop 101. Using this facility to accommodate small events periodically could help alleviate

parking needs as well as provide another option for events not suited to other event facilities in this area of Scottsdale.

### 5.4.3 Emergency Access

Pima and Scottsdale roads are the only two north-south streets that provide continuous service from Loop 101 to the northern City limits of Scottsdale. Thompson Peak Parkway provides a third north-south route east of Pima Road for the southern two miles, but does not extend farther north. Hayden-Miller Road provides a fourth option south of Pinnacle Peak Road. Currently, Tatum Boulevard and Cave Creek Road are the nearest options to the west. Located in the city of Phoenix, they are three to four miles west of Scottsdale Road. As the city of Phoenix builds out, 56th Street and 64th Street will be extended to the north.

The north-south access issue is that when either Pima or Scottsdale Road is closed north of Pinnacle Peak Road for any reason, all traffic is funneled to the other. It is recommended that additional north/south options, such as the extension of Hayden-Miller Road to Dynamite Boulevard, be examined to provide another north/south alternative. Consideration should be given to making the connecting east/west routes one way during an emergency. These details will be coordinated with the City's Emergency Services Division. Until additional options are constructed, travelers will need to travel to Tatum Boulevard or Cave Creek Road further to the west in order to travel north or south in the event of an emergency.

It is critical that emergency services are able to locate homes and it is recommended that house or lot numbers are highly visible.

### 5.4.4 Circulation Plans to Connect Developments

Northern Scottsdale has a number of communities with perimeter walls whose only access is to adjoining major streets, with no access provided between developments. This tends to force all traffic onto major roadways like Scottsdale or Pima roads. For the most part, these developments are built out and, unless homes are purchased and demolished, the opportunity for providing vehicular connections or access between developments is past.

To support walking as an alternative mode of transportation for short trips, direct pedestrian access between residential subdivisions to arterial streets should be provided at no farther than ¼ mile intervals. This will provide direct pedestrian access to paths, trails, and sidewalk facilities developed along Scottsdale, Pima and Hayden roads as well as other key east-west arterial roads such as Lone Mountain Road, Dynamite Boulevard, Dixileta Drive, Happy Valley Road, and Pinnacle Peak Road.

To support local connections to neighborhood services, "back door" pedestrian access between retail commercial and other development should be provided. Back door access can be provided by way of a local street from an adjacent subdivision, as is further described in the Pedestrian Element of the *Transportation Master Plan*. Oftentimes a gate, locked after hours, is provided and contributes to safety. In the northern area, there is back door access from some of the residential subdivisions in Terravita to the commercial center at Scottsdale Road and Carefree Highway.

To prevent the lack of residential-to-commercial pedestrian access from occurring with new development, the City, during the plan review/approval process, should require that access is provided.

#### 5.4.5 Access to Lands Within the Recommended Study Boundary of the McDowell Sonoran Preserve

The City of Scottsdale intends to acquire all of the lands within the Recommended Study Boundary of the McDowell Sonoran Preserve for mountain and desert preservation and open space. To date, most of the lands within the original boundary have been dedicated or purchased by the City. North of Dynamite Boulevard is State Trust land, the majority of which was designated as “suitable for conservation purposes” by the State Land Commissioner in 2001. (discussed in Sections 2.1 and 2.3.1) Some 1,100 acres of this land was designated as suitable for conservation, however it was not deed restricted. In the *General Plan* amendment that indicated land uses for these areas, these acres, while within the Recommended Study Boundary of the McDowell Sonoran Preserve, were shown on the *General Plan* with very low residential densities (5-acre lots).

If these State Trust Lands are not acquired for the McDowell Sonoran Preserve and develop in this area, 118th and 136th streets should be extended to accommodate traffic generated by the new development. It is recommended that 90 feet of ROW be reserved and, depending upon the traffic impact and mitigation analyses for specific projects, the roadways should be developed as either major or minor collectors. North to Dixileta Drive, 118th Street should be designed with an unpaved shared-use path.

Additionally, Dixileta Drive and Dynamite Boulevard should be developed to include a primary trail and access into the McDowell Sonoran Preserve.

#### 5.4.6 Connectivity Across Dynamite Boulevard

In 1997, a Desert Open Space System Plan was created which included ideas of a grade-separated crossing to connect the McDowell Sonoran Preserve north and south of Dynamite Boulevard. At their July 5, 2007 meeting, the McDowell Sonoran Preserve Commission recommended that the community keep open the option of utilizing an appropriate mechanism to maintain connectivity (for wildlife and trails) between the divided sections of the McDowell Sonoran Preserve.

#### 5.4.7 Via Linda Connection to Fountain Hills

In April 2000, the City Council approved a *General Plan* amendment deleting Via Linda as a major collector street from 136th Street to Eagle Ridge Drive (148th alignment). A non-vehicular easement was reserved at this time. During *Transportation Master Plan* discussions, the robustness of the roadway network throughout Scottsdale has been raised and the extension of Via Linda to Fountain Hills was reexamined. This extension would require a circuitous, switch-back route and would penetrate low density developments in both Scottsdale and Fountain Hills. Because of the vertical and horizontal alignment constraints, such a roadway would not provide a feasible alternative to Shea Boulevard, thus it is recommended that the concept be deleted from further consideration.



#### 5.4.8 Roadway Lighting

Roadway lighting in northern Scottsdale should be kept to a minimum, with only major intersections illuminated for safety. Raised pavement markers should be used to delineate the center line and edge of pavement between intersections in lieu of lighting. To maintain dark skies in the North Area, pedestrian lighting (poles no greater than 15 feet in height and directed downward with no greater than 0.5 footcandles) may be more appropriate than street level lighting.

Each major intersection considered for lighting should be the subject of a lighting study, with the following factors considered to reduce the impact on the surrounding land:

- ▶ Reducing the pole height;
- ▶ Using lower wattage bulbs;
- ▶ Shielding the backside to reduce trespass lighting; and
- ▶ Use and benefits of pedestrian and ground focused lighting.

#### 5.4.9 Design Aesthetics

Streets in northern Scottsdale should be constructed to respect the environmentally sensitive nature of the area, with gravel shoulders and shared-use paths where appropriate. The two adopted Character Area plans, Desert and Dynamite Foothills, provide specific guidelines about aesthetics, ensuring that the built environment blends with the natural setting and minimizes impacts. In addition, the *Scenic Corridor Design Guidelines* provide aesthetic guidelines specifically for Scenic Corridors throughout the City, including Scottsdale Road, Pima Road, Dynamite Boulevard, Carefree Highway, and Cave Creek Road in northern Scottsdale.

#### 5.4.10 Sidewalk Requirements/ADA Compliance

To encourage a consistent low intensity, rural environment at roadway crossings, the *DS&PM* should be revised to provide a North Area arterial intersection cross section that provides key elements of universal access. The following drawings show preliminary ideas of what this crossing may entail (see Figures 8-12 and 8-13).

The texture and location of stabilized decomposed granite paths should be carefully considered. In some cases, it may not be desirable for paths/sidewalks that go to work, school, recreation or commercial destinations. It may be more appropriate for areas of rougher terrain e.g., Lost Dog Wash trailhead.

#### 5.4.11 Equestrian Trail Planning

In addition to the guidelines and trail planning of the *Trails Master Plan*, it is recommended that when new drainage culverts are designed, they be considered for accommodation of a horseback rider.

As an update to the *Trails Master Plan*, it is recommended that an inventory of existing trails facilities and easements be conducted to coordinate with future updates of the *Trails Master Plan* and trails policy for the City.

Note:

Appendices including travel demand forecasts and recommended future functional classification have been included in the Street Element of the *Transportation Master Plan* rather than remaining in the North Area Circulation Study.

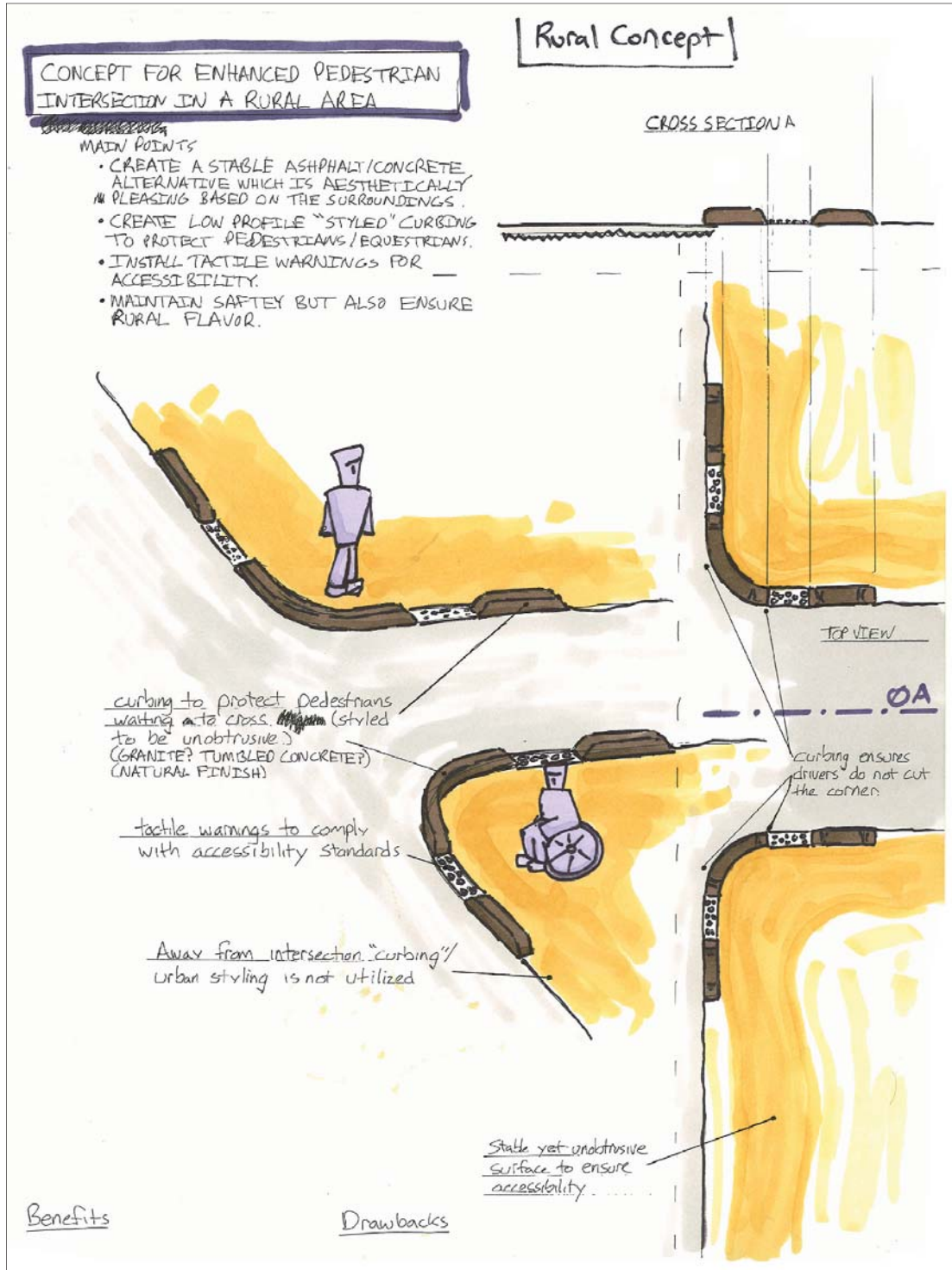


FIGURE 8-12: Rural Concept for Enhanced Pedestrian Intersections

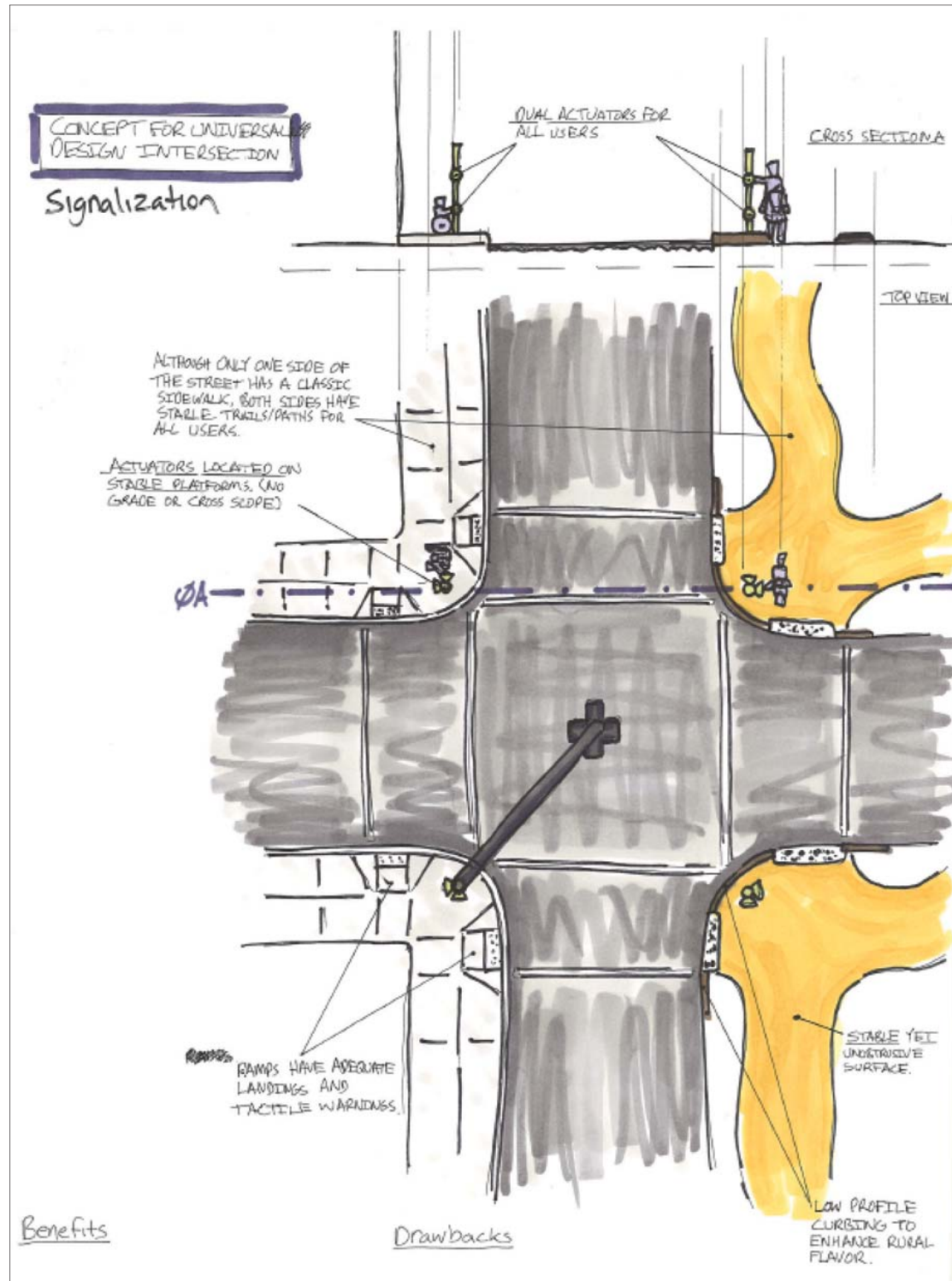


FIGURE 8-13: Concept for Universal Design Intersection (Rural)