



Cave Creek | Carefree Transportation Framework Study

Final Report





Final Report

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Cave Creek | Carefree Transportation Framework Study Executive Summary



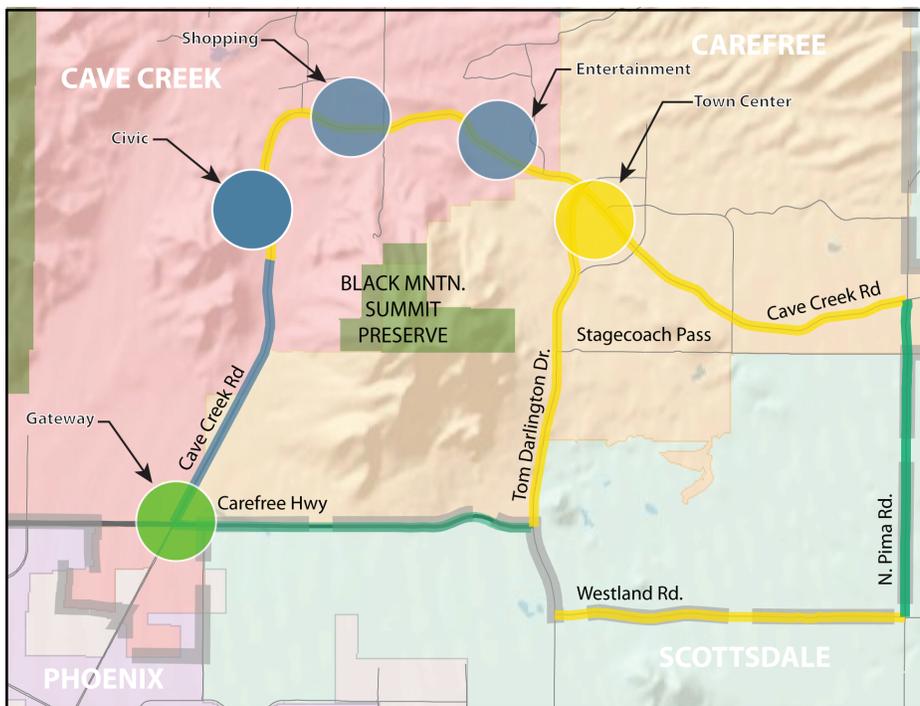
MARICOPA
ASSOCIATION of
GOVERNMENTS

The Cave Creek/Carefree Transportation Framework Study provides a comprehensive master plan to guide transportation development in the region with an emphasis on local and regional bicycle/pedestrian linkages and special event traffic and parking management.

The public was actively engaged in goal setting and alternatives development and selection during the 18 month study. There were more than 1,600 contacts through workshops, surveys and public meetings. The resulting community priorities were:

- Sense of Place - Preserve small town feel and unique character, provide a sense of entry, park once and walk around.
- Roadway - Provide safe and well maintained streets, new roads and added lanes are not a priority.
- Bicycle - Provide for safe biking through bike lanes to separate bicyclists from cars and pedestrians.
- Pedestrian - Provide for safe walking through sidewalks, crosswalks, multi-use paths & pedestrian lighting.
- Transit - Provide transit services for seniors and persons with disabilities, provide a seasonal shuttle.
- Special Events Traffic & Parking - Provide additional special event parking
- Bicycle Tourism - Enhance the economic activity of current and new bicycle tourism

The resulting “Nodes and Corridors” concepts and recommendations satisfy the requirements of the community stakeholders and study partners.



FRAMEWORK AT A GLANCE

Nodes

Bicycle/pedestrian friendly areas of retail and entertainment activity accommodating all modes of travel in a complete street, context sensitive environment.

Corridors

Roadways that connect the nodes and move traffic through the area in a complete street environment accommodating all modes of travel

Intersections

Six intersections will require signalization by 2035; roundabouts are a viable option to signals.

Special Event Traffic & Parking

Enhance current practices with additional parking and access, bypass routes, refined manual traffic control and additional wayfinding signage.

Transit

Conduct a transit study and continue to fund seniors and persons with disabilities transit.

Bicycle Tourism

Maximize economic of cycling through assessment of existing assets, a bike friendly community and mapping/marketing of routes and events.

Corridor Recommendations

The following improvements are recommended on the primary roadway corridors in the towns – which include Cave Creek Road, Carefree Highway, Tom Darlington Drive, Pima and Westland roads:

- Two lanes in each direction, except on Carefree Highway west of Cave Creek Road, which would be three lanes in each direction
- Bike lanes and sidewalks
- Raised and/or landscaped medians
- An optional shared-use path
- Additional crosswalks, traffic signals or other traffic devices
- Roadway safety and signage improvements

These improvements and roadway configurations are recommended for the corridors outside of concentrated activity nodes in the towns' Central Business Districts, which are discussed in the following section.

INPUT ON CORRIDOR AND ACTIVITY NODE OPTIONS

Corridor and activity node concepts were presented for the community's input at a public meeting in April, as well as through an online survey, which received 266 responses.

Based on the community comments received, **most community members support the proposed configurations along all major corridors** in the study area.

- 59 percent supported the proposed Carefree Highway and Pima Road corridor configuration concept, 22 percent were neutral or provided additional suggestions and 18 percent did not support the concept.
- 65 percent supported the Cave Creek Road, Tom Darlington Drive and Westland Road corridor configuration concept, while 21 percent were neutral or provided additional suggestions and 14 percent did not support the concept.

Of those who did not support the concepts, the most cited reasons were that respondents felt more lanes are needed or that sidewalks were not needed along these corridors outside the activity nodes. Based on this feedback, as well as a projection of future traffic volumes, the study team is recommending additional lanes on some roadways and an option to include multi-use paths away from the roadway where needed.

In the activity nodes, the study team proposed two potential roadway configuration concepts to accommodate additional pedestrian and parking improvements and to reduce traffic speeds to

provide a more pedestrian-friendly environment. Each of these options narrowed the roadway to one lane in each direction and included bike lanes and sidewalks.

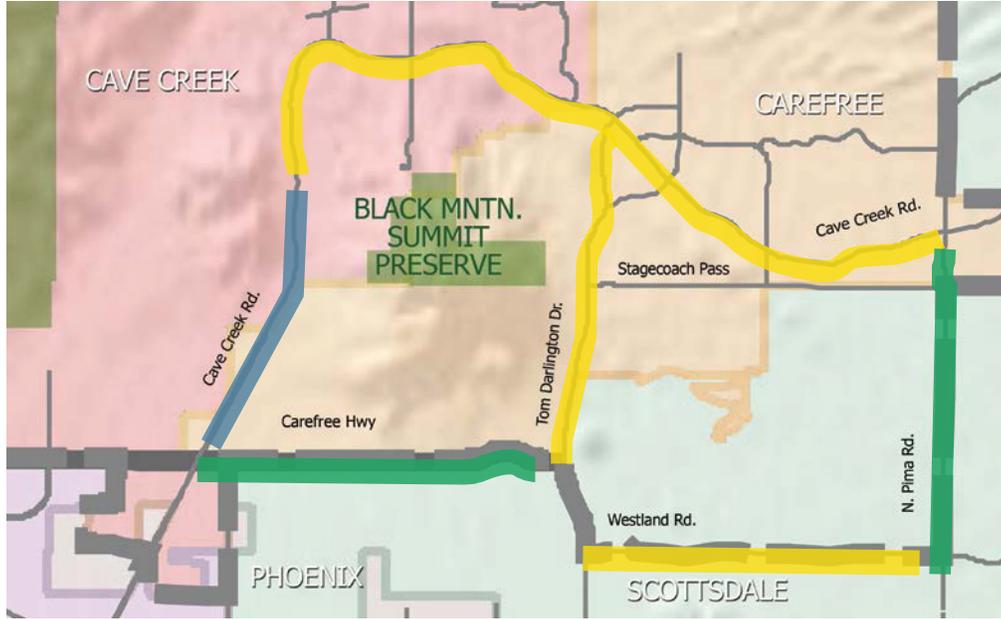
- Option 1: Reducing the roadway to one lane in each direction with on-street parking for businesses and events.
- Option 2: Reducing the roadway to one lane in each direction without on-street parking, which would provide a landscape buffer between pedestrians and the vehicular travel lane.
- Community members suggested a third option be considered to maintain two travel lanes in each direction through the activity nodes.

In the activity nodes, **community members in both towns preferred the road configuration without the parking option**, followed by retaining two lanes each direction. Least popular was the activity node configuration option with on-street parking.

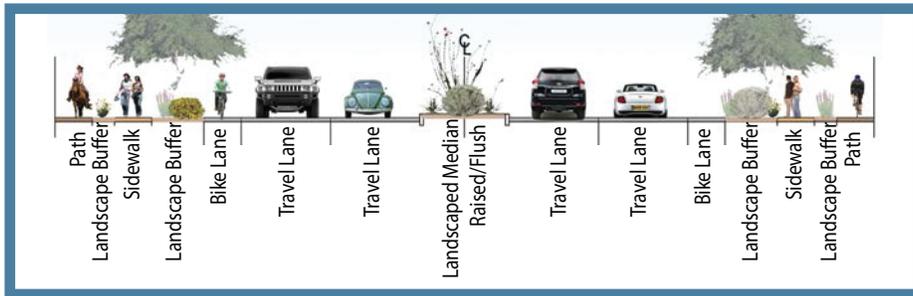
- 48 percent preferred the activity node concept without on-street parking
- 30 percent preferred to maintain two lanes in each direction
- 22 percent preferred the activity node with on-street parking option

While these preferences were similar when survey responses were evaluated according to town residence, Carefree residents were more likely to prefer on-street parking options.

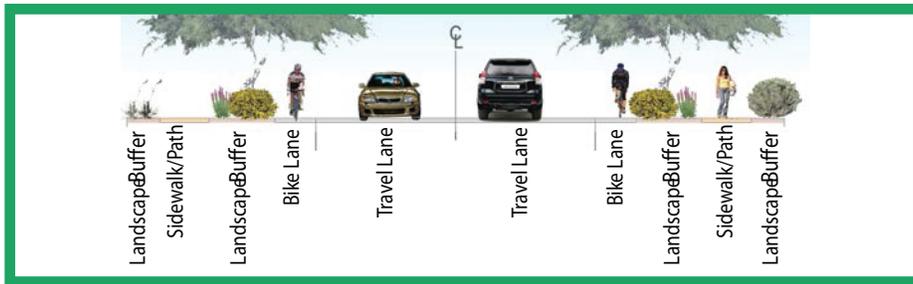
CORRIDOR RECOMMENDED LOCATIONS AND CONFIGURATIONS



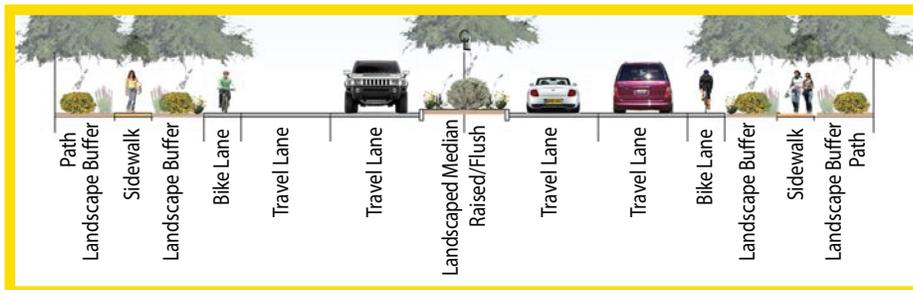
CAVE CREEK ROAD (CAREFREE HIGHWAY TO CIVIC NODE)



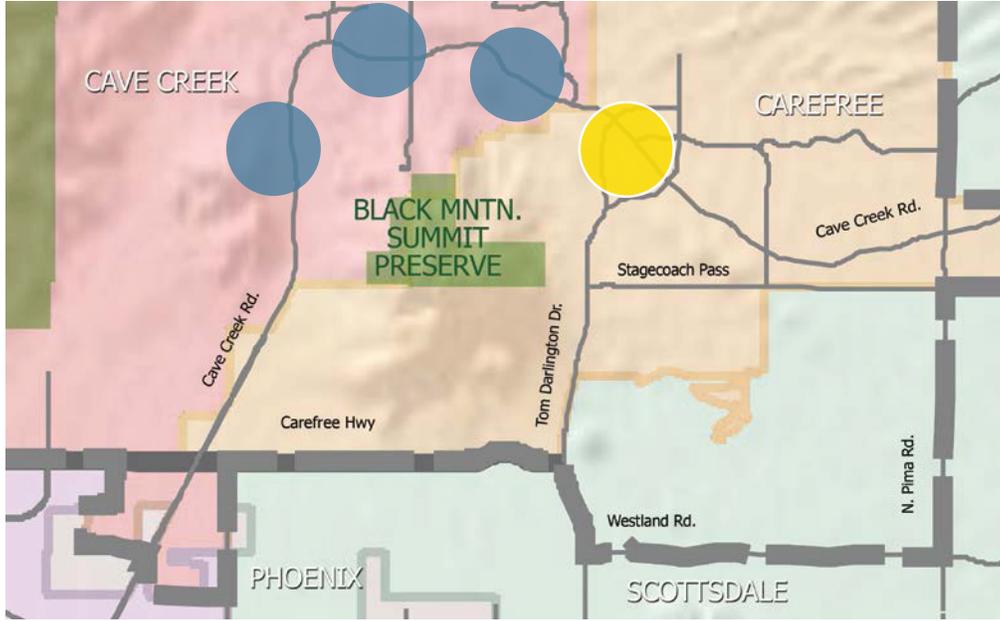
INTERIM CAREFREE HIGHWAY AND PIMA ROAD



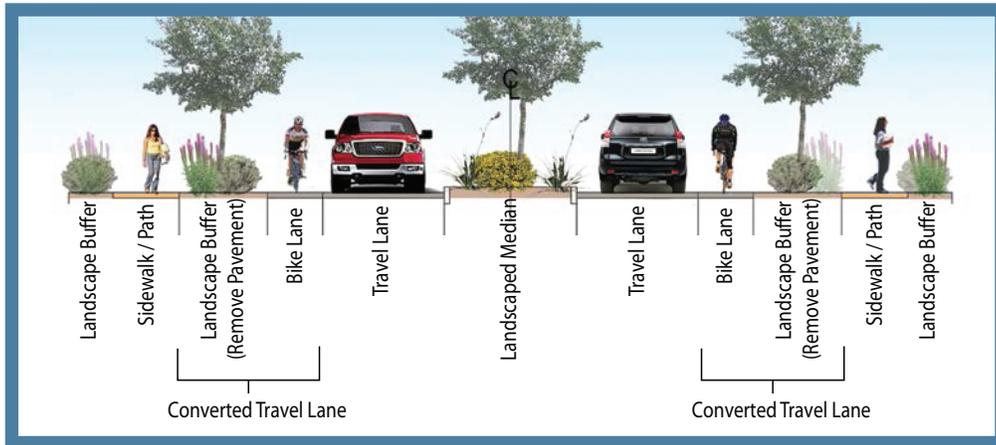
CAVE CREEK ROAD - TOM DARLINGTON DRIVE - WESTLAND ROAD CAREFREE HIGHWAY EAST OF CAVE CREEK ROAD - PIMA ROAD



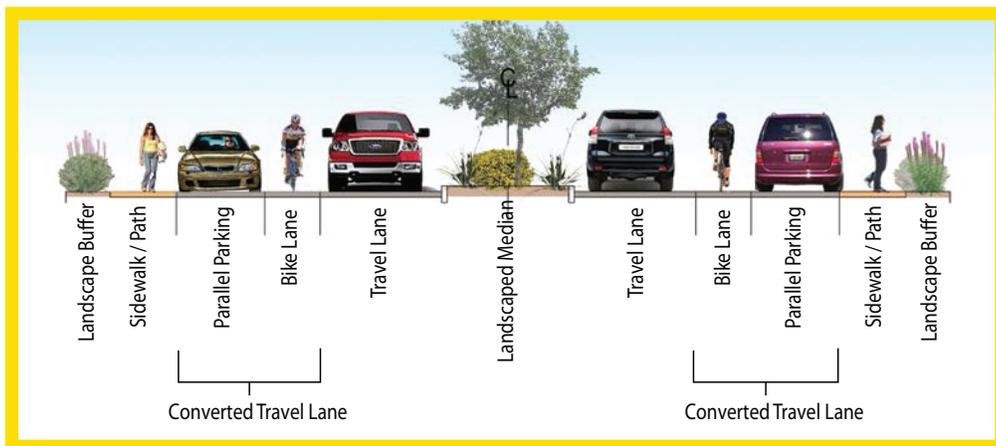
ACTIVITY NODE RECOMMENDED LOCATIONS AND ROADWAY CONFIGURATIONS



CAVE CREEK ACTIVITY NODE
Activity Node Without On-Street Parking



CAREFREE ACTIVITY NODE
Activity Node With On-street Parking



ACTIVITY NODE RECOMMENDATIONS

Along Cave Creek Road and Tom Darlington Drive, within concentrated activity nodes in the Central Business Districts in the towns, the study team recommends changes to the roadway configuration to reduce traffic speeds and improve walkability.

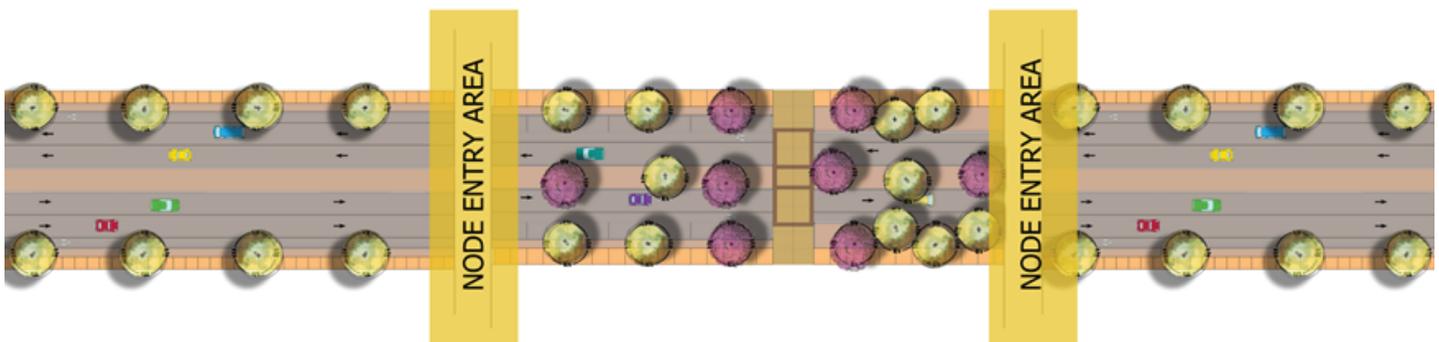
The following primary activity nodes have been identified:

- The Cave Creek “Entertainment District,”
- The Cave Creek “Shopping District,”
- The Cave Creek “Civic District,”
- The “Carefree Town Center District” and
- The “Gateway District” at the intersection of Carefree Highway and Cave Creek Road.

Within each of these activity nodes, with the exception of the Gateway District, which is discussed in a separate section below, the study team recommends:

- One lane in each direction with a bike lane and sidewalk.
- An entry feature to provide a sense of arrival and a transition to one travel lane, as well as roadway design features that slow traffic approaching these pedestrian-oriented zones.
- Additional pedestrian and bicycle amenities, such as seating, shade provided by trees or structures, pedestrian-level lighting, crosswalks, bicycle storage and signage to local businesses and attractions.
- More business parking to promote parking once and walking around. This also accommodates special event parking needs.
 - In Carefree, on-street parking would be available but not marked.
 - In Cave Creek no on-street parking would be allowed.

Activity Node Entry Recommendation



Corridor Concept Plan

Activity Node Plan Concept

Corridor Concept Plan

CAVE CREEK ROAD/CAREFREE HIGHWAY INTERSECTION

The Gateway District activity node is at the busiest intersection, Cave Creek Road and Carefree Highway in the study area. This node is unique in that it is “anchored” by the school campus at Dove Valley Road between 56th Street and 60th Street on the Southeast and a mix of big box and neighborhood retail at the Cave Creek Road/Carefree Highway intersection. The intensity of student activity in the node leads to the need to maximize the safety of the bicycling and pedestrian activity in this vicinity of high volume, high speed automobile traffic. A multi-use underpass to fully separate bicycles, pedestrians and equestrians at the Cave Creek Road/Carefree Highway intersection was given serious consideration but eventually deemed to be premature. A combination of sidewalks, bike lanes, sharrow lanes and multi-use paths with pedestrian crosswalks will enhance non-vehicular safety.

Cave Creek | Carefree Transportation Framework Study

PARKING AND SPECIAL EVENT RECOMMENDATIONS

The study team is recommending the following parking, signage and special event traffic strategies for each town:

CAVE CREEK

- Continue to develop additional parking off Cave Creek Road
- Have eastbound traffic on Cave Creek Road access the off-site parking lot on School House Road using Basin Road
- Westbound traffic on Cave Creek Road would access off-site parking using School House Road
- Continue to develop bypass routes for Cave Creek Road
- Refine manual traffic control
- Provide additional wayfinding signage on Cave Creek Road
- Provide additional parking directional signage and publish parking information online

CAREFREE

- Develop on-street parking on Tom Darlington Drive north of Bloody Basin Road
- Develop on-street parking on Cave Creek Road west of Carefree Drive
- Prohibit on-street parking south of Bloody Basin Road
- Refine manual traffic control
- Provide additional wayfinding signage on Cave Creek Road
- Provide additional parking directional signage and publish parking information on-line

Residents were supportive of the parking and special event recommendations, in particular the bypass route and additional business and event parking.

TRANSIT RECOMMENDATIONS

While transit improvements are not a priority for most residents, some see a need for modest transit improvements to augment existing services and better serve seniors. The study team recommends:

- Continued funding for transit for seniors and people with disabilities as currently provided by Foothills Caring Corps
- Possible participation in the Valley RideChoice program to link current Foothills Caring Corp service to broader East Valley destinations
- A transit study for Cave Creek and Carefree to better define overall transit demand, service options and costs

PROVIDE INPUT ON RECOMMENDATIONS

Study recommendations will be presented at a public meeting on Sept. 10. Recommendations will also be posted on the study website, <http://CaveCreekCarefree.azmag.gov>, for those unable to attend the meeting.

WHEN WILL IDENTIFIED IMPROVEMENTS BE MADE?

The framework study developed a master transportation plan that includes recommended transportation policies and improvements that could be made in the near and long term. There is no funding currently identified for these types of improvements. The study is a planning-level document that will guide transportation planning in the towns of Cave Creek and Carefree, and will lay the foundation to secure potential future local, regional and federal funding for improvements. The Cave Creek/Carefree Transportation Framework Study was conducted by the Maricopa Association of Governments (MAG) in partnership with the towns of Cave Creek and Carefree.



I. INTRODUCTION

A. Purpose of the Study

The purpose of the Cave Creek/Carefree Transportation Framework Study (TFS) is to develop a comprehensive master plan that will guide transportation development in the communities of Cave Creek and Carefree. As a framework document, this study is intended to serve as a coordinated reference for addressing existing and anticipated transportation issues within and amongst each community, with a particular emphasis placed on local and regional bicycle/pedestrian linkages and special event traffic and parking management.

B. Study Goals and Objectives

The Project Team completed public and stakeholder outreach through focus groups, three online surveys, special event intercept surveys, and three public meetings. These efforts and coordination with the Town staffs provided input for key desired improvements and actions as they relate to transportation in the project area.

The Project Team developed the following Goals from the extensive outreach:

Goal: Provide transportation improvements that will enhance or preserve and not detract from the natural and social character of the area.

Goal: Promote a balanced transportation system that provides adequate capacity for and convenient access to vehicle, transit, bicycle/pedestrian, and equestrian travel modes within the study area.

Goal: Support the development of transportation related projects that encourage tourism and promote economic prosperity in the study area

Goal: Support transportation projects that are fiscally responsible and preserve existing infrastructure

Goal: Improve the safety of the transportation system for all travel modes in the study area.

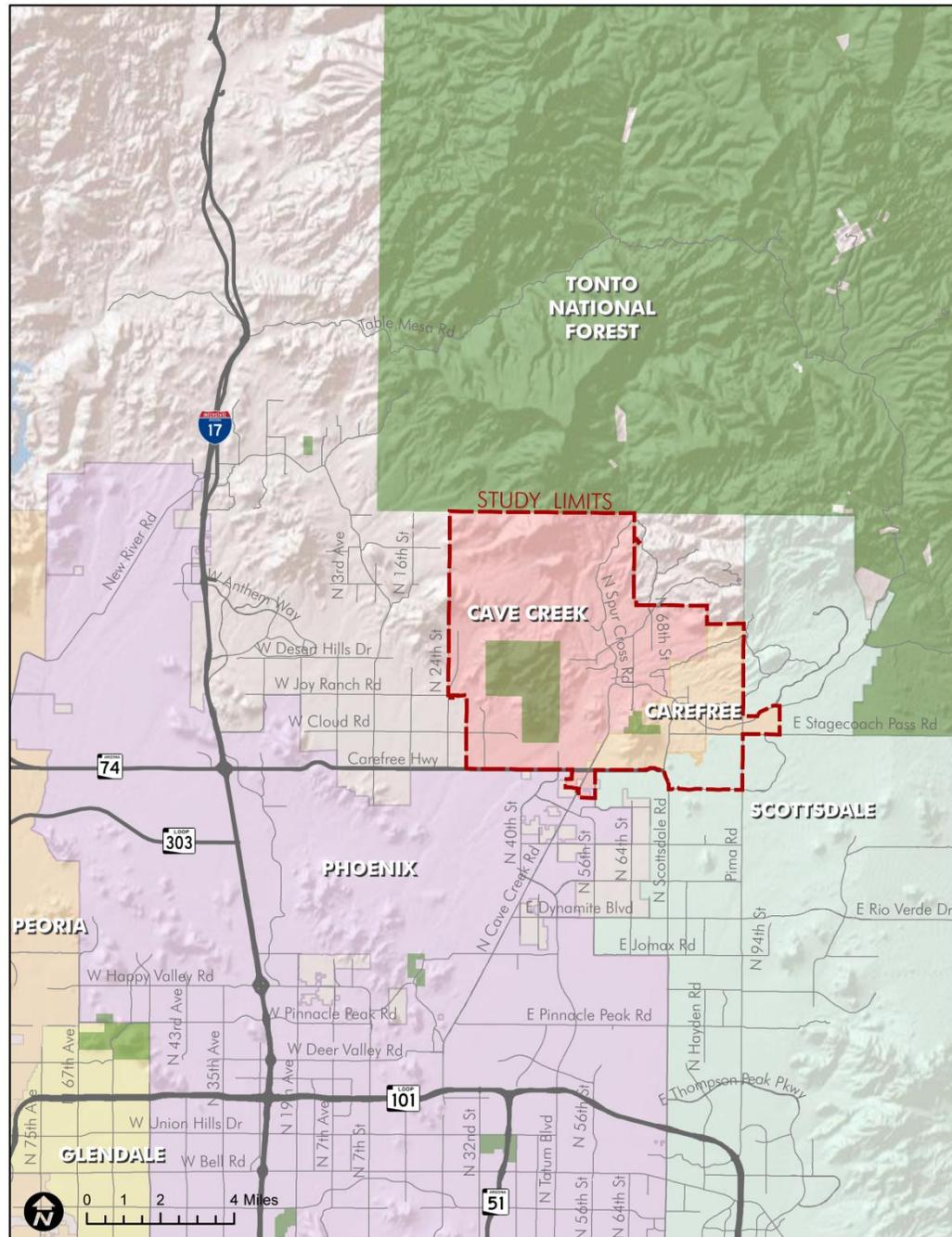




C. Study Area Overview

The study area for the Cave Creek/Carefree Transportation Framework Study predominantly includes the Municipal Planning Areas (which also align with the Town Limits) for the communities of Cave Creek and Carefree. The study area is generally bounded by the Tonto National Forest boundary on the north, Pima Road on the east, Carefree Highway on the south and 24th Street on the west, but also includes a portion of Scottsdale lying east of Scottsdale Road and north of Westland Road and west of Pima Road. The Study Area is depicted in **Figure 1** below.

Figure 1: Study Area



Source: ASLD



II. EXISTING AND FUTURE CONDITIONS

A. Review of Studies and Reports

Several plans, studies and reports address transportation issues in the study area. This section highlights selected documents to recognize what planned transportation improvements are already identified as well as ascertain what issues have been ongoing concerns of residents and public officials. A secondary purpose of this review is to extract data that may be useful in conducting the technical analysis required to identify near term and long range transportation system improvements.

1. Key Reference Material Pertinent to the Study Area

Agency	Report or Study	Date
Carefree	General Plan 2030	2012
Carefree	Carefree Transportation Plan	2008
Carefree	Economic Development Strategic Plan 2011-2012	2013
Carefree/FCDMC	Drainage Master Plan	2003
Cave Creek/Carefree	Public Transportation Survey	2009
Cave Creek	General Plan	2005
Cave Creek	Town Core Plan	2012
Cave Creek	Design Guidelines	2007-09
Cave Creek/FCDMC	Drainage Master Plan	2008
Cave Creek/MAG	Cave Creek Bike Study	2011
Cave Creek/Carefree	Public Transportation Survey	2009
MAG	Regional Transportation Plan	2010
MAG	Regional Bike Map	2012
Maricopa County	Carefree Highway Access Management and Corridor Improvement Study	2007
Maricopa County	Carefree Highway Scenic Corridor Study	2008
Maricopa County	Comprehensive Plan	2002
Maricopa County	New River Area Plan	1999
Maricopa County	Transportation System Plan	2007
Maricopa County	Major Streets and Routes Plan	2011
Maricopa County	Bicycle Transportation System Plan	1999
Phoenix	General Plan	2002
Phoenix	Desert View Village General Plan Map	2012
Scottsdale	General Plan	2001
Scottsdale	Transportation Master Plan	2008

2. Summary of Pertinent Reference Material

Town of Carefree General Plan 2030 (2012)

Summary: This long range “general” policy document establishes a series of goals, objectives, and policies, upon which all community development decisions within Carefree are based. The goals, objectives, and policies are focused around maintaining Carefree’s vision as a unique small town of well-designed homes and businesses that harmonize with their Sonoran Desert setting. Overall, with limited availability of undeveloped land, the Carefree General Plan places a particular emphasis on the enhancement of the Town Center, preserving the character of existing neighborhoods, and encouraging (where appropriate) more intense land uses.



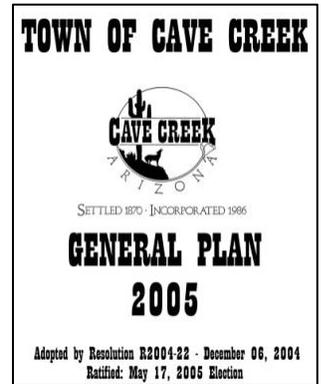
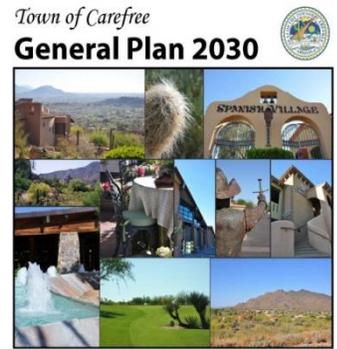


Relevance to Current Study: Several of the plan elements (particularly the circulation element) include goals, objectives, and/or policies that directly or indirectly support the development of a multi-modal transportation system within the community. Some of these key provisions include traffic calming, development of pedestrian and bicycle pathways along arterial streets, and pedestrian and bicycle friendly amenities within the Town Center.

Town of Cave Creek General Plan (2005)

Summary: This plan represents a long-term policy framework that is intended to assist Town decision-makers as they guide Cave Creek into the future. As a community that embraces their western heritage, equestrian lifestyle, and overall rural development pattern, this plan is grounded in the need to address several challenges related to the continued urbanization of the Phoenix metropolitan area, including: planning for sustainability, protecting Cave Creek’s open spaces and natural resources, and protecting the Town from traffic and development impacts of adjacent communities.

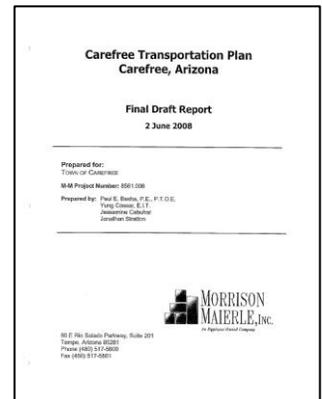
Relevance to Current Study: Through its seven elements, the Cave Creek General Plan introduces several goals, objectives, and policies that seek to improve transportation related issues in the Town, and devotes significant attention to developing roadways that maintain a rural atmosphere, expanding non-vehicular circulation facilities (particularly in the Town Core), relieving limited access issues, and improving parking in the Town Core during special events. More specifically some of these key provisions include discourage the use of traffic lights, discourage the extension of and limit the connection of road alignments, and encourage facilities for bicycles, horses, pedestrians and persons with disabilities.



Carefree Transportation Plan (2008)

Summary: The Town of Carefree Transportation Plan evaluated its transportation system to ensure that it aligns with the Town’s General Plan 2020 as the Town grows. The multi-modal transportation plan incorporates safety, efficiency, balance, mobility, accessibility and aesthetics. The plan establishes conceptual plans for streets, bicycles, pedestrians and the Town Center. The goals, objectives, and policies focus on preserving the vision and character of the Town of Carefree as described in the General Plan while developing a transportation system that supports planned economic development.

Relevance to Current Study: Several of the findings as well as the recommended improvements directly or indirectly impact the development of a multi-modal transportation system within the Carefree community. Some of these recommendations include possible sidewalks, bicycle lanes, paths or routes along Tom Darlington Drive, Cave Creek Road and Pima Road; a locally-funded circular route service similar to the Scottsdale Trolley; and pedestrian crosswalks in the vicinity of the Town Center.





Cave Creek/MAG Bike Study (2011)

See Section II-E.2 for information regarding this recently completed study.

MAG Regional Transportation Plan (2010)

Summary: The Regional Transportation Plan (RTP) is a comprehensive, performance based, multi-modal and coordinated regional plan, covering the period through Fiscal Year (FY) 2031. The RTP covers all major modes of transportation from a regional perspective, including freeways/highways, streets, public mass transit, airports, bicycles and pedestrian facilities, goods movement and special needs transportation.



Relevance to Current Study: Several of the RTP’s findings as well as the recommended improvements, directly or indirectly impact the development of a multi-modal transportation system within the Carefree and Cave Creek communities. Some of these recommendations include widening of Carefree Highway and road improvements for other arterials but no future transit services planned.

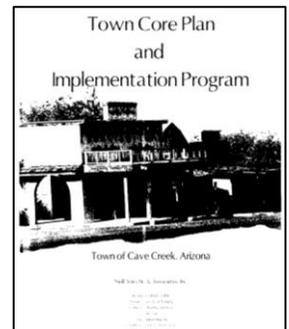
Carefree Economic Development Strategic Plan (2013)

Section II-C.3 provides an overview of information from this recently completed plan that is relevant to this study.

Cave Creek Town Core Plan (2012)

Summary: The Cave Creek Town Core Plan was recently updated in 2012 and focuses on promoting the character, attraction and western culture of the Town Core.

Relevance to Current Study: In relation to the TFS, the Town Core Plan sets forth a number of circulation, streetscape, pathways, and parking goals and action items that explicitly affect the transportation system. Identified goals and action items include cross-town collector linkages to relieve bottle-necks, a pedestrian/bicycle, equestrian pathway system, shared public/private parking facilities, and designated bicycle parking areas.



Carefree and Cave Creek Transportation Survey (2009)

Summary: In 2008, the Towns of Cave Creek and Carefree conducted a survey to determine the needs of their citizens for public transportation. The Towns wanted to assess the community’s need for transportation alternatives such as dial-a-ride, circular vans/buses, park and ride vans/buses and flex-stop services. Large buses on fixed schedules and fixed routes were not part of the survey. The survey focused on small scale transportation specifically designed for small, semi-rural communities.

Relevance to Current Study: Several of the findings as well as the recommendations provided in the 2009 survey summary report, directly or indirectly impact the development of a multi-modal transportation system within the Carefree and Cave Creek communities. Some of these recommendations include continuing to investigate public transportation alternatives for their citizens and continuing to work with the Foothills Caring Corps for senior and persons with disabilities transit services.





3. Additional Reference Material Relevant to the Study Area

Agency	Report or Study	Date
Carefree	Pavement Preventative Maintenance Plan 2012-2022	2012
Carefree	Community Survey	2011
Cave Creek	Design Guidelines	2007-09
Cave Creek	Trail Advisory Committee Report and Recommendations	2006
Cave Creek	Fiesta Days Parade Route	2013
Cave Creek	Cave Creek Bicycle Festival – Mountain Bike Race	2012
MAG	Complete Street Guide	2011
MAG	Regional Bikeway Master Plan	2007
MAG	Pedestrian Policies and Design Guidelines	2005
MAG	Desert Spaces Open Space Plan	1995
Maricopa County	Regional Trail System Plan	2004
Maricopa County	Regional Off-Street System Plan	2001
Maricopa County	Spur Cross Conservation Area Map	2012
Phoenix	Street Classification Map	2010
Phoenix	Traffic Volume Map	2013
Phoenix	Truck Route Map	2005
Phoenix	Sonoran Preserve Master Plan	1998
Phoenix	Sonoran Preserve Trail Map	2013
Phoenix	Street Planning and Design Guidelines	2009
Scottsdale	Trails Master Plan	2003
USFS	Cave Creek Ranger District, Tonto National Forest – Proposed Route Network	2009
USFS	Tonto National Forest Management Plan Revision (Under Development)	2012

B. Socioeconomic Characteristics

The following subsections present data on the current population, household characteristics and employment; identifies trends that have developed over the past 10 years; and discusses future projections for the study horizon year of 2035. Additionally, this chapter includes an environmental justice baseline analysis. To provide continuity with the regional transportation planning process, current and future socioeconomic data discussed within this section was derived from Maricopa Association of Governments most recent 2010 socioeconomic projections and supplemented with US Census data as needed.

1. Land Ownership

The Cave Creek/Carefree Transportation Framework Study area is comprised of over 31,298 acres. Private land is the predominant land use feature followed by the Arizona State Land Department. Maricopa County manages the Maricopa County Regional Park System and a small portion is also controlled by the Bureau of Land Management.

Table 1: Land Ownership

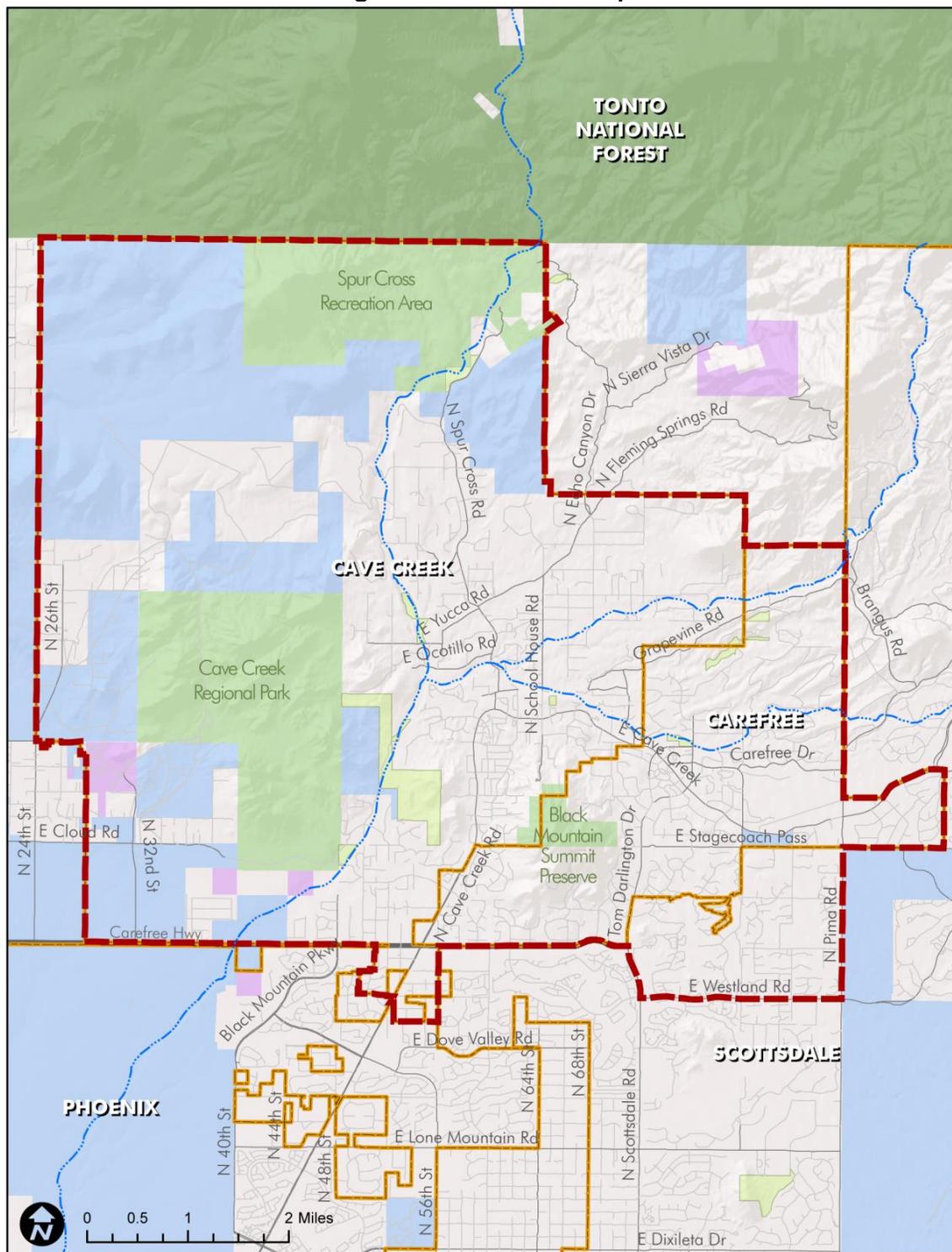
Land Owner	Acreage	Percent of Study Area
Private	18,255	58%
State Trust Land	7,649	24%
Bureau of Land Management	252	1%
County Park	5,142	16%
Total Study Area	31,298	100%

Source: ASLD





Figure 2: Land Ownership





2. Existing Population and Employment

Existing Population

Table 2 shows that overall population in the study area is increasing. From 2000 to 2010 population in the study area grew by 32 percent. Over the same 10 year period, Maricopa County’s population increased by 23.5 percent while the State of Arizona’s population increased by 24.6 percent. Table 2 also shows that 2010 population levels are distributed over 4,345 households within the study area or an occupancy rate of 77 percent. Maricopa County and the State of Arizona sustain occupancy rates of 86 percent and 84 percent respectively.

Table 2: Population Growth and Housing Analysis

Geographic Area	Population		Annual Growth Rate	Housing Units 2010	Households 2010	Occupancy Rate
	2000	2010				
Study Area	7,341	9,676	2.80%	5,678	4,345	77%
- Cave Creek	3,855	4,939	2.51%	2,574	2,132	82%
- Carefree	2,967	3,353	1.23%	2,249	1,651	73%
- Scottsdale (TAZ 1048)	519	1,384	10.31%	855	562	66%
Maricopa County	3,096,600	3,824,056	2.13%	1,640,743	1,411,590	86%
State of Arizona	5,130,632	6,392,017	2.22%	2,844,526	2,380,990	84%

Source: MAG 2003 Interim Socioeconomic Projections, MAG 2013 Socioeconomic Projections, 2010 U.S. Census

Existing Employment

From 2000 to 2010 total employment in the study area grew by 20 percent increasing from 3,382 jobs to 4,073 jobs, see Table 3. Overall, employment levels in the study area have significantly outpaced County patterns and also are not indicative of the national economy over the recent past.

Table 3: Employment Growth Analysis

Geographic Area	Employment		Employment Growth Rate
	2000	2010	
Study Area	3,382	4,073	1.88%
- Cave Creek	813	1,838	8.50%
- Carefree	1,546	1,426	-0.80%
- Scottsdale (TAZ 1048)	1,023	809	-2.32%
Maricopa County	1,564,836	1,706,407	0.87%

Source: MAG 2003 Interim Socioeconomic Projections, MAG 2013 Socioeconomic Projections

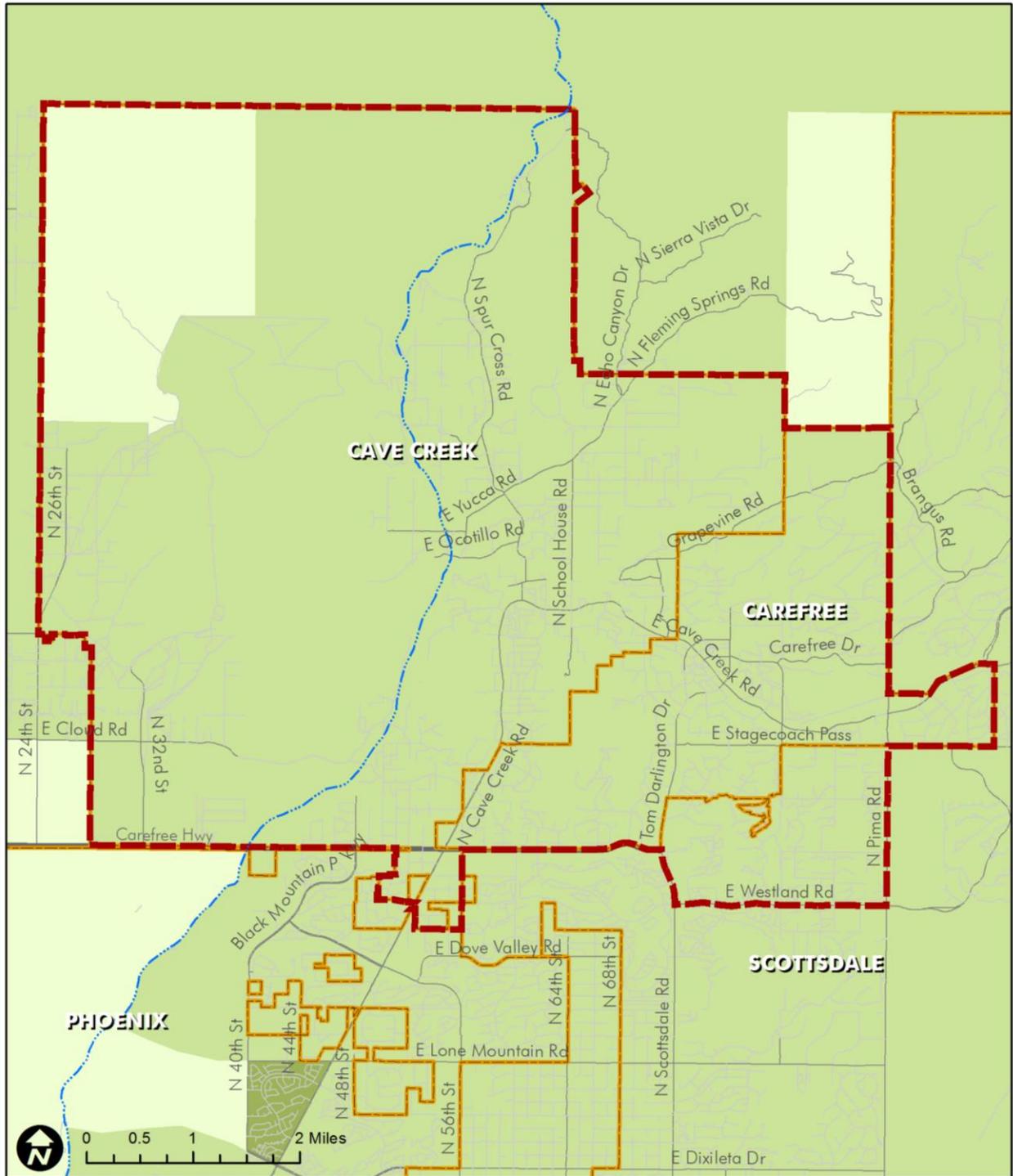
Existing Population and Employment Density

The density patterns on Figures 3 and 4 provide a more accurate representation of the distribution conditions within the study area.





Figure 3: Population Density - 2010



Legend

- Study Area Limits
- Municipal Limits
- Streets
- Creek/Wash

Population Density by Traffic Analysis Zone

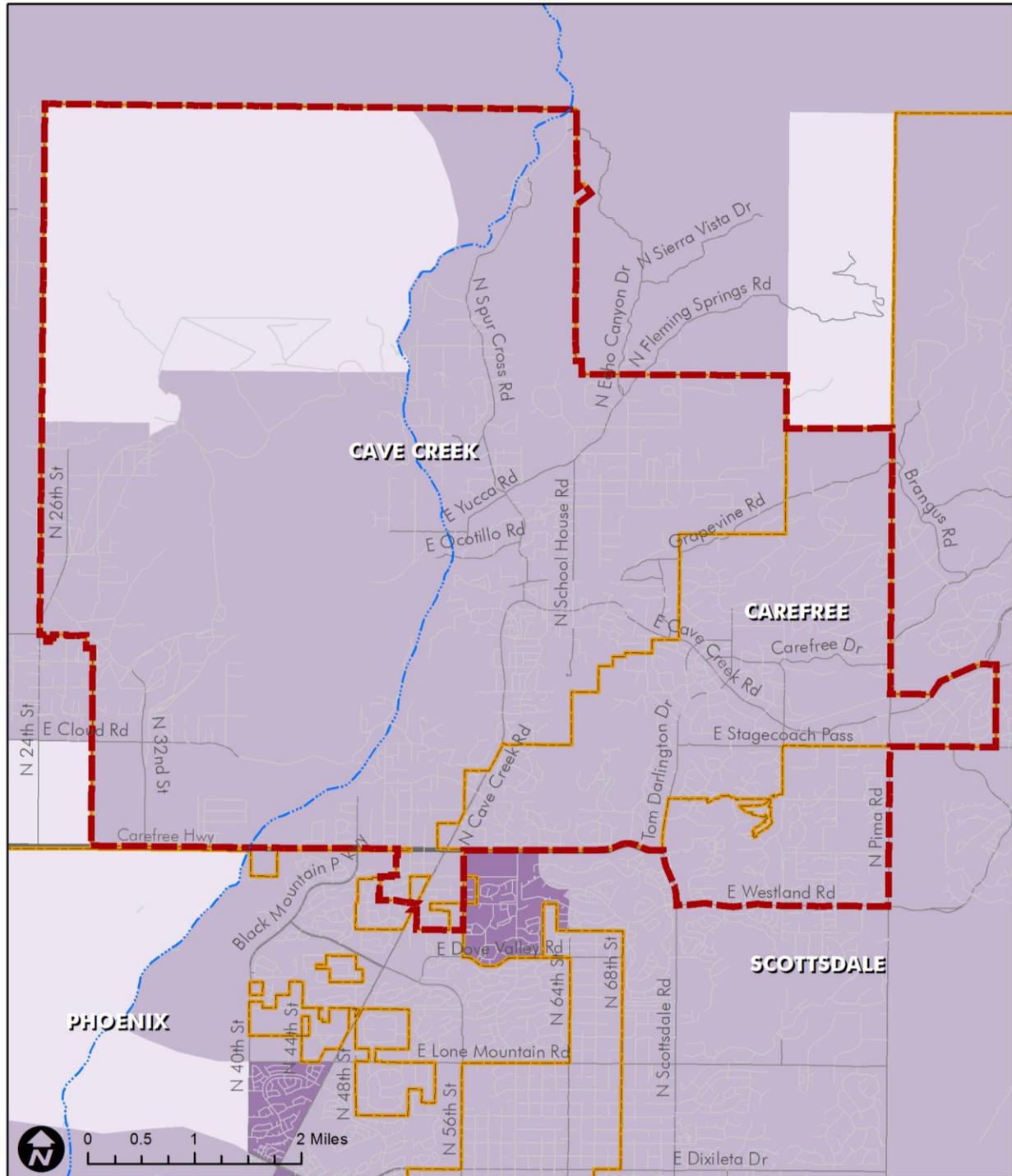
- 0
- 0.1 to 5.0 Persons Per Acre
- 5.1 to 10.0 Persons Per Acre
- 10.1 to 20.0 Persons Per Acre
- Greater than 20 Persons Per Acre

Source: ASLD, MAG 2013 Socioeconomic Projections





Figure 4: Employment Density - 2010



Legend

- Study Area Limits
- Municipal Limits
- Streets
- Creek/Wash

Employment Density by Traffic Analysis Zone

- 0
- 0.1 to 1.0 Employees Per Acre
- 1.1 to 10 Employees Per Acre
- 10.1 to 30 Employees Per Acre
- Greater than 30 Employees Per Acre

Source: ASLD, MAG 2013 Socioeconomic Projections





3. Environmental Justice Review (Title VI)

Title VI of the Civil Rights Act of 1964 requires that “no person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Executive Order 12898, further amplifies Title VI by providing that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities” on minority, low-income, disabled, and elderly populations.

Based on the data from 2000 and 2010 Census and the 2007-2011 American Community Survey (ACS), the TFS area is found to be less diverse than the county or the state as a whole. **Table 4** shows the minority, mobility limited, and low-income populations are all well below the County and State averages, however, the Census data indicates that the study areas elderly population is vastly above the county and state levels. The elevated occurrence of this elderly environmental justice group within the study area may require further analysis once future projects are identified.

Table 4: Environmental Justice Analysis

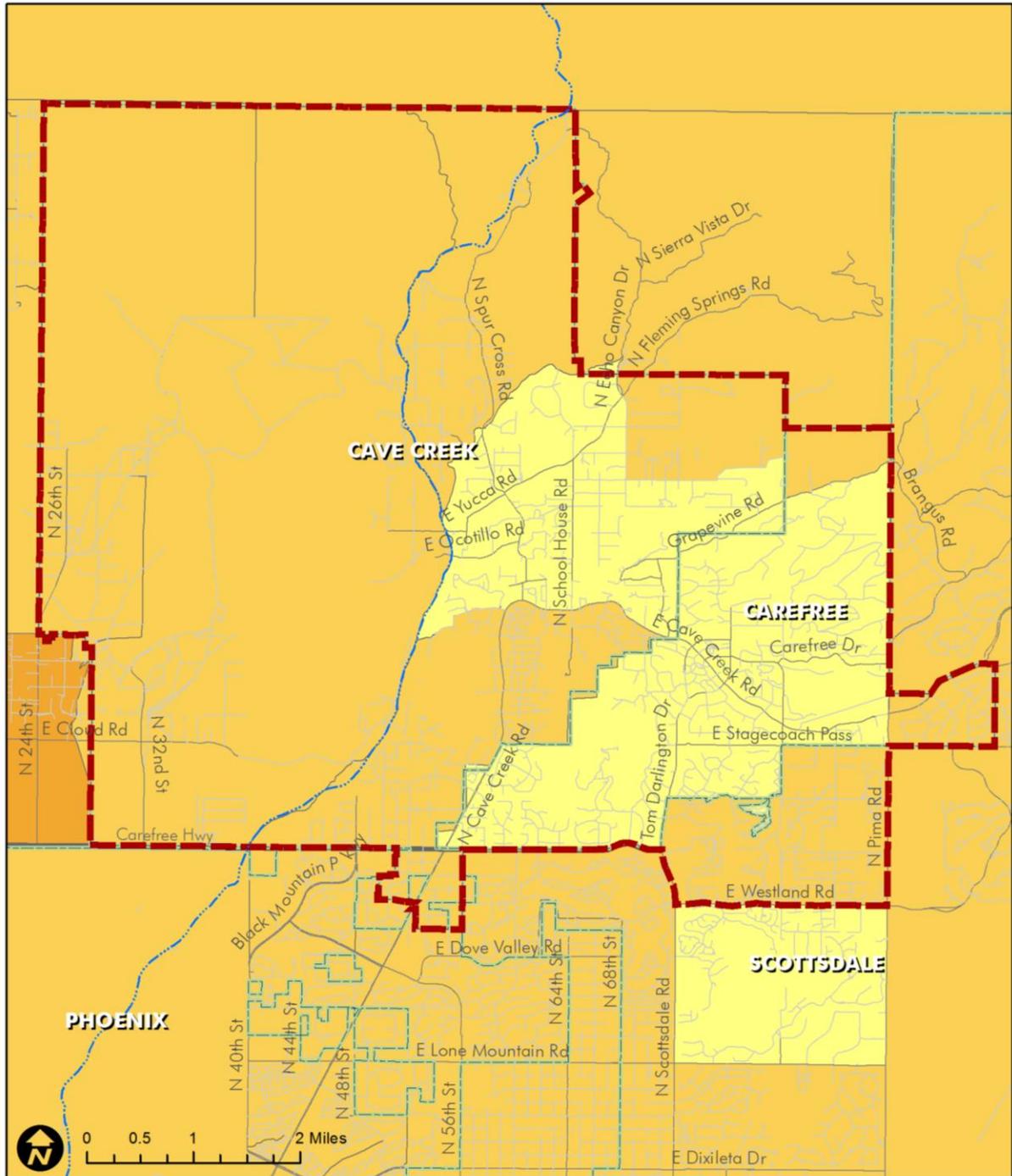
Census Group	Study Area		Maricopa County		State Of Arizona	
	Population	% of Total Population	Population	% of Total Population	Population	% of Total Population
Minority⁽¹⁾	867	8.9	1,577,062	41.3	2,696,370	42.2
-Hispanic or Latino	544	5.6	1,128,741	29.6	1,895,149	29.6
-African American	60	0.6	177,490	4.6	239,101	3.7
-Native American	35	0.4	59,252	1.6	257,426	4.0
-Asian	112	1.1	128,301	3.4	170,509	2.7
-Pacific Islander	3	0.0	6,723	0.2	10,959	0.2
-Other race	9	0.1	5,508	0.1	8,595	0.1
-Two or more races	104	1.1	71,047	1.9	114,631	1.8
Age 65 and Older⁽¹⁾	2,511	25.7	462,641	12.1	881,831	13.8
Mobility Limited (16-64)⁽²⁾	127	2.3	115,004	5.0	193,055	5.0
Below Poverty Level⁽³⁾	462	5.5	557,410	14.9	1,003,575	16.2
⁽¹⁾ Total Population 2010 Census (includes Scottsdale)	9,761		3,817,117		6,392,017	
⁽²⁾ Total Population 2000 Census (does not include Scottsdale)	5,583		2,297,876		3,822,951	
⁽³⁾ Total Population 2007-2011 ACS (does not include Scottsdale)	8,325		3,748,938		6,197,190	

Source: 2010 U.S. Census, 2000 U.S. Census, 2007-2011 American Community Survey





Figure 5: Minority Density - 2010



Legend

- Study Area Limits
- Municipal Limits
- Streets
- Creek/Wash

Minority Population Density by Census Block Group

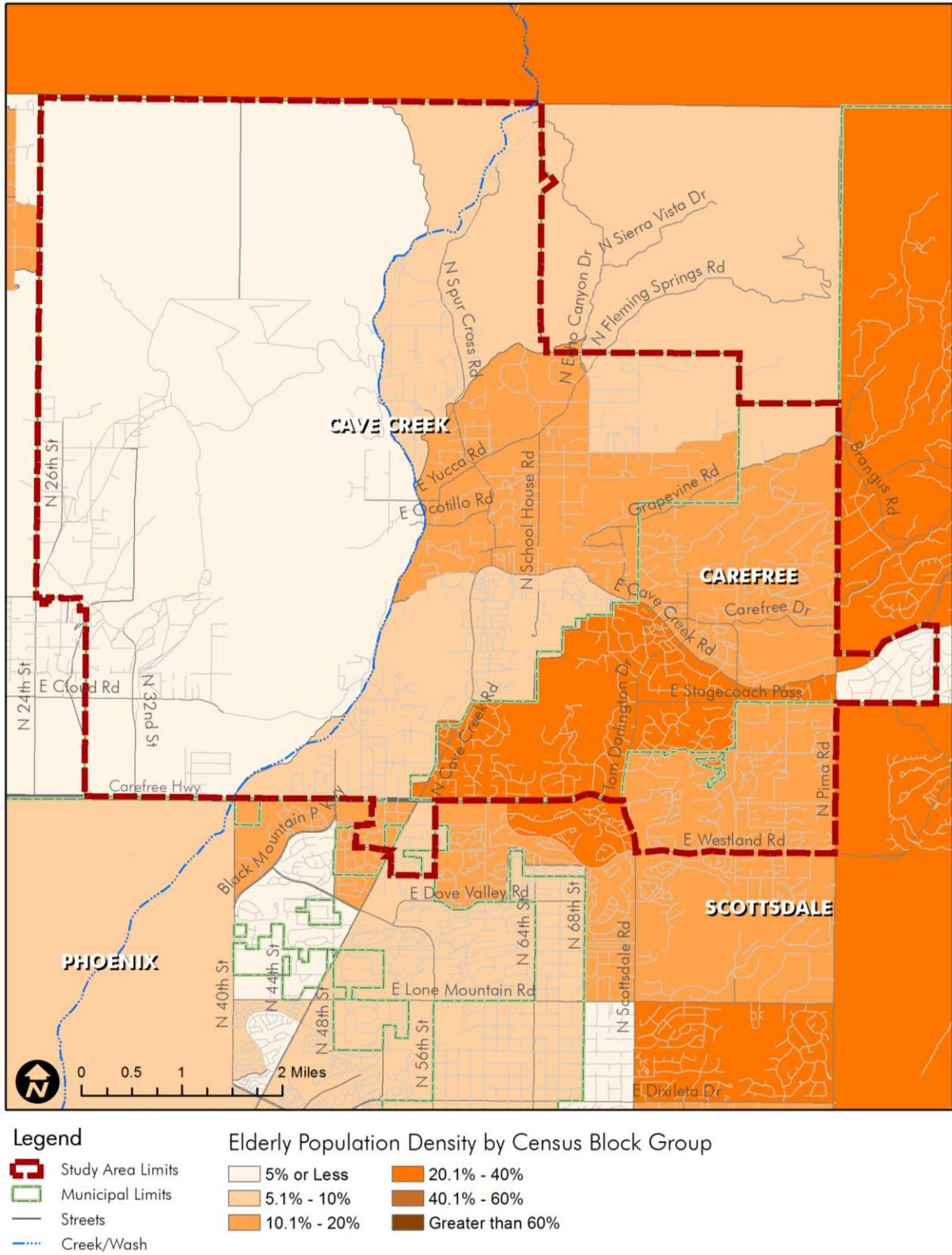
- 0%
- 0.1% - 5%
- 5.1% - 10%
- 10.1% - 20%
- Greater than 20%

Source: ASLD, 2010 Census





Figure 6: Elderly Density - 2010

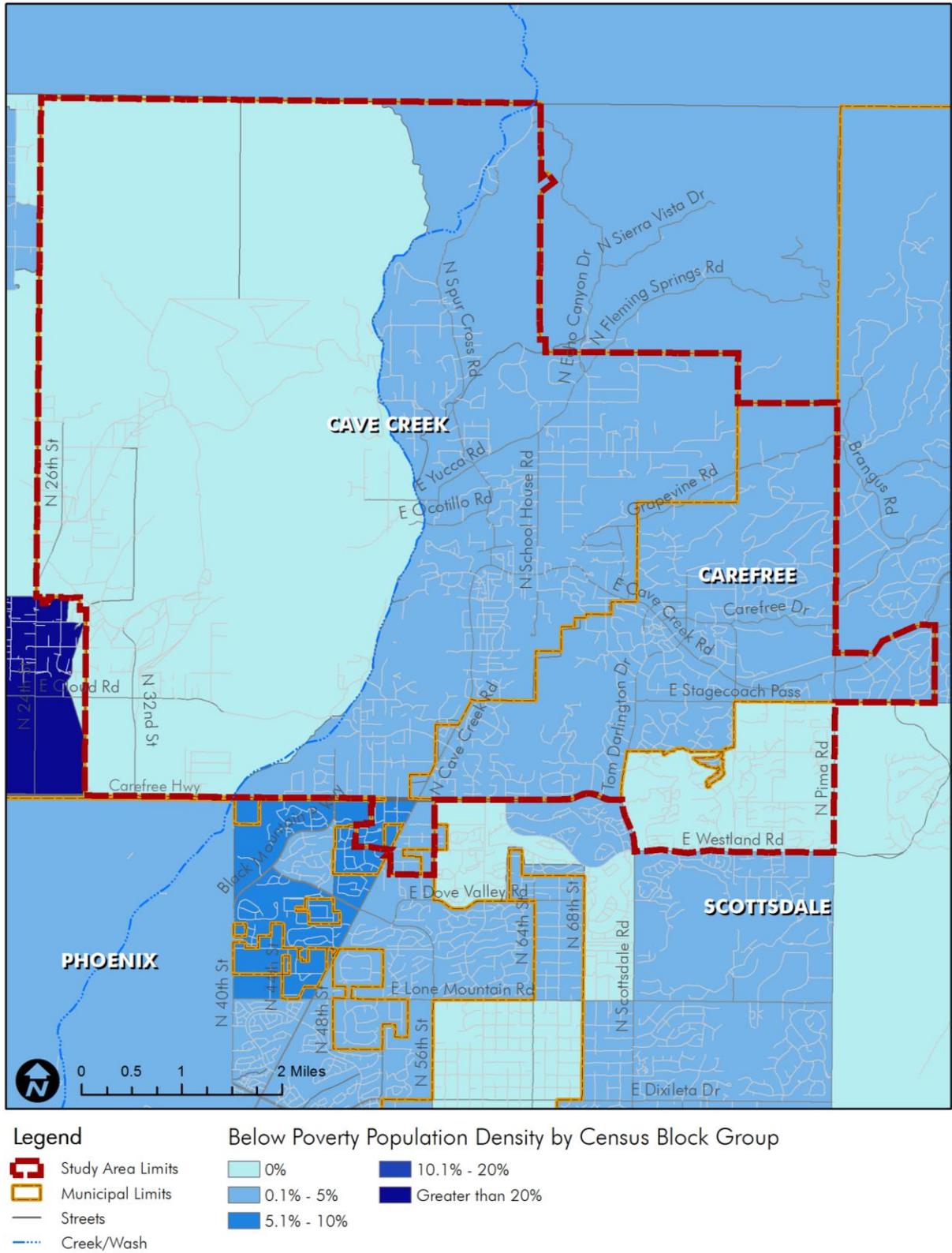


Source: ASLD, 2010 Census





Figure 7: Poverty Density - 2010





4. Future Population and Employment

Future Population

MAG’s 2010 socioeconomic projections for the study area forecast continued regional growth through the next two decades. **Table 5** shows that the study area population is expected to grow at an annual growth rate of 1.62 percent. The estimated annual growth rate within the study area is projected to be more consistent with the annual growth rate of the County as a whole.

Table 5: Future Population Growth and Housing Analysis

Geographic Area	Population		Annual Growth Rate	Housing Units	Households	Occupancy Rate
	2010	2035		2035	2035	
Study Area	9,676	14,458	1.62%	8,285	6,576	79%
- Cave Creek	4,939	8,150	2.02%	4,181	3,590	86%
- Carefree	3,353	4,169	0.88%	2,949	2,112	72%
- Scottsdale (TAZ 1048)	1,384	2,139	1.76%	1,155	874	76%
Maricopa County	3,824,056	5,753,819	1.65%	2,272,569	2,111,569	93%

Source: MAG 2013 Socioeconomic Projections, MAG TDM

Future Employment

According to the MAG 2010 Socioeconomic projections, the TFS Area is forecast to add approximately 1,952 jobs over the 2010 to 2035 period (representing approximately a 1.58 percent average annual growth rate). By the study horizon year 2035, this projected employment growth translates to the Town of Cave Creek maintaining over a 52 percent share of the employment base within the study area, followed by Carefree (34 percent) and Scottsdale (14 percent). The employment growth is expected to be much lower than the estimated County growth rate of 2.13 percent.

Table 6: Future Employment Growth Analysis

Geographic Area	Employment		Employment Growth Rate
	2010	2035	
Study Area	4,073	6,025	1.58%
- Cave Creek	1,838	3,287	2.35%
- Carefree	1,426	1,978	1.32%
- Scottsdale (TAZ 1048)	809	760	-0.25%
Maricopa County	1,706,407	2,889,337	2.13%

Source: MAG 2013 Socioeconomic Projections, MAG TDM

Employment to Population Balance

A ratio of one job for every two residents indicates a jobs to population balance in travel demand modeling, which enhances the possibility that people can work close to where they live. A comparison of past, present, and future employment and population levels within the study area indicates that each community within the study area, and thus the study area as a whole, generally maintain this one job for every two residents balance.





Table 7: Employment to Population Balance

Geographic Area	Population			Employment			Ratio (Pop/Emp)		
	2000	2010	2035	2000	2010	2035	2000	2010	2035
Study Area	7,341	9,676	14,458	3,382	4,073	6,025	2.17	2.38	2.40
- Cave Creek	3,855	4,939	8,150	813	1,838	3,287	4.74	2.69	2.48
- Carefree	2,967	3,353	4,169	1,546	1,426	1,978	1.92	2.35	2.11
- Scottsdale (TAZ 1048)	519	1,384	2,139	1,023	809	760	0.51	1.71	2.81
Maricopa County	3,096,600	3,824,056	5,753,819	1,564,836	1,706,407	2,889,337	1.98	2.24	1.99

Source: 2010 U.S. Census, MAG 2003 Interim Socioeconomic Projections, MAG 2013 Socioeconomic Projections, MAG TDM

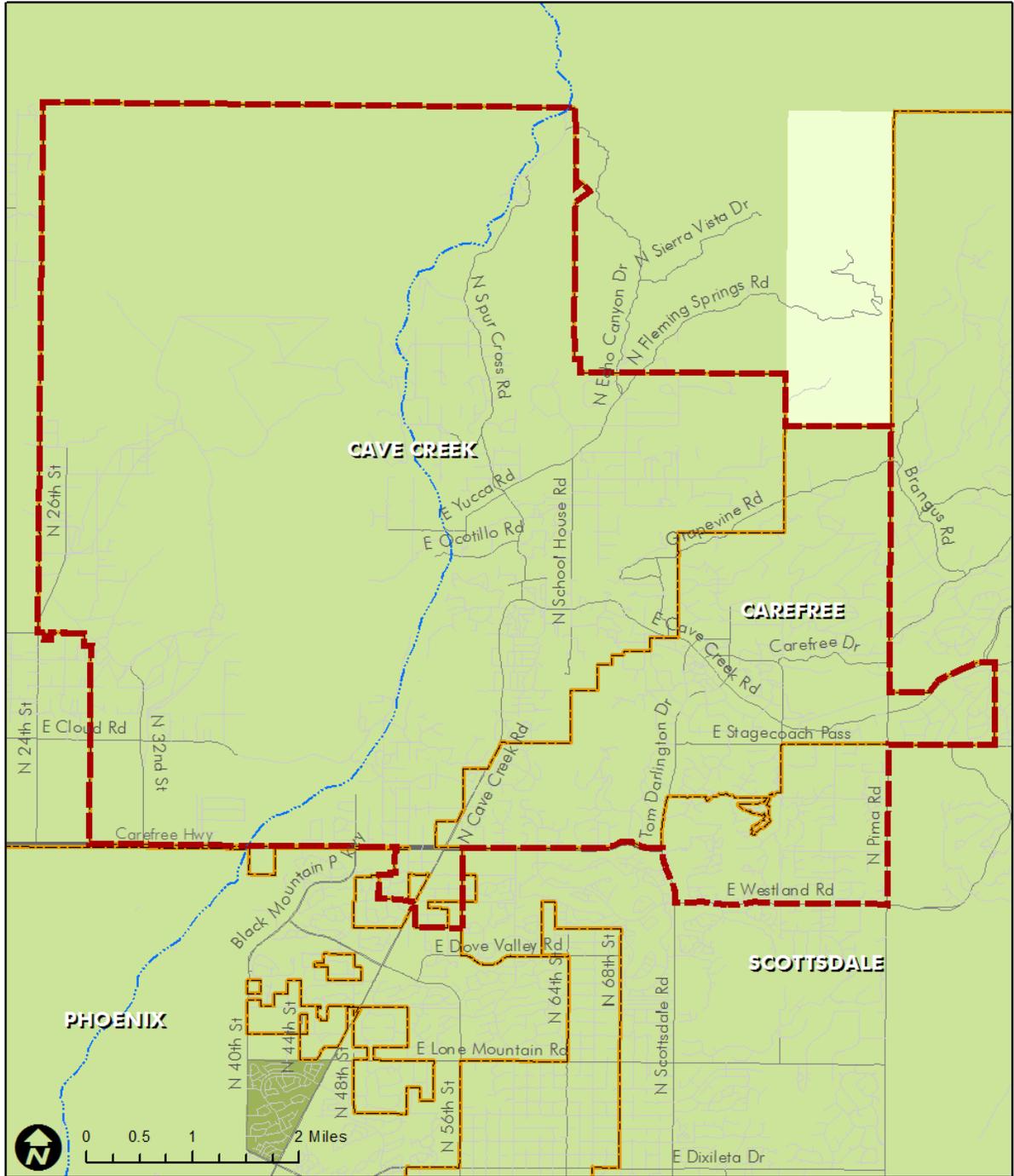
Future Population and Employment Densities

The expected general distribution of population and employment centers within the study area does not change. For comparison with existing density level figures, density projections for future population and employment levels within the study area are show in the following figures.





Figure 8: Population Density - 2035



Legend

- Study Area Limits
- Municipal Limits
- Streets
- Creek/Wash

Population Density by Traffic Analysis Zone

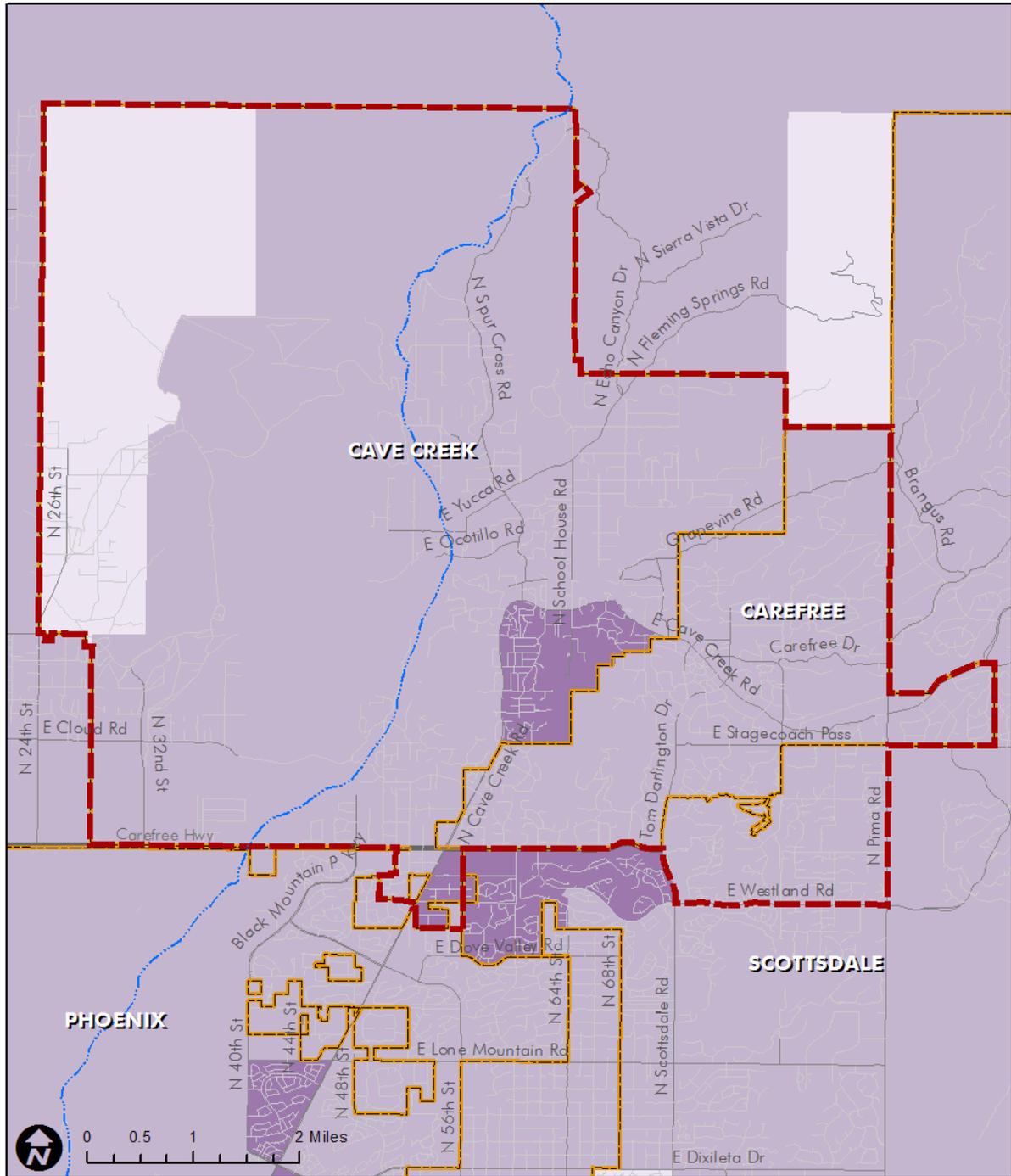
- 0
- 0.1 to 5.0 Persons Per Acre
- 5.1 to 10.0 Persons Per Acre
- 10.1 to 20.0 Persons Per Acre
- Greater than 20 Persons Per Acre

Source: ASLD, MAG 2013 Socioeconomic Projections





Figure 9: Employment Density - 2035



Source: ASLD, MAG 2013 Socioeconomic Projections





C. Land Use and Development

1. Existing Land Use

Multiple land uses can be found throughout the TFS area with distinct patterns emerging, especially along primary roadways. The majority of the existing land use in the study area, as shown in **Figure 10**, is preserved open space or dedicated to low density residential development. More intensive residential, commercial/retail and office type uses are concentrated along Cave Creek Road, Carefree Highway and Tom Darlington Drive.

Cave Creek

Much of the Town's existing land use is comprised of single-family, residential homes developed on large lots scattered throughout the southern portion of Town or vacant preserved open space located primarily in the northern and western portions of Town. Areas of retail, commercial and higher density residential development are present within the Town and are generally concentrated along Cave Creek Road. The intersection of Cave Creek Road and Carefree Highway also serves as a regional commercial shopping destination with two national big box retailers located on the northwest and southeast corners.

Carefree

The Town of Carefree is primarily occupied by single-family residential uses on large lots. There are retail, commercial, office and high density residential uses concentrated in and around the Carefree Town Center located at the south east corner of Tom Darlington Drive and Cave Creek Road. The Carefree Resort and the SkyRanch at Carefree Airport are also significant uses within the study area and are located approximately one mile east of the Town Center. The Boulders Resort is located on the east side of Tom Darlington Drive, just north of Carefree Highway.

2. Future Land Use

Figure 11 shows that the type, density and basic pattern of development is expected to continue in a manner similar to what occurs in the study area today. More intensive infill development, consisting of commercial and higher density residential uses is also projected to occur, particularly along existing major transportation corridors.

Cave Creek

The preponderance of growth is anticipated to occur west of Cave Creek Wash and consists of low density residential uses with mixed use development along Carefree Highway and Cave Creek Road as well as commercial-resort development north of Cave Creek Regional Park. The Downtown corridor is planned to continue to be the focus for tourism-activities and includes a high concentration of civic, commercial, and hospitality uses.

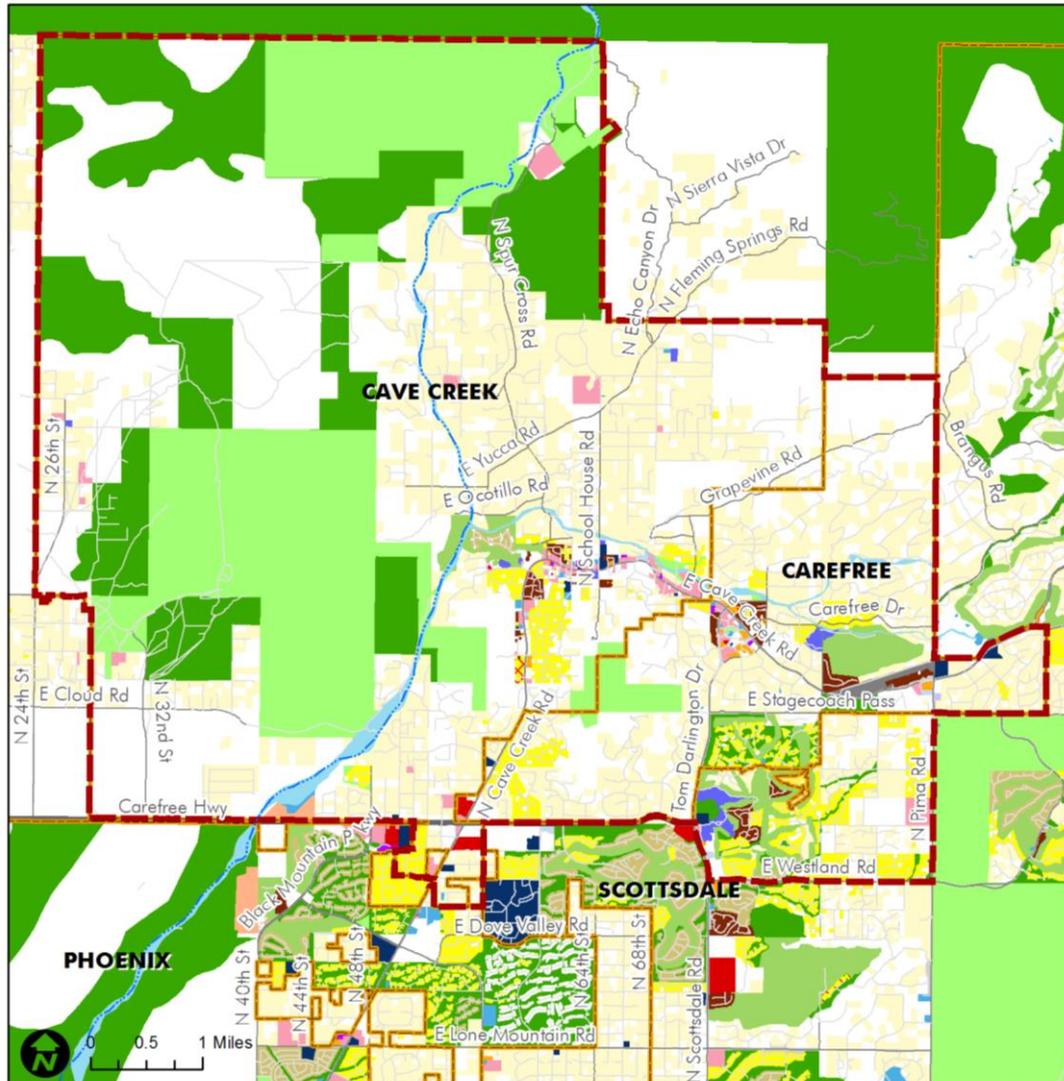
Carefree

Carefree is largely built out. Future land use plans show little change from the existing land use pattern and show low density residential as the primary land use within the community. A node of commercial development is planned for the north east corner of Carefree Highway and Cave Creek Road. The Town Center is expected to continue to function as the community's tourism and civic core; a high concentration of mixed use development is planned for this area.





Figure 10: Existing Land Use



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Existing Land Use

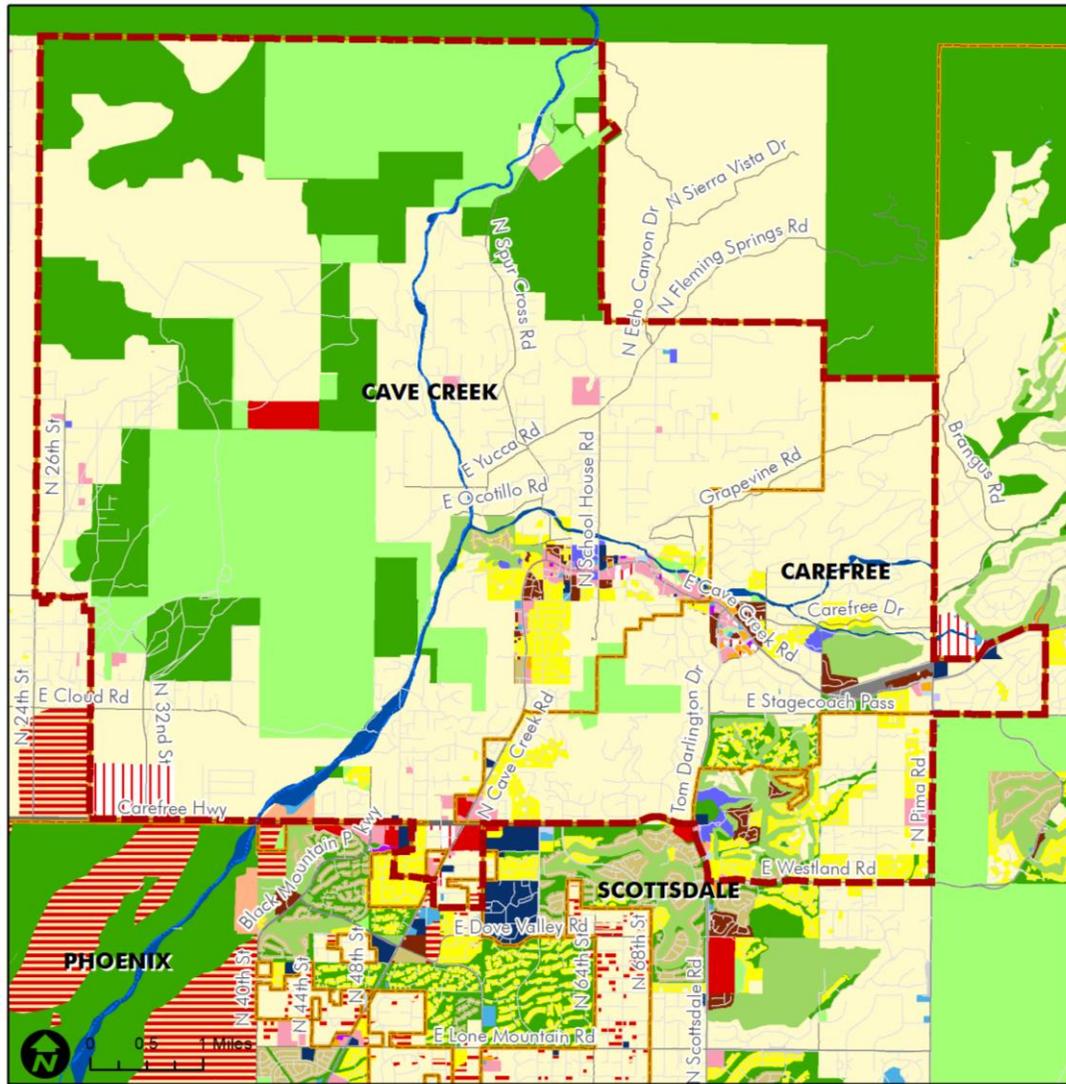
- Active Open Space
- Agriculture
- Airport
- Business Park
- Cemetery
- Developing Employment Generating
- Developing Residential
- Educational
- Golf Course
- Industrial
- Institutional/Religious
- Medical/Nursing Home
- Mixed Use
- Multi Family
- Office
- Other Employment - Landfill/Proving Grounds/Sand and Gravel/etc.
- Passive/Restricted Open Space
- Public/Special Event/Military
- Retail High - Community Retail/Regional Retail
- Retail Low - Amusement/Movie Theatre/Specialty Retail/Neighborhood Retail
- Single Family High Density - Greater than 4 du/ac - Includes Mobile Homes
- Single Family Low Density - Less than 1 du/ac
- Single Family Medium Density - 1 to 4 du/ac
- Tourist Accomodations - Motel/Hotel/Resort
- Transportation
- Vacant
- Water

Source: ASLD, MAG 2013 Member Agency Existing Land Use Data





Figure 11: Future Land Use



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Future Land Use

- Active Open Space
- Agriculture
- Airport
- Business Park
- Cemetery
- Commercial High - Community/Regional Retail
- Commercial Low - Neighborhood Retail
- Educational/Religious
- Flexible Use
- Golf Course
- Industrial
- Medical/Nursing Home
- Military-Airport Compatible Use
- Mixed Use
- Multi Family - Apartment/Condo
- Office
- Other Employment - Landfill/Proving Grounds/Sand and Gravel/etc.
- Passive/Restricted Open Space/Undevelopable
- Planned Development
- Public/Special Event/Military
- Religious/Institutional
- Single Family High Density - Greater than 4 du/ac - Includes Mobile Home
- Single Family Low Density - Less than 1 du/ac
- Single Family Medium Density - 1 to 4 du/ac
- Tourist Accommodations - Motel/Hotel/Resort
- Transportation
- Water

Source: ASLD, MAG 2013 Member Agency Future Land Use Data





3. Bicycle Associated Economic Activity

Bicycling is experiencing unprecedented growth as communities embrace the multiple economic and health benefits that bicycling can bring. Bicycle tourism generates \$30.6 million annually in Arizona¹ from 250 events that attract roughly 36,500 participants and visitors from outside of the state and 39,000 residents from Arizona.

Both Carefree and Cave Creek have economic development policies designed to enhance the local business environment with a particular focus on tourism attraction. **Figure 12** identifies some of the primary generators and attractors. These economic destinations combined with the natural beauty of the area have attracted recreational bicycle riders from throughout the region.

Carefree

Policy makers have identified several initiatives and policies within the Carefree General Plan designed to foster economic development; among them is the evaluation of bicycle and pedestrian accessibility to the Town Center and planned growth areas.

General Plan Findings: Existing and future employment growth areas are concentrated primarily within the Town Center and a Special Planning Area (SPA) located within the northwest and northeast corners of Carefree Highway and Cave Creek Road.

The primary source of revenue for the Town's operating budget is retail sales tax. The Town has identified several initiatives/objectives/policies to enhance the business environment, some of which are underway:

- Increase the visibility of pedestrian and vehicular connections to the Town Center.
- Provide additional way-finding signs and identifiers for local destinations, and maintain and improve signage throughout the Town.
- Evaluate bicycle and pedestrian accessibility to the Town Center and planned growth areas.

Community Survey Findings: In 2011 Carefree conducted a three part online Community Survey that addressed Community Services, Economic Development and Business. One question inquired about what improvements they would like to see in the Town Center and 34.5 percent indicated bike lanes.

Cave Creek

The General Plan has policies that encourage tourism and foster non-motorized travel, including providing facilities for bicycles. The Town Core Plan contains a goal of developing a bicycling pathway system within the Town Core. Cave Creek has an existing bicycling network of business and associations including the Cave Creek Bike Association, Flat Tire Bike Shop and Spur Cross Cycle bike rentals. Annually, the community hosts the Cave Creek Bicycle Festival, which includes a mountain bike race/ride for adults and a separate race and free bicycle maintenance clinic for kids. MAG and the Town recently completed a bike study for the establishment of a 4.5 mile bike lane corridor along Cave Creek Road.

General Plan Findings: The General Plan has relevant economic development policies are sprinkled throughout. Today 51 percent of the land is privately held and 49 percent publically held. Of the public lands, 11 percent is occupied by the Spur Cross Ranch Conservation Area (SCRCA), a desirable recreation destination in the north valley with a trail system that attracts bicyclists and hikers alike. In addition to SCRCA, the Cave Creek

¹ "Economic Impact of Bicycling in Arizona, Executive Summary," June 2013, ADOT.





Regional Park, a 4.5 square mile park located west of Cave Creek Road contains ramadas and picnic areas, and trails used by hikers, bicyclists and equestrians.

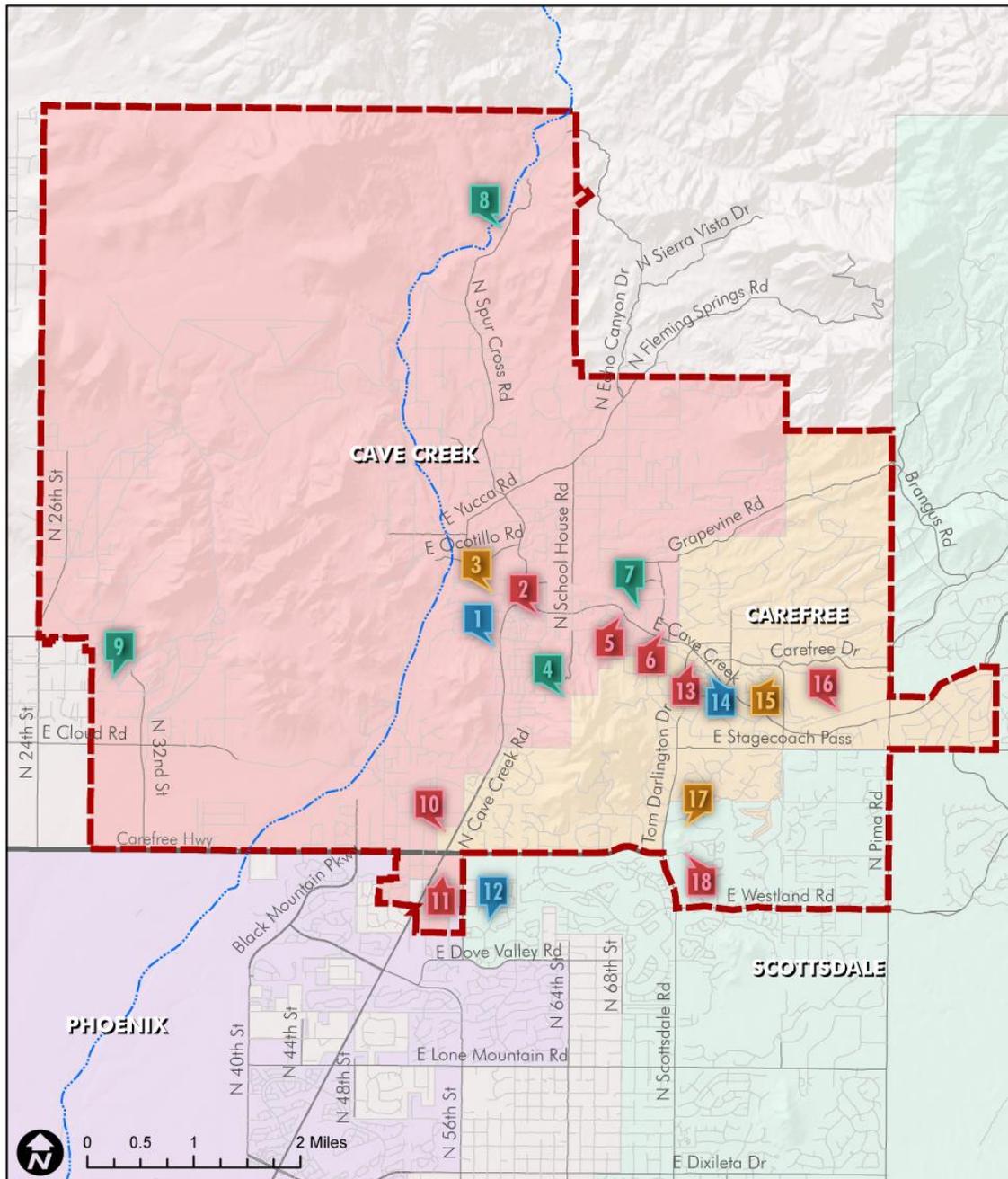
Cave Creek road currently does not have bicycle lanes or continuous sidewalks, hiking or pedestrian trails. There are no continuous equestrian trails through the Town Core, which is a concern because there is a concentration of pedestrians in this area, and many bicyclists are observed on the roadway. The circulation element of the general plan has several objectives to foster non-motorized travel, including providing facilities for bicycles, horses and pedestrians and persons with disabilities and connecting trails to recreational open space.

Town Core Plan 2012 Findings: The Town Core Plan has several goals and relevant strategies. Cave Creek is planning on developing a pedestrian/equestrian/bicycle pathway system within the Town core.





Figure 12: Economic Generators and Attractors



Legend

- Study Area
- Streets
- Creek/Wash

Generators/Attractors

- Government
 - Recreational
 - Commercial
 - Resort
1. Cave Creek Town Hall
 2. Cave Creek Town Core
 3. Rancho Manana Resort and GC
 4. Black Mountain Summit Trail Head
 5. Barmuda Triangle
 6. Stagecoach Village

7. Gateway Desert Awareness Park
8. Spur Cross Ranch Conservation Area
9. Cave Creek Regional Park
10. Lowe's
11. Wal-Mart
12. Cave Creek School District Campus
13. Carefree Town Center
14. Carefree Town Hall
15. Carefree Resort
16. Sky ranch
17. Boulders Resort
18. El Pedregal

Source: ASLD, Baker





D. Environmental Overview

The environmental information was derived from readily available information obtained including public agencies, internet sites, and databases developed using Geographic Information Systems (GIS). **Figure 13** provides an overview of the environmental conditions.

1. Physical Environment

Drainage Features

The study area is located within the upper Cave Creek watershed and is characterized by desert valleys with low lying mountains and desert scrubland which is typical of watersheds within Maricopa County. The topography ranges from the steep slopes of Black Mountain to the foothill areas to the north and east.

Several major washes and delineated FEMA floodplains run through the study area and generally flow in a southerly direction to Cave Buttes Dam. The project is located within two Flood Control District of Maricopa County (FCDMC) Area Drainage Master Studies (ADMS), the Desert Hills ADMS and the Cave Creek/Carefree ADMS. The FCDMC has also prepared Drainage Master Plans (DMPs) for this study area which includes the Cave Creek DMP and the Carefree DMP. The overall theme of the DMPs is that future development should preserve floodplains, natural drainage areas, wildlife corridors and natural open space; and improvements to correct existing flooding issues include bridge or culvert crossings at existing low water crossings, or improved facilities where bridges or culverts already exist.

Historic and Cultural Resources

A cursory review of the AZSITE, the State's electronic inventory of cultural resources, shows large portions of the study area along and west of Cave Creek, within the Cave Creek Town Core and east of Tom Darlington Drive have been surveyed for cultural resources within the last few decades. Based on the findings of each analysis, additional cultural surveys that meet Federal (Secretary of the Interior), SHPO, and Arizona State Museum standards may be required prior to any construction activity.

There are 2 known historic properties within the TFS area that are listed in the National Register of Historic Places (NRHP). Each property, Cave Creek Service Station and Tubercular Cabin, are located in the Town of Cave Creek.

2. Natural Environment

Environmentally Sensitive Areas and Habitats

Designated critical habitat, as defined by the U.S. Fish and Wildlife Service (USFWS), is not indicated to occur within the TFS area. Similarly, BLM data does not identify the presence of any areas of critical environmental concern to exist within the study limits. The subject area does fall within the Arizona Upland – Sonoran Desert Scrub vegetation community (Turner and Brown 1994). A great majority of cacti plant species, numerous types of mammals and several desert reptiles are known to occupy this biotic community.

Threatened and Endangered Species

A review of the U.S. Fish and Wildlife Service (USFWS) threatened, endangered, proposed, and candidate species list, currently identifies 17 species that are known to or are believed to occur in Maricopa County and are thus protected under the Endangered Species Act. Furthermore, the Arizona Game and Fish Department



(AGFD) Heritage Data Management System (HDMS) identified 10 Special Status Species that may occur within a 2-miles radius of the study limits.

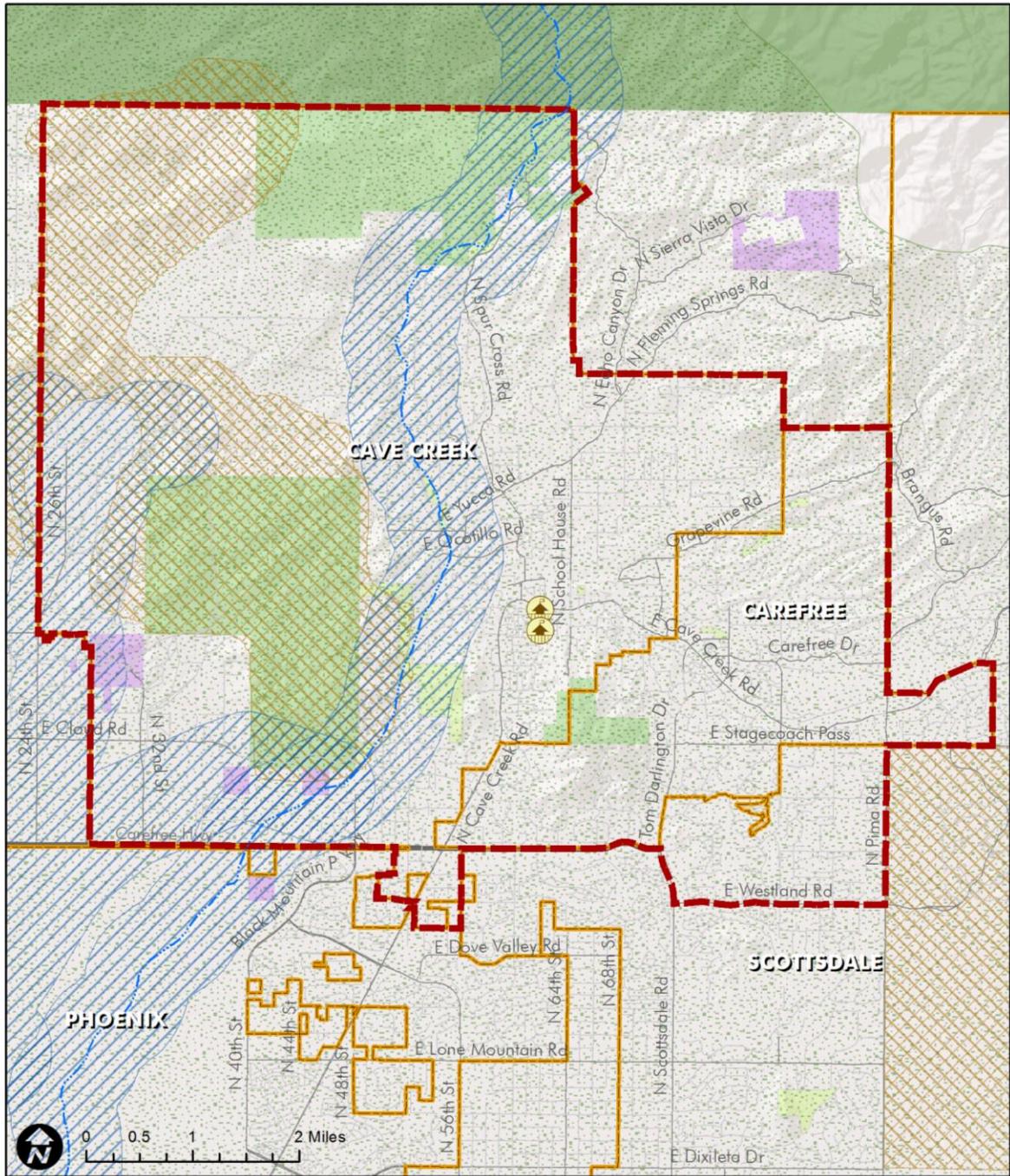
Wildlife Linkage Zones

The Arizona Wildlife Linkages Assessment (AWLA) does not identify any potential linkage zones; however, the map does indicate that the TFS area is situated adjacent to several wildlife blocks. The Maricopa County Wildlife Connectivity Assessment (WCA) represents a continuation of the AWLA effort, but at a finer scale, in order to identify wildlife linkages that may have been overlooked in the statewide effort. The WCA catalogs wildlife linkages into three primary movement areas; landscape, riparian and diffuse. The WCA lists Landscape Movement area 11 – Cave Creek Park and Riparian Movement Areas 18 – Cave Creek, and 25 – Cave Creek Tributaries, Apache Wash.





Figure 13: Environmental Resources



Legend

- Study Area Limits
- Municipal Limits
- Streets
- Creek/Wash
- BLM
- National Forest
- Local or State Park
- Desert Foothills Land Trust

Environmental Resources

- Arizona Upland - Sonoran Desert Scrub (Vegetation Community)
- Historic Building (National Register of Historic Places)
- Landscape Movement Area (Maricopa County Wildlife Connectivity Assessment)
- Riparian Movement Area (Maricopa County Wildlife Connectivity Assessment)

Source: ASLD, Maricopa County Wildlife Connectivity Assessment, National Register of Historic Places





E. Existing and Future Transportation System

1. Existing Transportation Conditions

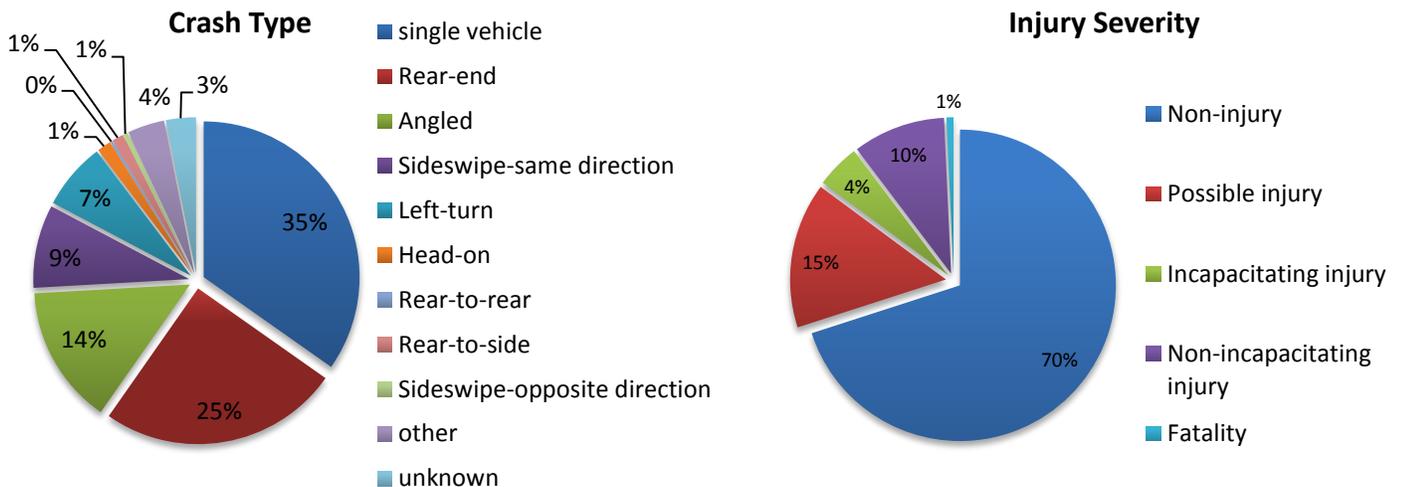
Existing Roadway System

Roadway Facilities

The existing number of lanes, posted speed limits, intersection lane configurations and traffic control type for the arterial and collector roadways is depicted in **Figure 14**, **Figure 15** and **Figure 16** respectively. **Figure 17** depicts the current FHWA approved functional classification for roadways within the study area.

Crash Data Analysis

Data for crashes occurring between January 2008 and December 2012 was obtained from ADOT's Accident Location Identification Surveillance System (ALISS) database and from Maricopa Association of Governments. During this five year period, a total of 503 crashes occurred within the study area. **Figure 18** illustrates the location and type of each crash during the analysis period. Of the 503 crashes within the study area, 350 were non-injury crashes, 74 were possible injury, 22 were incapacitating injury, 59 were non-incapacitating injury and 3 were fatality.



Roadway Segment Crash Rate Comparisons: Crash rates for roadway segments are expressed as “crashes per 100 million vehicle miles traveled” (MVMT). Roadway segment crash rate comparisons are shown in **Table 8**.



Table 8: Roadway Segment Crash Rate Comparisons

Roadway	Segment	No. of Fatalities	No. of Crashes	Length of Segment(miles)	ADT	Fatality Rate	Crash Rate
Carefree Hwy	24 th St to Agua Fria River	0	7	1.57	15,000	0	0.20
	Agua Fria River to Cave Creek Rd	0	11	1.72	23,600	0	0.19
	Cave Creek Rd to Mountainside Dr.	0	3	0.37	17,000	0	0.33
Cave Creek Rd	56 th St to Tom Darlington	0	18	1.9	15,750	0	0.41
	Westland Rd to Carefree Hwy	0	4	0.56	20,700	0	0.24
	Carefree Hwy to Stagecoach Pass Rd	0	9	1.15	14,400	0	0.37
	Stagecoach Pass to Tom Darlington	1	23	3.31	11,200	1.85	0.42
	Tom Darlington to Pima Rd	1	9	2.16	6,340	5.17	0.47
Tom Darlington	Pima Rd to Desert Mountain Pkwy	0	1	1.05	11,300	0	0.06
	Cave Creek Rd to Stage Coach Pass	0	4	0.98	9,900	0	0.28
Pima Rd	Stagecoach Pass to Carefree Hwy	0	4	1.01	14,500	0	0.19
	Cave Creek Rd to Stagecoach Pass	0	2	0.31	11,000	0	0.40
Westland Rd	Stagecoach Pass to Westland Rd	0	1	1.5	10,100	0	0.05
	Tom Darlington to Pima Rd	0	3	2	4,200	0	0.24

Source: ADOT Accident Location Identification Surveillance System, Baker

The fatality rate on Cave Creek Road from Tom Darlington Drive to Pima Road is significantly higher than the 2011 average Arizona and U.S. fatality crash rate of 1.39 and 1.10, respectively, (per the 2012 Arizona Crash Facts Summary prepared by ADOT Intermodal Transportation Division). The fatality rates are high due to the number of fatalities during the four year study period for the length and low volume of the roadway segments.

The total crash rates for the study area segments in the Town of Cave Creek and Town of Carefree are lower than the 2009 Arizona and U.S. crash rates of 1.73 and 1.81, respectively (per 2011 Arizona Crash Facts Summary prepared by ADOT Intermodal Transportation Division and the Traffic Safety Facts 2011 prepared by NHTSA).

Intersection Crash Rate Comparisons: Crash rates for intersections are expressed as “crashes per 100 million entering vehicle” (MEV). Intersection crash rate comparisons are shown in **Table 9**.





Table 9: Intersection Crash Rate Comparisons

Roadway	Intersection	No. of Fatalities	No. of Crashes	ADT	Fatality Rate	Crash Rate
Carefree Highway	32 nd St	0	6	15,074	0	0.27
	36 th St	0	5	15,074	0	0.23
	Black Mountain Rd	0	17	23,200	0	0.50
	50 th St	0	2	24,087	0	0.06
	52 nd St	0	4	24,087	0	0.11
	Cave Creek Rd	0	36	24,087	0	1.02
	56 th St	0	11	24,087	0	0.31
	Mountainside Dr	0	2	16,993	0	0.08
	60 th St	0	8	15,700	0	0.35
	Terravita Way	0	2	15,700	0	0.09
	Stagecoach Pass	0	5	13,343	0	0.25
	Tom Darlington Dr	0	16	24,600	0	0.45
Cave Creek Road	Westland Rd	0	4	20,762	0	0.13
	Olesen Dr	0	5	20,762	0	0.16
	Carefree Hwy	0	39	20,762	0	1.29
	Canyon Ridge Dr	0	2	13,953	0	0.10
	Surrey Dr	0	2	12,732	0	0.11
	Blue Ridge Dr	0	4	12,732	0	0.22
	Paseo Dulce	0	3	12,732	0	0.16
	Rancho Manana Blvd	0	8	12,732	0	0.43
	Spur Cross Rd	0	6	12,732	0	0.32
	Basin Rd	0	6	12,732	0	0.32
	School House Rd	0	11	12,732	0	0.59
	65 th St	0	2	12,732	0	0.11
	Ridgeway Dr	0	2	12,732	0	0.11
	Viola Ln (west)	0	2	12,732	0	0.11
	Viola Ln (east)	0	3	12,732	0	0.16
	Galloway Dr	0	2	11,511	0	0.12
	Tom Darlington Dr	0	3	10,997	0	0.19
	Hum Rd	0	2	10,997	0	0.12
	Carefree Dr	0	6	10,997	0	0.37
	Long Rifle Rd	1	4	6,970	9.83	0.39
Pima Rd	0	7	6,215	0	0.77	
Milky Way	0	2	6,215	0	0.22	
Tom Darlington Drive	Cave Creek Rd	0	3	9,119	0	0.23
	Wampum Way	0	3	9,119	0	0.23
	Bloody Basin Rd	0	4	9,903	0	0.28
	Bivouac Trail	0	2	10,686	0	0.13
	Stagecoach Pass	0	4	12,369	0	0.22
	Boulder Pass	0	2	14,517	0	0.09
Pima Road	Cave Creek Rd	0	3	11,468	0	0.18
	Stagecoach Pass	0	6	11,468	0	0.36

Source: ADOT Accident Location Identification Surveillance System, Baker





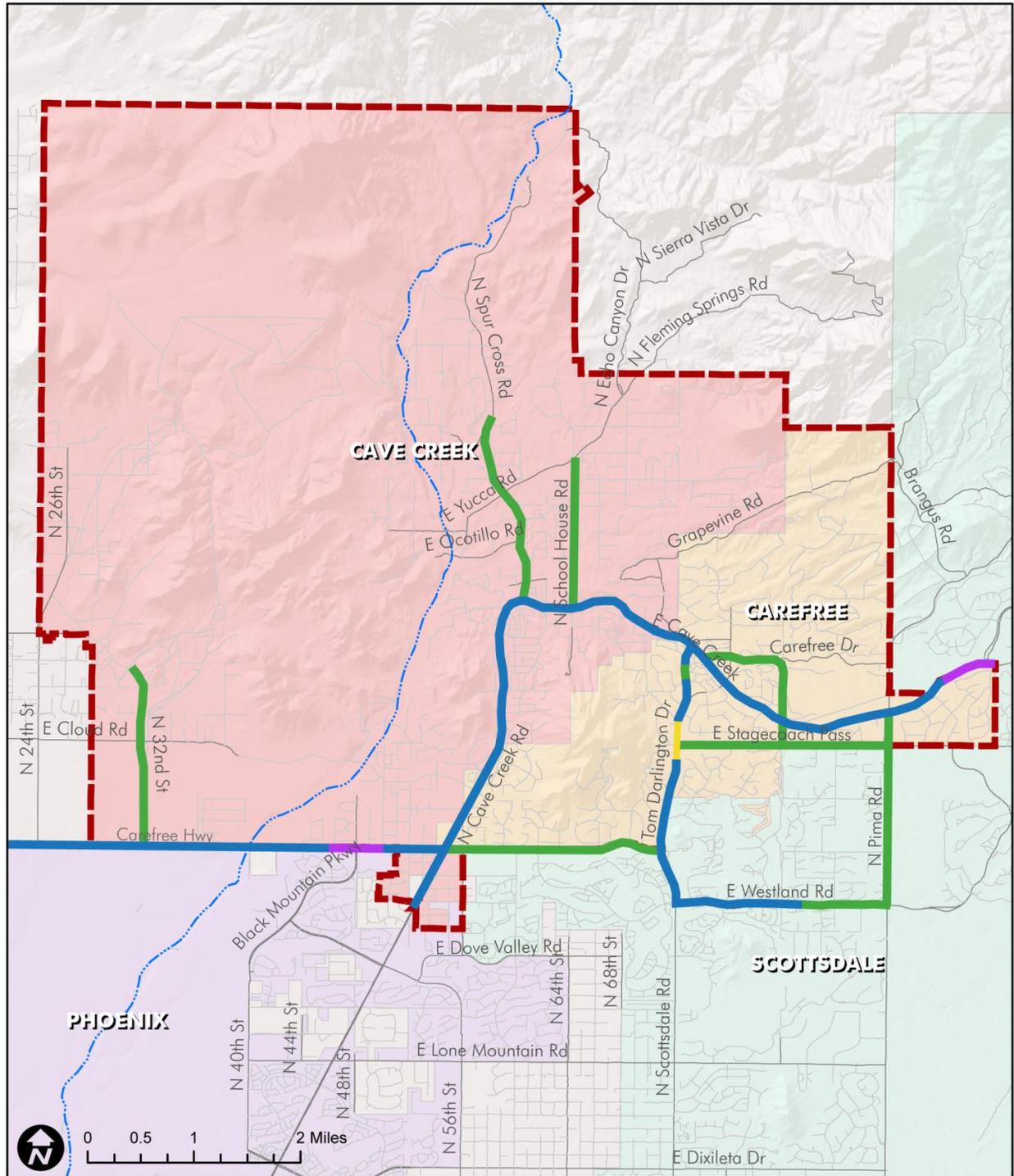
The fatality rate at the intersection of Cave Creek Road and Long Rifle Road is 9.83. The rate is high at this intersection due to the number of fatalities during the four year study period and the low volume at the intersection. It is recommended that a crash analysis be conducted to analyze fatal crashes occurring over the last ten years to determine if there are any reoccurring trends in fatalities within the study area.

The total crash rates for the study area intersections in the Town of Cave Creek and Town of Carefree are lower than the 2009 Arizona and U.S. crash rates of 1.73 and 1.81, respectively (per 2011 Arizona Crash Facts Summary prepared by ADOT Intermodal Transportation Division and the Traffic Safety Facts 2011 prepared by NHTSA). However, there are a high number of crashes occurring at the intersections of Carefree Highway/Black Mountain Road, Carefree Highway/Cave Creek Road and Cave Creek Road/School House Road. It is recommended that further crash analysis be conducted to determine if any improvements that can be made to reduce the number of crashes at these intersections.





Figure 14: Existing Number of Lanes



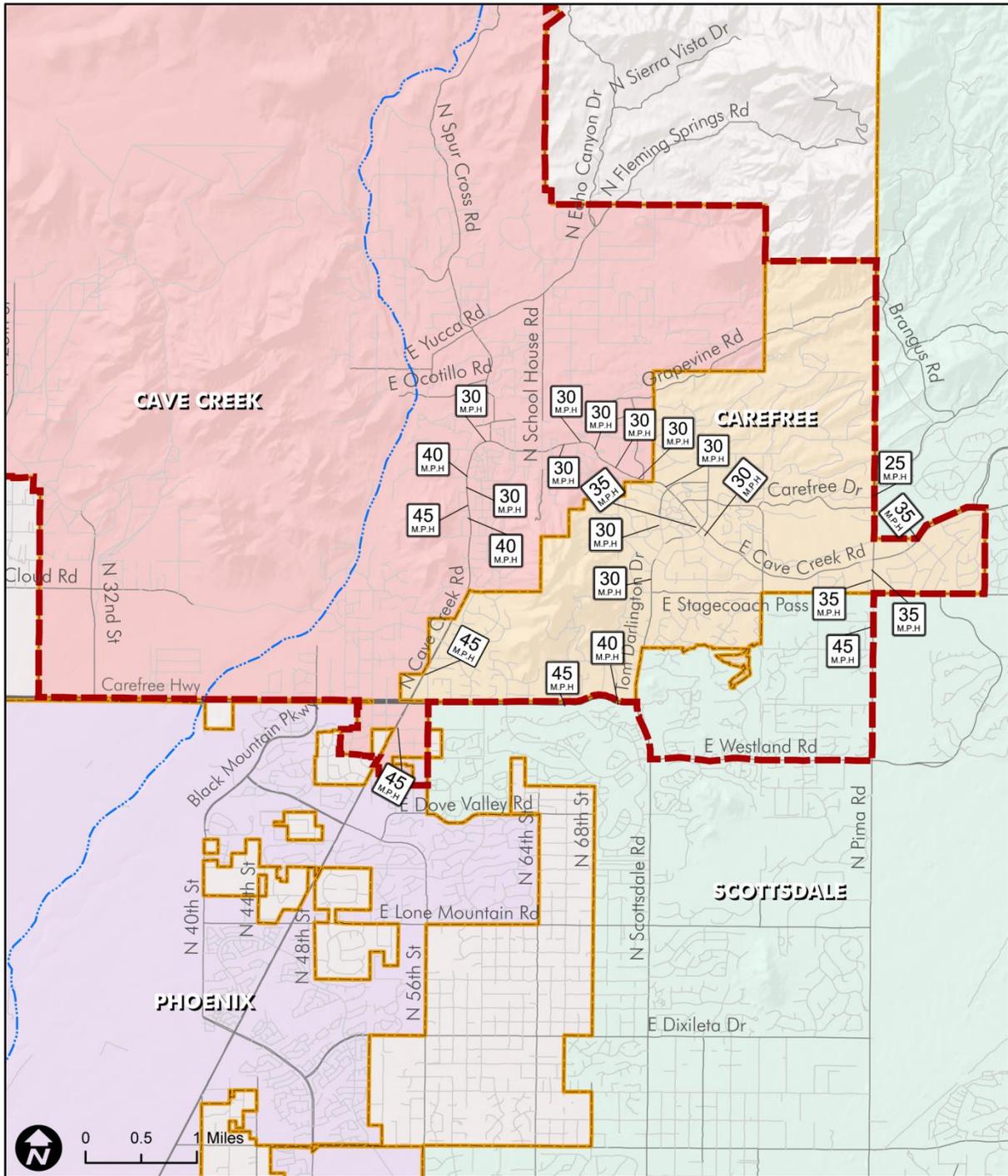
- | | |
|-------------------|--|
| Legend | |
| Study Area Limits | Number of Lanes - Existing |
| Streets | 5 Lanes (3 in one direction, 2 in one direction) |
| Creek/Wash | 4 Lanes (2 in each direction) |
| | 3 Lanes (2 in one direction, 1 in one direction) |
| | 2 Lanes (1 in each direction) |

Source: ASLD, MAG, Baker





Figure 15: Posted Speed Limit



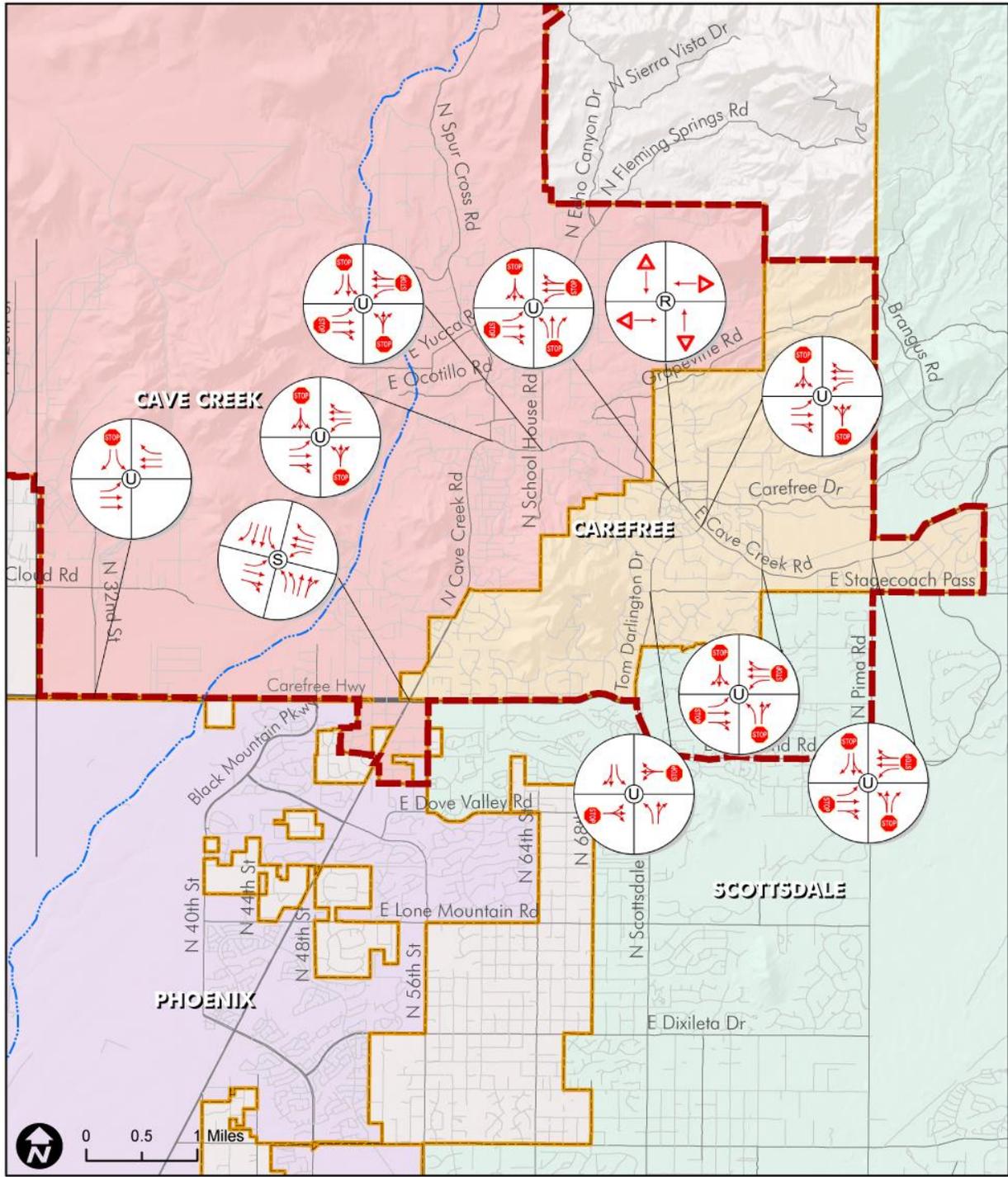
- Legend**
- Study Area Limits
 - Municipal Limits
 - Streets
 - River/Creek
- Posted Speed Limit**
- 40 MPH
 - 30 MPH
 - 35 MPH
 - 45 MPH

Source: ASLD, MAG, Baker





Figure 16: Intersection Configuration and Traffic Control Type



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Intersection Configuration and Traffic Control

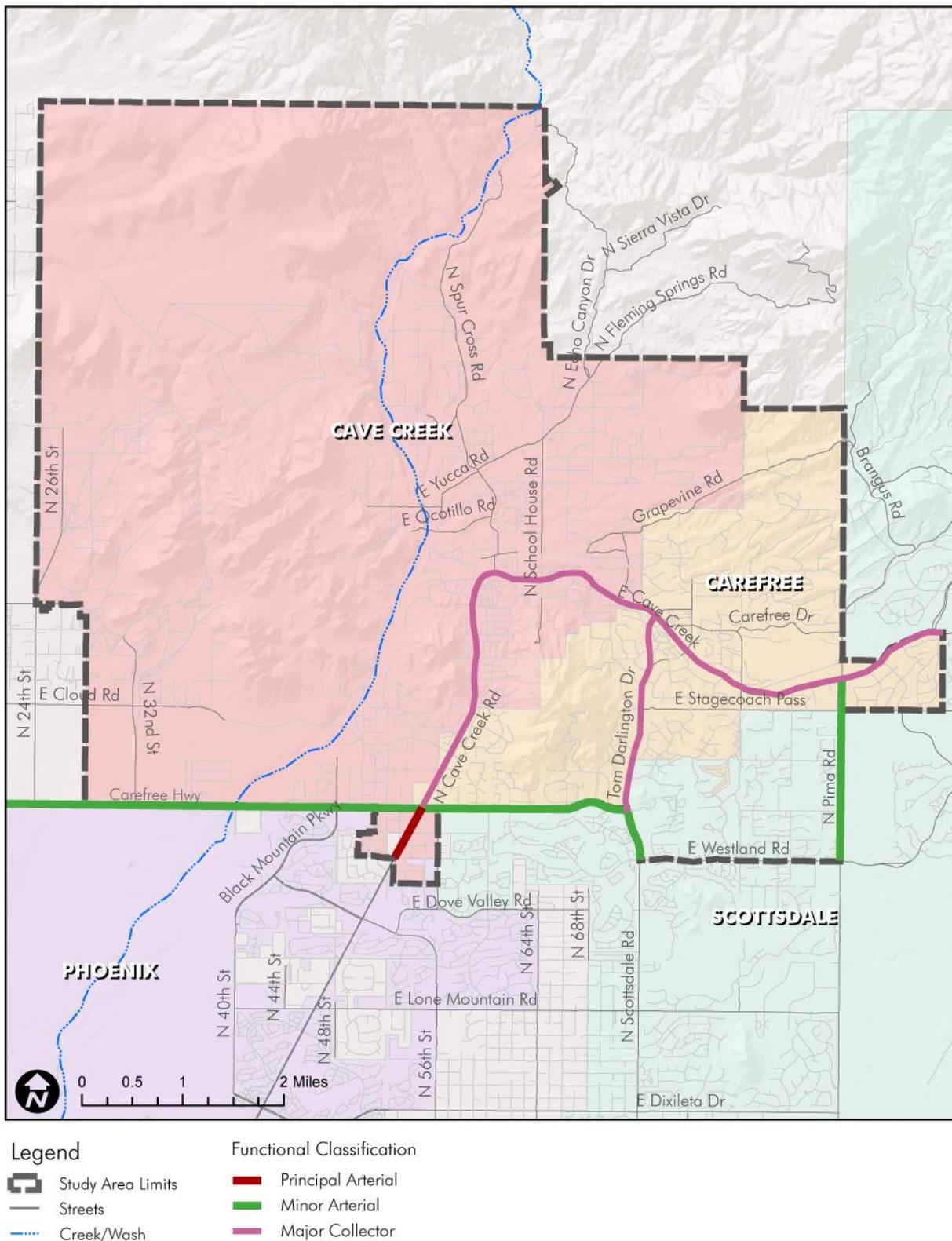
- Lane Configuration
- Signalized Intersection
- Unsignalized Intersection
- Roundabout

Source: ASLD, MAG, Baker





Figure 17: Functional Classification



Source: ASLD, ADOT, FHWA





Existing Traffic Conditions

The current study focuses mainly on local and regional bicycle/pedestrian linkages and special event traffic and parking management. Since most of the events occur on a weekend day, approach and departure counts and turning movement counts were collected on one non-event weekend that will serve as the baseline counts.

Weekday Daily Traffic Volumes

Existing weekday daily traffic volumes for the roadway segments in the Town of Cave Creek and the Town of Carefree were obtained from the 2008 Carefree Transportation Plan, Maricopa Association of Governments Transportation Data Management System and the 2008 average daily traffic volumes from the City of Scottsdale website. The existing weekday ADT volumes obtained range from the years 2006 to 2011 and are illustrated in **Figure 19**.

TRA counted current traffic volumes at ten of the major intersections within the study area on Wednesday, June 26, 2013 and on Wednesday, November 6, 2013. The turning movement counts for the PM peak period are shown in **Figure 20**. The following ten intersections are considered to be the major intersections within the study area:

- Tom Darlington Drive and Stagecoach Pass
- Tom Darlington Drive and Cave Creek Road
- Carefree Drive and Cave Creek Road
- Bloody Basin Road and Cave Creek Road
- Mule Train Road and Cave Creek Road
- Pima Road and Cave Creek Road
- Spur Cross Road and Cave Creek Road
- School House Road and Cave Creek Road
- 32nd Street and Carefree Highway
- Cave Creek Road and Carefree Highway

Existing 2013 Level of Service

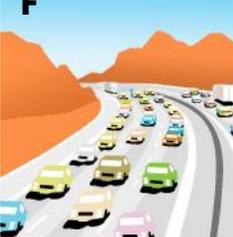
Roadway Segment Level of Service

Level of Service (LOS) is a rating system from “A”, representing the best operation, to “F”, representing the worst operation. The appropriate reference for LOS operation is the *Highway Capacity Manual*, published by the Transportation Research Board. The LOS descriptions below are applicable for arterial and collector streets.





Table 10: Level of Service Criteria for Urban Street Facilities

Level-of-Service	Characterized by <i>Highway Capacity Manual</i> as:
<p>A</p> 	<p>Primarily free-flow speed. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at the boundary intersections is minimal. The travel speed exceeds 85 percent of the base free-flow speed.</p>
<p>B</p> 	<p>Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 percent and 85 percent of the base free-flow speed.</p>
<p>C</p> 	<p>Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 percent and 67 percent of the base-flow speed.</p>
<p>D</p> 	<p>Less stable condition in which small increases in flow may cause substantial increases in delay and decrease in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40 percent and 50 percent of the base free-flow speed.</p>
<p>E</p> 	<p>Unstable operation and significant delay. Such operation may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30 percent and 40 percent of the base free-flow speed.</p>
<p>F</p> 	<p>Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections has a volume-to-capacity ratio greater than 1.0.</p>



In general, LOS A and B represent no congestion, LOS C and D represent moderate congestion, and LOS E and F represent severe congestion.

Figure 19 depicts the current Weekday LOS for the roadway segments within the study area where daily volumes were available.

Intersection Level of Service

The Highway Capacity Manual considers the average delay per vehicle as the measure to determine the LOS of a signalized intersection. The delay and LOS are calculated for the intersection, each approach, and each turning movement. **Table 11** lists the LOS criteria for signalized intersections as stated in the Highway Capacity Manual. **Table 12** lists the level-of-service criteria for the unsignalized study area intersections.

Table 11: Level-of-Service Criteria for Signalized Intersections

Level-of-Service	Average Control Delay (s/veh)
A	≤ 10
B	> 10 - 20
C	> 20 - 35
D	> 35 - 55
E	> 55 - 80
F	> 80

Table 12: Level-of-Service Criteria for Unsignalized Intersections

Level-of-Service	Average Control Delay (s/veh)
A	≤ 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

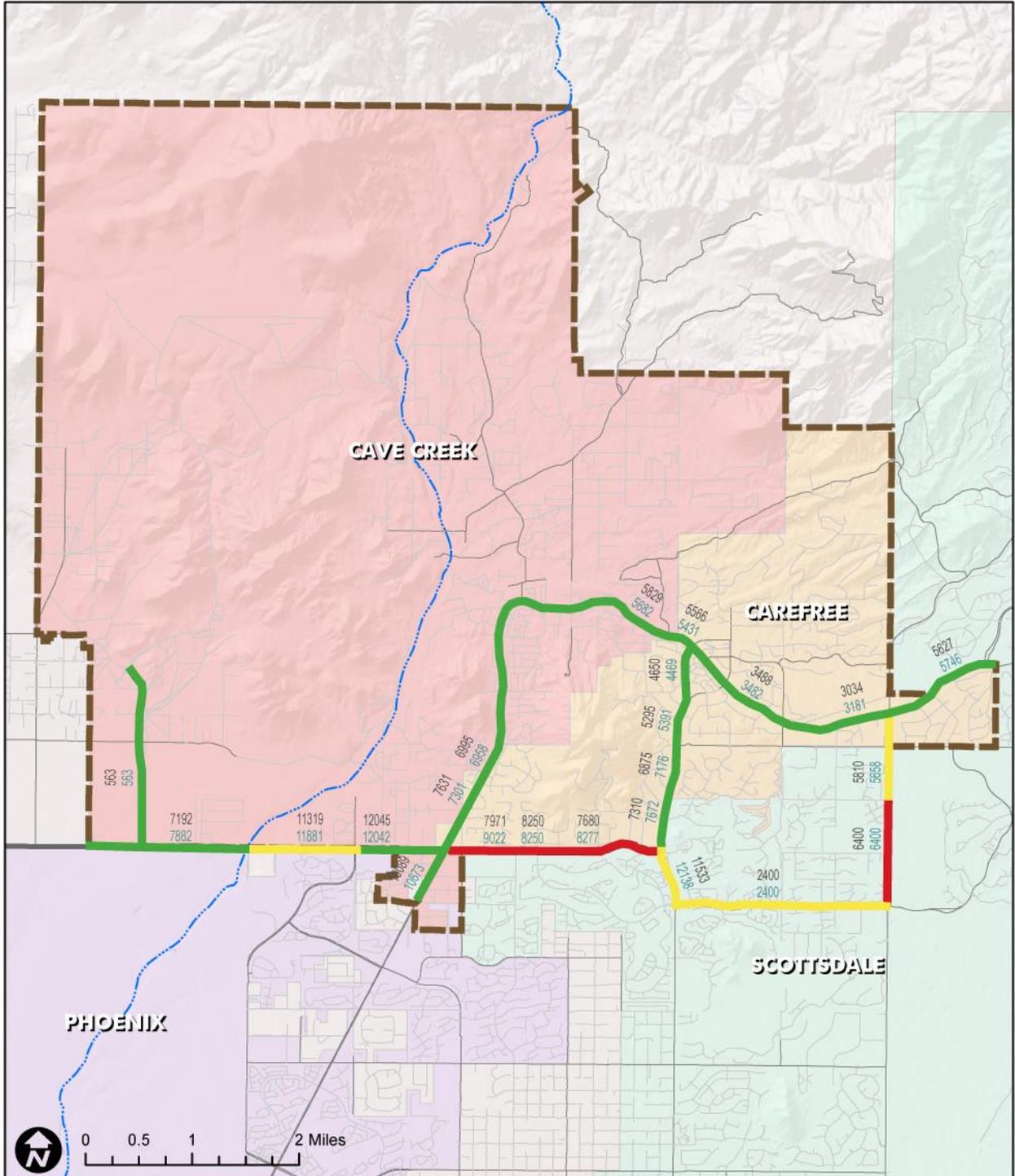
One of the important conditions for determining LOS at an intersection is the number of lanes provided for each movement on each approach at the intersection. The existing intersection geometry for the study area intersections is shown in **Figure 16**.

The LOS for the study area intersections was evaluated using Synchro software, which utilizes the criteria described in **Table 11** and **Table 12**. The existing LOS for the signalized and unsignalized intersections within the study area is shown in **Figure 20**.





Figure 19: Existing Weekday Traffic Volumes and LOS



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Traffic Volumes

- XX Average Daily Traffic Volumes (AB)
- XX Average Daily Traffic Volumes (BA)

Level of Service

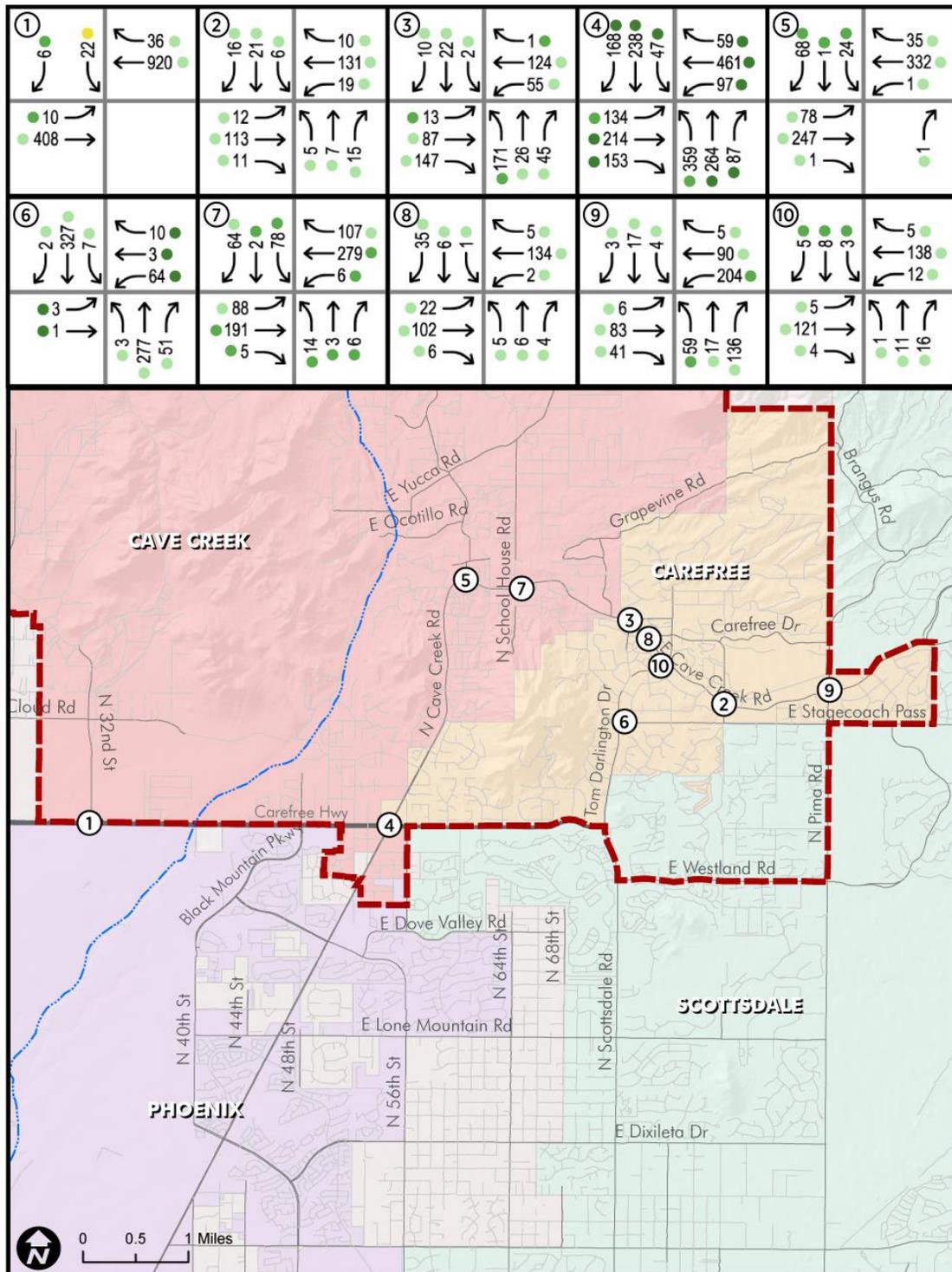
- LOS C
- LOS D
- LOS E/F

Source: ASLD, Carefree Transportation Plan, MAG Data Management System, Scottsdale Traffic Volume Map





Figure 20: Existing Intersection PM Peak Hour Volumes



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Existing Intersection Traffic Volumes

- XX PM Peak Hour Volumes

Existing Intersection Level of Service

- LOS A
- LOS B
- LOS C
- LOS D

Source: ASLD, TRA, Baker





Transit

Existing Transit Conditions

The Towns of Cave Creek and Carefree currently have partial transit service. Foothills Caring Corps currently provides a volunteer based Dial-A-Ride service and van trips in this area. The transportation services that Foothills Caring Corps provides include a van program, medical transportation and grocery shopping. The next closest dial-a-ride service is in the City of Phoenix and terminates approximately five miles south of the Towns of Cave Creek and Carefree. The closest scheduled bus service is in the City of Scottsdale and terminates approximately ten miles south Carefree Highway.

Public Transportation Needs Assessment

The 1992 Arkansas Public Transportation Needs Assessment (APTNA) is often used to estimate transit trip demand for rural communities. While Cave Creek and Carefree are in the Phoenix metropolitan area, they are remote from the public transportation system. The Arizona Rural Transit Needs Study from May 2008 used the APTNA equation with slightly modified factors. The formula is:

Unlinked Passenger Trip Demand = (6.79 X population 60 years or older) + (4.49 X disabled population younger than 60 years) + (20.5 X low income, nondisabled population younger than 60 years). The resultant demand for the study area is 33,448 trips per year.

The Rural Transit Fact Book (2013) reports ranges for total operating costs per passenger trip at \$ 3.75 to \$30.89 for fixed-route trips and \$5.80 to \$60.33 for demand-response trips. However, rider fares are less than the full operating cost per trip, typically ranging from \$1 to \$3 for fixed-route trips and roughly twice that for demand response trips. Consequently, the viability of transit service within the study area would undoubtedly be dependent on alternative funding sources.

Bicycle/Pedestrian

Figure 21 displays the existing and proposed bicycle and pedestrian trail facilities within the study area. Generally, the local bicycle and pedestrian networks have disconnected segments or no facilities at all. There is a lack of way-finding or signage for bicycle or pedestrian circulation in either community. These rural communities share a beautiful natural high-desert environment that requires context sensitive bicycle and pedestrian solutions.

Both communities have an independent brand and image that they desire to preserve.



TOWN OF CAVE CREEK

The current conditions of the project area have a variety of on- and off-road bicycle experience at or near the Cave Creek Road corridor. The existing roadway is asphalt and has areas of paved and unpaved shoulders. Paved shoulders vary from as little as 6 inches to as wide as 6 feet. No bike lane striping, signage, or pavement markings exist. Some areas in the Town Core have an aggregate based multi-use trail approximately 6 feet in width.



The pedestrian areas along the corridor have a variety of pavement types and conditions. No continuous paved pathway network exists until limited segments are found in the Town Core area. Much of the pedestrian environment in the Town Core is non-ADA compliant. Site amenities and pedestrian/bicycle environment facilities such as seating, bicycle racks, litter receptacles, way-finding signage, ADA ramps, pedestrian level lighting, designated crosswalks, and public area landscaping are lacking. There are no signalized pedestrian crossings other than the intersection of Cave Creek Road and Carefree Highway.



The Town of Cave Creek has an interest in providing equestrian facilities as an alternative transit mode. Horses are allowed on shared use paths. No public facilities are dedicated to equestrian staging, care, or comfort.

TOWN OF CAREFREE

The Town Center has an established pedestrian network that allows for good connectivity to the hub-centric destinations within the Center. Linkages to areas outside of the Center are lacking or poor. There are limited areas outside of the Town Center for pedestrian comfort. Pedestrian level lighting, shade, and site amenities (such as benches) are non-existent outside of the Town Center. A pedestrian connection between the Town Core of Cave Creek and the Town Center of Carefree does not exist.

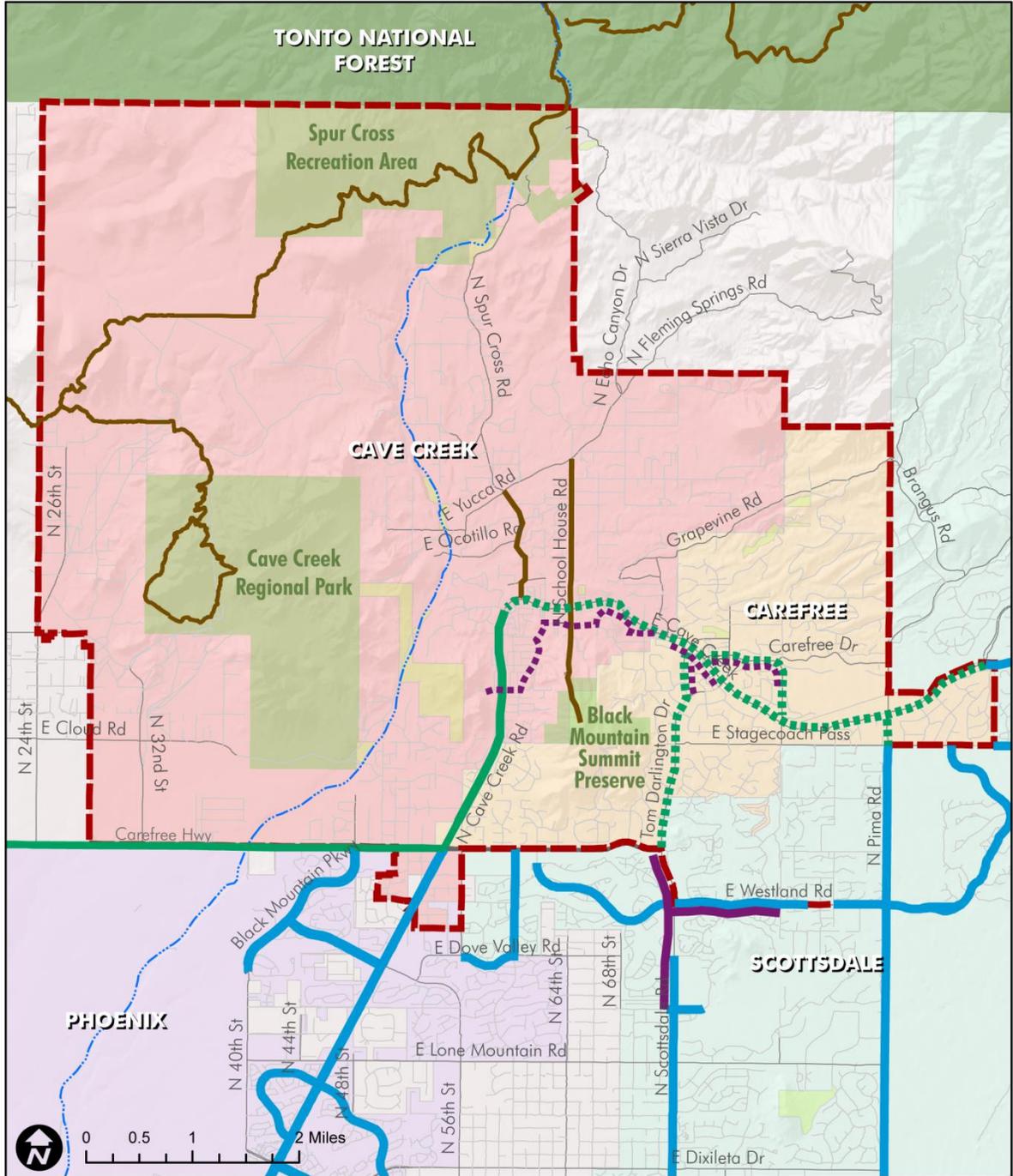


Carefree has limited paved shoulders for arterial, collector, and local roads. Bicycle parking, storage, staging, and signage are minimal throughout the town. The Town of Carefree has a priority to preserve the existing Sonoran High Desert environment surrounding the town. The Town does not discourage equestrian amenities or equestrian circulation. Equestrian facilities need to be sensitive to private development and residential adjacency.





Figure 21: Existing/Proposed Bike and Trail Facilities



Legend

- Study Area Limits
- Streets
- Creek/Wash

Existing and Proposed Bike and Trail Facilities

- | | |
|---------------------------------|---------------------------------|
| Existing Bike Lane | Proposed Bike Lane |
| Existing Bike Route | Proposed Bike Route |
| Existing Multi-Use Path - Paved | Proposed Multi-Use Path - Paved |
| Existing Trail - Unpaved | Proposed Trail - Unpaved |

Source: ASLD, Cave Creek, Carefree, Scottsdale, Maricopa County





Special Events Traffic and Parking

Cave Creek and Carefree currently have a combined total of over 25 special events calendared throughout the year. All require some level of planning and active measures to control and manage traffic and parking needs. Both Cave Creek and Carefree have hosted special events for some time now and have plans in place for managing the event traffic demands.

CAVE CREEK

Special Events: The Town of Cave Creek is the site of at least 15 special events annually. The following is a partial listing of some of the major events that occur throughout the year:

- Cave Creek Balloon Festival - January
- Fiesta Days Rodeo - March
- July 3rd & 4th Fireworks - July
- Running of the Bulls - October
- Taste of Cave Creek - October
- Cave Creek Wicked - October
- Stagecoach Village Fine Art and Wine Festival - November
- Cave Creek Wild West Days - November
- Bike Festival - November
- Christmas Pageant - December

Traffic Access: Highway signs are posted along Cave Creek Road at the entrance points to the Town Core indicating “Special Event Ahead”. Traffic congestion impacts the ability for local residents and through traffic to circulate through the activity area. During events, the heaviest traffic flows occur during the middle part of the day (i.e. 10 a.m. to 3 p.m.).

Intersections that experience the most traffic congestion include Cave Creek Road/School House Road and Cave Creek Road/Carefree Highway. There are few options available for the routing of emergency vehicles if major accidents occur along Cave Creek Road during an event. As shown on **Figure 22**, the Town’s Circulation Plan designates Hidden Valley Drive as the emergency by-pass route for blockages occurring on the north-south portion of Cave Creek Road. Sunset Trail-Basin Drive is also available for use as an emergency by-pass. According to the Town’s Circulation Plan Skyline Drive and Military Road are designated as the emergency by-pass route for blockages occurring on the east-west portion of Cave Creek Road. This emergency by-pass routing cannot be used today however since a portion of Military Road is privately owned. As an alternative, Grapevine Road is currently used as an emergency by-pass for blockages occurring on the east-west portion of Cave Creek Road.

The Town of Cave Creek requires that event coordinators submit traffic control plans to the Town Marshal for review and approval and all traffic control must be coordinated with the Marshal. Traffic control measures for the events typically include a combination of traffic barricades; manual traffic control provided by additional police officers; and manual pedestrian control of pedestrians at the busiest intersections provided by police officers and/or hired posse members.

Typical traffic control measures during a parade-type event includes the closure of the south half of Cave Creek Road and one lane of traffic is open in each direction on the north half of the road. The south half of the road is used for the parade and spectators.



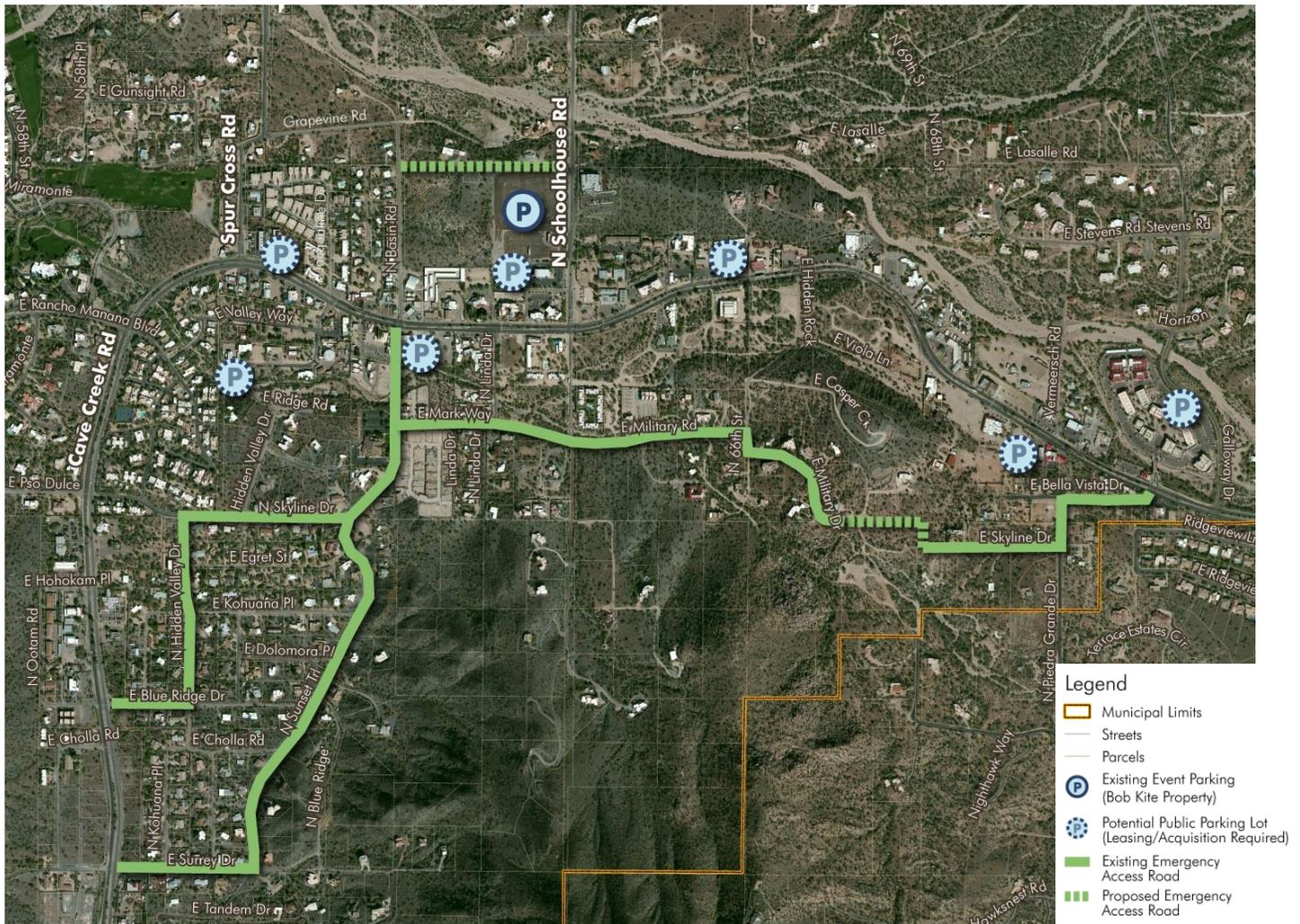


Parking: There are no public parking facilities owned and operated by the Town of Cave Creek other than the Town Hall Parking Lot. A privately owned property located in the center of the Town Core known as the “Bob Kite” property is often used for event parking, see **Figure 22**. Event parking is also supplemented by other nearby commercial properties. Event attendees often park on the shoulders along Cave Creek Road. **Figure 22** also displays several potential public parking lot leasing/acquisition sites as identified on the Implementation Projects Map of the recently adopted 2012 Town Core Plan.



Shuttle Bus Service: For many of the larger Town-sponsored and non-profit events, the Town makes arrangements with the Cave Creek Unified School District to provide shuttle bus service for the events. In these cases, the free shuttle bus service operates between the Bob Kite property parking area and the event location.

Figure 22: Cave Creek Event Condition Analysis





CAREFREE

Special Events: The Town of Carefree hosts at least 15 special events annually and most are held within the Town Center, see **Figure 23**. The following is a partial listing of some of the major events that occur throughout the year:

- Carefree Indian Market & Cultural Festival – January
- Carefree festival of Fine Chocolate & Art – February
- Carefree Thunderbird Fine Art & Wine Festival – February
- Annual Sonoran Arts League Festival of Fine Art – March
- Oktoberfest – October
- Carefree Thunderbird Fine Art & Wine Festival – November
- Carefree Christmas Festival – December

Traffic Access: Event signing is typically placed along the shoulders of the primary access roads at ½-mile spacing at the entries to the Town Center. Additional sandwich board type signing is usually provided throughout the Town Center area to identify general public parking, accessible parking, and reserved vendor parking.

Intersections that experience the most traffic congestion include Cave Creek Road/Tom Darlington Drive, Carefree Highway/Tom Darlington Drive and Cave Creek Road/Carefree Highway. When events are held in the Town Center, some of the local service oriented businesses have indicated that their patrons experience access problems due to the congestion caused by event traffic. Local residents and business owners have also expressed some difficulty in accessing the Post Office during events.

To date there have not been any significant accidents that have occurred during the events. The layout of event access held in the Town Center is designed in a manner that allows emergency vehicles to access the special event site from various points. The Maricopa County Sherriff’s Office (MCSO) is contracted by the Town of Carefree to manage public safety for the Town including when special events are underway.

The Town of Carefree requires that event coordinators submit traffic control plans whenever the event requires the closure of a road. For major events, informal traffic control and public safety plans are required. Traffic control measures for the events typically include a combination of traffic barricades; manual traffic control provided by additional police officers; and manual control of pedestrians at the busiest intersections.

Parking: The supply of parking in the Town Center area is comprised of a total of approximately 1,350 parking spaces and is generally identified in **Figure 23**. Public parking consists of approximately 300 parking spaces and approximately 1,050 private parking spaces.

When smaller events are held in the Town Center, vendors usually park in the parking lot at 8 Sundial Circle behind Town Hall and/or on south Easy Street away from the event site. During larger events, the larger event vehicles park on the vacant lot just south of Easy Street.





During events, attendees park in nearby public parking spaces mostly located along Easy Street, Ho Road, Hum Road, Sunshine Way, and Sundial Circle. Attendees also park in private parking lots that don't restrict parking such as the Basha's Shopping Center. Event parking also occurs along the shoulders of Tom Darlington Drive (mostly between Cave Creek Road and Bloody Basin Road) and along Cave Creek Road (mostly between Scopa Trail and Bloody Basin Road).

When events are held in the Town Center, some of the local businesses have indicated that their local patrons cannot find parking spaces due to the increased parking demand caused by the event. Local residents and business owners have also expressed some difficulty in finding parking near the Post Office during events. The impact on parking for local patrons is most significant during the larger annual events such as the Thunderbird Arts Festival and the Christmas Festival.

The increased parking demand during larger events also causes congestion along Tom Darlington Drive and Cave Creek Road where a large number of parking maneuvers occur along the roadway shoulders. Also, the lack of marked parking along these roadways results in less efficient parking since some cars park parallel to the road (instead of at an angle) and use more of the available space.

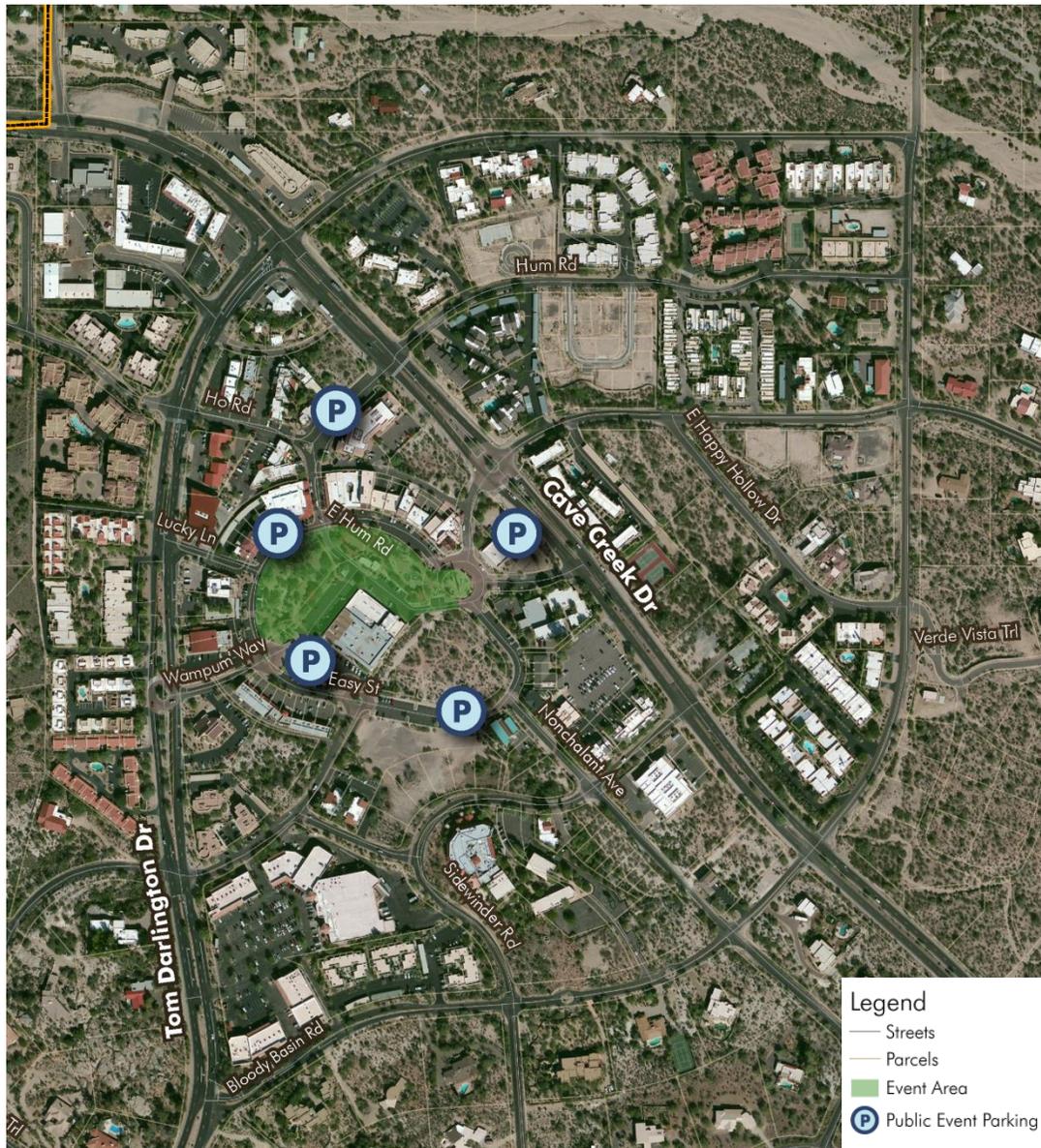
Pedestrian Access: The Carefree Town Center provides some sidewalk facilities and these are heavily used during events. Where sidewalks are not provided in the Town Center, event goers will walk in the street between the parked vehicles and the moving traffic.

A greater concern for pedestrian safety occurs along Tom Darlington Drive and Cave Creek Road. The combination of occasional fast moving traffic and parking maneuvers creates an unfriendly and potentially dangerous environment for pedestrians. Another principal concern is the lack of adequate numbers of well-marked and visible pedestrian crossings on Cave Creek Road and Tom Darlington Drive





Figure 23: Carefree Event Condition Analysis



2. Future Transportation Conditions

Planned/Programmed Roadway System Improvements

The Town of Carefree Transportation Plan, MAG Regional Transportation Plan, the Carefree Highway Access Management and Corridor Improvement Study, and the Maricopa County Transportation System Plan have identified improvements to several of the major roadway facilities within the study area:

- Carefree Highway – widen to three lanes in each direction west of Cave Creek Road and two lanes in each direction east of Cave Creek Road; install new traffic signal at 32nd Street intersection; install dual left-turn lanes at the Cave Creek Road intersection.
- Cave Creek Road – widen to three lanes in each direction south of Carefree Highway; narrow to one lane in each direction from Tom Darlington Drive to Pima Road.



- Tom Darlington Drive – narrow to one lane in each direction between Cave Creek Road and Stagecoach Pass.
- Pima Road – widen to two lanes in each direction south of Cave Creek Road; install new traffic signal at Stagecoach Pass.
- Spur Cross Road – widen to two lanes in each direction between Cave Creek Road and Fleming Springs Road.
- \$300,000 is programmed in Cave Creek for FY 2014 for an ADOT/MAG Bicycle Lane Project.

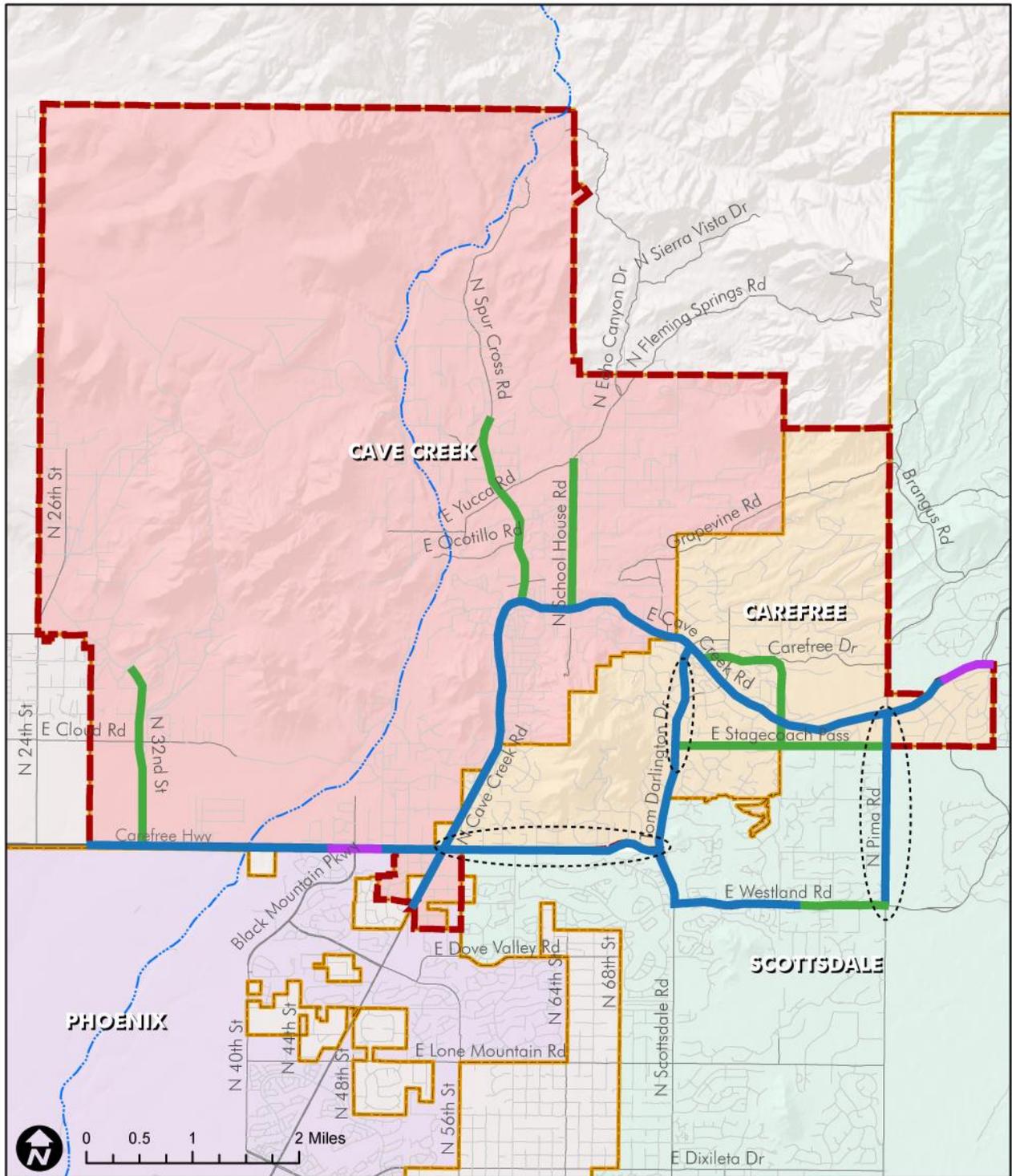
Future Traffic Conditions

Travel demand forecasts were obtained from MAG for the year 2035. The 2035 daily traffic volumes developed from the MAG 2035 travel demand model are shown graphically in **Figure 25**. The 2035 average daily traffic level of service was determined using the number of lanes depicted in the MAG models (**Figure 24**). The 2035 average daily traffic LOS within the study area are shown in **Figure 25**.





Figure 24: 2035 Number of Lanes



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Number of Lanes - 2035

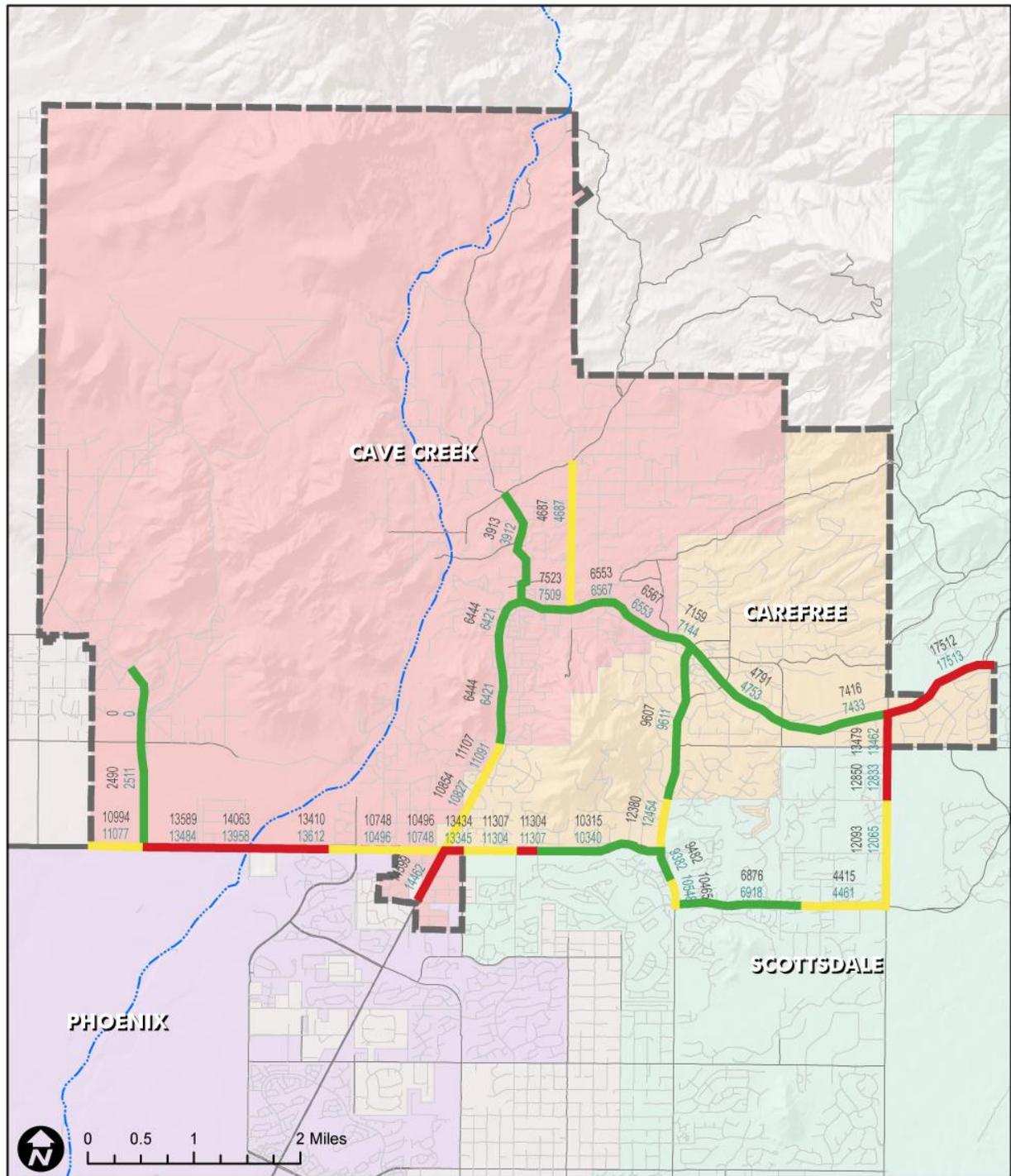
- 5 Lanes (3 in one direction, 2 in one direction)
- 4 Lanes (2 in each direction)
- 2 Lanes (1 in each direction)
- Number of lanes increased from 2013

Source: ASLD, MAG, Baker





Figure 25: 2035 Daily Traffic Volumes and LOS



Legend

- Study Area Limits
- Municipal Limits
- Streets
- River/Creek

Traffic Volumes

- XX Average Daily Traffic Volumes (AB)
- XX Average Daily Traffic Volumes (BA)

Level of Service

- LOS C
- LOS D
- LOS E/F

Source: ASLD, MAG, Baker





Future Public Transportation

The Towns of Cave Creek and Carefree conducted a survey to determine the preferences of their citizens for public transportation. The key recommendation that resulted from this survey suggested that both Towns continue to investigate public transportation alternatives for their citizens. Some of the various public transportation alternatives that are discussed within existing community based planning documents include:

- Investigate opportunities offered by existing national organizations
- Continue to work with the Foothills Caring Corps
- Explore the use of smaller circulator routes, like the Scottsdale trolley
- Consider the implementation of paratransit services
- Develop a park-n-ride facility
- Coordinate the extension of existing traditional fixed bus routes

Bicycle/Pedestrians

To accomplish this, both communities desire the ability to expand their existing bicycle and pedestrian network through the development of on and off-road primary, bypass and loop connections between each community. A major goal is to provide a premium on-road bike link between each Town Center as well as a loop around Black Mountain. Bicycle connections to existing City of Phoenix and City of Scottsdale networks have also been identified as a project goal.

From a pedestrian standpoint, safe and controlled road crossings have been identified as the most important need. This includes the development of the way-finding, signage, and branding for each community. Pedestrian comfort is a requirement and strong consideration of mini-parks and oasis nodes should be provided. The overall pedestrian environment should include sensitivity to minimizing the local urban heat island for each community.

TOWN OF CAVE CREEK

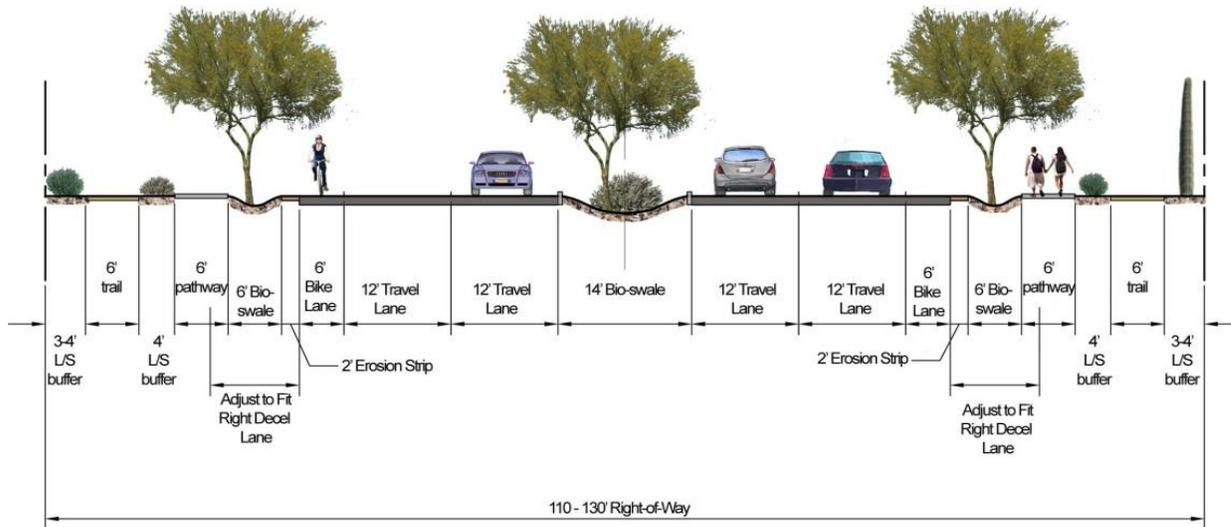
The Town of Cave Creek developed a Bicycle and Pedestrian Study with MAG in 2011. **Figure 26** shows the preferred concept from that study, which identifies a future vision for the bicycle environment along Cave Creek Road. The bicycle environment consists of a 5 ft wide bike on-road lane along roads with 30 mph or less posted speeds and 6 ft wide when speeds are posted greater than 30 mph. Improvements in safety-related infrastructure such as more bike lanes, paths and safer road conditions hold the greatest potential to move people from recreational cycling to cycling as their primary mode of transportation.

The pedestrian linkages proposed for the future conditions will vary with available right-of-way and adjacent land use conditions. Walk-ability will be a priority and special attention will be given to the comfort and aesthetics of the pedestrian environment. Seating, shade, pedestrian level lighting, site amenities, safe roadway crossing conditions, and way-finding elements are key features to be included in the pedestrian environment. Giving a short trip alternative to driving will greatly reduce localized traffic and improve air-quality.





Figure 26: Typical Cave Creek Road Cross-Section



TOWN OF CAREFREE

The development of the pedestrian environment will follow many of the same design criteria as that of Cave Creek, but with a distinct brand that reflects the community culture of Carefree. The Complete Streets concept provides safe travel modes for pedestrians, cyclists, motorists, and alternate transit users for all age group and abilities. Complete Streets includes landscape character, pedestrian and bicycle comfort, aesthetics, utility placement, way-finding elements, signage, and safety as part of the design strategy. Carefree would also like to include a strong sense of arrival into the Town Center at the various entry points. The sense of entry may include arrival monumentation, way-finding features, roadway modifications, a gateway, or other solutions to accomplish this.





III. GOALS AND PLANNING CHECKLIST

A. Issues

Issues set the context for alternatives development, analysis and evaluation, and selection. They help to transition the TFS effort from the impartial exercise of raw data collection and analysis to the more subjective establishment of project specific goals and objectives. This chapter focuses on identifying issues within the study area as defined by the jurisdictions' staff and residents.

1. Existing Goals and Objectives Cross-Evaluatoin

Both communities have been prudent and aggressive in their planning activities in the first decade of the 21st Century. Each community has a General Plan that includes a Circulation Element. Each Community has supplemented their General Plan with transportation specific plans.

2. Strengths, Limitations, Opportunities and Threats Analysis

A common strategic planning exercise is a Strengths, Limitations, Opportunities and Threats evaluation also referred to as a SLOT Analysis. Strengths and limitations are internally focused and represent characteristics of the agencies that enhance or inhibit their ability to implement actions or programs. Opportunities and threats are influences from outside of the agencies that also enhance or inhibit their ability to implement actions or programs. The Project Management Team comprised of the consultant team and Town Staff from each Town worked through the SLOT Analysis exercise at the Project Management Team Meeting; the categorized results are presented as follows.

	Helpful / Positive (to achieving the objective)	Harmful / Negative (to achieving the objective)
Internal Origin (attributes of each community)	Strengths S <ul style="list-style-type: none"> Cooperation/consensus Comparable community form Passionate constituency Cycling destination Bike/Ped awareness Sufficient R.O.W. for complete streets Successful special events Active/engaged community Sense of place 	Limitations L <ul style="list-style-type: none"> Steep grades Marketing resources Roadway cross section constraints Status quo tendency Lack of parking/bike/ped facilities Carefree Hwy in Scottsdale Lacks Town Core/Center sense of entry Low density development pattern Lack of funding
External Origin (attributes of the environment)	Opportunities O <ul style="list-style-type: none"> Context sensitive solutions Outside funding Efficient local management Local cooperation Ideal location in metro area Media resources Shuttle opportunities Wayfinding opportunities Public/private parking Repeat tourism 	Threats T <ul style="list-style-type: none"> Resistance to modern street concepts Competing goals of various interests Staff resources Only three links to metro area Resistance to alternative financing Competition for regional funds Constraints of federal funding





3. Public Scoping Meeting: Dual Choice Analysis

More than 40 people, representing a good cross section of residents and business owners, engaged in a dual-choice voting exercise at the Public Scoping Meeting in October 2013. The purpose was to establish a ranking of candidate issues derived from other relevant studies, the SLOT analysis and previous study related surveys. Participants compared ten issues to each other in all possible paired combinations; a total of 45 comparisons. The output provided a rank order of the ten issues based on the participant voting. The results were used to formulate the Planning Checklist that follows at the end of this section.

Exercise Results - Order of Issue Importance

1. Build sidewalks or multi-use paths
2. Maintain existing streets
3. Improve vehicle access and parking for special events
4. Build bicycle facilities to enhance recreation & tourism
5. Add more “safe” crosswalks
6. Redesign streets to reduce traffic speed
7. Enhance sense of entry in Town Centers
8. Provide local circulator or shuttle service
9. Build new streets for better access
10. Add vehicle lanes to existing streets

Most Important



Least Important

4. Resident/Business, Bicycle and Special Event Surveys

The Project Team conducted electronic, on-line surveys for residents/business owners in Cave Creek and Carefree and for bicycle users between mid-September and mid-November 2013. The Team also conducted in-person intercept surveys at three special events; the Taste of Cave Creek on October 16 and 17, Wild West Days and the Carefree Fine Arts and Wine Tasting Festival from November 1 – 3, and the Carefree Christmas Festival from December 13 – 15. The results were used to formulate the Planning Checklist that follows at the end of this section.

5. Community Stakeholder Workshops

The Project Team conducted three special interest workshops on September 17, 2013 for: Special Event Organizers, Business and Community Organizations, and Recreational Users. The workshops were designed to provide an opportunity for high-quality, focused identification of issues, needs, desires and potential opportunities and were facilitated in a small group setting. The results were used to formulate the Planning Checklist that follows at the end of this section.





B. Goals

As previously detailed, the Project Team completed public and stakeholder outreach with key stakeholders, a public survey (conducted with local business and residents, online survey, and in-person special event surveys), and an Open House Public Meeting. These efforts and coordination with the Town staffs provided input for key desired improvements and actions as they relate to transportation in the project area.

The Project Team developed the following key Goals from the extensive outreach:

Goal: Provide transportation improvements that will enhance or preserve and not detract from the natural and social character of the area.

Goal: Promote a balanced transportation system that provides adequate capacity for and convenient access to vehicle, transit, bicycle/pedestrian, and equestrian travel modes within the study area.

Goal: Support the development of transportation related projects that encourage tourism and promote economic prosperity in the study area

Goal: Support transportation projects that are fiscally responsible and preserve existing infrastructure

Goal: Improve the safety of the transportation system for all travel modes in the study area.

C. Planning Checklist

In consideration of the study goals and objectives and the input from the public, stakeholders and Town staffs, the Project Team determined that:

- The focus of the study will be on Cave Creek Road, Tom Darlington Drive, Carefree Highway, Pima Road and Westland Road,
- The study recommendations will be based upon a **Nodes and Corridors** concept
 - **Nodes** identify pedestrian and bicycle friendly areas of more intense urban activity,
 - **Corridors** identify linkages and connectors to nodes, destinations, and traffic decision locations, and

The following summary checklist ensures the study recommendations are responsive to the public and stakeholder outreach. The planning alternatives produce options to identify future projects and a master plan of these ideas as part of the Transportation Framework Study

Workshop Summary

- Key Item 1: Preserve the unique identities and characters of Cave Creek and Carefree in any potential solution. (*Context sensitivity*)
- Key Item 2: Safe pedestrian connections are needed.
- Key Item 3: Bicycling lanes/paths are important for recreation, not economic development.
- Key Item 4: More equestrian connections are needed in Cave Creek.





- Key Item 5: More Parking Options are needed.
- Key Item 6: Merchants want a seasonal shuttle.
- Key Item 7: Fix roadway elements that cause issues.

Public Survey

- Key Item 8: Provide pedestrian and bicycle safety and access. Develop new connections.
- Key Item 9: Special event traffic and limited parking are issues. Provide additional event parking.
- Key Item 10: Unsafe driving environment needs improvement. Traffic enforcement and improvements in road design to slow traffic or provide traffic calming is needed.
- Key Item 11: Provide sidewalks and dedicated bike lanes or multi-use paths.
- Key Item 12: Maintain existing streets and landscaping (maintenance).
- Key Item 13: Pave unpaved streets in residential areas.
- Key Item 14: Redesign sections or roadways to address existing elements that cause driver confusion and safety issues (traffic circles, median restricted access, dangerous crosswalks)
- Key Item 15: Provide improvements to better serve senior and disabled non-driver circulation.
- Key Item 16: Maintain and improve recreational and competitive cycling environment attractions (scenery and views, low traffic volumes, access to off-road trail networks, on-road safety, bike friendly facilities, and connections to other routes / networks).
- Key Item 17: Establish a special events parking solution. Solution options may include free shuttle from central parking site, priority parking areas for carpooling, premium paid parking areas.
- Key Item 18: Improve pedestrian comfort in each community. Add connectivity for pedestrians. Comfort includes shade, wayfinding elements, seating, facilities, and aesthetics.
- Key Item 19: Traffic safety improvements. Concerns of speed, reckless driving, egress from businesses, motorcycle activity are a focus.
- Key Item 20: Provide a connection between local resorts and business core areas.
- Key Item 21: Preserve non-urban character of existing Towns for any improvement or solution. Retain small town feel and image.
- Key Item 22: Provide crosswalk improvements for pedestrians.
- Key Item 23: Improve parking area near local businesses with shared lots or reconfigured lots (behind or adjacent to business, not in front parking).
- Key Item 24: Non-motorized improvements for multi-modal circulation connectivity.
- Key Item 25: Do nothing.





- Key Item 26: Provide a sense of entry to Town areas.
- Key Item 27: Provide pedestrian lighting for safety.

Open House

- Key Item 28: Provide new streets for better access.
- Key Item 29: Develop bicycle friendly environment and facilities to enhance recreation and tourism.
- Key Item 30: Redesign streets to reduce traffic speeds.

The 30-item checklist is condensed into the following summary checklist. The summary checklist provides for effective assessment of transportation frameworks to ensure the recommendations are responsive to the public and stakeholders.

Table 13: Planning Checklist

Category	Code	Description
Bicycle	B-1	Improve Bicycle Connectivity
Bicycle Equestrian	B-2	Improve Bicycle Environment
	E-1	Provide Equestrian Connections
Parking	PK-1	Provide Additional Parking
Pedestrian	P-1	Improve Pedestrian Connectivity
Pedestrian Roadway	P-2	Improve Pedestrian Safety
	P-3	Improve Pedestrian Comfort
	R-1	Redesign Roads to Reduce Driver Confusion
Roadway Sense of Place	R-2	Improve Safety by Reducing Speeds
	R-3	Maintain Existing Streets
	SP-1	Preserve and Enhance the Sense of Place
Shuttle	SH-1	Provide Shuttle Service
Special Events	SE-1	Improve Special Event Parking
Transit	T-1	Improve Senior and Disabled Transit





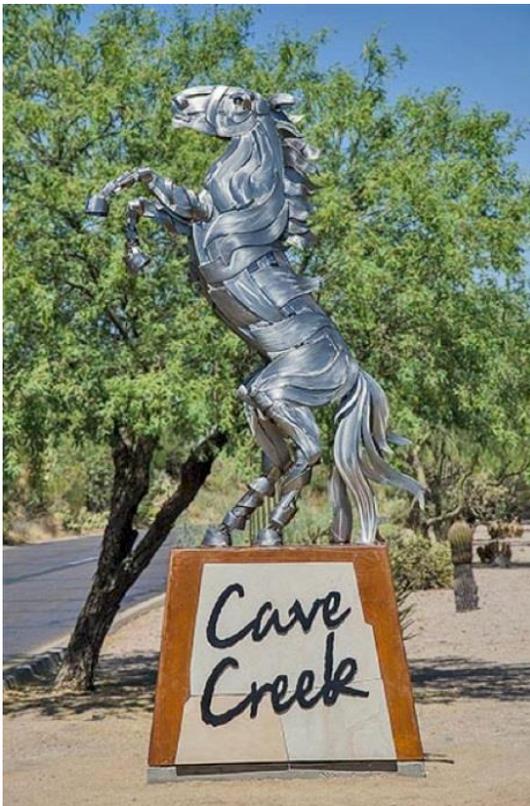
IV. TRANSPORTATION FRAMEWORK

A. Priorities

The initial study goals and objectives developed focused on the highest perceived priorities within each community: bicycles, bicycle tourism, pedestrians and special events. Through a robust stakeholder and public outreach process, the preliminary goals were expanded to incorporate a sense of place, roadway and transit.

1. Sense of Place

Cave Creek and Carefree desire to preserve their non-urban character and small town feel and image. Each town has unique identities and characters unto themselves that both want to preserve. Cave Creek exudes a western, equestrian atmosphere while Carefree projects an eclectic, village environment. Both communities want to provide and enhance a sense of entry with a setting that allows for parking once and walking around.





2. Roadway

Street and landscaping maintenance followed by safety are the top roadway priorities. Stakeholders supported safety improvements by favoring reduced traffic speeds and traffic calming. Pedestrian crosswalks and separation of bicycle traffic from vehicles were identified as priority solutions to address a multimodal transportation system. New roads and added lanes were not a priority.



3. Bicycle

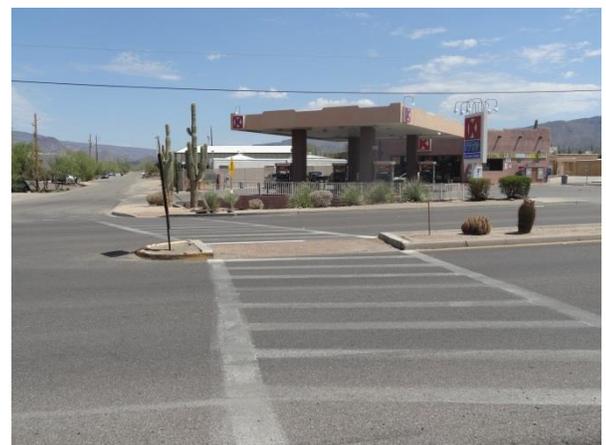


The Towns and stakeholders recognize the major draw that they exert on the bicycling community. Yet there is a dichotomy regarding the economic opportunity. Some see bicyclists as drinking the free water and using the restrooms but support bike lanes for recreation and safety. Others see bicyclists as spending money now on food and drinks or returning later to do so and feel businesses need to provide amenities to attract more. Cyclists, for their part, advocate that they want to be encouraged to stop and would welcome bike lanes, rest areas and parking at trailheads.

There is a general consensus to develop a bicycle friendly environment to enhance recreation and tourism. Designated, striped bike lanes are desired to provide a safe environment for both the cyclist and the driver. Three areas are seen as particularly unsafe: Carefree Highway/Cave Creek Road Intersection, Carefree Highway between Cave Creek Road and Tom Darlington Drive, and Cave Creek Road between School House Road and Tom Darlington Drive.

4. Pedestrian

There is a strong desire for a safe pedestrian environment in the form of sidewalks and pedestrian crosswalks, especially in the activity nodes to allow people to park once and walk between businesses. Both communities would like to see more safe crosswalks. Pedestrian lighting is also seen as a way to improve pedestrian safety. There is also a desire for multi-use paths and pedestrian comfort amenities like shade, wayfinding elements and seating.





5. Transit



Transit is not a major consideration at this time although many recognize the needs of an aging and/or disabled, non-driver population. There is some sentiment for local circulator or shuttle service and some merchants may be interested in a seasonal shuttle especially to link the local resorts with the business areas.

6. Special Events Traffic and Parking

Special events occur on most weekends in one or both Towns from October through April. Attendees mostly park in business lots within 1-3 blocks of the event. Virtually all found it easy to drive to the events and felt safe walking to and from their cars. Many return to the Towns for a non-event purpose.

Most complaints center on the ability to find convenient parking or derive from local residents who are weary of the traffic and parking associated with the special events. In general, event parking should be free. Attendees generally won't change their behavior but, if they did, they would either ride a free shuttle from central parking or carpool to take advantage of free parking. There is a strong desire in the business community for a shuttle for event parking and between resorts and events. Wayfinding signage to events and parking could be improved.



7. Bicycle Tourism



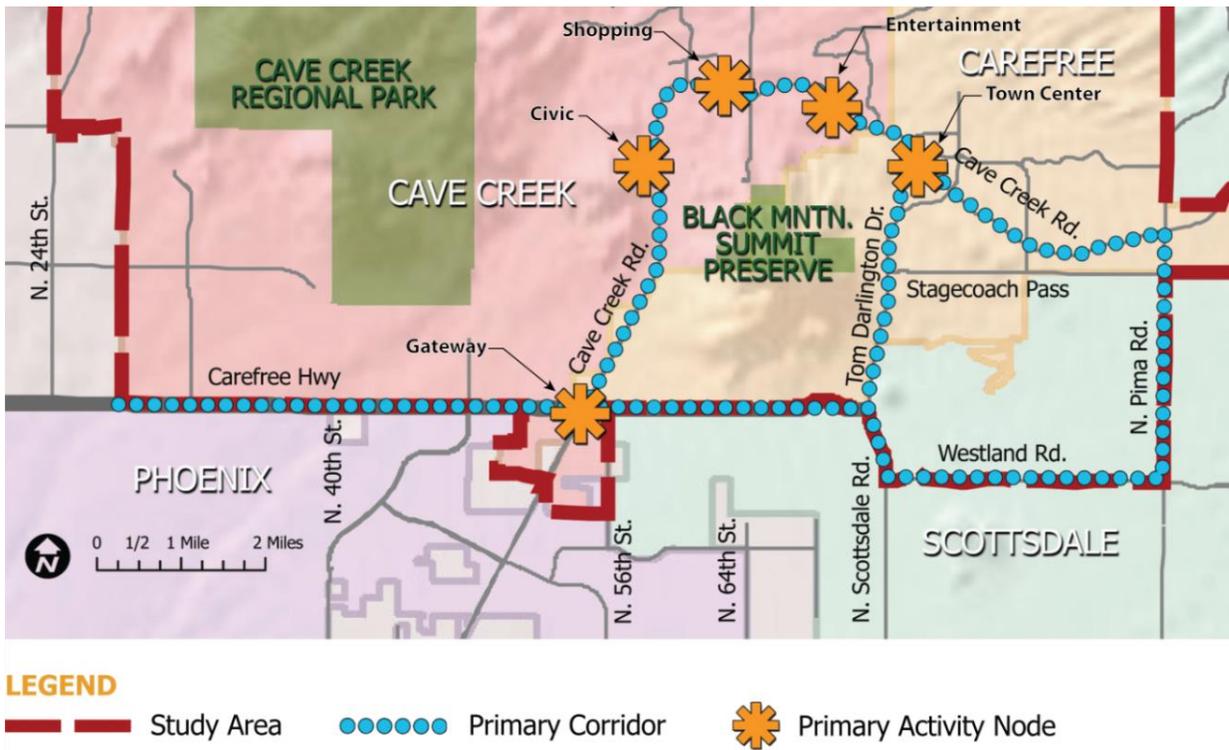
The economic benefits that the Towns could derive from bicycling was a point of emphasis in the early planning for the study but it did not resonate with the stakeholders. Even so, there is an interest in enhanced economic development through increased tourism resulting from improved bicycle facilities and seasonal shuttles to connect the local resorts to the business core areas.



B. Recommendations

Based on the existing traffic volumes and growth projections, there was no defined need to expand the existing overall transportation framework. A recurring theme heard from the stakeholder input was to create a better sense of place at locations of more intense economic activity and to enhance the mobility of all modes of travel in the corridors that connect the nodes. The ‘Nodes and Corridors’ framework creates an setting that is pedestrian and bicycle friendly accommodating equestrian uses where appropriate in a complete street, context sensitive environment.

Figure 27: Nodes and Corridors



The study did not employ a traditional alternatives development and evaluation process. Instead, the study team developed recommendations in response to defined public and stakeholder requirements. The summary checklist developed as part of Goals and Planning Checklist is assessed against the study recommendations to ensure the recommendations are responsive to the public and stakeholders.

Corridor and activity node concepts were presented for the community’s input at a public meeting in April 2014, as well as through an online survey, which received 266 responses. The consensus was that residents in both towns prefer “complete streets” that accommodate all users with buffers to separate vehicles from non-motorized traffic. Based on the community feedback received, as well as additional technical analysis, the study team prepared the recommendations in the following sections for improvements to the activity nodes, corridors, traffic, special event traffic and parking, transit, and bicycle tourism.



1. Nodes

Nodes are enlarged areas of activity that benefit the social, economic, transportation, and cultural environment and promote a sense of place. The nodes are identified as primary, secondary, and tertiary.

The following primary activity nodes have been identified:

- The Cave Creek “Entertainment District,”
- The Cave Creek “Shopping District,”
- The Cave Creek “Civic District,”
- The “Carefree Town Center District” and
- The “Gateway District” at the intersection of Carefree Highway and Cave Creek Road.

There are four recommendations within each of these activity nodes, with the exception of the Gateway District, that add multimodal features to reduce traffic speeds and improve walkability.

N-1 One lane in each direction with a bike lane and sidewalk.

N-2 An entry feature to provide a sense of arrival and a transition to one travel lane, as well as roadway design features that slow traffic approaching these pedestrian-oriented zones. The node entries should employ traffic calming to transition automobile traffic from the car dominated corridors to the bicycle/pedestrian dominated activity nodes.



- Roundabouts are the preferred application but that decision should be based on careful engineering and planning analysis of each location. The Towns may also wish to employ entry monumentation to help brand and identify the individual activity nodes. The entry feature provides a sense of arrival and a transition to one travel lane, as well as roadway design features that slow traffic approaching these pedestrian-oriented zones.

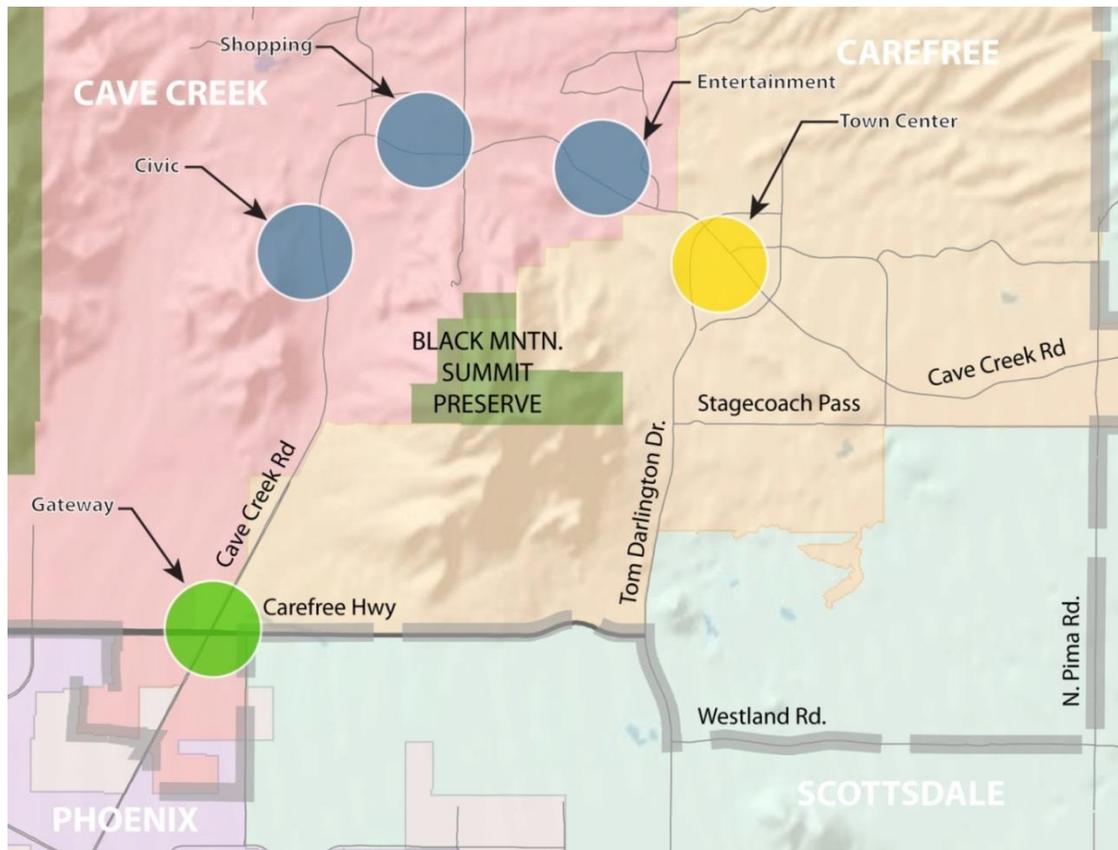
N-3 Additional pedestrian and bicycle amenities, such as seating, shade provided by trees or structures, pedestrian-level lighting, crosswalks, bicycle storage and signage to local businesses and attractions.

N-4 More business parking to promote parking once and walking around. This also accommodates special event parking needs.

- In Carefree, on-street parking would be available but not marked.
- In Cave Creek no on-street parking would be allowed.



Figure 28: Nodes



In the activity nodes, the study team proposed two potential roadway configuration concepts to accommodate additional pedestrian and parking improvements and to reduce traffic speeds to provide a more pedestrian-friendly environment. Each of these options narrowed the roadway to one lane in each direction and included bike lanes and sidewalks.

- Option 1: Reduce the roadway to one lane in each direction with on-street parking.
- Option 2: Reduce the roadway to one lane in each direction without on-street parking.
- The community suggested a third option be considered to maintain two travel lanes in each direction.

In the activity nodes, community members in both towns preferred the road configuration without the parking option, followed by retaining two lanes in each direction. Least popular was the activity node configuration option with on-street parking.

- 48 percent preferred the activity node concept without on-street parking
- 30 percent preferred to maintain two lanes in each direction
- 22 percent preferred the activity node with on-street parking option

While these preferences were similar when survey responses were evaluated according to town residence, Carefree residents were more likely to prefer on-street parking options.



Primary Nodes

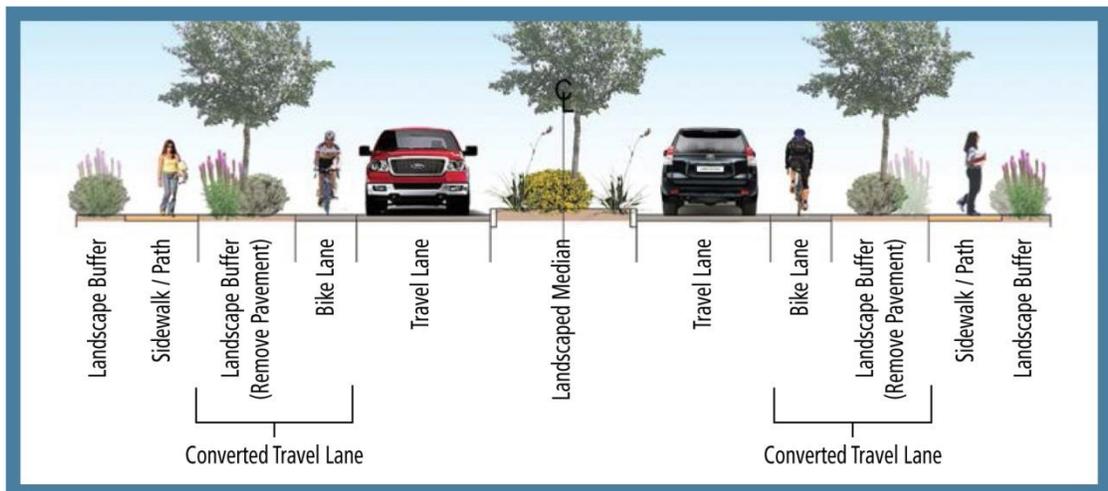
Primary nodes have a vibrant pedestrian environment and create a cultural identity for the Town.

Features Common to Cave Creek and Carefree Primary Nodes

- Enhanced pedestrian area pavements.
- Specialty crosswalks with textured and colored pavement. Crossings also have flashing LED lights to promote safety.
- Pedestrian level LED lighting on themed light standards with banners for seasonal announcements or wayfinding coding. Bollard lighting is also encouraged.
- Seating nooks, seat walls, and themed benches.
- Site furnishings for litter and recycling.
- Native desert shade trees to provide a 50% mature canopy coverage of pavements.
- Native desert accent plantings for pedestrian scale aesthetics.
- Wayfinding and destination signage and detailing. Signage shall include distances to destinations and approximate time of travel. Detailing shall include directional and arrival patterns.
- Buffers from wheeled traffic are encouraged. Buffers can include landscaping, decorative fencing, bollards, and screen / seat walls.
- Select areas shall include rigid shade structures for queue and congregation spaces.

Features Specific to Cave Creek Primary Nodes

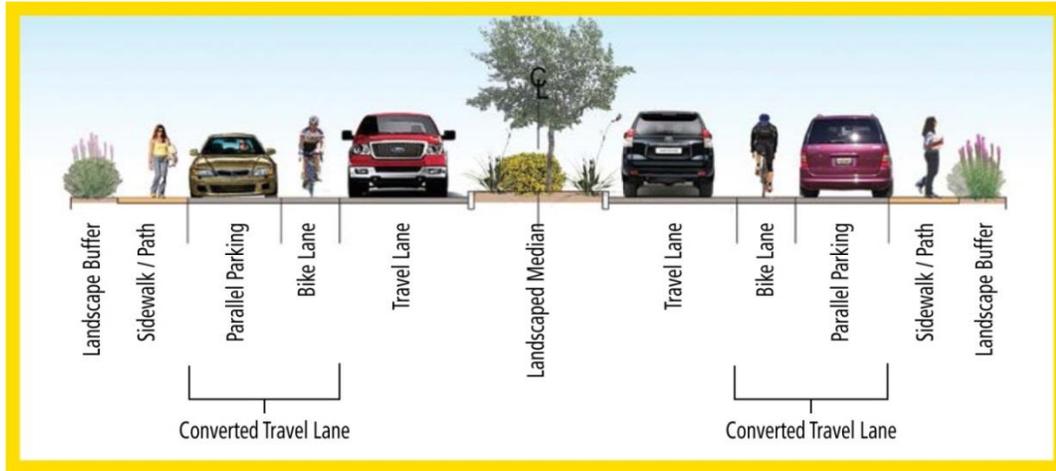
- Bike storage facilities including bike racks, bike lockers, and bike corrals.
- Concrete bike lanes, 5 ft. min. width, 6 ft. preferred width. Bike lanes to have a color band at the outside edge to delineate corridor segments.
- Western and Equestrian theming within the area.





Features Specific to Carefree Primary Nodes

- Bike racks for business areas and bike lots for mass bike staging.
- Bike Lanes are 5 ft. wide and located at the edge of pavement. Lane striping is MUTCD standard, but has an 8” wide buffer stripe.
- **Desert Oasis** theming within the area.



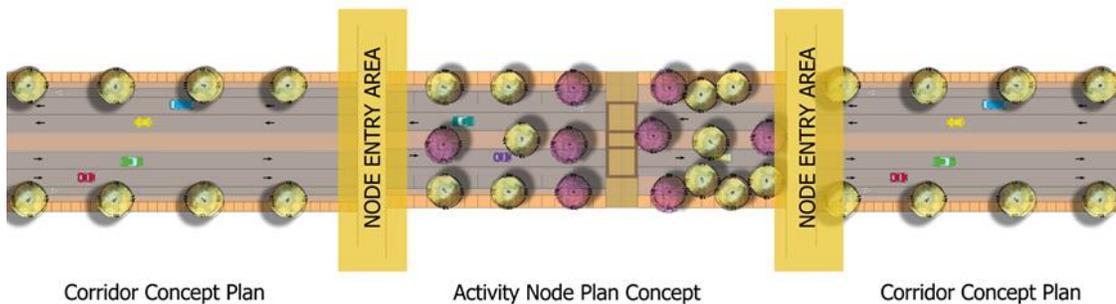
Secondary and Tertiary Nodes

Secondary nodes are found within the Cave Creek Town Core and near points of destination or points of access to off-road networks and also within the Carefree Town Center fringe areas and business centers. Tertiary nodes are found at trailhead areas, multi-modal network connections, and near monument signage. Please refer to Working Paper 4 – Transportation Framework for a detailed description.

Node Entry Area

Node entry areas provide a sense of arrival and traffic calming to transition from the car dominated corridors to the bicycle/pedestrian friendly activity nodes. Roundabouts are a preferred entry treatment but that decision should be based on careful engineering and planning analysis of each location. The Towns may also wish to add monumentation to help brand and identify the individual activity nodes.

Figure 29: Node Entry Area





Gateway Activity Node

The Gateway District activity node is at the busiest intersection, Cave Creek Road and Carefree Highway in the study area. This node is unique in that it is “anchored” by the school campus at Dove Valley Road between 56th Street and 60th Street on the Southeast and a mix of big box and neighborhood retail at the Cave Creek Road/Carefree Highway intersection. The intensity of student activity in the node leads to the need to maximize the safety of the bicycling and pedestrian activity in this vicinity of high volume, high speed automobile traffic. A multi-use underpass to fully separate bicycles, pedestrians and equestrians at the Cave Creek Road/Carefree Highway intersection was given serious consideration but eventually deemed to be premature. A combination of sidewalks, bike lanes, sharrow lanes and multi-use paths with pedestrian crosswalks will enhance non-vehicular safety.

Figure 30: Gateway Activity Node



2. Corridors

The corridors are those roadways that connect the nodes or serve to move traffic throughout the study area. Corridors are characterized by a complete streets concept accommodating bicycles and pedestrians in harmony with automobiles as well as equestrian uses where appropriate. The primary corridors are:

- Carefree Highway
- Cave Creek Road
- Tom Darlington Drive
- Pima Road
- Westland Road

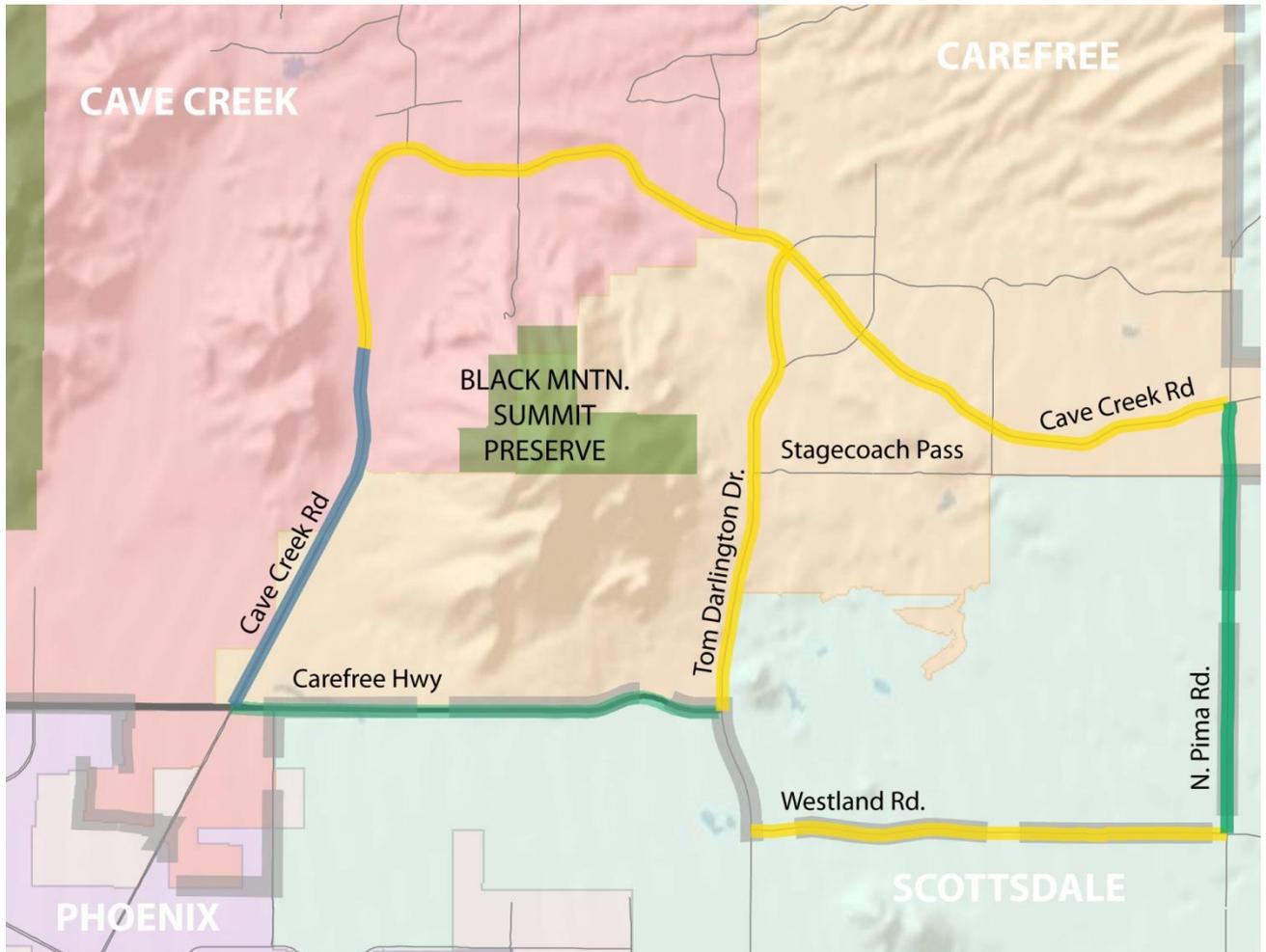
There are six recommendations that apply to each corridor:

- C-1 Two lanes in each direction
 - except on Carefree Highway west of Cave Creek Road which would be three lanes in each direction
 - except on Cave Creek Road east of Pima Road which would be three lanes in each direction
 - except on Pima Road north of Hawknest Road which would be three lanes in each direction
- C-2 Bike lanes and sidewalks
- C-3 Raised and/or landscaped medians
- C-4 An optional shared-use path
- C-5 Additional crosswalks, traffic signals or other traffic devices
- C-6 Roadway safety and signage improvements

These improvements and roadway configurations are recommended for the corridors outside of concentrated activity nodes in the towns’ Central Business Districts, which are discussed in the following section.



Figure 31: Corridors



Based on the community comments received, most community members support the proposed configurations along all major corridors in the study area.

- 59 percent supported the proposed Carefree Highway and Pima Road corridor configuration concept, 22 percent were neutral or provided additional suggestions and 18 percent did not support the concept.
- 65 percent supported the Cave Creek Road, Tom Darlington Drive and Westland Road corridor configuration concept, while 21 percent were neutral or provided additional suggestions and 14 percent did not support the concept.

Of those who did not support the concepts, the most cited reasons were that respondents felt more lanes are needed or that sidewalks were not needed along these corridors outside the activity nodes. Based on this feedback, as well as a projection of future traffic volumes, the study team is recommending additional lanes on some roadways and an option to include multi-use paths away from the roadway where needed.

Primary Corridors

The Primary Corridors are the major road networks within the project study area. The roads are classified as arterial corridors or major collectors. The primary corridors have the following features:



- On-road bike lanes with a minimum 5' width with roadside metrics and wayfinding features or signage.
- Landscaped medians with native desert plantings, preferred to include a bio-swale.
- Native desert shade trees and shrubs for context sensitivity and environmental visual mitigation.
- Off-road shared use facilities with a hard and soft path element. Off-road circulators shall include comfort nodes at ½ mile minimum or maximum intervals and provide seating, wayfinding, and shade features. Combined path widths shall be a minimum of 12' when right-of-way is available.
- Corridor crosswalks and mid-block crossings shall have an alternate pavement material than the roadway and provide traffic calming. Crosswalks shall include a pedestrian refuge area at median locations. Safety awareness devices shall also be required on Primary Corridors and may include flashers, reflective signage, or warning devices.
- **Cave Creek Road (Gateway Node to Civic Node)**

This corridor is recommended to maintain a 4 lane configuration with a lane width diet to accommodate the addition of bike lanes. Existing landscaped medians are recommended to be narrowed to account for lane restriping as part of the addition of new bicycle and pedestrian environments. A minimum width of 11 ft. is proposed for vehicle lanes with posted speeds of 45 mph or less. A minimum width of 5 ft. is proposed for bike lanes. No parking on street is recommended along this corridor.

Crosswalks at controlled intersections are recommended to include enhanced materials that provide a color and texture contrast to the roadway pavement. Crosswalks parallel to the corridor are recommended to also be enhanced pavement materials. Mid-block crossings are recommended to have additional evaluation for location and type of activated signalization. Crossings are recommended to provide a central queue safety zone for pedestrians. Crossings shall include traffic rated bollards to provide queue zone safe environments.

Equestrian activity is prevalent in the Town of Cave Creek and should be included in the design of the off street circulation environment. Equestrian path surfaces should include soft path materials. Height clearances for riders need to be considered. Staging of horses in the public areas should include hitching posts and water troughs. Connections to off street trails are encouraged for equestrian circulation with shared use at grade corridor crossings in limited areas.

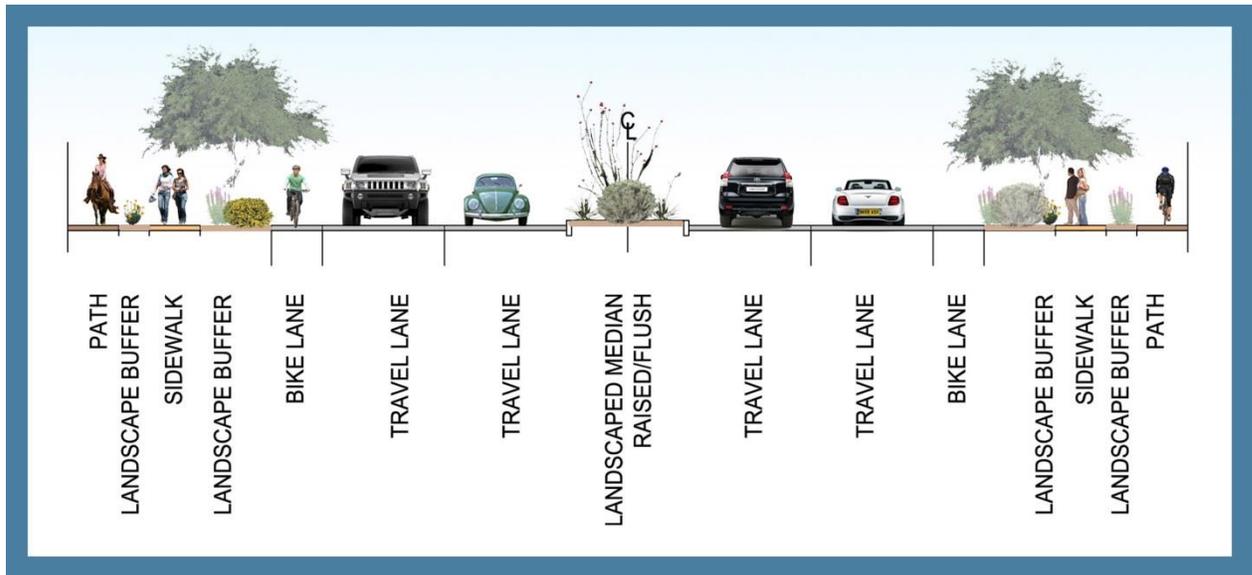
The pedestrian environment along Cave Creek Road is dependent upon the existing right of way widths and will include several segment configurations. In areas of limited right of way, less than 90 ft., an attached pathway with a minimum width of 6 ft. is proposed. Pedestrian segments in greater than 90 ft. of right of way are proposed to have a landscaped buffer from the roadway and a minimum 6 ft. wide hard surface ADA compliant pathway.

Soft surface ADA compliant paths should be limited to segments in 110 ft. of right of way widths and placed adjacent to hard paths. Pedestrian environments should include comfort and safety amenities that encourage use and activity. Comfort features include shade as trees or structures, seating opportunities at a minimum of 1/4 mile spacing, and way-finding elements that identify direction and distance information for destinations.





Figure 32: Cave Creek Road (Gateway Node to Civic Node)



- Tom Darlington Drive (Carefree Highway to Town Center Node)**
Cave Creek Road (Civic Node to Carefree East Town Boundary)
Carefree Highway (Cave Creek Road to Scottsdale Road)
Westland Road (Scottsdale Road to Pima Road)
Pima Road (Westland Road to Cave Creek Road)

This corridor is recommended to maintain a 4 lane configuration with a lane width to accommodate dedicated bike lanes. Existing landscaped medians are recommended to be narrowed to account for lane restriping as part of the addition of new bicycle and pedestrian environments. A minimum width of 11 ft. is proposed for vehicle lanes with posted speeds of 35 mph or less. A minimum width of 5 ft. is proposed for bike lanes.

Parking on Tom Darlington Drive is recommended from Cave Creek Road to Bivouac Trail as a widened shoulder condition. Special event on street parking is currently practiced and should be maintained within the widened shoulder area described. Crosswalks at controlled intersections are recommended to include enhanced materials that provide a color and texture contrast to the roadway pavement. Mid-block crossings are recommended to have additional evaluation for location and type of activated signalization.

Crossings are recommended to provide a central queue safety zone for pedestrians. The pedestrian environment for Tom Darlington is recommended to be a paved shared-use path detached from the edge of roadway. A landscaped buffer of a minimum of 4 ft. wide is encouraged. The shared-use path is encouraged to be a minimum of 8 ft. wide. Desert landscape that is native to the region is to be used in the landscape roadway buffer and in the remaining buffer areas between private developments.

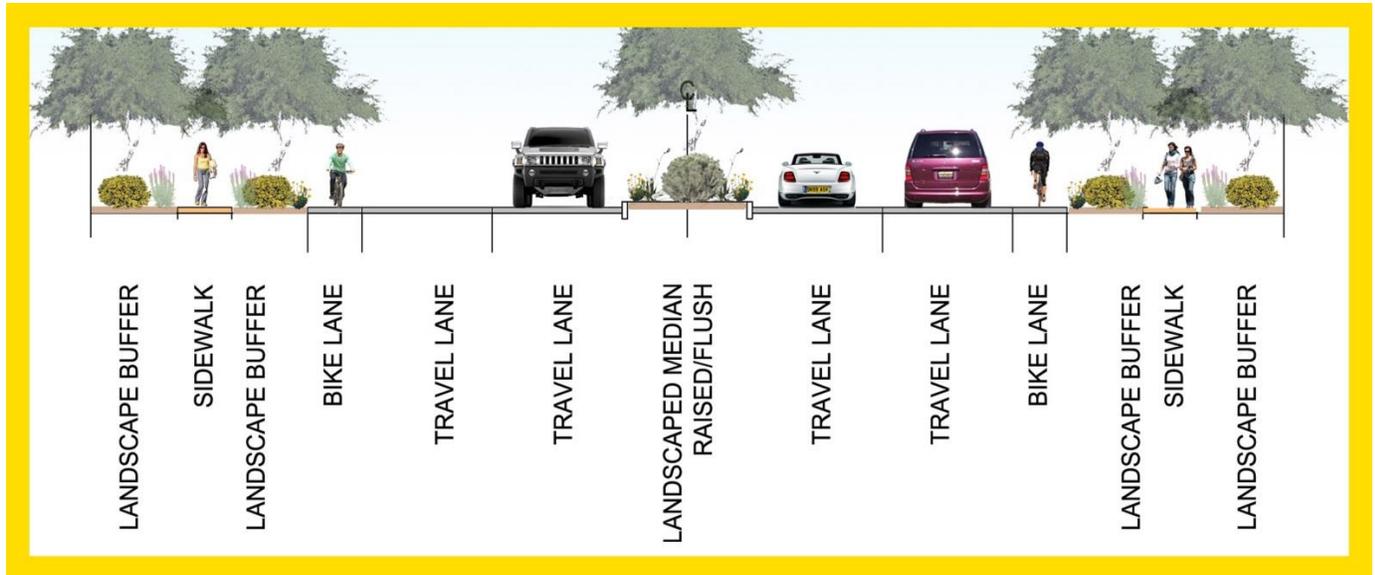
Trees for shading of the pedestrian environment are highly encouraged within the buffer areas. Wayfinding features are encouraged and should be integrated design elements or context sensitive environmental signage. Access to neighborhood paths and trails should be promoted along this



corridor and provide linkages to residential and commercial destinations. A dedicated multi-use path network is recommended to continue around Black Mountain with several trailheads and community connector nodes.

This section also applies to Cave Creek Road (Civic Node to Carefree East Town Boundary), Carefree Highway (Cave Creek Road to Scottsdale Road), Westland Road (Scottsdale Road to Pima Road) and Pima Road (Westland Road to Cave Creek Road). The recommended widths should be evaluated in the context of the roadway at the time of design and construction.

Figure 33: Tom Darlington Drive (Carefree Highway to Town Center Node)



- Interim Carefree Highway (Cave Creek Road to Scottsdale Road)
 Pima Road (Westland Road to Cave Creek Road)**

Carefree Highway west of Cave Creek Road, Pima Road between Hawknest Road and Cave Creek Road and Cave Creek Road east of Pima Road are recommended to be three, 12 ft. travel lanes per direction with a raised, landscaped median. The recommended section also includes five-foot wide bike lanes with a 12" wide lane buffer pavement stripe along with an 8-ft wide hard surface shared use path for pedestrians and mixed uses.

The ultimate Carefree Highway (Cave Creek Road to Scottsdale Road) cross section is the same as that recommended for Tom Darlington Drive in the previous section. This section also applies to Pima Road (Westland Road to Cave Creek Road).

For the interim condition, the Carefree Highway corridor maintains the 2 lane configuration with dedicated bike lane additions. A minimum width of 12 ft. is proposed for vehicle lanes with posted speeds of 45 mph or less. A minimum width of 5 ft. is proposed for bike lanes. Bike lanes should include a 12" wide lane buffer pavement stripe to increase cycle zone awareness and separation from motorized vehicles. Crosswalks at controlled intersections are recommended to include enhanced materials that provide a color and texture contrast to the roadway pavement. No parking on street is recommended along this corridor. This section also applies to interim Pima Road (Westland Road to Cave Creek Road).



The pedestrian environment for interim Carefree Highway and interim Pima Road is recommended to be a paved shared-use path detached from the edge of roadway. A landscaped buffer of a minimum of 4 ft. wide is encouraged. The shared-use path is encouraged to be a minimum of 8 ft. wide. Desert landscape that is native to the region is to be used in the landscape roadway buffer and in the remaining buffer areas between private developments. Trees for shading of the pedestrian environment are highly encouraged within the buffer areas. Wayfinding features are encouraged and should be integrated design elements or context sensitive environmental signage. The pedestrian environment also applies to interim Pima Road between Westland Road and Cave Creek Road.

Access to neighborhood paths and trails should be promoted along Carefree Highway and provide linkages to residential and commercial destinations. A dedicated multi-use path network is recommended to continue around Black Mountain with several trailheads and community connector nodes. Connections to commercial areas along the Carefree Highway corridor are necessary to promote alternate transportation access to these destinations.

Figure 34: Interim Carefree Highway (Cave Creek Road to Tom Darlington Drive)



Secondary Corridors

Cave Creek and Carefree Secondary Corridors include the minor road networks within the project study area. The roads are classified as minor collectors or residential roads. Please refer to Working Paper 4 – Transportation Framework for a detailed description.

3. Traffic

Signalization

The unsignalized intersections within the Town of Cave Creek and the Town of Carefree were analyzed to determine if signal warrants will be met with 2035 peak hour volumes. The Manual on Uniform Traffic Control Devices (MUTCD) is the reference for investigating traffic signal installation throughout the United States. Warrants 1, 2, and 3 are typical warrants that can be evaluated with future travel volumes and were evaluated for year 2035 for the study area intersections:



- Warrant 1A and 1B – Eight-Hour Vehicular Volume
- Warrant 2 – Four-Hour Vehicular Volume
- Warrant 3 – Peak Hour

Six intersections, indicated by checkmarks in **Table 14**, are projected to meet signal warrants by 2035. Roundabouts can be effective alternative to traffic signals for the intersections along Cave Creek Road and along Tom Darlington Drive and should be evaluated when the intersections meet signal warrants.

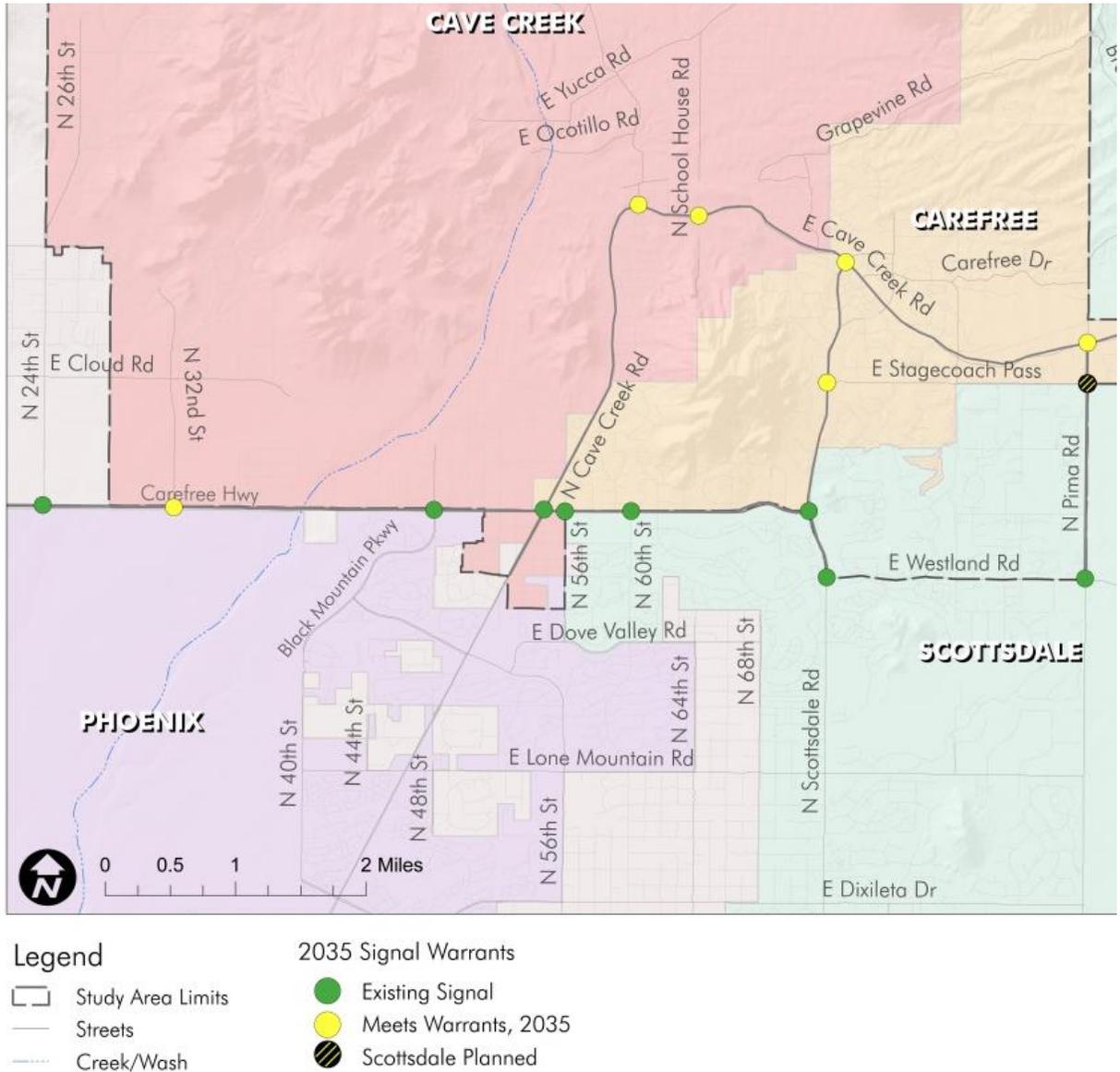
Table 14: 2035 Traffic Signal Warrant Analysis Results

Intersection	Warrant 1A	Warrant 1B	Warrant 2	Warrant 3
Carefree Hwy & 32nd St	✓	✓	✓	
Cave Creek Rd & Mule Train Rd				
Cave Creek Rd & Tom Darlington Dr	✓		✓	
Cave Creek Rd & Spur Cross Rd	✓		✓	
Tom Darlington Dr & Stagecoach Pass			✓	✓
Cave Creek Rd & School House Rd	✓	✓	✓	
Cave Creek Rd & Carefree Dr				
Cave Creek Rd & Pima Rd	✓	✓	✓	✓
Cave Creek Rd & Bloody Basin Rd				





Figure 35: 2035 Warranted Traffic Signals



4. Special Event Traffic and Parking

Specific recommendations regarding special event transportation management have been based on a review of existing planning procedures and current conditions experienced during special events based observations during special events as well as information provided by the Town of Cave Creek and the Town of Carefree. Events that were attended to review operational procedures and transportation conditions included the Cave Creek Wild West Days (November 2013) and the Carefree Christmas Festival (December 2013). Both the Town of Cave Creek and the Town of Carefree have substantial transportation management experience and plans already in place for special events. The following recommendations are not intended to supersede plans that are already in place but rather to refine and supplement the existing plans and procedures.



Cave Creek

Traffic Access and Operations

The School House Road intersection was the critical intersection from a traffic capacity perspective. Traffic congestion and vehicle queues that formed during the event propagated west and east along the approaches to this intersection.



There are four recommendations for Traffic Access and Operations (TA) in Cave Creek (please refer to **Figure 36** as appropriate, note that the recommendation may not be illustrated or may be conceptual):

- CCTA-1 Manual traffic control procedures should allow for periodic clearing of traffic queues that form at the eastbound and westbound Cave Creek Road approaches.
- CCTA-2 Consider the installation of a traffic signal at the intersection of Cave Creek Road and School House Road. Once installed, the traffic signal could be manually controlled during special events to optimize the response to actual traffic and pedestrian demands. The traffic signal warrant analysis for 2035 traffic volumes indicates the intersection will meet warrants for traffic signalization.
- CCTA-3 Provide additional access to public parking areas to disperse the event traffic that is currently focused on the Cave Creek Road and School House Road intersection.
- CCTA-4 Proceed with the implementation of the Town’s Circulation Plan; Skyline Drive and Military Road are designated as the emergency by-pass route for blockages occurring on the east-west portion of Cave Creek Road. This emergency by-pass routing can be completed with the acquisition of a portion of Military Road that is currently privately owned. This route can also be used as a local traffic bypass route during special events.

Parking

Special event parking is exclusively provided on nearby private property. A privately owned property located in the center of the Town Core known as the “Bob Kite” property is often used for event parking. The Bob Kite parking area is currently accessible only from School House Road.



There are four recommendations for Parking (P) listed below in Cave Creek: (please refer to **Figure 36** as appropriate, note that the recommendation may not be illustrated or may be conceptual):



CCP-1 Develop a new access road from North Basin Road (in the vicinity of the southern connection of North Hazelwood Circle) to the southwest corner of the Bob Kite property parking area to better disperse event traffic and reduce the concentration of traffic at the Cave Creek Road/School House Road intersection,. Event traffic traveling to and from the west on Cave Creek Road should be directed to turn left at North Basin Road to access the Bob Kite parking lot. An auxiliary access to and from the Bob Kite property could be provided at the east connection of North Wright Lane where there is currently a break in the median and a left turn lane on Cave Creek Road. With this arrangement, the use of School House Road to access the Bob Kite parking area could be limited to event traffic traveling to and from the east on Cave Creek Road.

CCP-2 Develop additional special event parking facilities throughout the Cave Creek Road event corridor. New parking areas should generally be located behind the commercial buildings that front Cave Creek Road. General areas where event parking lots should be considered include:

- East Valley Way and East Hidden Valley Drive
- Adjacent to North Basin Road south of Cave Creek Road
- Adjacent to East Hidden Rock Road
- Adjacent to North Vermeersch Road

The development of new parking facilities in these areas would require either leasing agreements or property acquisition. While these parking areas could be a temporary use for special events, they could also be developed as permanent public parking facilities. The first two areas are compatible with supporting the parking needs of the Shopping District (Spur Cross Road to School House Road) activity node and the last two locations would be compatible with supporting the parking needs of the Entertainment District (“Barmuda Triangle”) activity node. The provision of multiple smaller public parking facilities would help disperse special event traffic and reduce traffic on Cave Creek Road in the core activity areas.

CCP-3 Implement a permanent parking wayfinding signage program that will direct visitors to available parking areas as new parking facilities are developed,.

CCP-4 Promote a “Park Once” strategy for parking management during special events. This would essentially have all private business parking lots function as a common pool of event parking. Businesses should be discouraged from “restricting” parking to active patrons only. This will eliminate unnecessary traffic circulation caused by visitors searching for parking at each of the various venues.



Pedestrian Access

The highest pedestrian activity occurs along both sides of the street and generally between Spur Cross Road and Galloway Drive. During events pedestrians walk along the shoulders of the road.

There are two recommendations for pedestrian access (PA) in Cave Creek (please refer to **Figure 36** as appropriate, note that the recommendation may not be illustrated or may be conceptual):





- CCPA-1 Pedestrian provisions during special events need to include improved sidewalks/paths that are continuous, separated from vehicular traffic, and sufficiently lit for nighttime use. This is consistent with the study recommendations to further develop existing activity nodes.
- CCPA-2 Establish specific locations along Cave Creek Road where manual traffic control will be needed to facilitate left turn movements and/or allow for safe pedestrian crossings. The locations will be specific to each event.

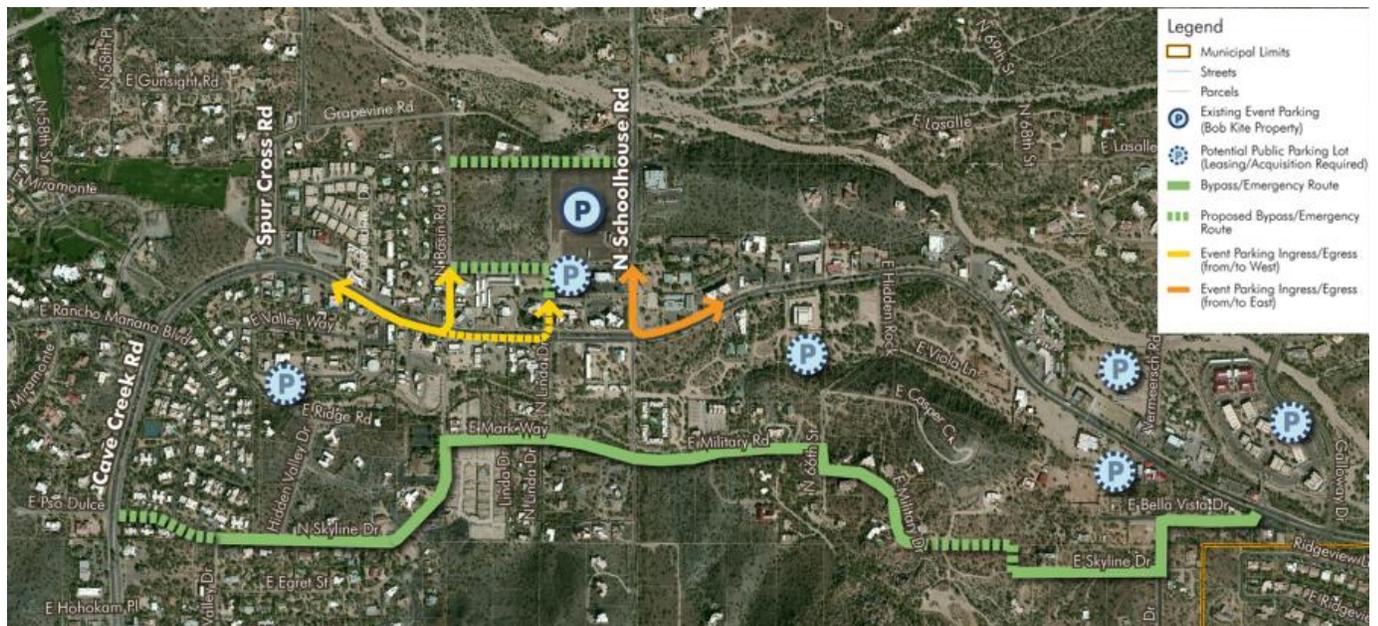
Shuttle Service

For many of the larger Town-sponsored and non-profit events, the Town makes arrangements to provide shuttle bus service for the events. In these cases, the free shuttle bus service operates between the Bob Kite property parking area and the event location.

There are two recommendations (please refer to **Figure 36** as appropriate, note that the recommendation may not be illustrated or may be conceptual) for shuttle services (SS) in Cave Creek:

- CCSS-1 Continue to offer shuttle service between parking areas and the event location and in the case of larger events, circulate shuttles along Cave Creek Road.
- CCSS-2 As changes are made to the cross-section of Cave Creek Road to incorporate pedestrian and bike amenities, consider the inclusion of shuttle stops that can be used during events.

Figure 36: Cave Creek Special Event Recommendations





Carefree

Traffic Access and Operations

Intersections that experience the most traffic congestion include Cave Creek Road/Tom Darlington Drive, Carefree Highway/Tom Darlington Drive and Cave Creek Road/Carefree Highway. During the Christmas Festival, immediately after the Christmas Parade, there was significant congestion along Tom Darlington Drive at Carefree Drive, Wampum Way and Ho Road. While there was manual traffic control positioned at the Carefree Drive and Wampum Way intersections, it seemed that the priority was being given to northbound and southbound traffic on Tom Darlington Drive rather than to traffic exiting the event.



There are two recommendations for traffic access and operations (TA) in Carefree (please refer to **Figure 37** as appropriate, note that the recommendation may not be illustrated or may be conceptual):

- CFTA-1 Manual traffic control procedures following the completion of an event such as the Christmas parade should allow for periodic clearing of traffic queues from westbound Wampum Way and Carefree Drive approaches. This should allow left turn movements to be made onto southbound Tom Darlington Drive by stopping northbound and southbound traffic just before it enters the traffic circles. This will eliminate out of direction travel and excess vehicular circulation.
- CFTA-2 Consider reducing portions of these two roads to two lanes and add parking and pedestrian/bicycle facilities on Tom Darlington Drive and Cave Creek Road. The four lane cross section is generally oversized for the volume of traffic that is served.

Parking

During events, attendees park in nearby public parking spaces mostly located along Easy Street, Ho Road, Hum Road, Sunshine Way, and Sundial Circle. Attendees also park in private parking lots that do not restrict parking such as the Basha's Shopping Center.

Event parking also occurs along the shoulders of Tom Darlington Drive (mostly between Cave Creek Road and Bloody Basin Road) and along Cave Creek Road (mostly between Scopa Trail and Bloody Basin Road). The lack of marked parking along these roadways results in less efficient parking since some cars park parallel to the road (instead of at an angle) and use more of the available space. After the Christmas Parade had finished, event visitors had difficulty walking safely back to their vehicles in the dark.

There are nine recommendations for parking (P) in Carefree (please refer to **Figure 37** as appropriate, note that the recommendation may not be illustrated or may be conceptual):

- CFP-1 Prohibit shoulder parking along Tom Darlington Drive south of North Bivouac Trail.
- CFP-2 Improve shoulder parking along Tom Darlington Drive between Bloody Basin Road and Cave Creek Road. Along the east side of Tom Darlington Drive, replace right turn bay approaching Hum Road with curb parking.
- CFP-3 Improve shoulder parking along Cave Creek Road between Tom Darlington Drive and Bloody Basin Road. Along the west side of Cave Creek Road, replace right turn bays with curb parking.



- CFP-4 Consider reducing portions of Tom Darlington Drive and Cave Creek Road to two lanes and add curb parking, sidewalks and bicycle facilities.
- CFP-5 Add on-street parking along the widened segments on the north side of Bloody Basin Road approaching the Basha's Center driveways.
- CFP-6 Promote a "Park Once" strategy for parking management during special events. This would essentially have all private business parking lots function as a common pool of event parking. Businesses should be discouraged from "restricting" parking to active patrons only. This will eliminate unnecessary traffic circulation caused by visitors searching for parking at each of the various venues.
- CFP-7 Verify the demand for accessible parking that is typically reserved for the larger events. It appeared that there was a substantial amount of parking set aside for this purpose. Signs that are used for these reserved areas should be updated from "Handicap Parking" to read "Accessible Parking."
- CFP-8 Consider setting aside a parking area for use during larger special events that would offer priority parking for visitors who carpool to the event. It is suggested that the definition of a carpool be either 4 or 5 persons per vehicle. The availability of this priority parking should be advertised in advance and be offered on a "first come/first serve" basis.
- CFP-9 Identify a suitable land parcel on the outskirts of the Town core for future public parking.

Pedestrian Access

A concern for pedestrian safety occurs along Tom Darlington Drive and Cave Creek Road. Since there are currently very limited pedestrian facilities along these roads event attendees walk along the shoulders of the road to and from the Town Center. The combination of occasional fast moving traffic and parking maneuvers creates an unfriendly and potentially dangerous environment for pedestrians.

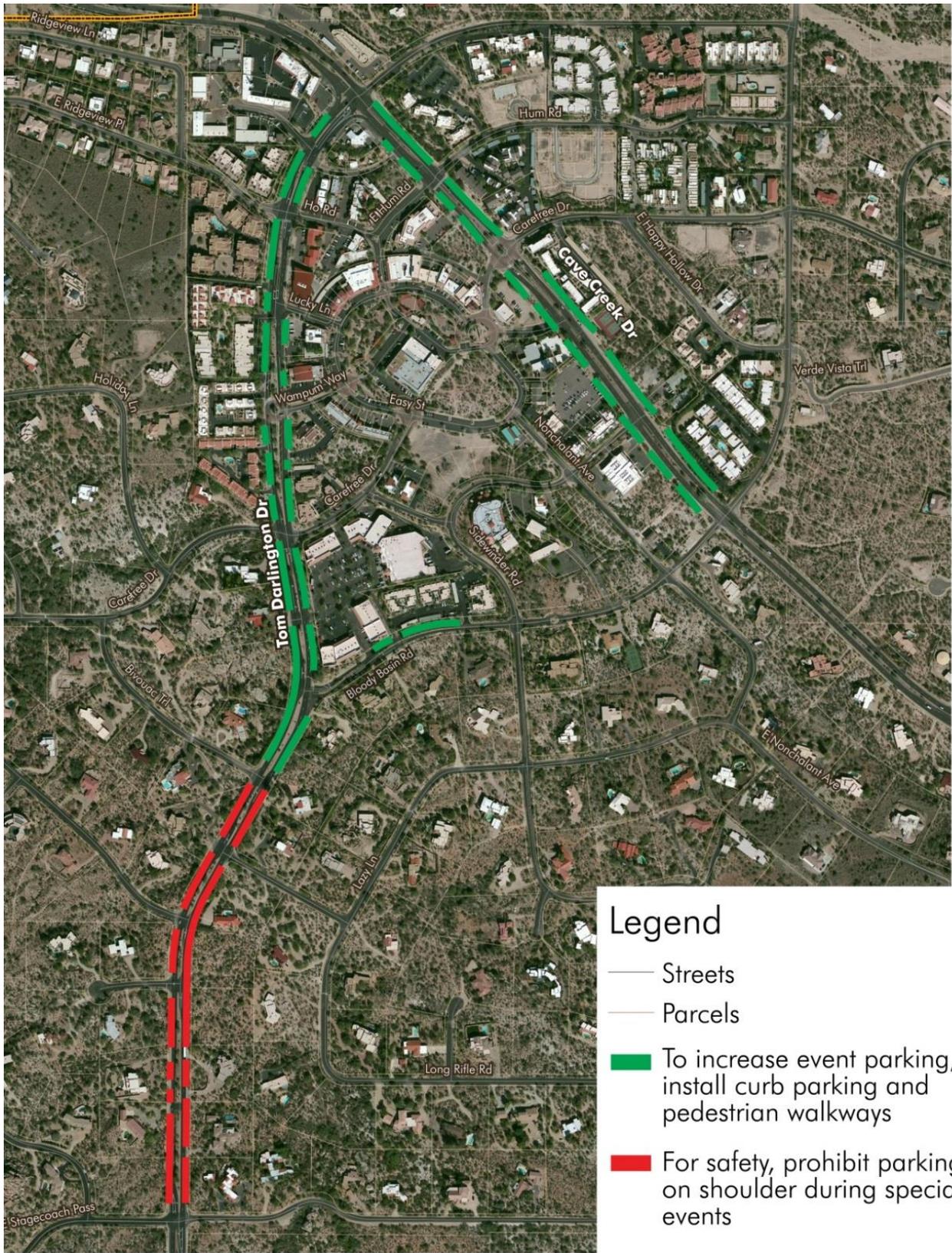
There are three recommendations for pedestrian access in Carefree (please refer to **Figure 37** as appropriate, note that the recommendation may not be illustrated or may be conceptual):

- CFPA-1 Prohibit shoulder parking along Tom Darlington Drive south of North Bivouac Trail. The lack of sidewalks and lighting represents a serious safety concern.
- CFPA-2 Consider reducing portions of Tom Darlington Drive and Cave Creek Road to two lanes and add sidewalks and bicycle facilities.
- CFPA-3 Provide low level lighting along new pedestrian facilities. Lighting systems that serve pedestrian facilities that are predominantly used during special events should be designed in a manner that they can be turned off during non-event periods.





Figure 37: Carefree Special Event Recommendations



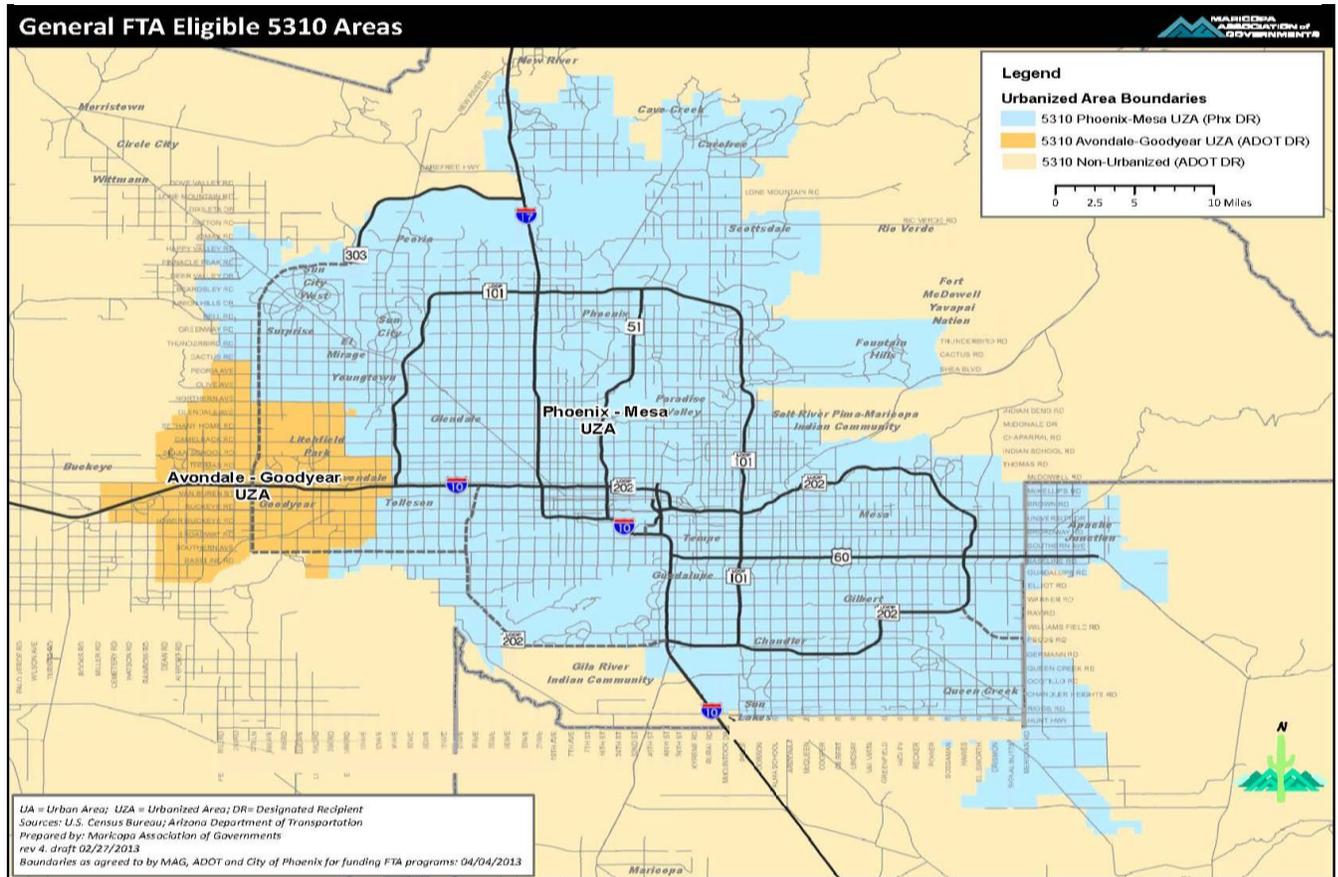


5. Transit

Transit Overview and Options

Cave Creek/Carefree is part of the Phoenix-Mesa UZA, as noted in **Figure 38**. The Phoenix-Mesa UZA is classified as an urbanized area with 1,000,000 or more in population and 5307 FTA funds that come to the region cannot be used to support operations. Funding can be used for capital expenses, technology,

Figure 38: Urban Areas for Federal Transit Funding



fleet, preventive maintenance, etc. The City of Phoenix is the Designated Grant Recipient for this area.

Public transportation solutions can be varied based on the needs or deficiencies in a community. This study has not necessarily focused on addressing transit, as it has not been identified as a need or a deficiency in this area. However, the non-profit transit service providers in the area do an excellent job to address alternative transportation options for those in need.

In particular, the Foothills Caring Corps (FCC) provides the bulk of those services today. Some key features that relate to the successful service include:

- FCC provides transportation for friendly visiting, shopping and medical
- FCC has obtained 5310 (FTA Awarded for elderly and disabled) grants for vehicles
- The Towns allocate their Arizona Lottery Funds to FCC





Areas that FCC needs to address:

- They see the people in need of service perhaps doubling every year
- Their ability to expand is limited by their volunteer driver pool; anecdotally, they oftentimes observe that last year's volunteer drivers become this year's customer
- Volunteer retention is a focus
- FCC has initiated discussions with Valley RideChoice. FCC would transport riders to Scottsdale where riders could then participate in the taxi voucher program

Addressing Seniors and People with Disabilities

It may be worthwhile in the future for the Towns to discuss participating in the Valley RideChoice program. Seniors and persons with disabilities can travel to their favorite destinations by taxi using a reloadable fare card. This new and improved program replaces Coupons for Cabs and Dialysis Vouchers. To qualify, the applicant must be 65 years of age or older or disabled. The RideChoice Fare Card allows customers to load value onto their card with a portion of the amount subsidized by the Town of residence (East Valley Cities subsidize 70% - 75% of the fare). Once approved, customers load money onto their RideChoice Fare Card and book their next trip with a participating taxi provider. The RideChoice Medical Trip Card provides dialysis patients with free rides to and from their home to the closest dialysis center. Depending on their city of residence, program participation may be limited.

There are four transit recommendations as follows:

TR-1 The Towns should continue their funding relationship with Foothills Caring Corps to provide transit services to seniors and persons with disabilities so long as Foothills Caring Corps is able to efficiently and effectively provide services.

TR-2 The Towns should continue to support the Foothills Caring Corps in their letter writing donation campaign and volunteer driver recruitment and retention.

TR-3 The Towns should pursue a transit study to better define transit needs and demand. The Maricopa Association of Governments and/or Valley Metro are the most likely organizations to fund and conduct such a study. Any required local funding should not detract from the current contributions to the Foothills Caring Corps.

TR-4 The Towns should encourage a consortium to evaluate and develop a seasonal shuttle to connect the local resorts and local businesses and possibly link to public transportation service in northern Phoenix and northern Scottsdale.

6. Bicycle Tourism

Bikenomics is being embraced by communities across the country to grow local economies by promoting tourism. Examples of bike tourism across the country include:

- Iowa - The registered annual great bicycle ride across Iowa, known as RAGBRAI is one of the oldest, largest and longest bicycle touring events in the world. For more than 39 years the seven-day event has followed a different route every year.
- Portland - A survey was conducted which found that 78 percent of visitors said that the city's bicycle-friendly reputation played a role in their decision to travel there.





- Wisconsin - Recently conducted an analysis that measured the economic value of bicycling at \$1.5 billion, with \$535 million being attributed to out-of-state visitors who probably would have spent their money elsewhere. Madison is one of the ten communities that earned a gold-level bicycle-friendly rating from the League of American Bicyclists.

The 2013 ADOT study “An Economic Impact Study of Bicycling in Arizona” focused on the contribution of out-of-state visitors to the Arizona Economy. The Study found:

- 14,000 bicyclists and 36,500 visitors are drawn to Arizona by 250 annual events
- The economic impact generates 404 jobs and \$30.6 million
- 39,000 Arizonans participate in the events in addition to the out-of-state visitors
- These figures do not include the bicyclist that visits Arizona independent of the organized events

Bicycle Tourism Recommendations

The economics of bicyclists passing through the Towns did not resonate with the business community; however, it was an important issue for other constituencies including some business owners. Plus, the Towns recognize the potential to develop “bikenomics” in the region. Cave Creek and Carefree are a bicycling tourism destination today and should take measures to strengthen and build upon that draw.

There are 10 recommendations that will assist the Towns to enhance their status as a bicycle tourism destination:

- BT-1 Assess the potential of bicycling in each Town by evaluating existing cycling assets, including the identification of scenic bikeway routes and trails, lodging, restaurants, public rest rooms, bicycling services, and dates of events and festivals.
- BT-2 Develop a promotional and communications strategy, which includes a website, use of social media and cross promotions with other organizations.
- BT-3 Create a route map and coordinate with the local chambers of commerce, Arizona Office of Tourism and cycling organizations to market the area to cyclists, which will help them find their way to destinations, services and activities within each Town.
- BT-4 Foster a bicycle friendly community by educating restaurant and shop owners to the economic benefits that cyclists provide to ensure a friendly rapport with these visitors.
- BT-5 Encourage restaurants, coffee shops and cafes to provide visible and safe bike parking and place signs that say “cyclists welcomed.”
- BT-6 Regularly maintain bike routes so that they are free from debris, potholes, obstructions, etc.
- BT-7 Collaborate with Phoenix and Scottsdale to define and connect the bicycle tourism corridors and create resources such as branded signage, cycling service maps, etc.
- BT-8 Create “Cyclists Welcomed” signage at community gateways and “Share the Road” signage to place along bike routes.
- BT-9 Stage and sponsor more bike races and cycling adventure events to attract riders, along with their families and friends.
- BT-10 Consider applying for a PeopleForBikes Community Grant Program to cover the cost of “end-of-trip” facilities such as bike racks, parking and storage.





7. Summary of Recommendations

Table 15 provides a summary of all recommendations in one location for easy reference.

Table 15: Summary of Recommendations

	Code	Recommendation
Nodes	N-1	One lane in each direction with a bike lane and sidewalk.
	N-2	An entry feature to provide a sense of arrival.
	N-3	Additional pedestrian and bicycle amenities.
	N-4	More business parking to promote parking once and walking around.
Corridors	C-1	Two lanes in each direction
	C-2	Bike lanes and sidewalks
	C-3	Raised and/or landscaped medians
	C-4	An optional shared-use path
	C-5	Additional crosswalks, traffic signals or other traffic devices
	C-6	Roadway safety and signage improvements
2035 Signalization		Carefree Hwy & 32nd St
		Cave Creek Rd & Tom Darlington Dr
		Cave Creek Rd & Spur Cross Rd
		Tom Darlington Dr & Stagecoach Pass
		Cave Creek Rd & School House Rd
		Cave Creek Rd & Pima Rd
Special Events - Cave Creek	CCTA-1	Adjust manual traffic control procedures to periodically clear queues.
	CCTA-2	Traffic signal at Cave Creek Road and School House Road.
	CCTA-3	Provide additional access to public parking areas.
	CCTA-4	Complete Skyline Drive and Military Road bypass route.
	CCP-1	New access road to the southwest corner of the Bob Kite property parking.
	CCP-2	Develop additional special event parking facilities in event corridor.
	CCP-3	Provide permanent parking wayfinding signage program.
	CCP-4	Promote "Park Once" parking management strategy during special events.
	CCPA-1	Improved sidewalks/paths use sufficiently lit for nighttime use.
	CCPA-2	Manual traffic control for safe pedestrian crossings and vehicle turning.
	CCSS-1	Continue shuttle service for larger events.
	CCSS-2	Develop shuttle stops that can be used during events.
Special Events - Carefree	CFTA-1	Adjust manual traffic control procedures to periodically clear queues.
	CFTA-2	Reduce Tom Darlington and Cave Creek to two lanes and add parking in Town Center Node.
	CFP-1	Prohibit parking along Tom Darlington Drive south of North Bivouac Trail.
	CFP-2	Improve shoulder parking along Tom Darlington between Bloody Basin and Cave Creek.
	CFP-3	Improve parking along Cave Creek Road between Tom Darlington and Bloody Basin Road.
	CFP-4	Reduce portions of Tom Darlington Drive and Cave Creek Road to two lanes and add curb parking, sidewalks and bicycle facilities.





Table 15: Summary of Recommendations

	Code	Recommendation
	CFP-5	Add on-street parking along the widened segments on the north side of Bloody Basin Road approaching the Basha’s Center driveways.
	CFP-6	Promote “Park Once” parking management strategy during special events.
	CFP-7	Verify the demand for/possibly reduce accessible parking for larger events.
	CFP-8	Designate carpool priority parking for larger events.
	CFP-9	Identify a suitable parcel for future public parking.
	CFPA-1	Prohibit parking along Tom Darlington Drive south of North Bivouac Trail.
	CFPA-2	Reduce portions of Tom Darlington Drive and Cave Creek Road to two lanes and add curb parking, sidewalks and bicycle facilities.
	CFPA-3	Provide low level lighting along new pedestrian facilities.
Transit	TR-1	Continue funding transit services for seniors and persons with disabilities.
	TR-2	Continue support for donation and volunteer driver recruitment campaign.
	TR-3	Pursue funding for a transit study to better define transit needs and demand.
	TR-4	Encourage a consortium to evaluate and develop a seasonal shuttle.
Bicycle Tourism	BT-1	Assess the potential of existing cycling assets.
	BT-2	Develop a promotional and communications strategy.
	BT-3	Create a route map to market the area to cyclists.
	BT-4	Foster a bike friendly community to maximize economic benefits of cycling.
	BT-5	Encourage local businesses to provide visible and safe bike parking.
	BT-6	Regularly maintain bike routes so they are free from debris, potholes, etc.
	BT-7	Collaborate with Phoenix and Scottsdale to define and connect the bicycle tourism corridors and create branded signage, cycling service maps, etc.
	BT-8	Place “Cyclists Welcomed” and “Share the Road” signage along bike routes.
	BT-9	Stage and sponsor more bike races and cycling adventure events.
	BT-10	Apply for a PeopleForBikes Community Grant for “end-of-trip” facilities such as bike racks, parking and storage.

C. Analysis of Recommendations

1. Evaluation of Recommendations

Table 16 provides an assessment of how well the study recommendations respond to the Key Issues identified during the Goals phase. A check indicates that the recommendation favorably addresses that particular key measure. The absence of any checks indicates that the recommendation is not responsive to stakeholder requirements. Multiple checks indicate that the recommendation is very responsive.





Table 16: Evaluation of Recommendations

Code	Description	Nodes	Corridors	Signals	Special Events	Transit	Bicycle Tourism
B-1	Improve Bicycle Connectivity	✓	✓		✓		✓
B-2	Improve Bicycle Environment	✓	✓				✓
E-1	Provide Equestrian Connections	✓	✓				
PK-1	Provide Additional Parking	✓			✓		
P-1	Improve Pedestrian Connectivity	✓	✓		✓		
P-2	Improve Pedestrian Safety	✓	✓	✓	✓		✓
P-3	Improve Pedestrian Comfort	✓	✓				
R-1	Redesign Roads to Reduce Driver Confusion	✓	✓	✓	✓		✓
R-2	Improve Safety by Reducing Speeds	✓		✓			
R-3	Maintain Existing Streets	✓	✓				✓
SP-1	Preserve and Enhance the Sense of Place	✓	✓		✓	✓	✓
SH-1	Provide Shuttle Service				✓	✓	
SE-1	Improve Special Event Parking						
T-1	Improve Senior and Disabled Transit					✓	

2. Evaluation of Level of Service

The recommendations include lane reductions to one lane per direction within the activity nodes. This evaluation assesses the performance of the laneage recommendations using procedures from the Highway Capacity Manual.

LOS - No Lane Reduction

The LOS for the roadway segments for Cave Creek Road and Tom Darlington Drive within the Town of Cave Creek and the Town of Carefree was evaluated using *Synchro* software. The 2035 roadway segments were analyzed assuming two-lanes throughout the corridor. The roadway segment LOS for Cave Creek Road and Tom Darlington Drive assuming two lanes throughout the corridor is shown in Table 17.

Table 17: 2035 Roadway Segment LOS with Two-Lanes Throughout Corridor

Roadway Segment		Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
From	To				
<i>EB Cave Creek Road</i>					
Long Rifle Rd	Spur Cross Rd	164.2	1.29	28.3	B
Spur Cross Rd	School House Rd	79.6	0.47	21.4	C
School House Rd	Tom Darlington Dr	158.9	1.29	29.1	B
<i>WB Cave Creek Road</i>					
Carefree Dr	Tom Darlington Dr	30.5	0.18	20.8	C
Tom Darlington Dr	School House Rd	166.1	1.29	27.9	B
School House Rd	Spur Cross Rd	78.0	0.47	21.8	C
<i>NB Tom Darlington Drive</i>					
Never Mind Trail	Cave Creek Rd	94.3	0.72	27.6	B





All roadway segments are anticipated to operate at an acceptable LOS during the PM peak hour in 2035 assuming two lanes in each direction.

LOS With Lane Reduction

The 2035 roadway segments were analyzed assuming a lane reduction, or road diet, between Hohokam Place and Skyline Drive, Spur Cross Road and School House Road and Hidden Rock Road and Vermeersch Road along Cave Creek Road and between Bloody Basin Road to Cave Creek Road along Tom Darlington Drive. The roadway segment LOS for Cave Creek Road and Tom Darlington Drive assuming the road diet is shown in Table 18.

Table 18: 2035 Roadway Segment LOS with Lane Reduction

Roadway Segment		Travel Time (sec)	Distance (mi)	Arterial Speed (mph)	Arterial LOS
From	To				
<i>EB Cave Creek Road</i>					
Carriage Dr	Spur Cross Rd	152.3	1.11	26.3	B
Spur Cross Rd	School House Rd	85.2	0.47	20.0	C
School House Rd	Tom Darlington Dr	160.8	1.29	28.8	B
<i>WB Cave Creek Road</i>					
Carefree Dr	Tom Darlington Dr	32.6	0.18	19.5	C
Tom Darlington Dr	School House Rd	175.3	1.29	26.4	B
School House Rd	Spur Cross Rd	102.2	0.47	16.6	D
<i>NB Tom Darlington Drive</i>					
Never Mind Trail	Cave Creek Rd	94.3	0.72	27.6	B

All roadway segments are anticipated to operate at an acceptable LOS during the PM peak hour in 2035 with the lane reduction. The westbound Cave Creek Road between School House Road and Spur Cross Road segment is anticipated to operate at a LOS D during the 2035 PM peak hour. It is common for roadway segments to operate at LOS D, as well as LOS E and LOS F, during the peak hour. However, this segment is anticipated to improve during the non-peak periods.





V. POLICIES AND STANDARDS

A. Existing Policies and Standards

Existing policies and standards:

The existing transportation design policies and standards for the Town of Cave Creek and the Town of Carefree are framed by local adopted guidelines, regional standards for Maricopa County, and national criteria. The local documents provide text on the sensitivity of the rural character and preservation of the natural environment. The regional and national documents do not provide a level of importance to these key project area concerns.

Comparison of current local, county, and state documents:

In comparison of existing policies and standards, a review of current design criteria has been analysed with the following results:

1. Town of Cave Creek

Town of Cave Creek – General Plan (2005)

The Town has expressed goals of maintaining the rural character and natural landscape within its community areas. Improvements to provide facilities for pedestrian, bike, and equestrian circulation are growth goals. A focus on multi-purpose non-vehicular circulation and connectivity to adjacent recreational areas is expressed in this Plan as a goal and objective. Additional parking facilities that are at or below grade are encouraged.

Town of Cave Creek – Town Core Plan Update (2012)

The Town Core Plan was revised in 2012 to identify the commercial district areas of the Town Core and the Carefree Highway areas. This update also addresses significant bikeway and pedestrian design goals.

Town of Cave Creek – Technical Design Guidelines for Landscaping

This document was reviewed as part of a complete streets approach to designing roadway facilities. It includes character and design criteria for medians and buffer areas adjacent to bicycle and pedestrian facilities.

Town of Cave Creek – Technical Design Guidelines for Trails

The goal of this guide is to develop an interconnecting, non-paved network for recreation and transportation. Within this section, a bike lane is defined as a 5.5 foot wide lane separated by a painted pavement stripe. Pathways are defined to include on street bikeways and equestrian use. Design criteria is provided for six trail types and crossing conditions (over / under/ and at-grade). A trails master plan is also provided within this guide.

Town of Cave Creek – Technical Design Guidelines for Transportation

The purpose of the Town's technical transportation guidelines is to establish a minimum set of guidelines for design of roadways in the jurisdiction of the Town of Cave Creek. Design criteria for several items are specified in these transportation guidelines and will guide the future design of bicycle lane projects along Cave Creek





Road. Standard specifications and details have been adopted per the MAG Uniform Standard Specifications and Details as well as the MCDOT supplements.

Town of Cave Creek – Sustainability Action Plan (2009)

The Town of Cave Creek has adopted a green design approach to its community and has established a sustainability action plan. This plan gives direction on developing for low impact on the environment and promoting the use of natural systems and green building materials and techniques.

Town of Carefree

Town of Carefree – Zoning Ordinance (2010)

The Town of Cave Creek has adopted design criteria within the community zoning ordinance. Parking criteria is identified within Article VII (7) of this document. Landscaping, including sight visibility policies, is identified within Article IX (9) at Section 9.13.

Town of Carefree – General Plan 2030 (2012)

The Town of Carefree has adopted design criteria within the General Plan for 2030. Circulation elements are described within chapter 4 of this document. Specific criteria and goals are established within this chapter that include connectivity to the Regional Transportation System, Existing Town streets evaluation, description of goals-objectives-policies, and design standards focused on traffic, pedestrian, and bicycle environments. The circulation element describes growth improvements to Carefree Highway and Pima Road as part of the regional transportation system to provide better access to the loop 101 and I-17 freeways; both are located 10 miles away from the town.

Pedestrian / Hiking / Bicycle trails are described within chapter 4 and indicates a history of partnering with the Desert Foothills Land Trust (local non-profit organization) in the development and management of trails. Informal trails exist within area wash corridors and along arterial, collector, and local streets. Pedestrian crossings and circulation is described as features of the Town Center area. Under the Goals and Objectives of the General Plan, Carefree states that it will utilize nationally recognized studies, policies and guidelines that are prepared and supported by MAG – Maricopa Association of Governments. A long range plan for developing biking and hiking trails and paths is a key goal for Carefree. Arterial roadways are the biking primary circulation corridors proposed. Design standards for multi-use paths will be based upon MAG standards.

2. Maricopa Association of Governments

MAG Pedestrian Policies and Design Guidelines (2005)

The MAG document is intended to provide a source of information and design guidance to support walking as an alternative transportation mode by providing a policy to make all pedestrian areas and facilities safe, comfortable, and a destination for people who use them. The intent is to use this document as a resource and provide a “safe” ADA complaint facility throughout the entire project.

MAG Pedestrian Plan (2000)

The MAG document describes several goals and objectives that describe best practices on developing safe pedestrian environments in the MAG region. This document promotes pedestrian facilities development and encourages walkability as a mode of transit. The goals include providing networks that create safe on and off





street linkages. The Plan uses a “Latent Demand” model for forecasting need of pedestrian linkages for circulation and recreation.

MAG Complete Streets Design Guide (2011)

The MAG document is a resource for ensuring that facilities for bicycles, pedestrians and transit are recognized as integral to a properly designed and functioning street. The techniques to be utilized for this project are as follows: provide a dedicated pedestrian facility (Technique 1), provide pedestrian refuges when signal timing cannot be adjusted to safe levels for pedestrians (Technique 2) and provide dedicated bicycle path along Cave Creek (Technique 4).

MAG Regional Off-Street System Plan (2001)

The MAG document reveals a region-wide system of off-street paths/trails for non-motorized transportation. Although it is not proposed for the project due to right of way constraints, there are a few locations along the project corridor as defined on the “Potential Corridors Map” which could allow off-street path/trail connections but would require the Towns to purchase land from existing owners and require wash improvements to allow a traversable path. This option could be expensive but could be considered in the development stages if more funding would become available.

3. Maricopa County Department of Transportation

MCDOT Roadway Design Manual (12/28/11)

The purpose of the MCDOT Roadway Design Manual is to standardize roadway design elements where necessary for consistency and to ensure, as far as is practical, that minimum requirements are met for safety, welfare, convenience, pleasant appearance, environmental sensitivity and economical maintenance.

MCDOT Traffic Sign Manual (undated)

This manual contains illustrations of signs approved for use on the Maricopa County Highway and Road System. All signs are to be in conformance to the MUTCD.

MCDOT Pavement Marking Manual (7/8/05)

The purpose of the MCDOT Pavement Marking Manual is to illustrate pavement markings approved for use on the Maricopa County Highway and Road System with the intent of establishing standard details for use by County personnel and contractors when laying out pavement markings or preparing engineering plans. All pavement markings are to be in conformance to the MUTCD.

4. National Policies and Standards

Americans with Disabilities Act (ADA) Standards for Accessible Design (2010)

The Standards for ADA Design was revised in 2010 and made to be in compliance in March of 2012. The previous version was dated 1991. This reference provides minimum standards for providing access to public areas for Americans with disabilities. It describes distances, measurements, and grades to meet the health, safety, and welfare needs of physically challenged people.

Manual on Uniform Traffic Control Devices (“MUTCD”, 2009 Edition) and Arizona Supplement to the 2009 MUTCD (1/12)





The MUTCD is an industry reference issued by the Federal Highway Administration to specify the national standards by which traffic signs, road surface markings, and signals are designed, installed, and used. Arizona adopted a supplement to the 2009 Federal MUTCD in 2012.

American Association of State Highway and Transportation Officials (AASHTO) Roadside Design Guide (6th Edition, 2011)

This reference is commonly known in the transportation industry as the AASHTO “Green Book”. The purpose of the Green Book is to provide guidance on the functional design of roads and highways including the layout of intersections, horizontal curves and vertical curves by recommending ranges of values for critical dimensions.

AASHTO A Policy on Geometric Design of Highways and Streets, 6th Edition (2011)

This reference provides guidance on acceptable sight distance for vehicles traveling along a roadway based on the width of the road and the speed of the vehicle.

AASHTO Guide for the Development of Bicycle Facilities (1999)

The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities is a reference manual that addresses issues and clarifies elements needed to make bicycling a viable transportation alternative for recreation or mode of transit.

5. Discrepant Policies and Gaps

No significant disparity of policies is found. A minor deficiency in design policies relating to rural character needs and in sensitivity to the natural environment and landscape exists at the regional and national levels. Some of the design features proposed under the Nodes and Corridors concept do not exist within current policies.

The Town of Carefree includes in the General Plan 2030 goals and objectives, but does not identify how those goals will be implemented and when. The General Plan does not document what those facilities look like or what how they are to be constructed.

The Town of Cave Creek has a dedicated Technical Design Guideline for Trails, Landscaping, and Transportation. These documents summarize policy and design requirements. They include performance standards and minimums for design, but do not include construction details. The transportation document does include several typical cross-sections and exhibits for illustrating concepts. The General Plan includes a circulation element that describes and identifies the roadway categories within the Town of Cave Creek. This General Plan identifies a lack of public parking spaces. The General Plan includes goals and objectives, but does not identify how those goals will be implemented and when. The General Plan does not document what those facilities look like or what how they are to be constructed.

B. Modifications or New Standards

Both communities share a passion for the natural environment and desert character that sets these Towns apart from other municipalities in the valley. Some of these shared ideals can be developed into a common design policy for bicycle (on and off road networks), pedestrian (hard and soft path circulation), and multi-modal (including equestrian) design.





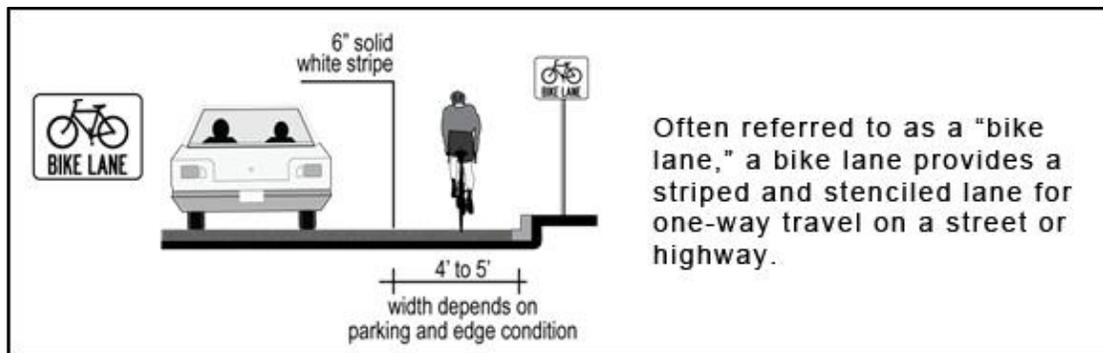
- Amendments to the General Plan and Zoning Ordinances of each community are recommended to include bicycle parking requirements for future developments.
- Requirements for community circulation connections should also be added to Ordinances as part of future development.
- An overall program for design and maintenance of these facilities needs to be developed.

A uniform guideline for multi-modal infrastructure design and maintenance is recommended to achieve a consistent environment within the region. Within this guideline, differences in specific design details can remain intact for the Town of Cave Creek and the Town of Carefree. This document package should include a narrative on the goals and design context for the following features.

Bike Lanes

Bike lanes provide a dedicated portion of the roadway designated by striping, signing, and pavement markings for one-way bike travel. Can be buffered; see below. Some bicycle maps will identify grade and corresponding traffic volumes along bike lanes to convey to cyclists the potential level of difficulty or stress associated with riding those bike lanes. Six-foot, concrete bike lanes (five-foot minimum) are preferred for Cave Creek and Carefree.

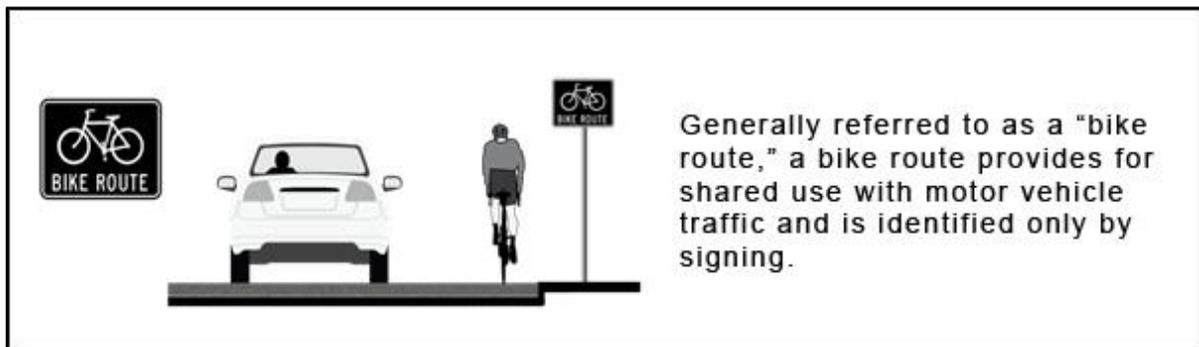
Typical Bike Lane Cross-section



Bike Route/Sharrows

A preferred travel route for bicyclists, on which a separate lane or path is either not feasible or not desirable. The rightmost lane of a bicycle route is shared by bicyclists and cars. The route is marked with signs and can also be marked with sharrows. Sharrows (Shared Lane Marking) are defined in the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) (2009 Edition).

Typical Bike Route Cross-section

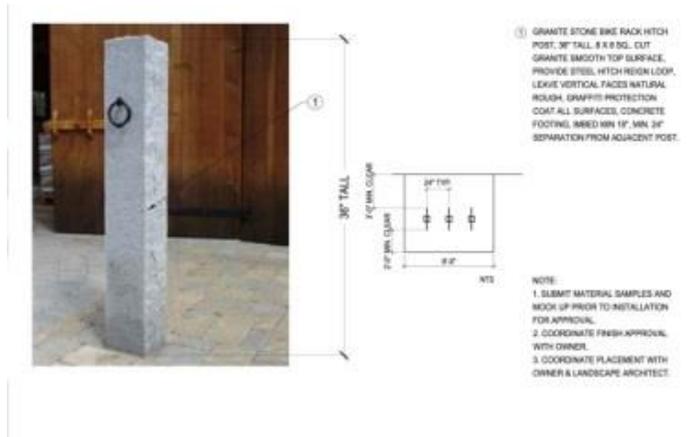




Bike staging and destination facilities (site amenities)

Staging areas for bike users should occur at locations where parking is available and where connections to paths and trails are nearby. Staging can occur within nodes, at interface points along corridors, or at convergence points of transportation and recreation networks. Facilities for these staging areas should meet the needs of the user groups and have a scale of amenities proportionate to the scale of parking available for users. Site amenities for these areas are to include bike racks and possibly bike lockers for commercial destinations for potential commuters.

Seating opportunities, shade (organic or inorganic), and wayfinding signage are essential to staging and destination facilities. When possible, drinking fountains, lighting, and power charging stations are preferred. All amenities are required to be ADA compliant with site amenity design and placement.



Bike Trails

Trails for off road network design are defined in the local Cave Creek Design standards and in regional MAG standards. All trail design must comply with the AASHTO Guide for the Development of Bicycle Facilities (2012 or current). Trail markings and signage design is to be consistent with MUTCD – Manual on Uniform Traffic Control Devices criteria.



As part of the Technical Design Guidelines for the Town of Cave Creek, a section is dedicated to address trail design within public areas. The goal of this guide is to develop an interconnecting, non-paved network for recreation and transportation. Within this section, a bike lane is defined as a 5.5 foot wide lane separated by a painted pavement stripe. Pathways are defined to include on street bikeways and equestrian use. Design criteria is provided for six trail types and crossing conditions (over / under/ and at-grade). A trails master plan

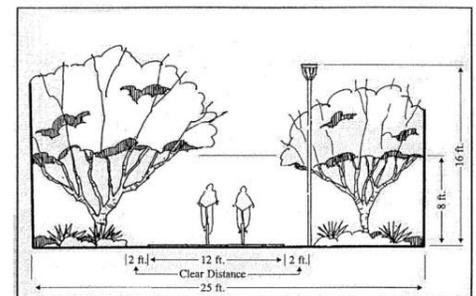


Figure 7-11: Recommended Path/Trail Section, Provided by the Tempe Multi-Use Path System Detailed Plan.

is also provided within this guide. It is recommended for Carefree to develop and adopt a similar Guideline and a Master Plan of future trails networks that connect to regional systems.

The MAG Regional Off-Street System Plan (2001) includes recommendations for creating non-motorized paths and trails and should be used as a reference for the development of facilities and infrastructure. New linkages and connections within the study area must consider context sensitive solutions by using materials that are complementary to the local environment. Reuse of existing materials and salvaging of native plants should also be considered for new trail development.



Pedestrian Connectors and Walks (Hard and Soft surfaces)

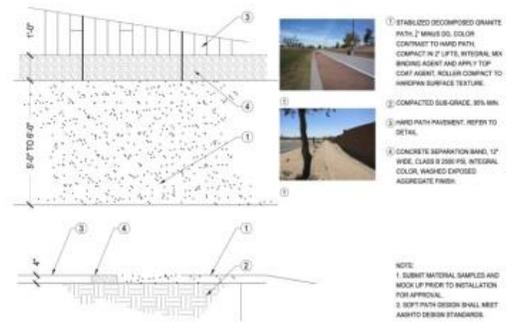
Non-motorized circulation within the study area requires ADA compliant paths to provide connectivity to destinations and offer an alternate mode of transit for short distance trips. Connectors and Walks may include both hard (permanent pavements) and soft (aggregate or structured soils) material paths. Path locations, user types, and character of land use will support where the hard and soft materials are most appropriate.

Connectors are multi-purpose paths that serve several user types such as recreational, pedestrian, off-roadway cyclists, equestrian, and non-motorized wheeled traffic. These facilities are typically located in a more rural / less dense population area. Connectors provide linkages between destination areas. Site amenities and furnishings are infrequent within connector corridors, and are limited to trailheads, node interface areas, or at destinations. These facilities can be hard or soft materials or a combination of both. Width of connectors is between 8-16 feet and can



offer parallel networks of paths for different users.

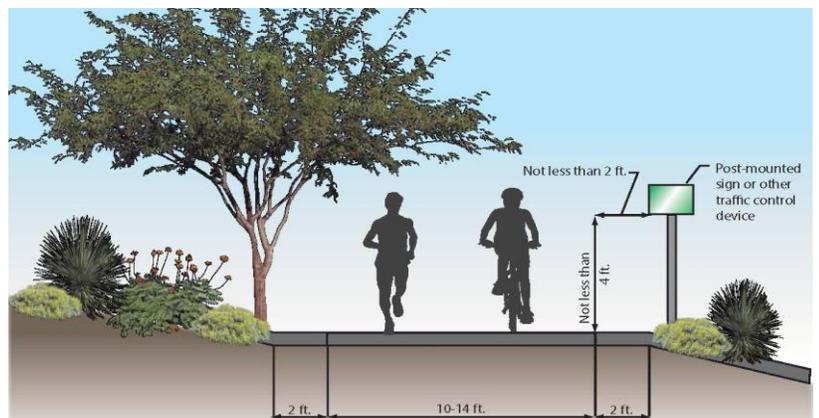
Walks are primarily pedestrian only and serve to circulate within destination areas. Walks are found in areas of denser activity and commercial zones or nodes. These facilities are generally all hard path materials, but offer more site amenities and furnishings than Connectors.



Shared Use Paths

Shared use paths provide for bicycle travel on a paved right-of-way completely separated from a street or highway and are often planned along uninterrupted linear rights-of-way, such as rivers, channels, and rail rights-of-way. A shared use path may be used by cyclists, pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. Compliance with the Americans with Disabilities Act (ADA) is required for shared use paths since they are accessible by pedestrians. Ten feet is the minimally accepted width for a paved, two-directional shared use path but widths typically vary from 10-feet to 14-feet depending on the mix and volumes of path users. Eight-feet wide is the minimum acceptable with a 4-foot landscaped buffer.

Typical Shared Use Path





Pedestrian comfort nodes and destination facilities (site amenities)

Comfort nodes are unique to the site conditions in which they are located and the space available to locate facilities within. Comfort nodes should be limited to locations within Node districts and be spaced at a ¼ mile or 10 minute walk spacing. The MAG Policies and Design Guidelines (2005) offer a source of information and design guidance to support walking as an alternative transportation mode by providing a policy to make all pedestrian areas and facilities safe, comfortable, and a destination for people who use them. MAG also offers a Pedestrian Plan (2000) that identifies a source of information and design guidance to support walking as an alternative transportation mode by providing a policy to make all pedestrian areas and facilities safe, comfortable, and a destination for people who use them. Although there are specific design guidelines listed in this document, not every guideline can be achieved due to site constraints.



- ① GRANITE STONE BENCH, CUT GRANITE SMOOTH TOP SURFACE, NOTCH 12" EVERY 24" FOR SKATEBOARD DETERRENT. LEAVE VERTICAL FACES NATURAL ROUGH, GRANITE PROTECTION COAT ALL SURFACES, 12" LENGTH.

24" TALL

- NOTE:
1. SUBMIT MATERIAL SAMPLES AND MOCK UP PRIOR TO INSTALLATION FOR APPROVAL.
 2. COORDINATE FINISH APPROVAL WITH OWNER.
 3. COORDINATE PLACEMENT WITH OWNER & LANDSCAPE ARCHITECT.



- ① RUSTED STEEL SQUARE LITTER BIN, WITH CONCRETE FOOTING, BRASS MOUNTING, 36" TALL, 30 GAL. WASTE LINER, REMOVABLE STEEL LID WITH 12" OPENING.

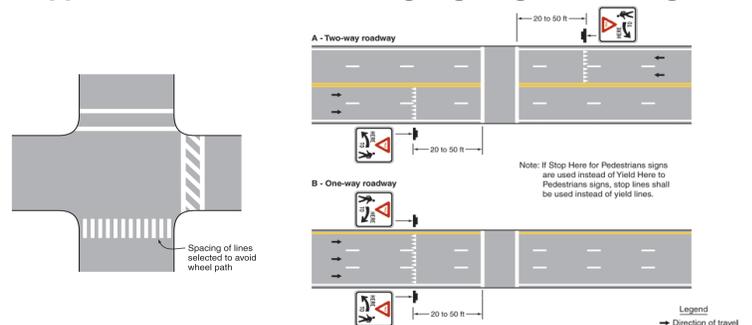
- NOTE:
1. SUBMIT MATERIAL SAMPLES AND MOCK UP PRIOR TO INSTALLATION FOR APPROVAL.
 2. COORDINATE FINISH APPROVAL WITH OWNER.
 3. LITTER FRAME TO HAVE NO SHARP EDGES.
 4. APPLY 2 COATS OF CLEAR SEALANT TO FINISH.

Node composition should include shade as the highest priority to provide user comfort and encourage activity. Nodes should also provide amenities for staging, orientation, and temporary relief from the elements. This includes seating opportunities, site furnishings for litter/recycle, bicycle storage and securing, safety lighting, safety crash rated bollards, enhanced pavements, and when water is available, drinking fountains.

Crosswalks

Crosswalk markings provide guidance to pedestrians who are crossing roadways by delineating paths to and within signalized intersections. In conjunction with signs and other measures, crosswalk markings help to alert road users of a designated pedestrian crossing point across roadways at locations that are not controlled by traffic control signals or STOP or YIELD signs. At non-intersection locations, crosswalk markings legally establish the crosswalk. For approaching vehicles, appropriate pedestrian/bicycle crossing warning signage such as MUTCD W-11-2, W-11-15 or W-11-15P for vehicle approaches at intersections should be considered. Examples of typical signing and pavement markings are shown below.

Typical Pedestrian Crossing Signing & Marking



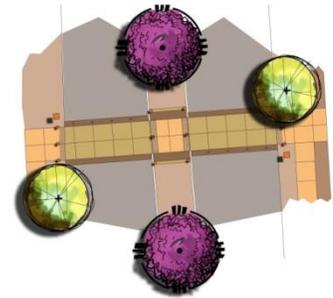
Source: MUTCD





Mid-Block Crossings

Crossings for at-grade locations within the study area are recommended to include a standard configuration so that users are familiar with these features. Further study is necessary to identify specific locations through traffic planning and analysis. Consistent features of crossings should include specialty pavement for crosswalks, imbedded (lighted) flashers for driver awareness, roadside signage, mid-road refuge areas, and when warranted, activation signals.



Wayfinding Signage and Features

Wayfinding elements can be as obvious as monument, destination-arrival, directional, or area map signs. Wayfinding elements can be as subdued as consistent material finishes, imbedded information in pavements and features, or patterns within site materials. A recommended signage package for wayfinding elements, both obvious and subdued, should include context sensitive material choices that complement the character of the region. Weathered and natural materials are an appropriate material finish. Signage within the roadway must meet the sight visibility requirements of both Cave Creek and Carefree. Signage must also be compliant with MUTCD standards. Due to limited lighting and dark sky sensitivity of the area, lighting for signage is essential.

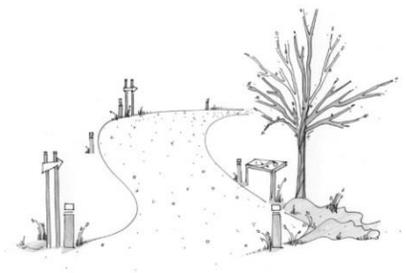


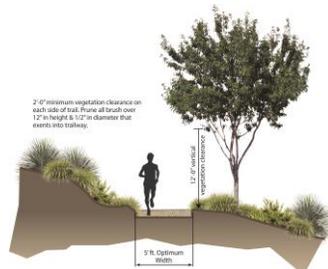
Figure 1-6: A User-Friendly Path/Trail.

Trails

Multipurpose trails are off-road trails, typically unpaved that are intended for use by pedestrians, bicyclists or equestrian users. Multipurpose trails typically are set back from formal roadway facilities and often utilize natural and manmade features such as washes, rivers or utility corridors for recreational use. The Anza Trail is an example of a multipurpose trail in Rio Rico. There is no “one size fits all” approach when designing multipurpose trails as their design is highly influenced by local conditions including topography, physical impediments, and availability of right-of-way or easements.



Typical Multipurpose Trail

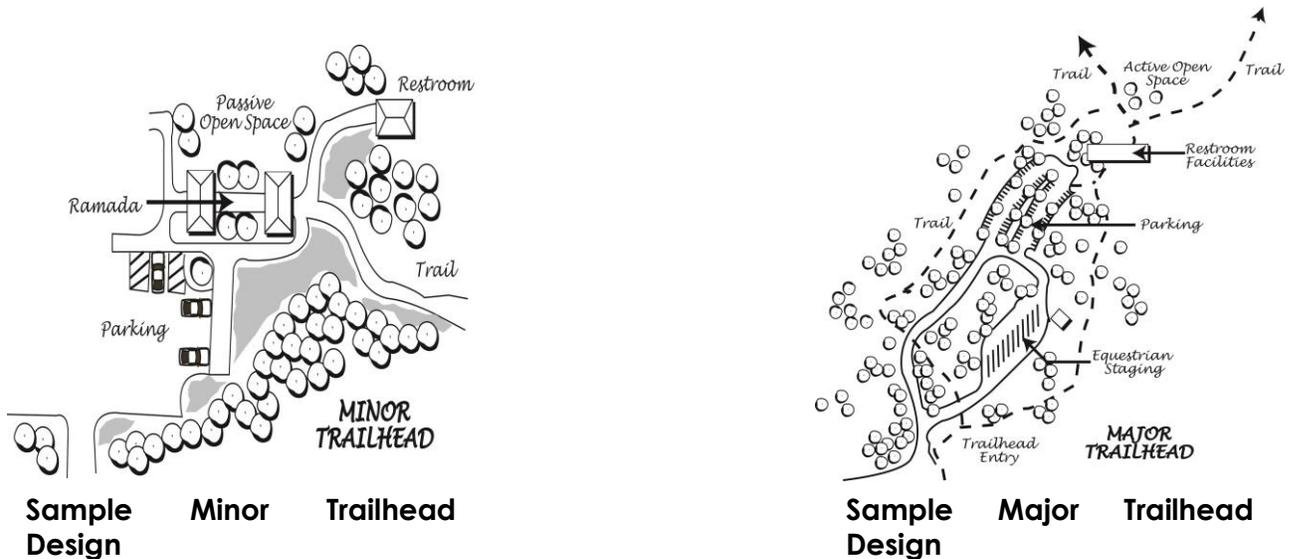




Trailheads

Trailheads are staging areas at the point at which a path, usually intended primarily or solely for walking/hiking and/or equestrian traffic, begins. While there is no universal set of trailhead design standards, there are typically two trailhead types: major and minor.

Major trailheads are larger in size, located at significant destination points and often designed to accommodate equestrian users. Minor trailheads are typically located in connection with another community facility such as a park or community center that serve as a staging area to an adjacent trail or may serve as a standalone staging area to a popular trail destination.



Trail and/or equestrian staging and destination features (site amenities)

Typical amenities often associated with a major trailhead design include:

- Equestrian parking (gravel or decomposed granite surfacing) to accommodate large trailers and queuing space. The preferred parking space dimension is 15' wide by 70' long.
- Equestrian parking area design should allow the equestrian user the opportunity to enter and leave the trailhead (pull-through) without having to back-up or reverse the trailers.
- Standard parking (30-100 spaces)
- Ordinary mounting blocks, stumps or stones
- Drinking water source/water trough (for horses)
- Tether area
- Concrete bunker for manure disposal
- Picnic tables (2-4)
- Ramadas (2-4)
- Restrooms
- Separate parking and staging areas for non-equestrian users
- Garbage containers (2-3)
- Bench seating (2-3)
- Kiosk with trail maps and interpretive information
- Trail signage clearly marked
- Dusk-to-dawn lighting



Features commonly associated with a minor trailhead include:

- Standard parking (10-30 spaces)
- Drinking water source
- Picnic tables (1-2)
- Ramadas (1-2)
- Restrooms
- Garbage containers (1-2)
- Bench seating (1-2)
- Kiosk with trailing maps and interpretive information
- Trail signage clearly marked
- Dusk-to-dawn lighting

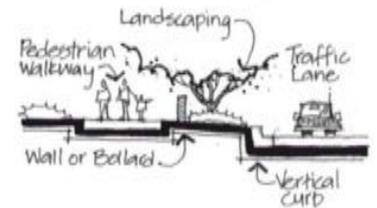
Landscape Buffers

Buffers provide several benefits to the transportation environment. Landscape buffers within corridors offer separation between motorized traffic and non-motorized traffic. This separation distance is recommended to be a minimum of 5 feet from pavement to pavement. Landscaping can offer a benefit as a vegetation barrier for safety, a sound barrier, and as a comfort measure for non-motorized users. Landscape materials also reduce the urban heat island generated by roadway pavements. Landscape buffers also offer visual screening from residential neighborhoods, and enrich vistas and view corridors found within this project area's native environments.

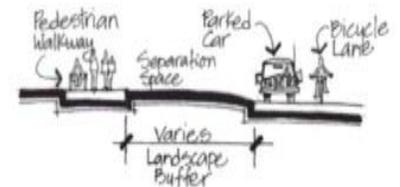
Buffers of 5 feet width or more can sustain native trees to promote shade, screen development, and offer organic safety barriers. Buffers should include a mix of local native trees, accents, shrubs, cacti, and groundcovers. Density of plantings and spacing is intended to blend with the adjacent native environment. In developed areas, this mix should follow current development standards adopted by the Towns of Cave Creek and Carefree.

Safety features (lighting and barriers)

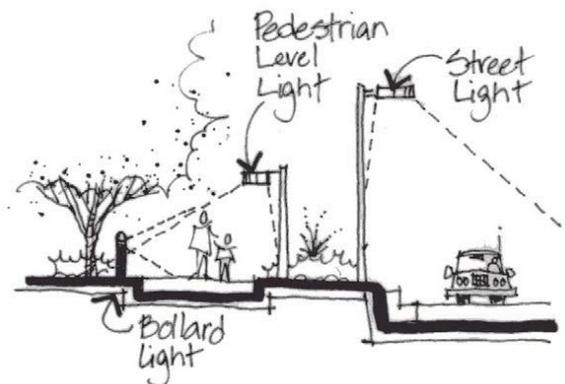
Pedestrian level lighting can be provided by bollard lights or by 10-foot to 15-poles (street lights are approximately 35-foot tall). A minimum of 1 footcandle from grade to 5 feet above the walking surface is typical between sunset and sunrise at intersections, crosswalks and other potential conflict points.



Types of vertical separation.



Types of horizontal separation.

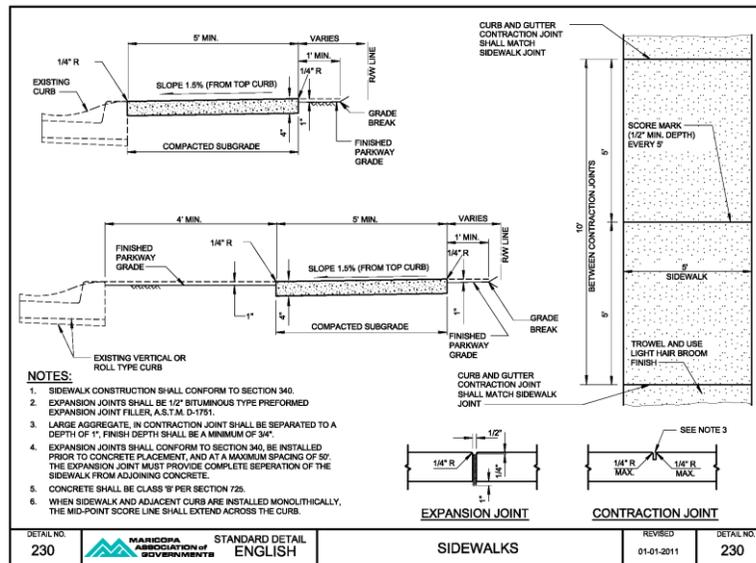


Source: MAG Pedestrian Policies Design Guidelines



Sidewalks

Sidewalks generally provide the greatest degree of comfort for pedestrians when pedestrian use is found in close proximity to a roadway facility. Generally, sidewalks are preferred in residential communities with an average lot size of 12,000 square feet or smaller. The population densities and vehicle trips generated in higher density subdivisions warrant the application of sidewalks to safely segregate the pedestrian from vehicular traffic. MAG Standard Detail 230 calls for a 5-foot sidewalk width, however in areas where heavy pedestrian activity is anticipated, a six foot width is preferred. The minimum acceptable width of sidewalk for short distances is four feet.



MAG Std. Detail 230

Signage

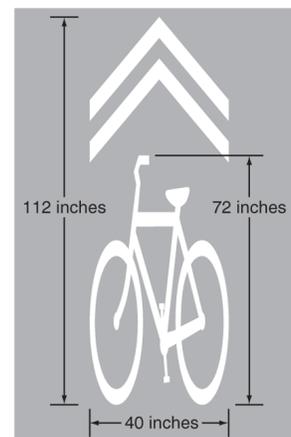
All signage must comply with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD). The minimum number of signs adequate to communicate the intended message is desirable in order to prevent information overload. Examples of bicycle signage are shown below.



OR



Typical Bike Route Pavement Marking



Source: MUTCD



VI. FINANCIAL ANALYSIS

A. Estimate of Costs

1. Corridors

There are approximately 14.5 miles of roadway improvements and 3.7 miles of interim improvements totaling just over \$25M and \$2.5M in estimated improvement costs respectively. The estimates include construction, design and construction management as well as a 25% contingency but do not include right-of-way costs.

CORRIDORS	
Carefree Highway	
interim: Cave Creek Road to Tom Darlington Drive	\$1,678,600
west of Cave Creek Road	\$9,082,800
Cave Creek Road to Tom Darlington Drive	\$3,073,800
Total Interim Carefree Highway	\$1,678,600
Total Ultimate Carefree Highway	\$12,156,600
Cave Creek Road	
south of Carefree Highway	\$1,243,200
Gateway District to Civic District	\$1,904,600
Civic District to Shopping District	\$354,200
Shopping District to Entertainment District	\$277,200
Entertainment District to Town Center District	\$400,400
Town Center District to Carefree east Town boundary	\$2,719,200
Total Cave Creek Road	\$6,898,800
Tom Darlington Drive	
Carefree Highway to Town Center District	
Total Tom Darlington Drive	\$1,196,580
Westland Road	
82nd Street to Pima Road	\$922,040
Total Westland Road	\$922,040
Pima Road	
interim: Westland Road to Stagecoach Pass Road	\$711,000
interim: Stagecoach Pass Road to Cave Creek Road	\$138,600
Westland Road to Hawksnest Road	\$2,156,600
Hawksnest Road to Stagecoach Pass Road	\$1,420,320
Stagecoach Pass Road to Cave Creek Road	\$484,200
Total Interim Pima Road	\$849,600
Total Ultimate Pima Road	\$4,061,120
TOTAL INTERIM CORRIDORS	\$2,528,200
TOTAL ULTIMATE CORRIDORS	\$25,235,140





2. Activity Nodes

There are five activity nodes identified in the study area with an estimated improvement cost of \$7.8M. The estimates include construction, design and construction management as well as a 25% contingency. The estimates do not include right-of-way costs.

ACTIVITY NODES	
Gateway District	\$709,388
Civic District	\$1,180,888
Shopping District	\$1,733,894
Entertainment District	\$1,424,700
Town Center District	\$2,752,288
TOTAL ACTIVITY NODES	\$7,801,158

3. Signalized Intersections

There are six intersections that are predicted to meet traffic warrants for signalization by 2035. The estimated total improvement cost for the signalization is \$1.5M. The estimates include construction, design and construction management and a contingency. The estimates do not include right-of-way costs.

SIGNALIZED INTERSECTIONS	
Carefree Highway at 32nd Street	\$250,000
Cave Creek Road at Spur Cross Road	\$250,000
Cave Creek Road at School House Road	\$250,000
Cave Creek Road at Tom Darlington Drive	\$250,000
Cave Creek Road at Pima Road	\$250,000
Tom Darlington Drive at Stagecoach Pass Road	\$250,000

4. Special Event Traffic and Parking

The following estimate for Special Event Traffic and Parking assumes 5,000 feet of Cave Creek Road Bypass paving and 1,200 feet of 20-foot wide paving for supplemental access to the Bob Kite property. The estimates include construction, design and construction management and a contingency. The estimates do not include right-of-way costs.

SPECIAL EVENT TRAFFIC AND PARKING	
Cave Creek Road Bypass	\$533,333
Bob Kite Property Supplemental Access	\$128,000
TOTAL SPECIAL EVENT TRAFFIC AND PARKING	\$661,333

Additional recommendations for Special Event Traffic and Parking are primarily related to manual traffic control and additional parking. Costs for Maricopa County Sheriff’s Office personnel and for property acquisition are not estimated.





5. Transit

The Transit recommendations include:

- Funding for seniors and persons with disabilities (currently through Foothills Caring Corps)
- Conduct a transit study
- Encourage a consortium of stakeholders to develop a seasonal shuttle service

Valley Metro recently conducted separate transit analyses for Fountain Hills and Queen Creek with costs of approximately \$50,000 each. Cave Creek and Carefree could anticipate a similar cost for a comparable study. This framework study did not develop specific transit service recommendations or estimates of costs for senior/disabled transit or for a seasonal shuttle.

6. Bicycle Tourism

The Bicycle Tourism recommendations include:

- Inventory of cycling assets
- Develop and implement a Promotional and Communications Strategy
- Create and publicize a bicycle route map
- Foster a bicycle friendly community through an education campaign
- Install bicycling signage
- Stage and sponsor bike races and cycling adventure events

This framework study did not develop specific estimates of costs for the bicycle tourism recommendations; however, \$50,000 would be an order of magnitude amount for an assets inventory combined with development of a promotional/communications and education campaign and bike map.

B. Funding

1. Overview

There are several federal, state, local, and private funding sources to consider for the implementation of the Transportation Framework Study. For Cave Creek and Carefree in the MAG region, the most probable funding sources are:

- Federal or Regional funding programmed through MAG
- Local funding
- Private funding

2. Federal or Regional Funds Programmed through MAG

There are several sources of transportation funding that MAG administers for its member agencies. So that its management of the funds is transparent to all, MAG annually publishes a Transportation Programming Guidebook. The current Fiscal Year 2015 Guidebook, published in September 2014, can be found at:





http://www.azmag.gov/Documents/TIP_2014-09-08_ModalApps_Sept-2015-Transportation-Programming-Guidebook.pdf

The guidebook provides a concise overview of the various transportation funds that MAG and its member agencies program for transportation improvements. Table 19 and Table 20 (reproduced from the FY 2015 Guidebook) show the percentage distribution and available funds respectively in FY 2014-2018.

Regional Funds

The Prop 400, one-half cent sales tax went into effect in January 2006 and is in effect until December 2025. The proceeds are deposited in the Regional Area Road Fund (RARF) and the Public Transportation Fund (PTF). As specified in ARS 42-6105.E, 56.2% and 10.5% of the revenues are dedicated to freeways and arterial streets (combined these constitute the RARF program) and 33.3% of the revenues is dedicated to transit (PTF). See the following link for more information:

<https://www.azdot.gov/about/FinancialManagementServices/transportation-funding/regional-area-road-fund>

Federal Fund

MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established by ISTEA in 1991 and subsequently in SAFETEA-LU and TEA-21. Many of the highways funding programs were restructured into two new formula programs, one of which is the Transportation Alternatives (TA) program. Funding for TA is derived from the National Highway Performance Program (NHPP), Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP), Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Metropolitan Planning Programs. Programs that fall within TA include transportation enhancements, Safe Routes To School, and recreational trails. There are also a number of transit funds available such as Urbanized Area Formula Program (5307), Job Access and Reverse Commute (5307-JARC), and Transportation for Elderly Persons and Persons with Disabilities (5310).

For more information about Federal Transit Funds, see the Grants Program webpage at:

<http://www.fta.dot.gov/grants/15926.html>

For more information about Federal Highway funds, see the FHWA webpage at:

<http://www.fhwa.dot.gov/map21/>

3. Local

Cities and Towns have the ability to charge development impact fees, impose a transaction privilege tax (TPT) and issue obligation or revenue bonds. Depending upon the project one or more of these revenue streams could be used for infrastructure improvements, pedestrian safety, trails and bike paths.

The Highway Users Fund (HURF) is a state shared source where Arizona collects taxes on vehicle license and registration, and gasoline and other fuel. These funds can be used for Town road or street purpose at the full discretion of the local jurisdiction.





Table 19: MAG Percentage Distribution of Regional Revenues FY 2014-2018

Table 1: PERCENTAGE DISTRIBUTION OF REGIONAL REVENUES: FY 2014-2018 (Percentage of Funding Source Total)													
Life Cycle Program	Modes	1/2 Cent	ADOT Funds	FTA (5307)	FTA 5337 & 5339	FTA (5309)	ADOT STP-Flex	MAG-STP	CMAQ	CMAQ-2.5	HSIP	TA	Total Regional Mode Portion
FLCP	Freeway	56.20%	100.00%					30.86%	19.10%				57.41%
ALCP	Arterial & ITS	10.50%						55.96%	13.40%				8.82%
TLCP	Bus Transit	18.90%		93.11%	95.40%	0.00%	100.00%		3.00%				29.91%
	Light Rail Transit	14.40%		3.41%	4.60%	100.00%			32.90%				
	Transit Non-TLCP			3.48%									0.54%
	Bicycle/Ped.								17.00%				1.37%
	Air Quality								14.60%	100.00%			0.84%
	Planning							10.87%					0.65%
	TA											100.00%	0.52%
	Safety										100.00%		0.25%
	Non-ALCP							2.31%					0.14%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Amounts are rounded, variance may be displayed.
 * The Transportation Alternatives program includes Safety, Bicycle, Pedestrian, and Transit components.
 Transit distributions between TLCP Bus and Rail are subject to change.





**Table 20: MAG FHWA Transportation Funds
 FY 2014-2018**

**Table 3:
 MAG FEDERAL HIGHWAY ADMINISTRATION TRANSPORTATION FUNDS: FY 2014-2018**
 (Year of Expenditure Dollars in Millions)

		CMAQ Breakout - with OA applied										Other Funding - with OA applied				
		STP Breakout - with OA applied					CMAQ Breakout - with OA applied									
OA Rate	Fiscal Year	Fwy/Hwy GAN Debt Service*	MAG Planning and Sub programs	Non Life-cycle	Arterial -ALCP	Arterial -ALCP Total	CMAQ 2.5	FLCP	Arterial-ITS-ALCP	Transit	Bicycle/Ped.	Air Quality	CMAQ Total	HSIP	Transportation Alternatives (TA)	Other Total
94.9%	2014	34.1	5.1	1.2	12.1	52.6	.7	8.8	6.1	16.5	7.8	6.7	46.5	1.8	4.6	6.4
94.6%	2015	34.1	5.4	1.2	11.7	52.4	.7	8.7	6.1	16.4	7.8	6.7	46.4	1.8	4.5	6.4
94.6%	2016	12.7	5.7	1.2	32.8	52.4	.7	8.7	6.1	16.4	7.8	6.7	46.4	1.8	4.5	6.4
94.6%	2017	.0	6.0	1.2	45.2	52.4	.7	8.7	6.1	16.4	7.8	6.7	46.4	1.8	4.5	6.4
94.6%	2018	.0	6.3	1.2	44.9	52.4	.7	8.7	6.1	16.4	7.8	6.7	46.4	1.8	4.5	6.4
Total 2014-2018		80.9	28.5	6.1	146.7	262.1	3.4	43.7	30.6	82.1	38.9	33.4	232.0	9.0	22.7	31.8

Amounts are rounded, variance may be displayed. Obligation Authority Rate (OA) and projections are subject to substantial changes based on federal authorizations.
 * GAN Debt Service concludes in FY2016 and completes early advancement of RTP-FP STP funding.
 MAP-21 expires September 30, 2014, estimates based on a continuing resolution or new surface transportation authorization.





4. Private

PeopleforBikes, is an industry coalition of bicycling suppliers and retailers, as well as a charitable foundation. They focus exclusively on bicycle infrastructure and advocacy and provide grant monies to nonprofit organizations and local governments. Their grant guidelines indicate that they look at leverage and funding partnerships very carefully and do not want to represent 50 percent or more of the total grant monies requested.

In addition to PeopleforBikes, there are a few other state and national foundations that focus on economic development, capital improvements, the environment and sustainability. Each of these foundations have their specific funding requirements which could include eligible projects, organization type, match requirements, and minimum/maximum grant monies provided.

Last, some communities have created a “planned giving program” that focuses on donors who would like to give back to the community through a combination of cash, a planned gift during their lifetime or a gift through their estate.

5. State Funding

There are a few state programs that can be accessed for plan implementation.

The following table provides a description of funding sources, describes the types of projects that are eligible, describes any requirements and describes how the program is administered.



Table 21: Funding Matrix

Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
FEDERAL FUNDING - HIGHWAY					
Federal – MAP-21	Surface Transportation Program (STP)	The Surface Transportation Program (STP) provides flexible funding that may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals	<ul style="list-style-type: none"> • Recreational trails projects • bicycle transportation and pedestrian walkways • most transportation alternatives • highways • bridges and tunnels • transit • carpool projects • highway and transit safety projects • planning • transportation alternatives • high accident rate intersections 	<p>Projects must be identified in the STIP/TIP and they must be consistent with the Long-Range Statewide Transportation Plan and the Metropolitan Transportation Plan</p> <p>Funding: Generally, 80% federal / 20% matching</p>	<p>In general, obligated through competitive local or statewide grant programs</p> <p>From MAG TIP:</p> <ul style="list-style-type: none"> • GAN debt service: \$80.9M • Planning/other: \$28.5M • Non-Life Cycle: \$6.1M • Arterial – ALCP: \$146.7M <p>TOTAL FY14 – FY18: \$262.1M</p>
Federal – MAP-21	Transportation Alternatives Program (TA) - <i>Includes Recreational Trails Program set aside</i>	MAP-21 establishes a new program to provide for a variety of alternative transportation projects. The TAP replaces the funding from pre-MAP-21 programs including Transportation Enhancements, Recreational Trails, Safe Routes to School, and several other discretionary programs	<ul style="list-style-type: none"> • Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation • Infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs • Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users. • recreational trails program • Safe routes to school program 	Funding: Generally, 80% federal / 20% matching	<p>In general, obligated through competitive local or statewide grant programs</p> <p>From MAG TIP:</p> <ul style="list-style-type: none"> • TOTAL FY14 – FY18: \$22.7M
Federal – MAP-21	Congestion Mitigation and Air Quality Program	The Congestion Mitigation and Air Quality (CMAQ) Improvement Program funds transportation projects to improve air	<ul style="list-style-type: none"> • Pedestrian/bicycle off-road or on-road facilities 	Funding: Generally, 80% federal / 20% matching	In general, obligated through competitive local or statewide grant programs

Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
	(CMAQ)	quality and reduce traffic congestion in areas that do not meet air quality standards.	<ul style="list-style-type: none"> Traffic congestion relief strategies Transit projects Alternative fuel projects Rideshare programs Public education and outreach activities Fare/fee subsidy programs Paving dirt roads, unpaved shoulders, alleys 		From MAG TIP: <ul style="list-style-type: none"> CMAQ: \$3.4M FLCP: \$43.7M Arterial ITS: \$30.6M Transit: \$82.1M Bike/Ped: \$38.9M Air Quality: \$33.4M TOTAL FY14 – FY18: \$232.0M
Federal – MAP-21	Highway Safety Improvement Program (HSIP)	The Highway Safety Improvement Program (HSIP) is a Federal Highway Administration (FHWA) program that funds highway safety projects aimed at reducing highway fatalities and serious injuries.	<ul style="list-style-type: none"> Intersection improvements Construction of shoulders Traffic calming Bike lanes, bike parking, crosswalks, and signage 	Bicycle safety must be included in state’s Strategic Highway Safety Plan (SHSP). Funding: 90% federal / 10% matching	In general, obligated through competitive local or statewide grant programs From MAG TIP: TOTAL FY14 – FY18: \$9.0M
Federal	Federal Highway Safety (Section 402) Grant Program	Highway Safety Funds are used to support State and community programs to reduce deaths and injuries on the highways	<ul style="list-style-type: none"> Conducting data analyses, developing safety education programs, and conducting community-wide pedestrian safety campaigns. Funds can also be used for some limited safety-related engineering projects 		Program administered through the Governor’s Office of Highway safety
Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
STATE FUNDING - FORMULA ALLOCATION					
State	Vehicle License Tax - Highway User Revenue Fund, non-HURF portion	The State of Arizona taxes motor fuels and collects a variety of fees and charges relating to the registration and operation of motor vehicles on the public highways of the state. These collections include gasoline and use fuel taxes, motor carrier taxes, vehicle license taxes, motor vehicle registration fees, and other miscellaneous fees.	<ul style="list-style-type: none"> Expenditures of HURF must be for improvements in the public roadway right-of-way. They can also be used for the acquisition of right-of-way. Examples of eligible expenditures can include the installation of new pavement, curbing, sidewalks, street lights, traffic control devices, landscaping, distinctive banner treatments and culverts. Administrative and engineering costs are also eligible expenses and will be included in the cost of any Back to Basics project 		HURF revenues are distributed to counties, cities, towns and the State Highway Fund for obligation Combined HURF/VLT From ADOT, FY14 Distributions: <ul style="list-style-type: none"> Cave Creek: \$463,075 Carefree: \$309,956 Projected 25% increase through FY18
STATE FUNDING – DISCRETIONARY					
State	Heritage Fund	Arizona voters created the Heritage Fund in	<ul style="list-style-type: none"> Projects that help to enhance wildlife 		Funds obligated by Arizona Game and Fish

Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
		1990, designating up to \$10 million a year from lottery ticket sales for the conservation and protection of the state’s wildlife and natural areas.	viewing or provide access to public lands		Department Capped at \$10M per year.
State	Greater Arizona Development Authority	The Greater Arizona Development Authority (GADA) was created by the Arizona Legislature in 1997 to assist local and tribal governments and special districts with the development of public infrastructure. In fiscal year 2011, the Arizona Legislature passed H.B. 2001 which assigned the Water Infrastructure Finance Authority of Arizona (WIFA) to provide general administrative support, equipment, office and meeting space to GADA.	<ul style="list-style-type: none"> A project is eligible if it is an infrastructure project, is publicly-owned and operated, and applied for by a city, town, county, special district, or Indian tribe. 		Projects are solicited annually or semi-annually as determined by the authority
Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
LOCAL FUNDING SOURCES					
Local	Development Impact Fees	An impact fee is a fee that is determined by a municipality and is placed on a proposed project to help cover the additional costs associated with upgrading affected public facilities resulting from new construction.			Local Government
Local	Development Stipulations	Development requirements are typically placed on proposed projects at the time of entitlement approval to help develop necessary public facilities.		Project developer must agree to proposed stipulations prior to entitlement approval.	Local Government
Local	Sales Tax	Funds from a portion of a municipality’s sales tax	<ul style="list-style-type: none"> Pedestrian facilities and programs 		Local Government
Local	General Obligation bonds	Bonds are a common mechanism that jurisdictions use to borrow money for transportation projects. Most general obligation pledges at the local government level include a pledge to levy a property tax to meet debt service requirements.			Local Government

Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
PRIVATE FUNDING SOURCES					
Other	Shared Revenues from Tribal Gaming	With the passage of Proposition 202, gaming tribes in Arizona volunteered to share a portion of shared gaming revenues with the state of Arizona and local governments to support specific state and local programs. Twelve percent (12 %) of the total monies is directed to city, town and county governments for government services benefitting the general public such as public safety and promotion of commerce and economic development. An additional 9% of the total funds the State’s regulatory expenses. The remainder is contributed to the Arizona Benefits Fund for education, emergency services, wildlife and habitat, tourism, and treatment of problem gambling.			Grants to City, Town and County governments are made directly from tribes.
Other	PeopleForBikes Community Grant Program (formerly Bikes Belong)	The PeopleForBikes Community Grant Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. Support is provided to nonprofit organizations with a focus on bicycling, active transportation, or community development; to city or county agencies or departments; and to state or federal agencies working locally.	PeopleForBikes focuses most grant funds on bicycle infrastructure projects such as: <ul style="list-style-type: none"> • bike paths, lanes, trails, and bridges; • mountain bike facilities; • bike parks and pump tracks; • BMX facilities; • end-of-trip facilities such as bike racks, bike parking, and bike storage. PeopleForBikes also funds some advocacy projects, such as: <ul style="list-style-type: none"> • programs that transform city streets, such as Open Streets Days; and, • initiatives designed to increase ridership or the investment in bicycle infrastructure 	Non Profit organizations and local governments	Applications must be submitted online http://www.peopleforbikes.org
Foundation	Arizona Community Foundation	The Arizona Community Foundation supports and collaborates with nonprofit organizations on the front lines working to meet community needs and enhance the shared quality of life throughout Arizona.	Proposals are solicited from nonprofits within certain fields and in broad focus areas including: <ul style="list-style-type: none"> • arts and culture; • children and youth; 	Nonprofit organizations, educational institutions, American Indian tribes and their component agencies, and governmental entities	Application guidelines are available on the Foundation’s website. http://www.azfoundation.org/

Source	Program	Description	Eligible Project Types	Requirements	Administration/Funding FY14 – FY18
			<ul style="list-style-type: none"> • community and economic development; • education; • housing; • environment and sustainability; • health; and, • human services. 		
Foundation	Fidelity Foundation	The Fidelity Foundation, the charitable arm of Fidelity Investments, supports projects from organizations of regional or national importance throughout the United States.	<ul style="list-style-type: none"> • planning initiatives; • organizational development; • technology upgrades; and, • capital improvements. 	Nonprofit organizations. Grants are generally made only to organizations with operating budgets of \$500,000 or more. Grants are made to fund only significant, transformative projects usually budgeted at \$50,000 or more	Application guidelines are available on the Foundation's website. http://www.fidelityfoundation.org
Foundation	The Funder's Network - Partners for Places	Partners for Places is a matching grant program that creates opportunities for cities and counties in the United States and Canada to improve communities by building partnerships between local government sustainability offices and place-based foundations. National funders invest in local projects to promote a healthy environment, a strong economy, and well-being of all residents. Through these projects, Partners for Places fosters long-term relationships that make urban areas more prosperous, livable, and vibrant.	Any project that advances a key aspect of a local sustainability, climate action, or comprehensive plan provision that specifically addresses sustainability, or any plan endorsed by the mayor or city manager that states the goal of balancing economic development, environmental quality, and equity	Partnerships of local place-based foundations, local government foundations, and nonprofit organizations	Application guidelines are available on the TFN website. http://www.fundersnetwork.org/participate/green-building/partners-for-places
Philanthropic	Planned Giving Program	A planned giving program is created locally and aimed at raising money from private donors and estates.	Develop policies and guidelines for the types of planned gifts to be sought.	Develop criteria for accepting gifts, administration of gifts and recognition of planned gifts.	Staff or an appointed committee.



VII. IMPLEMENTATION

In general, the phasing should proceed with projects that are already funded and underway followed by the most readily deliverable recommendations. Those will normally be recommendations that require little or no funding and have more expeditious development and delivery times:

- Bike lanes currently funded by MAG and being developed by ADOT
- Policy and procedure recommendations related to Special Event Traffic and Parking
- Continued support for Senior and Persons with Disabilities Transit
- Planning Studies and Corridor Studies
- Preliminary Design
- Design and Construction

Near-Term Improvements

- Bike lanes
 - Cave Creek Road (Town limits), Tom Darlington and Pima Rd (Carefree limits)
 - Currently in design, construction FY15
- Cave Creek Pedestrian Connector
 - Multi-modal path on Cave Creek Road between Town Hall and Schoolhouse Road
 - Currently 15% designed
- Downtown Carefree Revitalization Plan

Mid-Term Improvements

- 5-10 years
- Currently unfunded
- Interim Carefree Highway improvements (ultimate improvements included in RTP)
- Interim Pima Road improvements

Long-Term Improvements

- 10-20+ years
- Unfunded, not currently in RTP
- Ultimate Corridor Improvements
- Ultimate Activity Node Improvements





VIII. PUBLIC INVOLVEMENT

The public participation approach for the study reflects the unique characteristics of these communities, and was developed with input from the Towns, as well as initial research on stakeholders and existing communications channels in the communities. The primary goals of the public and stakeholder involvement plan are to:

- Identify and inform interested and affected community stakeholders about the study purpose and need
- Provide opportunities for input during the study process, prior to recommendations being made
- Seek input from community members, user groups, visitors and other stakeholders useful to the study team in identifying issues and making study recommendations

A. Stakeholders

Stakeholders for the study include those who were interested in and affected by the study recommendations and outcomes. These include:

- The Towns of Cave Creek and Carefree key staff and elected officials.
- Study partner and cooperating agencies, including MAG, Maricopa Department of Transportation, City of Scottsdale, City of Phoenix, and the Maricopa County Sheriff's office and Sheriff's Posse.
- Active business and community organizations.
- Town business and opinion leaders who are highly-involved and engaged in Town issues and events.
- Organizers of large special events in the Towns.
- Residents of Cave Creek and Carefree.
- Visitors, particularly those who attend special events. Recreational users, including cyclists, hikers, and equestrians.

B. Key Messages

To ensure a clear and consistent message regarding the study purpose, need, goals, and objectives, the Consultant has prepared key messages to be used by the study team and the project partners.

- What is the study and why is it being conducted?
- What are the study goals and objectives?
- How will the community be involved?
- When will these improvements be made?

C. Outreach Activities

The robust public outreach program intercepted more than 1,600 people throughout the study. Communication tools used included newsletters, web page, e-mail, water bill inserts, posters, and media relations.

1. Workshops

On September 17, 2013, three special interest workshops were held with community stakeholders to provide an opportunity for high-quality, focused identification of issues, needs, desires, and potential opportunities. More than 40 participants represented various stakeholder groups and points of view regarding transportation issues and needs.





2. Local Business and Resident Outreach

The following stakeholders were interviewed:

- Carefree/Cave Creek Chamber of Commerce (Patty Villeneuve, Executive Director)
- Cave Creek Merchants and Events Association (Johnny Ringo, President; Jean Glass, Secretary)
- Cave Creek Bicycle Association/Fat Tire Bike Shop (Kaolin Cummins, owner)
- Foothills Caring Corps (Debra Determan, Executive Director)
- Magic Bird Festivals (Roberta Tombs-Rechlin, owner)
- Sonoran Arts League (Kristy Jacobs, Executive Director)
- Thunderbird Artists (Judi Combs, owner)
- Town of Cave Creek (Marshal Adam Stein)

3. Public Meetings

Three public meetings were held at strategic junctures:

- Phase 1 – Scoping
- Phase 2 – Alternatives
- Phase 3 – Recommendations

4. Resident/Business Survey

Two community surveys were conducted to collect data regarding the transportation issues, needs, and priorities of community members.

- Business and Resident Survey (online) – 318 responses
- Bicycling Survey (online) – 198 responses

5. Special Event Surveys

Special event surveys were completed with 729 visitors to collect data regarding the transportation issues, needs, and priorities at the following special events:

- Taste of Cave Creek – Oct. 17, 2013
- Wild West Days – Nov. 2, 2013
- Thunderbird Artists – Nov. 2, 2013
- Carefree Christmas Festival – Dec. 14, 2013

D. Phase 1 Scoping Outreach

1. Summary

An intensive public involvement effort was undertaken in the fall of 2013 to engage residents, business owners, recreational users and special event visitors to determine the transportation issues they are experiencing and their needs and priorities for addressing these issues.

More than 1,300 community members and visitors participated in this effort through multiple engagement opportunities. These included:

- Online surveys of more than 500 residents, business owners and bicyclists
- In-person surveys of more than 700 attendees at four large, local events
- Three community workshops with business owners, community organizations, special event organizers and recreational users, which drew 42 key stakeholders,





- Key stakeholder interviews with Town staff and community organizations.
- Transit improvements are not a priority for residents, though some see a need for modest transit improvements to better serve seniors and provide a seasonal local shuttle for visitors.
- Solutions proposed to address these issues should be context-sensitive and fit the unique characters and needs of each Town.
- Bicyclists say dedicated bike lanes/paths are the highest priority for improving cycling in the Towns.

2. Key Findings

Community members in both Towns expressed similar concerns about local transportation problems, as well as potential solutions. The top concerns are:

- Pedestrian and bicycle safety and connectivity
- Accommodating special event traffic and parking
- Adequate business parking, and
- Controlling unsafe driving

3. Public Meeting

- The first public meeting was held for the Cave Creek/Carefree Transportation Framework Study on October 30, 2013 from 6-8 p.m. at the Holland Community Center, 34250 N. 60th St., Scottsdale.
- The purpose of the meeting was to:
 - Introduce the study and provide information on the study purpose, need, goals and objectives,
 - Review preliminary key findings of the initial outreach and data collection activities regarding transportation issues and needs (e.g., online surveys, community workshops, and the first survey of special event attendees) and
 - Seek additional public input on transportation issues and needs and study goals and objectives.

E. Phase 2 Alternatives Outreach

1. Summary

In the spring of 2014, 266 people responded to an online survey about transportation framework options. Fifty percent were from Cave Creek, 33% were from Carefree and the remainder were from Scottsdale or had an interest in the project.

2. Key Findings

Consistent with feedback received at the public meeting, community members in both Towns prefer the activity node without parking option.

- 48% of respondents preferred the activity node without parking concept, followed by retaining two lanes each direction (30%).
- Carefree residents generally seem to be more receptive to the idea of on-street parking for events than Cave Creek, and there is also some support for a lot/structure in the Town Center.
- 59% support the proposed Carefree Highway and Pima Road corridor configuration concept and 65% support the Cave Creek Road, Tom Darlington Drive and Westland Road corridor configuration concept.
- Residents were highly-supportive of the special event and parking recommendations. Cave Creek residents particularly liked the bypass route concept. Carefree residents also generally supported the



parking and event recommendations, though some felt the proposal still did not include enough parking for the largest events in the Towns, and they would like to see additional types of parking provided (e.g., lots, structures, on-street and shoulder).

3. Public Meeting

- The second public meeting for the Cave Creek/Carefree Transportation Framework Study was held April 29, 2014 from 6-8 p.m. at the Cave Creek Town Hall Chambers.
- The purpose of the meeting was to:
 - Provide a summary of the public input received regarding transportation issues, needs and priorities during the outreach conducted in phase one of the study,
 - Present potential options to address the transportation issues and priorities in the Towns and
 - Seek public input on these potential options.

F. Phase 3 Recommendations Outreach

1. Public Meeting

- The third and final public meeting for the Cave Creek/Carefree Transportation Framework Study was held September 10, 2014 from 6-8 p.m. at the Carefree Town Hall Chambers.
- The purpose of the meeting was to:
 - Provide a summary of the public input received to date regarding transportation issues and priorities, as well as the transportation options considered to address these priorities
 - Present the study recommendations and
 - Provide an opportunity for public comment on the recommendations

