



# 5

## Connected City

Promote an efficient and integrated circulation system by enhancing the vehicular, biking, walking, and transit networks.

Community members desire a diversified transportation system that ensures efficiency, mobility, and safety for all modes. Completion of the city's trail network to promote bicycle and pedestrian travel, and design or retrofitting of streets to accommodate different modes of transportation for pedestrians, motorists, cyclists, and transit riders were among the highest transportation priorities for residents in the online survey conducted for the General Plan update. The General Plan seeks to provide choices in mobility that include vehicular, biking, walking, mobility devices (wheelchairs, scooters, etc.), other forms of active transportation, and transit. Connectivity within the city's networks will be improved as well as connectivity to regional networks.

Vehicular travel will be improved with safer and connected roadways, intelligently managed traffic, timed signals, a transportation demand program, and

adequate parking. Bicycle travel will be enhanced through a connected network of bicycle routes either as part of the roadway or as buffered and dedicated bike lanes, and places for bike storage. The pedestrian environment will be improved through an expanded and connected network of sidewalks, complete with streetscaping and adequate lighting, and an expanded network of trails throughout the city. Transit will be enhanced through improved bus service and a new rail service. All of these modes will be connected in a layered transportation network that links employment hubs, neighborhoods, schools, parks, the University of Redlands, and Downtown.

More broadly, connections to the region will be improved as access to metropolitan areas, regional and international airports, and interstate highway and rail networks are enhanced.

## 5.1 LAYERED, MULTI-MODAL NETWORK

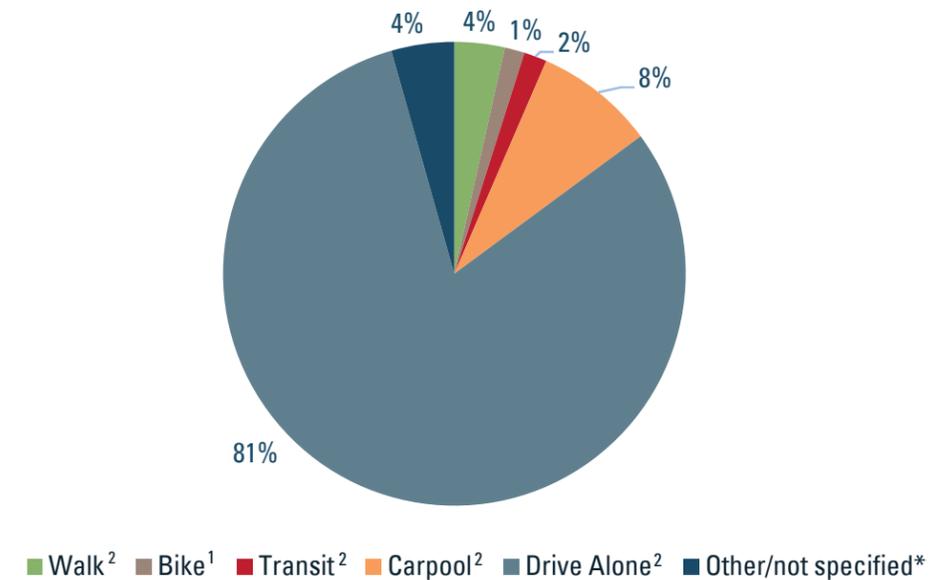
The roadway network in Redlands consists of freeways, boulevards, arterials, collectors, and local roads. These classifications are shown in Figure 5-4 and described in greater detail in Section 5.2. The overall street pattern in the city—street grid with small blocks in Downtown and central neighborhoods, with arterial streets placed half mile apart extending through the city—was largely established more than 100 years ago. Over the past 20 years, the transportation emphasis has been on improving travel by the automobile. As evidenced in Chart 5-1, automobiles remain the dominant form of transportation in Redlands.

As the city continues to experience residential, employment, and commercial growth, a connected, multi-modal street network will be essential to ensure efficient commutes for work and goods movement, safe active transportation, and easy access to retail and entertainment. The General Plan proposes a “layered network” approach, where traffic demands of Redlands and system-wide needs of different modes can be used as inputs as streets are redesigned and configured to better meet the needs of bicyclists, pedestrians, and transit, and enable Redlanders to efficiently and safely navigate through the city. Considering system-wide needs means assessing whether the system as a whole is able to meet the needs of travelers. For example, if a street is located in close proximity to a dedicated bicycle lane, that street may not necessarily need additional dedicated bicycle infrastructure.

The layered network approach designates modal emphasis by street to create a comprehensive street network. The layered network approach recognizes the need to accommodate all forms of traffic, but with the understanding that certain streets will emphasize certain forms of transportation. Layered networks balance vehicular transportation with “active transportation,” which is human-powered transportation that includes walking, cycling, using a wheelchair, in-line skating, or skateboarding.

The layered network approach recognizes that not all modes can be accommodated acceptably on all streets within this city, but bicycle and pedestrian movement can be emphasized on specific streets. This will also help the City comply with the California Complete Streets Act passed in 2008. Complete Streets are streets designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. The California Complete Streets Act requires circulation elements to include a complete streets approach that balances the needs of all users of the street.

Chart 5-1: Mode Share



\*Note: This chart summarizes journey to work trips and excludes work from home.

Sources: 1. 2008-2012 American Community Survey 5-year estimates; City of Redlands Bicycle Master Plan, 2015.  
2. 2009-2013 American Community Survey 5-year estimates.



Photo Credit: Miriam Cohn

# POLICIES

## Principles

- 5-P.1** Maintain a cohesive circulation system through a “layered network” approach promoting complete streets and mobility for all modes while emphasizing specific transportation modes for specific corridors and geographic areas.  
  
*With its diverse development patterns, history, and terrain, Redlands needs a multi-modal network to meet its future transportation needs. The layered network approach is a synergistic and cohesive system that considers various transportation modes and the entire network as a whole. Such an approach means each street will accommodate travel modes differently, with specified routes being more appropriate for different modes.*
- 5-P.2** Use the layered network approach to identify, schedule, and implement roadway improvements as development occurs in the future, and as a standard against which to evaluate future development and roadway improvement plans.
- 5-P.3** Review the layered network with neighboring jurisdictions and seek agreement on actions needing coordination.
- 5-P.4** Support transportation infrastructure improvements such as safer street crossings and attractive streetscapes to encourage bicyclists, walkers, and users of mobility devices.

- 5-P.5** Manage the city’s transportation system to minimize traffic congestion, improve flow, and improve air quality.
- 5-P.6** Support public health by promoting active living and supporting safe walking and biking throughout the city.
- 5-P.7** Minimize emergency vehicle response time and improve emergency access.
- 5-P.8** Ensure the safety of the transportation network by preventing excessive speeding of vehicular traffic and promoting safe sharing of the network by all transportation modes.
- 5-P.9** Design a layered transportation network for individuals of all ages and abilities.
- 5-P.10** Require developers to construct or pay their fair share toward improvements for all travel modes consistent with the layered network.
- 5-P.11** Implement standards for pavement design and roadway and intersection striping so streets are accessible by all users and all modes, and safety is improved.
- 5-P.12** Develop and implement a comprehensive wayfinding program serving all modes of transportation.
- 5-P.13** Ensure streets are designed to accommodate bicyclists per the Bicycle Master Plan.



*Thoroughfares in Redlands should be designed to facilitate the safe travel of automobiles, bicycles, and pedestrians alike.*

- 5-P.14** Design streets to accommodate various modes according to roadway classification and reduce conflicts and safety risks between modes per Figure 5-4.  
  
*Example: automobiles are prioritized along major freeways and arterials, transit and walking are prioritized near rail stations and Downtown, and a variety of modes are evaluated and considered for appropriateness in neighborhoods based on land uses, right-of-way availability, and network connectivity.*
- 5-P.15** Incorporate green infrastructure into the design of new roadways and retrofit existing roadways where appropriate.
- 5-P.16** Strengthen active transportation circulation routes within Downtown and the Transit Villages, and to/ from adjacent neighborhoods.

## Actions

- 5-A.1** Maintain and update design standards for each functional roadway classification per Figure 5-4. These standards are for a typical midblock application. Additional turn lanes may be needed at some intersection approaches. Different standards may govern in specific plan areas and variations are permitted given site conditions and right-of-way availability.
- 5-A.2** Integrate complete streets and a layered networks approach into all City streets, traffic standards, plans, and details.
- 5-A.3** Ensure new street design and potential retrofit opportunities for existing streets minimize traffic volumes and/or speed as appropriate within residential neighborhoods without compromising connectivity for emergency vehicles, bicycles, pedestrians, and users of mobility devices. This could be accomplished through:
- Management and implementation of complete street strategies, including retrofitting existing streets to foster biking and walking as appropriate;
  - Short block lengths, reduced street widths, and/or traffic calming measures; and
  - Providing pedestrians and bicyclists with options where motorized transportation is prohibited.
- 5-A.4** Consider innovative design solutions to improve mobility, efficiency, connectivity, and safety through the use of traffic calming devices, roundabouts, curb extensions at intersections, separated bicycle infrastructure, high visibility pedestrian treatments and infrastructure, and signal coordination.
- 5-A.5** As part of street redesigns, plan for the needs of different modes – such as shade for pedestrians, lighting at pedestrian scale, mode-appropriate signage, transit amenities, etc.
- 5-A.6** Add bike and pedestrian facilities on roads with excess capacity where such facilities do not exist, using supporting transportation plans as guidance. Excess capacity includes street right-of-ways or pavement widths beyond the standards, or excess capacity in roadways based on actual vehicular travel versus design capacity.
- 5-A.7** Add new streets to create a finer-grained, pedestrian-scaled road network where the roadway network is characterized by particularly long blocks, connecting residential areas to parks and Transit Village cores. Ensure the street systems in Transit Villages support development of connected and accessible communities.
- 5-A.8** Manage travel speeds in Downtown, at Transit Villages, and near schools, parks, and the University to enhance safety.
- 5-A.9** Adopt a “vision zero” approach to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.
- 5-A.10** Ensure safe railway crossings along the passenger and freight rail corridors.
- 5-A.11** Use public outreach to encourage alternative modes of travel and inform the community about the benefits of participation in new programs, approaches, and strategies.
- 5-A.12** Engage the community and neighborhoods in street design and redesign. Consult with the Traffic and Parking Commission on major street design projects.
- 5-A.13** Establish a funding system that will foster completion of the network before the projects that require them are occupied. Seek funding from grants and other external sources to meet this goal.
- 5-A.14** Close the gaps in the sidewalk network where streets are built out but sidewalks are not complete.
- 5-A.15** Maintain access for emergency vehicles and services by providing two means of ingress/egress into new communities, limitations on the length of cul-de-sacs, proper roadway widths and road grades, adequate turning radius, and other requirements per the California Fire Code.
- 5-A.16** Prepare an Active Transportation Plan that provides a method of prioritizing City streets to best accommodate all road users including cars, bikes, pedestrians, transit, and logistics.
- 5-A.17** Locate public parking facilities to serve the downtown around the periphery so as not to draw additional vehicles into the core areas. Ensure that easily identifiable pedestrian connections exist between public parking areas and the downtown core.



# MEASURE U POLICIES

## GUIDING POLICIES:

### Standards for Traffic Service

- 5.20a Maintain LOS C or better as the standard at all intersections presently at LOS C or better.
- 5.20b Within the area identified in GP Figure 5-1, including that unincorporated County area identified on GP Figure 5-1 as the “donut hole”, maintain LOS C or better; however, accept a reduced LOS on a case by case basis upon approval by a four-fifths (4/5ths) vote of the total authorized membership of the City Council.
- 5.20c Where the current level of service at a location within the City of Redlands is below the Level of Service (LOS) C standard, no development project shall be approved that cannot be mitigated so that it does not reduce the existing level of service at that location except as provided in Section 5.20b.
- 5.20f If monitoring of conditions at intersections within the East Valley Corridor Specific Plan area and intersections affected by EVC development indicates that peak hour LOS will drop below the standards set by Policies 5.20a, 5.20b, 5.20c revise the EVC Specific Plan. Revisions necessary may include additional roadway improvements, mandated higher TDM (Travel Demand Management, See Section 5.40) reductions in single-occupant vehicle trip share, reduction of intensity of development, or changes in use of undeveloped sites.

*Projected buildout for the EVC is 2028 vs. 2010 for the rest of the Planning Area. Travel habits may change significantly during this period, but project reviews for compliance with the General Plan must not assume changes that may be beyond the ability of the City to implement.*

## IMPLEMENTING POLICIES: Circulation

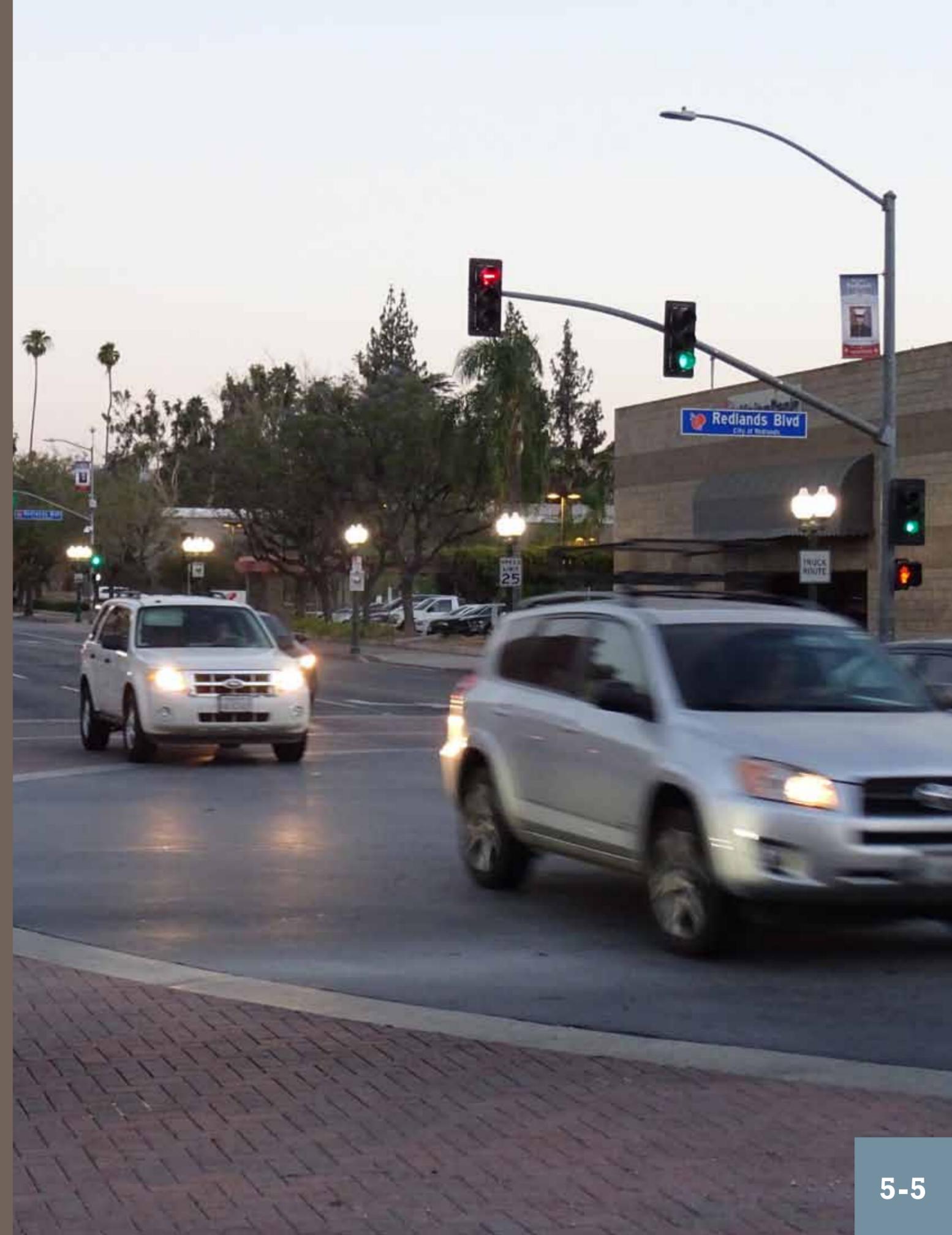
### Network & Classification

- 5.30g Establish the alignment of San Timoteo Canyon Road in the vicinity of Barton Road at the common boundary between Redlands and Loma Linda so that San Timoteo Canyon Road connects to California Street at Barton Road.
- 5.30i Establish and maintain traffic circulation patterns that protect the character of residential neighborhoods.
- 5.30j Design major infrastructure improvements to accommodate regional traffic needs in a manner which discourages traffic flows through residential neighborhoods, encourages traffic flow to existing freeway systems and assures prudent use of federal and local taxpayer dollars.
- 5.30k In order to assure that the circulation policies established by the Redlands General Plan as set forth in Table 5-2 are implemented, including without limitation establishment of California Street as a major arterial, the City Council shall coordinate with SANBAG, the IVDA, and the City of San Bernardino with regard to all Santa Ana River crossings, except the Orange Street crossing, to assure the development of California Street/Mountain View Avenue as a major arterial providing access to the San Bernardino International Airport.

## GUIDING POLICIES:

### Collector & Local Streets

- 5.32a Design residential collector streets and implement traffic control measure to keep traffic on collectors at 3,000 vehicles per day or less, where possible.
- 5.32b Design local residential streets and implements traffic control measure to keep traffic below 500 vehicles per day.

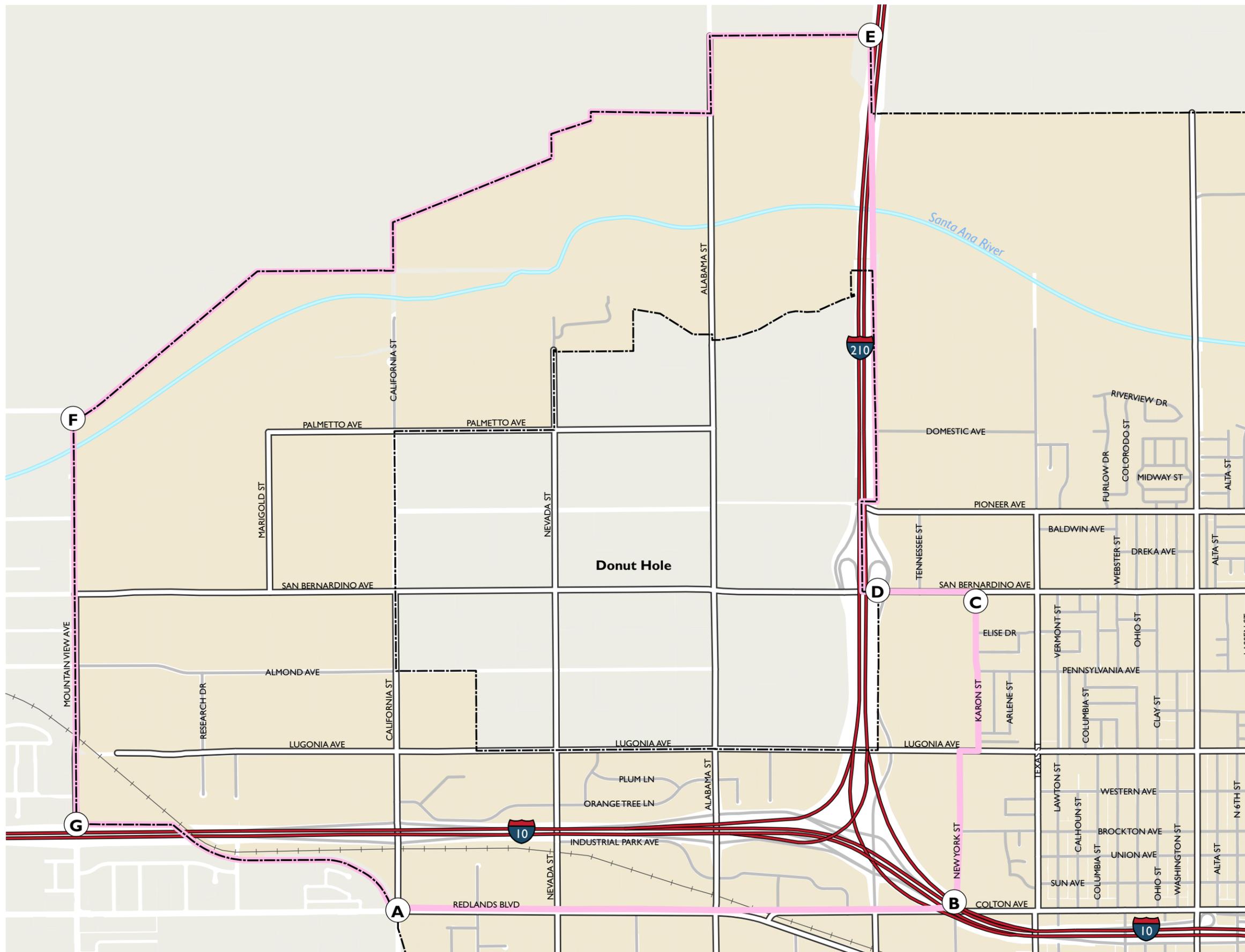


**TABLE 5-1: ARTERIAL SYSTEM VOLUMES AND LEVELS OF SERVICE**

Location	Existing (1994)			Buildout (1995 Projected)			Location	Existing (1994)			Buildout (1995 Projected)		
	Lanes	ADT	LOS	Lanes	ADT	LOS		Lanes	ADT	LOS	Lanes	ADT	LOS
<b>Palmetto</b>							<b>Nevada</b>						
California - Alabama	2	<1,000	A	4	19,000	A	S. Bernardino – Lugonia	2	<1,000	A	4	18-22,000	B-C
<b>San Bernardino Ave.</b>							Lugonia – Redlands						
Mtn View – Alabama	2	4,000	A	6	28-33,000	A-B	Redlands - Barton	2	1,000	A	4	11-18,000	A-B
Alabama – Orange	2	8,000	A	6	40-51,000	C-E	<b>Alabama Street/Palm</b>						
Orange – Church	2	11,000	C	4	25,000	D	North of S. Bernardino	4	11,000	A	6	20-38,000	A-C
Church – Wabash	2	3,000	A	4	15-24,000	A-C	S. Bernardino – I-10 Fwy	4	10-15,000	A	6	45-58,000	D-F
Wabash – Mill Creek	2	2,000	A	4	11-12,000	A	I-10 Fwy – Redlands	4	27,000	C	6	47,000	D
<b>Lugonia Ave./Mentone Blvd.</b>							Redlands – Barton						
Mtn View – Alabama	2	3,000	A	4	22-30,000	B-D	<b>Tennessee/San Mateo</b>						
Alabama – Orange	2	7,000	A	4	32-36,000	E	Lugonia – Brookside	4	14,000	A	4	13-29,000	A-E
Orange – Wabash	4	12,000	A	4	13-22,000	A-C	Brookside – Highland	4	9,000	A	4	11-20,000	A-B
Wabash – Garnet	4	8,000	A	4	10-19,000	A-B	<b>Texas/Center</b>						
<b>Redlands Blvd.</b>							Pioneer – Colton						
California – Alabama	4	20,000	A	6	34-39,000	B-C	Colton – Brookside	4	11,000	A	4	14-18,000	A
Alabama – Colton	4	21,000	A	6	53,000	E	Brookside – Highland	2	-	-	2	10-13,000	C-E
Colton – Texas	4	14-19,000	A	6	33,000	B	<b>Eureka Street</b>						
Texas – Citrus	4	13-27,000	A	4	28-30,000	C-D	Pearl – Citrus	2	4,000	A	4	10,000	A
Citrus – Highland	4	8-16,000	A	4	28-32,000	C-D	<b>Orange St./Cajon/Garden</b>						
Highland – I-10 Fwy	4	8,000	A	4	22,000	B	North of Pioneer	2	4,000	A	4	22,000	A
<b>Colton Ave.</b>							Pioneer – Lugonia						
Redlands – Sixth	2	-	-	4	17-23,000	A-C	Lugonia – I-10 Fwy	4	17,000	B	4	25-27,000	D
Sixth – University	2	10,000	B	2	10-12,000	B-D	I-10 Fwy – Citrus	4	22,000	C	4	21,000	B
University – Dearborn	2	8,000	A	2	9-11,000	B-C	Citrus – Highland	2	12,000	C	2	9-14,000	B-E
Dearborn – Crafton	2	2-6,000	A	2	5-9,000	A	Highland – Elizabeth	2	-	-	2	9,000	B
<b>Barton/Brookside/Citrus</b>							<b>Judson St./Ford St.</b>						
California – Terracina	4	16,000	A	6	25-33,000	A-B	Pioneer – Colton	2	2,000	A	2	5-8,000	A
Terracina – Orange	4	14,000	A	4	18-27,000	A-C	Colton – I-10 Fwy	2	5,000	A	2	7-10,000	A-B
Orange – Judson	4	13,000	A	4	16-24,000	A-C	<b>Wabash Ave.</b>						
Judson – Wabash	4	16,000	A	4	8-14,000	A	Pioneer - Lugonia	2	2,000	A	2	3-7,000	A
Wabash – Crafton	2	4,000	A	2	4-10,000	A-B	Lugonia – Citrus	2	6,000	A	2	7-9,000	A-B
<b>Cypress Ave.</b>							Citrus – I-10 Fwy						
Terracina - Citrus	4	6-9,000	A	4	8-12,000	A	<b>Crafton</b>						
California St.							San Bernardino – 5th	2	4-6,000	A	2	3-9,000	A
Palmetto – Lugonia	2	<1,000	A	6	31-40,000	A-C	<b>Sand Canyon</b>						
Lugonia – Redlands	2	4,000	A	6	33-58,000	B-F	East of Crafton	4	7,000	A	4	12,000	A
Redlands – Barton	2	7,000	A	6	22-23,000	A	<b>San Timoteo Canyon Road</b>						
							Brookside – Alessandro	2	3,000	A	2	11-18,000	B-C
							Alessandro – Live Oaks	2	-	-	2	20,000	C

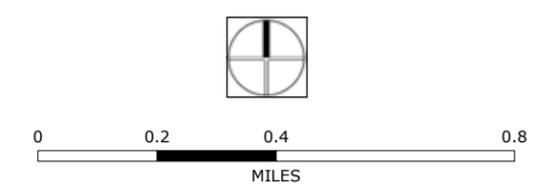
Notes: ADT = Average daily traffic volume; ranges indicate lowest and highest volumes in the segment; LOS = Peak hour Level of Service; ranges indicate highest and lowest LOS in the segment. Projected volumes assume buildout at General Plan density and intensity and continuation of present travel habits, and thus represent a “worst case” scenario. Where projected LOS is inconsistent with Policies 5.20a, b, or c, Policy 5.20f is designed to provide mitigation.

Figure 5-1: Donut Hole



- Freeway
- Major Roads
- Local Roads
- Rail Corridor
- River
- City of Redlands

Beginning at the intersection of the City of Redlands' western City Limit and Redlands Boulevard (Point A); thence easterly along the northern right-of-way limit of Redlands Boulevard to the intersection of New York Street (Point B); thence northerly along New York Street and New York Street extended to the intersection of Lugonia Avenue; thence easterly on Lugonia Avenue to the intersection of Karon Street; thence northerly on Karon Street and Karon Street extended to the San Bernardino Avenue (Point C); thence westerly along the southern right-of-way limit of San Bernardino Avenue to the first City Limit line of the City of Redlands encountered in a westerly direction (Point D); thence westerly and then northerly along the City Limit of Redlands to the point at which the City Limit line turns westerly around the unincorporated San Bernardino County area commonly known as the "donut hole"; thence northerly along State Route 30 to the City Limit of Redlands (Point E); thence southwesterly along the City Limit of Redlands to Mountain View Avenue (Point F); thence southerly along the City Limit of Redlands to the southern terminus of the western City Limit of Redlands on Mountain View Avenue (Point G); and thence southeasterly along the City Limit of Redlands to the point of beginning.



Data Source: City of Redlands, California, 2016; San Bernardino County, 2015; ESRI, 2015; SANBAG, 2015; Dyett & Bhatia, 2016.

## 5.2 PEDESTRIAN, BICYCLE, AND VEHICULAR MOVEMENT

Nearly 6 percent of Redlands residents bike or walk to work, and another 1.6 percent use transit; the mode split for walking is nearly double and biking is three times higher than that of the county-wide average, likely reflecting the presence of the University, as well as a gridded street network. The transit mode share is slightly less than the county average and the share of carpool trips is low, which could at least partly be attributable to shorter trips made by residents.

Nearly 50 percent of Redlands’ residents work less than 10 miles from home and the vast majority of residents travel west for employment. By comparison, only 35 percent of residents in San Bernardino County as a whole travel less than 10 miles for work. Given the relatively short commute distances to and from Redlands, the City is uniquely positioned to take advantage of active transportation and transit as a viable mode of transportation. The City of Redlands is proactively improving the active transportation network by providing more bicycle lanes, bicycle lockers, replacing and installing new sidewalk

facilities, and improving the existing transit network with the addition of a passenger rail line. General Plan policies seek to further these efforts by organizing land uses and proposing new streets and bicycle paths to capitalize on passenger rail extension, and connect rail with other modes and destinations in the city.

### Pedestrian Movement

The pedestrian network in Redlands is extensive. Citywide, sidewalks are generally provided on both sides of the street. Additionally, multi-purpose trails that serve both pedestrians and cyclists, such as the Orange Blossom Trail, are proposed or under construction throughout the city. Multi-Use Trails are defined as trails that can accommodate pedestrians, those using mobility devices (wheelchairs and scooters), as well as bicyclists. In some more rural areas of the city such as San Timoteo and Live Oak Canyon these trails are also available for equestrian riders. These assets, coupled with the city’s small-town feel and the surrounding scenery, make the city a pleasant place to walk. Adding additional paths and street trees to provide shade, safety measures, and additional public amenities can improve the city’s pedestrian network, encouraging even more walking activity and bolstering public health outcomes. Figure 5-2 shows existing and proposed trails and multi-use paths. For information on the city’s recreational trail network, see Chapter 7. Class I bikeways are proposed throughout the city and could also be used for pedestrian travel.

## POLICIES

### Principles

- 5-P.17** Provide a safe, direct, and healthful pedestrian environment through means such as providing separate pedestrian-ways in parking lots, avoiding excessive driveway widths, and providing planting strips between sidewalks and streets where feasible.
- 5-P.18** Encourage creative walking paths pursuant to City planning codes, local, State, and federal laws.
- 5-P.19** Enhance street lighting for pedestrians where current lighting is inadequate.

### Actions

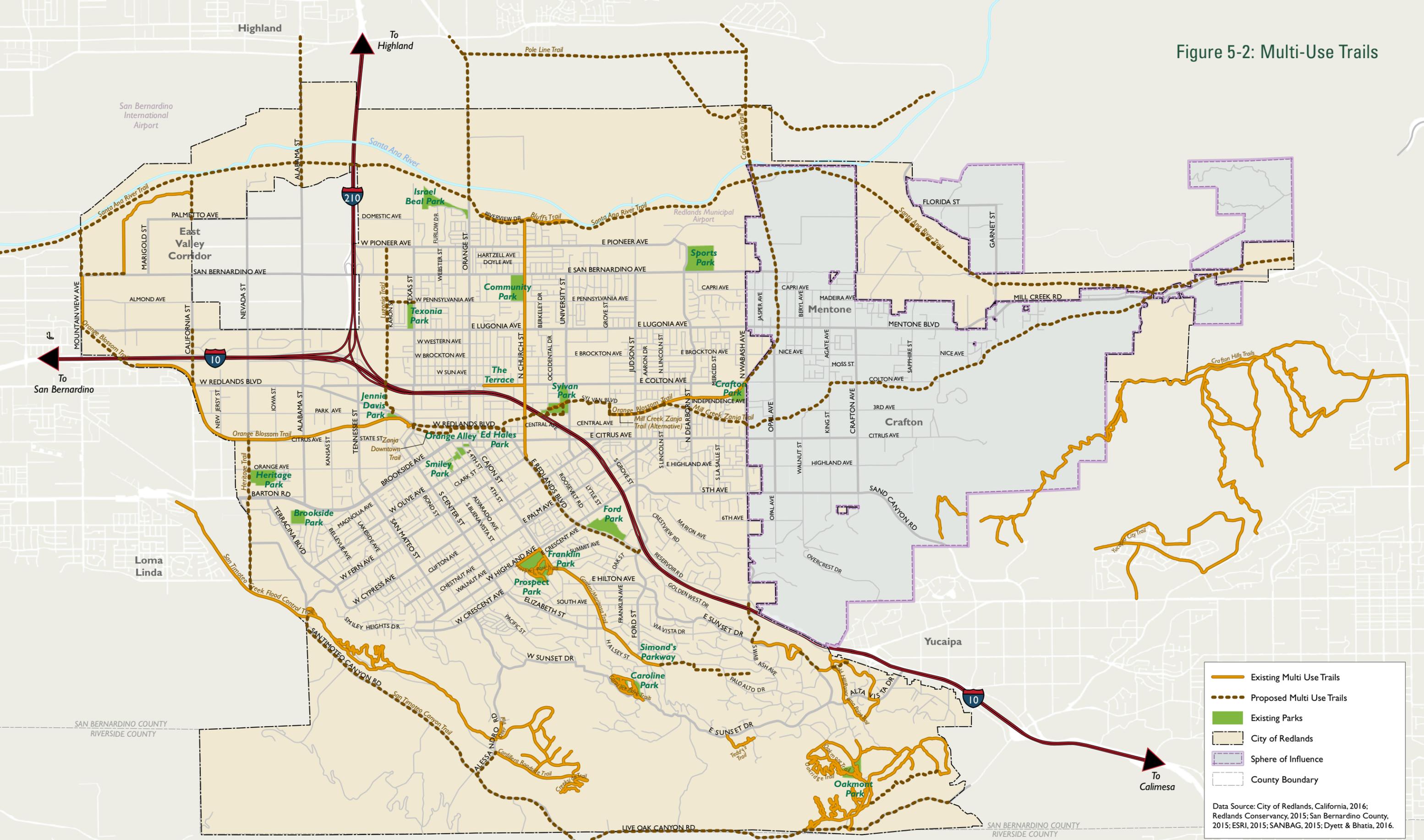
*For a map of trails and multi-use paths, see Figure 5-4. For policies on street design – including tree canopy and street lighting – see Chapter 2: Distinctive City.*

- 5-A.18** Continue implementing the Safe Routes to School program, and develop a “Safe Routes to Transit” program, focusing on pedestrian and bicycle safety improvements near local schools and transit stations.
- 5-A.19** Create appropriate enhancements to pedestrian crossings at key locations across minor arterials, boulevards, and collectors with a target of providing pedestrian crossings no further than 600 feet apart in appropriate areas and in accordance with State standards.
- 5-A.20** Provide pedestrian routes between offices, neighborhoods, Downtown, and Transit Villages. Plan for direct connections from the interiors of residential tracts to neighboring parks, schools, retail, and other services using sidewalks, trails, and paseos.
- 5-A.21** Strengthen trail connections to Downtown (such as Orange Blossom Trail, Lugonia Trail, Citrus Avenue, and Church Street).
- 5-A.22** Include amenities such as shade trees, transit shelters and other transit amenities, benches, trash and recycling receptacles, bollards, public art, and directional signage that can enhance the pedestrian experience.
- 5-A.23** Coordinate with San Bernardino County and the Santa Ana River Conservancy on implementing the objectives of the Santa Ana River Trail Parkway and Open Space Plan.

*The pedestrian network is made up of multi-use trails and sidewalks that can be expanded with additional paths and amenities to encourage walking.*



Figure 5-2: Multi-Use Trails



Existing Multi Use Trails  
 Proposed Multi Use Trails  
 Existing Parks  
 City of Redlands  
 Sphere of Influence  
 County Boundary

Data Source: City of Redlands, California, 2016;  
 Redlands Conservancy, 2015; San Bernardino County,  
 2015; ESRI, 2015; SANBAG, 2015; Dyett & Bhatia, 2016.



## Bicycle Movement

Bicycles are an increasingly popular mode of transportation in Redlands. With a large population of students and workers in the technology, education, and health care sectors, largely flat terrain, and over 36 miles of bicycle paths (Classes I, II, and III), Redlands is a cyclist's paradise. The General Plan encourages bicycle use through the expansion of the existing bicycle network, connecting the Redlands network with neighboring networks, incentivizing bicycle use via sharing programs and creation of support facilities, and adding protected bike lanes to ensure safety.

Figure 5-3 shows existing and proposed bicycle facilities. These may include Class I and Class II bikeways or other support facilities to promote safer and more convenient bicycle travel. For more detailed bicycle movement policies, improvements, and priorities, see the Redlands Bicycle Master Plan, which is published and maintained separate from the General Plan.

### Bikeway Classification and Key Improvements

#### Class I Bikeways (Bike Paths)

Class I Bikeways are completely separate facilities designated for the exclusive use of bicyclists and pedestrians with minimal vehicle crossings. Proposed Class I bikeway improvements include completion of the Orange Blossom Trail through the University of Redlands and Downtown, which will connect the city from Crafton in the east to Loma Linda in the west; the Mission Zanja Trail; a north-south connector along New York Street; and the Santa Ana River Trail, which would follow along the Santa Ana River wash and connect to the regional trail system.

#### Class II Bikeways (Bike Lanes)

Class II Bikeways are striped lanes designated for the use of bicycles on a street or highway. Vehicle parking and vehicle/pedestrian cross-flow are permitted at

designated locations. Currently, Redlands has Class II bikeways on Barton Road, Church Street, Olive Avenue, and 5th Avenue. Citrus Avenue and Brookside Avenue have green painted Class II bikeways. The green paint increases the visibility of the bicyclists and the bike lanes.

#### Class III Bikeways (Bike Routes)

Class III Bikeways are routes designated by signs or pavement markings such as sharrows for bicyclists within the vehicular travel lane (i.e., shared use) of a roadway. Currently, segments of Church Street, Colton Avenue, Citrus Avenue, Cajon Street, and Crescent Avenue are Class III bikeways. The Bicycle Master Plan would increase the amount of Class III bikeways within the city and provide appropriate signage and striping.

#### Class IV Bikeways (Cycletracks)

Class IV bikeways are protected bike lanes, which provide a right-of-way designated exclusively for bicycle travel within a roadway, protected from vehicular traffic with devices such as curbs, flexible posts, inflexible physical barriers, or on-street parking. California Assembly Bill 1193 (AB 1193) legalized and established design standards for Class IV bikeways.

#### Bicycle Boulevards

Bicycle boulevards are low-volume and low-speed streets that prioritize bicycles. Bicycle travel on these boulevards is optimized through traffic calming devices such as speed humps and high visibility crosswalks. There are no bicycle boulevards in Redlands. However, the Bicycle Master Plan "recommends that the City consider streets and treatments for Bicycle Boulevards."



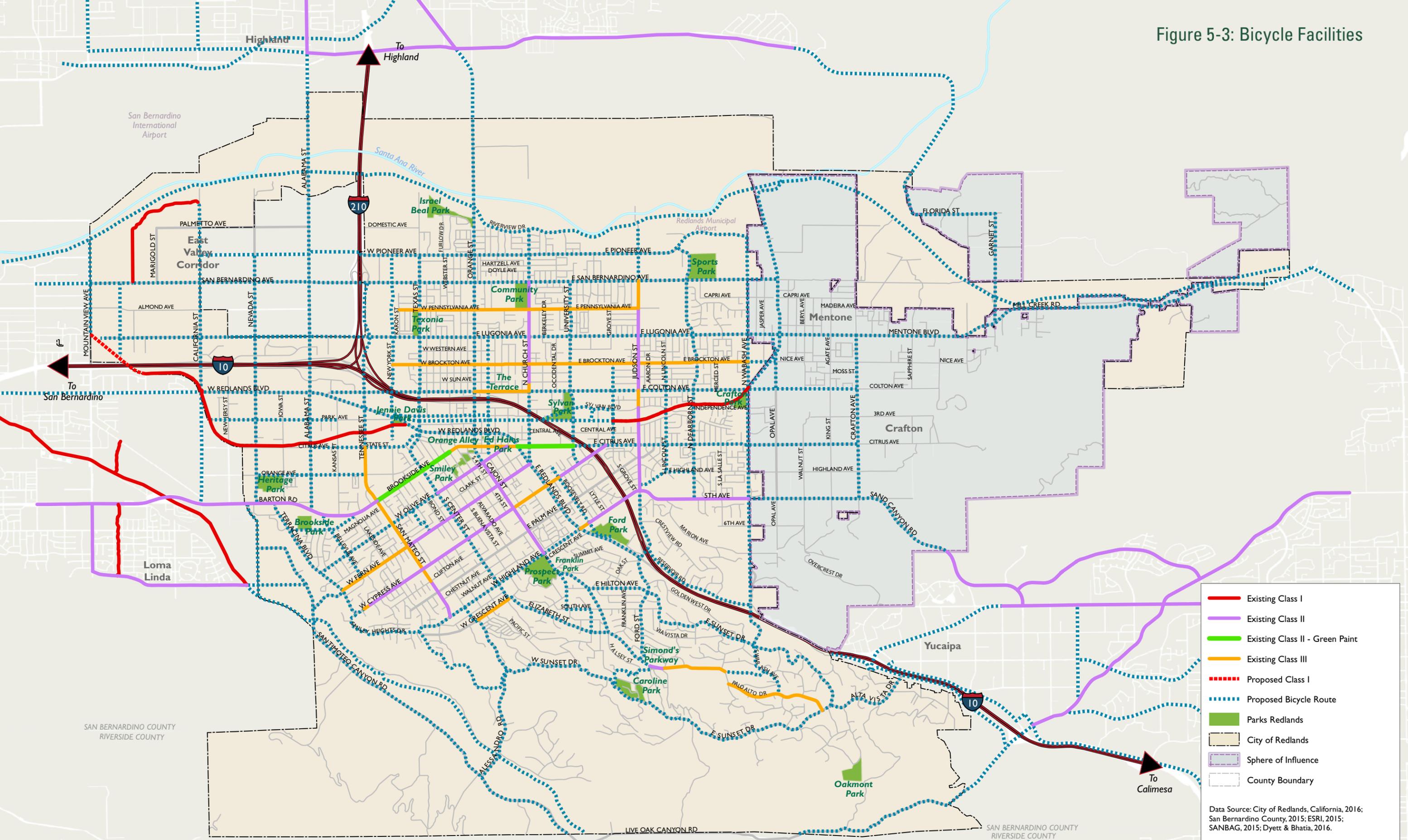
Redlands accommodates bicyclists via Class I (bottom left), Class II (top) and Class III (bottom right) bicycle lanes.



Illustration from the "Bicycle Facility Design Guidelines for the City of Redlands Bicycle Master Plan" shows potential configurations for Class IV bikeways in the city.

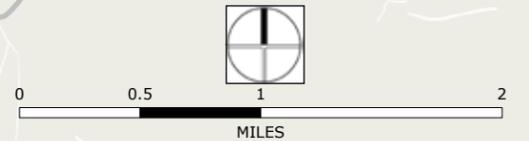
Source: Bicycle Facility Design Guidelines for the City of Redlands Bicycle Master Plan, 2015.

Figure 5-3: Bicycle Facilities



	Existing Class I
	Existing Class II
	Existing Class II - Green Paint
	Existing Class III
	Proposed Class I
	Proposed Bicycle Route
	Parks Redlands
	City of Redlands
	Sphere of Influence
	County Boundary

Data Source: City of Redlands, California, 2016; San Bernardino County, 2015; ESRI, 2015; SANBAG, 2015; Dyett & Bhatia, 2016.



## POLICIES

### Principles

- 5-P.20** Establish and maintain a comprehensive network of on- and off-roadway bike routes to encourage the use of bikes for both commuter and recreational trips.
- 5-P.21** Develop bike routes that provide access to rail stations, Downtown, schools, parks, the University, employment, and shopping destinations.

### Actions

*For bikeway designations, see Figure 5-3. For more detailed bicycle movement policies, improvements, and priorities, see the Redlands Bicycle Master Plan, which is published and maintained separate from the General Plan.*

- 5-A.24** Use the City's Bicycle Master Plan as the primary resource for planning and implementing bikeway improvements.
- The Bicycle Master Plan, adopted in 2015, proposes an extensive network with over 100 additional miles of bicycle facilities. The plan should be updated as needed to reflect the updated General Plan, including proposals for new streets and connections in the Transit Villages.*
- 5-A.25** Implement bicycle and trail improvements that provide strong east-west connections between Transit Villages and in the city's wider bicycle network. Routes would include the Orange Blossom Trail, the Mission Creek Zanja Trail,

routes on Colton Avenue and Citrus Avenue, Santa Ana River Trail, and the San Timoteo Canyon Trail.

- 5-A.26** Implement bicycle and trail improvements that provide strong north-south connections, especially with major east-west trails, including routes on Mountain View Avenue, California Street, Nevada Street, Alabama Street, Texas Street, New York Street, Orange Street, Church Street, Dearborn Street, and Wabash Avenue.
- 5-A.27** Implement safety improvements in mid-block areas that allow for bicycles to safely cross heavily traveled roads. Improvements can include stop signs for cyclists, warning beacons, and illuminated signs initiated by pedestrians and cyclists.
- 5-A.28** Seek assistance from major employers in providing support facilities to encourage use of bikes for commuter purposes.
- 5-A.29** Incorporate end-of-trip facilities into Transportation Demand Management (TDM) plans at employment sites and public facilities, depending upon distance from bikeways. Provide well-located, secure bike storage facilities at employment sites, shopping and recreational areas, and schools in order to facilitate bike use. Encourage major employers to provide shower and changing facilities or assist in funding bicycle transit centers in nearby locations.

- 5-A.30** Implement bicycle route improvements that provide inter-city and regional connections, connecting to trail systems in Loma Linda, Highland, Yucaipa, San Bernardino, and the Santa Ana River Trail.
- 5-A.31** Work with neighboring jurisdictions, the University of Redlands, and major employers to implement bike sharing programs.
- 5-A.32** Work with neighboring cities and the County to seek grants for bike routes and facilities that span jurisdictions.





## Vehicular Movement and Standards for Traffic Service

With 89 percent of commute trips made by driving alone or by carpool, the automobile is by far the dominant mode of transportation in Redlands. Generally, traffic conditions in Redlands are good in comparison to communities nearer the center of the Southern California metropolis. Residents can travel across town in about 10 minutes, and there are relatively few locations with high levels of congestion and traffic delays. As Southern California grows, traffic congestion will worsen, particularly on the freeways. Providing multi-modal options for mobility will assist in alleviating vehicular traffic congestion.

### Roadway Classification System

The circulation network is composed of five classifications:

- **Freeways.** Freeways are high speed, high capacity limited access facilities serving intercity and regional travel. In Redlands, both I-10 and I-210 are freeways.
- **Arterials.** Arterials provide circulation between major activity centers and residential areas, and also provide access to freeways. They are further subdivided into two categories: major and minor arterials.
  - *Major arterials* usually carry the highest volumes and/or longest trips and are moderately high speed routes, typically four to six lanes wide. For high capacity they should have medians between opposite directional travel lanes and additional lanes at intersections. Service to abutting properties may be provided but should be subordinate to through-travel needs. Redlands Boulevard, Brookside Avenue, and Alabama Street are

examples of major arterials that must permit access to abutting property. Access points should be consolidated where possible.

- *Minor arterials* typically interconnect with and augment the major arterial system, and serve trips of moderate length. Minor arterials may permit access to abutting properties, although traffic capacity needs are equally important. Minor arterials are typically no more than four lanes wide and, to minimize roadway width and right-of-way, may be undivided (no median). Lower volume minor arterials may be two lanes wide, although left-turn lanes at intersections and/or a continuous two-way left turn lane should be provided to improve traffic flow. Orange Street and Colton Avenue are examples of minor arterials.
- **Boulevards.** Boulevards are streets designed to foster a memorable image, with a great deal of visibility, a landscaped median, shade trees, and wide sidewalks. Central parts of Redlands Boulevard, Orange Street, Colton Avenue, and University Street are designated as boulevards.
- **Collectors.** Collectors have the important function of collecting traffic from residential and commercial areas and channeling it to arterials. They are typically fronted by residences, commercial or public activities. Collectors are usually two-lane streets, and maximum acceptable volumes are dictated by resident concerns about intrusion rather than traffic capacity considerations. Examples are Pioneer Avenue, Dearborn Street, and Alessandro Road. Additional collectors should be provided as necessary in future development areas.
- **Local Streets.** Local streets have the sole function of providing access to adjoining land uses.

Figure 5-4 shows roadway designations. Figure 5-5 shows illustrative street sections to guide the design of roadways of different classifications in Redlands,

describing potential dimensions and placement of traffic lanes, bicycle facilities, parking lanes, and sidewalks.

### Traffic Operations and Level of Service

For the General Plan, roadway segments were analyzed based on the level-of-service (LOS) metric to determine their existing operation. LOS ranges from LOS A, which refers to very low vehicle delay occurring with favorable progression, to LOS F, referring to congested conditions due to over saturation and poor progression. LOS E represents at-capacity operations where demand typically equals capacity during peak periods. Table 5-1 provides LOS definitions.

While there are several segments of the two freeways in Redlands (I-10 and I-210) that operate at levels ranging from LOS D to F, a vast majority of major arterial roadway segments in Redlands operate at LOS C or better, and of the remaining, all except one operate at LOS D. A majority of minor arterials also operate at LOS C, and only one segment operates at LOS D.

General Plan land uses and circulation networks were used to project future traffic conditions. Volume/capacity (V/C) ratios were calculated, and LOS rating prepared based on ranges given in Table 5-3. Table 5-4 shows existing and projected LOS conditions. Although the traffic projections are for total daily traffic, the LOS estimates are for peak hours (typically a.m. and p.m. commute hours) since these dictate the need for roadway improvements. During other hours of the day higher levels of service would occur.

**TABLE 5-2: LEVEL OF SERVICE DEFINITIONS**

		Volume to Capacity Ratio	
		Freeway Segments	Street Segments
Level of Service A	Conditions of free flow; speed is controlled by driver's desires, speed limits, or physical roadway conditions.	0 to 0.3	0 to 0.6
Level of Service B	Conditions of stable flow; operating speeds beginning to be restricted; little or no restrictions on maneuverability from other vehicles.	0.3 to 0.5	0.6 to 0.7
Level of Service C	Conditions of stable flow; speeds and maneuverability more closely restricted; occasional backups behind left-turning vehicles at intersections.	0.5 to 0.7	0.7 to 0.8
Level of Service D	Conditions approach unstable flow; tolerable speeds can be maintained but temporary restrictions may cause extensive delays; little freedom to maneuver; comfort and convenience low; at intersections, some motorists, especially those making left turns, may wait through one or more signal changes.	0.7 to 0.8	0.8 to 0.9
Level of Service E	Conditions approach capacity; unstable flow with stoppages of momentary duration; maneuverability severely limited.	0.9 to 1.0	0.9 to 1.0
Level of Service F	Forced flow conditions; stoppages for long periods; low operating speeds.	>1.0	>1.0

**TABLE 5-3: ROADWAY/HIGHWAY SEGMENT LEVEL OF SERVICE AND CAPACITY VALUES**

	LOS C	LOS D	LOS E
<b>Freeway</b>			
4-Lane	64,500	72,500	80,600
6-Lane	96,700	108,800	120,900
7-Lane	112,800	126,900	141,000
8-Lane	128,900	145,000	161,100
10-Lane	161,200	181,300	201,400
12-Lane	193,400	217,500	241,700
<b>Major Arterial, Boulevard, Minor Arterial</b>			
2-Lane	13,200	14,900	16,500
3-Lane	19,800	22,300	24,800
4-Lane	26,500	29,800	33,100
6-Lane	39,800	44,700	49,700
<b>Collector, Rural Arterial, Local Road</b>			
2-Lane	12,900	14,500	16,100

Source: Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.



**TABLE 5-4: EXISTING AND PROJECTED LOS CONDITIONS**

Location	Existing (2016)			Buildout (2035 Projected)		
	Lanes	ADT	LOS	Lanes	ADT	LOS
<b>5th St.</b>						
Dearborn St. and Silvertree Ln.	2	8,603	C or Better	2	8,800	C or Better
<b>Alabama St.</b>						
Palmetto Ave. and Pioneer Ave.	2	16,930	F	4	19,500	C or Better
Park Ave. and Citrus Ave.	4	16,340	C or Better	4	16,400	C or Better
Orange St. and Barton Rd.	4	12,274	C or Better	4	12,900	C or Better
<b>Alessandro Rd.</b>						
Creekside Dr. and San Timoteo Canyon Rd.	2	4,659	C or Better	2	5,200	C or Better
<b>Barton Rd.</b>						
Nevada St. and Terracina Blvd.	4	25,130	C or Better	4	28,900	C or Better
<b>Beaumont Ave.</b>						
East of Nevada St.	2	2,566	C or Better	2	2,900	C or Better
<b>Cajon St.</b>						
Vine St. and Olive St.	2	10,110	C or Better	2	10,500	C or Better
<b>California St.</b>						
North of San Bernardino Ave.	4	5,928	C or Better	4	6,000	C or Better
<b>Center St.</b>						
Brookside Ave. and Glenwood Dr.	2	7,545	C or Better	2	7,800	C or Better
<b>Church St.</b>						
Pennsylvania Ave. and Lugonia Ave.	2	6,964	C or Better	2	7,000	C or Better
Stuart Ave. and Central Ave.	2	7,222	C or Better	2	7,300	C or Better
<b>Citrus Ave.</b>						
6 <sup>th</sup> St. and Olive St.	2	9,262	C or Better	2	9,500	C or Better
Dearborn St. and La Salle St.	2	6,785	C or Better	2	6,800	C or Better
<b>Colton Ave.</b>						
Dearborn St. and Kensington Dr.	2	5,960	C or Better	2	6,300	C or Better
<b>Crafton Ave.</b>						
Mentone Ave. and Nice Ave.	2	6,284	C or Better	2	6,800	C or Better
<b>Cypress St.</b>						
Center St. and Buena Vista St.	4	7,305	C or Better	4	7,500	C or Better
Roosevelt Rd. and Lytle St.	2	9,068	C or Better	2	9,100	C or Better
<b>Eureka St.</b>						
North of Redlands St.	4	14,844	C or Better	4	15,400	C or Better
<b>Fern Ave.</b>						
Myrtle St. and Redlands St.	2	5,162	C or Better	2	5,200	C or Better
<b>Ford St.</b>						
Palm Ave. and Highland Ave.	2	5,147	C or Better	2	5,900	C or Better
<b>Highland Ave.</b>						
York St. and Redlands St.	3	7,776	C or Better	3	11,800	C or Better
<b>Judson St.</b>						
Pennsylvania Ave. and Lugonia Ave.	2	3,541	C or Better	2	3,900	C or Better

Location	Existing (2016)			Buildout (2035 Projected)		
	Lanes	ADT	LOS	Lanes	ADT	LOS
<b>Lugonia Ave.</b>						
West of California St.	4	4,920	C or Better	4	8,300	C or Better
Dearborn St. and Revelation Wy.	4	22,016	C or Better	4	23,400	C or Better
Herald St. and Church St.	3	18,202	C or Better	4	20,800	C or Better
Citrus Ave. and SR-210	4	17,804	C or Better	4	22,400	C or Better
<b>Mentone Ave.</b>						
Crafton Ave. and Plumwood St.	2	11,855	C or Better	4	14,400	C or Better
<b>Nevada St.</b>						
Almond Ave. and Lugonia Ave.	2	4,799	C or Better	2	4,800	C or Better
<b>Orange St.</b>						
North of Pioneer Ave.	2	14,276	D	4	18,800	C or Better
Stuart Ave. and Oriental Ave.	4	18,560	C or Better	4	22,200	C or Better
<b>Palm Ave.</b>						
Hibiscus Dr. and Redlands St.	2	4,409	C or Better	2	4,500	C or Better
<b>Pioneer Ave.</b>						
Texas St. and Webster St.	2	6,438	C or Better	2	10,300	C or Better
Brookstone St. and Church St.	2	4,897	C or Better	2	8,800	C or Better
<b>Redlands Blvd.</b>						
Bryn Mawr Ave. and California St.	4	15,174	C or Better	4	16,800	C or Better
Iowa St. and Alabama St.	4	21,138	C or Better	4	22,400	C or Better
Cypress St. and Palm Ave.	4	12,834	C or Better	4	15,900	C or Better
<b>San Bernardino Ave.</b>						
Mountain View Ave. and Marigold Ave.	6	15,732	C or Better	6	18,000	C or Better
Cheryl St. and Judson St.	2	7,371	C or Better	2	9,600	C or Better
<b>San Mateo St.</b>						
Brookside Ave. and Olive St.	4	9,734	C or Better	4	10,100	C or Better
<b>San Timoteo Canyon Rd.</b>						
South of Barton Rd.	2	7,696	C or Better	2	7,700	C or Better
West of Alessandro Rd.	2	8,854	C or Better	2	10,100	C or Better
<b>Sand Canyon Rd.</b>						
East of Crafton Ave.	2	11,149	C or Better	2	11,900	C or Better
<b>Tennessee St.</b>						
I-10 and Colton Ave.	4	22,322	C or Better	4	25,200	C or Better
State St. and Orange St.	4	12,725	C or Better	4	12,800	C or Better
<b>Terracina Blvd.</b>						
Barton Rd. and Brookside Ave.	2	11,936	C or Better	2	12,700	C or Better
<b>Texas St.</b>						
Pennsylvania Ave. and Lugonia Ave.	2	5,246	C or Better	2	5,500	C or Better
<b>University St.</b>						
Pennsylvania Ave. and Lugonia Ave.	2	2,875	C or Better	2	2,900	C or Better
<b>Wabash Ave.</b>						
Highland Ave. and 5th St.	2	4,383	C or Better	2	5,000	C or Better



Boulevards in Redlands (from top) include portions of Colton Avenue, Redlands Boulevard, and Orange Street.

## POLICIES

### Principles

- 5-P.22** Reduce vehicular congestion to portions of the layered network in the city's neighborhoods and neighborhood retail areas to the greatest extent feasible.
- 5-P.23** Strive to maximize the efficiency of the existing vehicular infrastructure and manage the major boulevards and avenues so they provide shorter travel times than parallel minor avenues or neighborhood streets, consistent with the layered network.
- 5-P.24** Discourage the use of City streets as alternatives to congested regional highways.
- 5-P.25** Review and coordinate circulation requirements with Caltrans as it pertains to the freeways and state highways.

### Actions

#### Vehicular Movement and Standards for Traffic Service

*For a map of Roadway designations, see Figure 5-4.*

- 5-A.33** Monitor traffic service levels and strive to implement roadway improvements prior to deterioration in levels of service below the stated standard.
- 5-A.34** Prioritize completion of full road sections in areas where the full road section is not built out, and is unlikely to be completed through the normal development/redevelopment requirements.
- 5-A.35** Utilize transportation demand management strategies, non-automotive enhancements (bicycle, pedestrian, transit, train, trails, and connectivity), and traffic signal management techniques as part of a long-term transportation solution and traffic mitigation strategy.
- 5-A.36** Allow for flexibility and creativity in the roadway standards, where appropriate, to preserve historic features, specimen trees and significant landscaping, accommodate turn lanes, parking, wider sidewalks, bike paths, turnouts for buses, public art, and landscaped medians.
- 5-A.37** Encourage the use of car share and car hire services within Redlands to provide vehicular transportation alternatives.
- 5-A.38** Plan for future innovations in vehicular transportation such as self-driving vehicles.

**5-A.39** Allow the City Engineer to adjust road standards where needed, based on actual conditions on the ground, such as right-of-way availability, traffic volumes, and adjoining land uses.

**5-A.40** Plan for areas where alternative fueling stations can be located throughout the city, such as electric charging stations, CNG, hydrogen, and flex fuels.

**5-A.41** Work with San Bernardino County, the City of San Bernardino, the City of Loma Linda, and Caltrans, where appropriate, to implement the intersection and roadway improvements as shown in Table 5-5 and Figure 5-4.

*Freeways*

**5-A.42** Work with State, regional, and federal transportation agencies in the continued improvement of freeways and interchanges within the city.

**5-A.43** Support improvements to I-10 and I-210 that improve capacity and flow.

*Boulevards and Arterials*

**5-A.44** Establish new boulevards Downtown and in the Transit Villages that include planted center medians, accommodations for transit, wider sidewalks, and amenities for pedestrians.

**5-A.45** Provide adequate capacity on boulevards and arterials to meet LOS standards, and to avoid traffic diversion to local streets or freeways.

**5-A.46** Locate high traffic-generating uses so that they have direct access or immediate secondary access to arterials or boulevards.

**5-A.47** Maximize the carrying capacity of arterials and boulevards by controlling the number of driveways and intersections, limiting residential access where appli-

cable, and requiring sufficient on-site parking to meet the needs of proposed projects.

*Additional guidelines for arterial and boulevard access include providing smooth ingress/egress to fronting development. This entails designing parking areas so that traffic does not stack up on the arterial roadway, combining driveways to serve small parcels, and maintaining adequate distance between driveways and intersections to permit efficient traffic merges. Implementation of these guidelines is especially important along Alabama Street, San Bernardino Avenue, and Redlands Boulevard.*

*Collector and Local Streets*

**5-A.48** Discourage through-traffic on local streets.

**5-A.49** Avoid adding traffic to collector and local streets carrying volumes above capacity, and consider traffic control

measures where volumes exceed the standard and perceived nuisance is severe.

**5-A.50** Plan an integrated network of collector and local streets serving new neighborhoods. Design cul-de-sacs so they have pedestrian/bike connections at the terminus.

**5-A.51** Provide for a network of collectors in the northwest areas to minimize traffic levels on San Bernardino Avenue, Lugonia Avenue, and Orange and Texas streets.

**5-A.52** Adopt design standards for hillside and rural streets.

**5-A.53** Allow the City Engineer to require additional right-of-way and pavement width for local and collector roads in the Commercial, Commercial/Industrial, Light Industrial, and Public/Institutional land use designations based on existing street sections, traffic volumes, and truck traffic.

**5-A.54** Ensure that local roadways within the Southeast Area Plan are designed for relatively low speeds, follow the natural contours, and avoid rather than cut through the inherent obstacles of nature. It is recognized that this may require that adjacent land uses be low intensity to ensure that this slow-speed, low-volume system is not overloaded.

**5-A.55** Permit flexibility in establishing local road standard in the Resource Preservation, Rural Living, and Hillside Conservation areas for local roads where a more rural character is desired. This may include alternative curb treatments in lieu of concrete curb and gutter, the establishment of trails versus sidewalks, and a reduced pavement width, when such conditions are consistent with neighboring development.

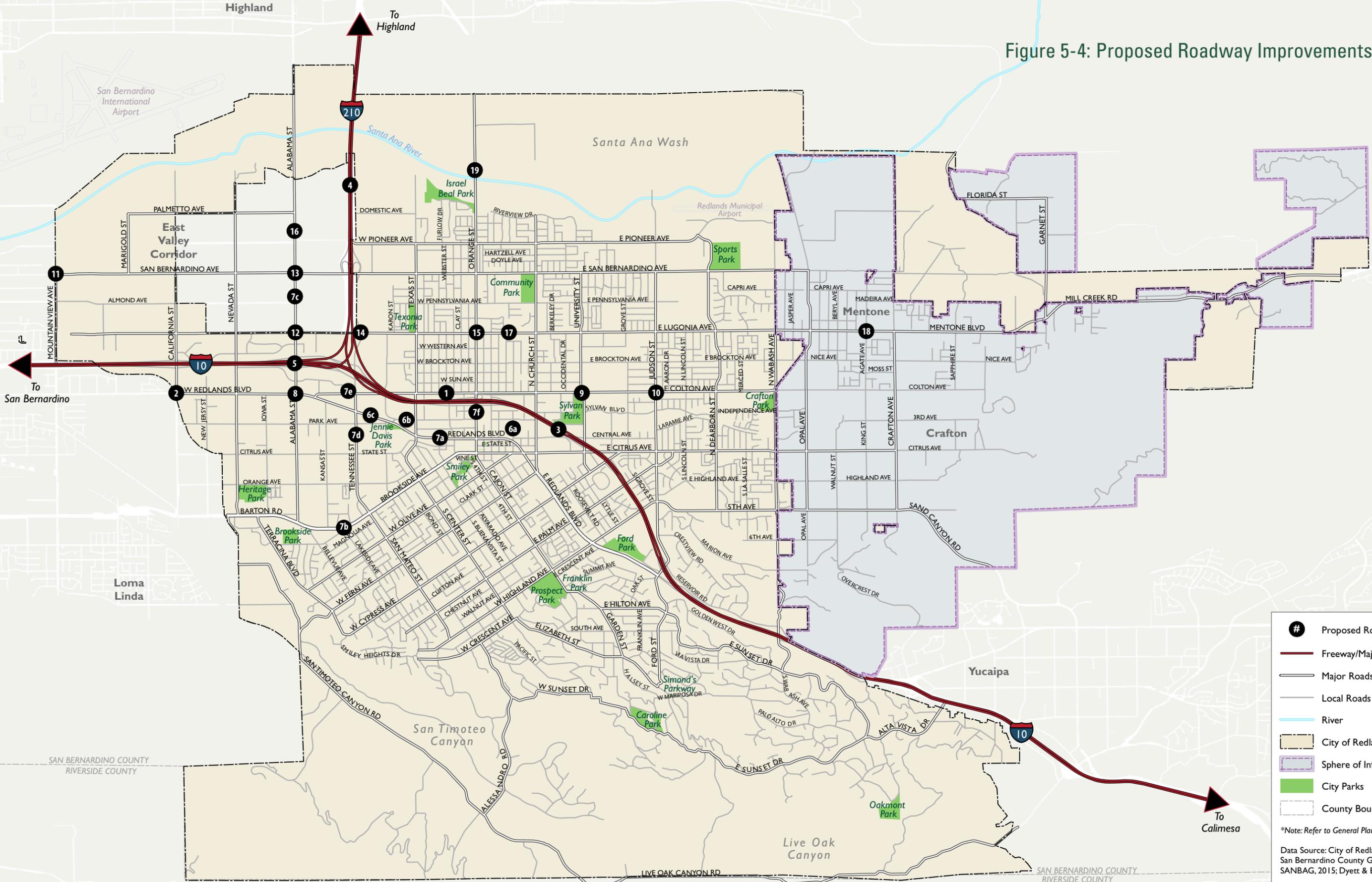
**5-A.56** Alessandro Road shall be improved, with specific attention paid to the Sunset Drive intersection and the San Timoteo Creek bridge crossing.



*Local neighborhood streets are quieter and smaller in scale than major arterials.*



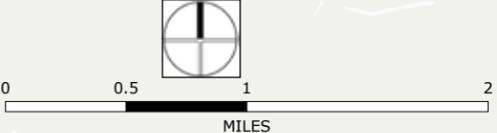
Figure 5-4: Proposed Roadway Improvements



- # Proposed Roadway Improvement\*
- Freeway/Major Highway
- Major Roads
- Local Roads
- River
- City of Redlands
- Sphere of Influence
- City Parks
- County Boundary

\*Note: Refer to General Plan Table 5-5.

Data Source: City of Redlands, California, 2016; San Bernardino County GIS, 2015; ESRI, 2015; SANBAG, 2015; Dyett & Bhatia, 2016.

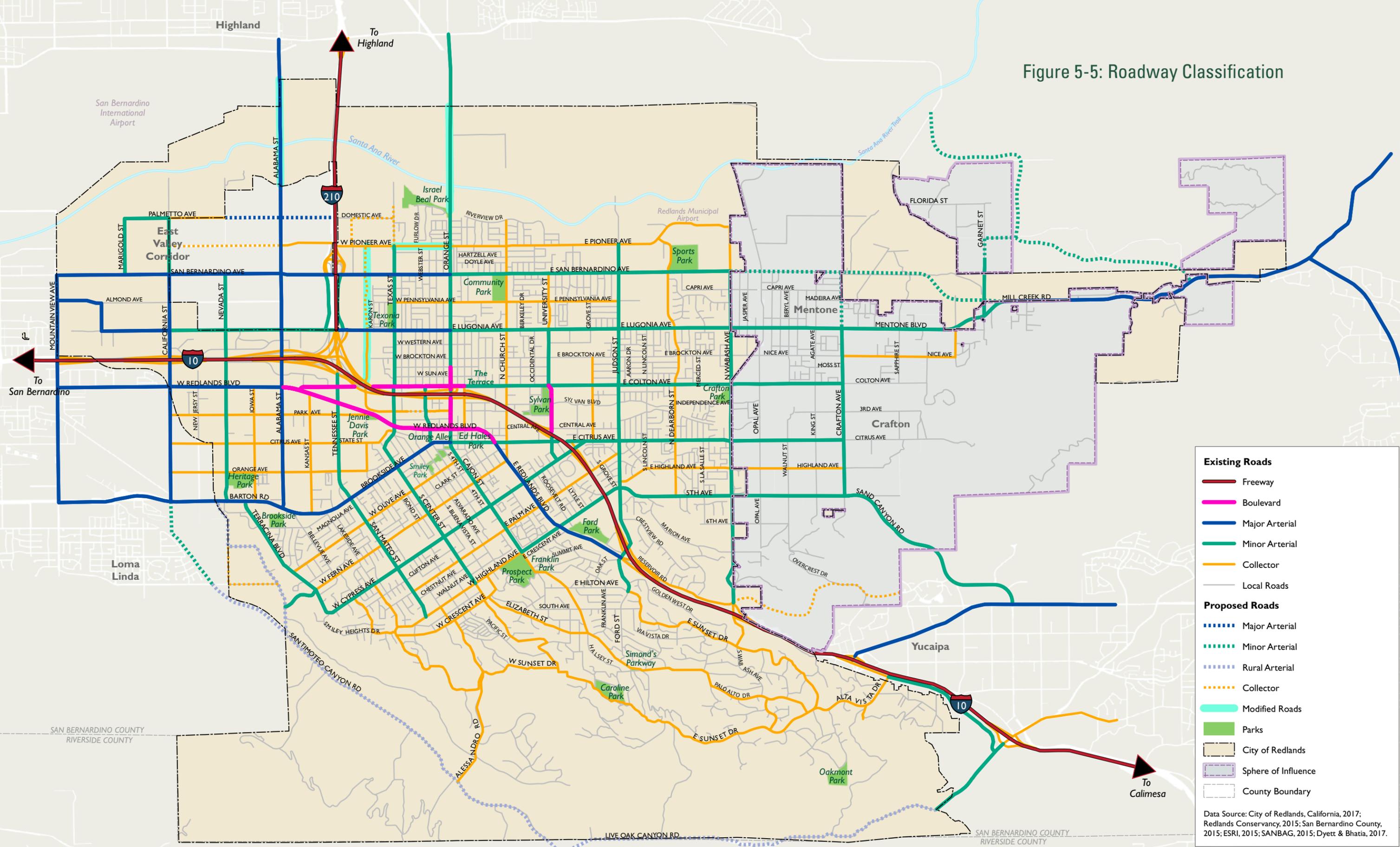


**TABLE 5-5: PROPOSED ROADWAY IMPROVEMENTS**

This table shows planned circulation improvements. The numbers in the first column correspond with numbers shown on Figure 5-4 on the facing page. Given that the horizon of the General Plan is 2035, implementation of many improvements may occur over an extended time period and may be phased given factors such as intensity of adjoining land uses. These planned improvements are based on traffic information and forecasting assumptions and methodology current as of 2017. No General Plan amendment is needed if improvements in circulation technology, availability of additional and more current information at the time an improvement is needed or designed, or other factors enable acceptable LOS to be attained with an alternative set of improvements.

Number	Segment	Improvement	Jurisdiction
<b>Adaptive Traffic Control System</b>			
7 (a-f)	Redlands Boulevard (a); Barton Road/Brookside Avenue/Citrus Avenue (b); Alabama Street (c); Tennessee Street (d); Colton Avenue (e); Orange Street/Cajon Street (f)	Implementation of an adaptive traffic control system citywide	City of Redlands
<b>Intersections</b>			
1	Intersection of Eureka Street and Colton Avenue	Installation of a traffic signal	City of Redlands
2	Intersection of California Street and Redlands Boulevard	Realignment of California Street at Redlands Boulevard to a typical 4-legged intersection	City of Loma Linda
8	Intersection of Alabama Street and Redlands Boulevard	Dedicated southbound right-turn lane	City of Redlands
9	Intersection of University Street and Colton Avenue	Installation of a traffic signal	City of Redlands
10	Intersection of Judson Street and Colton Avenue	Installation of a traffic signal	City of Redlands
11	Intersection of Mountain View Avenue and San Bernardino Avenue	Reconfigure the eastbound approach to provide two through lanes and a dedicated right-turn lane. Provide a second westbound left-turn lane on the westbound approach and a second southbound receiving lane. Right-of-way acquisition may be required for the second southbound receiving lane.	City of Redlands & City of San Bernardino
12	Intersection of Alabama Street and Lugonia Avenue	Provide a dedicated northbound right-turn lane and a second westbound left-turn lane. These improvements can be accommodated within the existing right-of-way.	City of Redlands & San Bernardino County
13	Intersection of Alabama Street and San Bernardino Avenue	Reconfigure the eastbound approach to include three through lanes and a dedicated right-turn lane, and reconfigure the westbound approach to include dual left-turn lanes. Optimize signal timing and splits. Right-of-way acquisition may be required.	San Bernardino County
14	Intersection of Tennessee Street and Lugonia Avenue	Reconfigure northbound approach to provide two through lanes and two dedicated right-turn lanes. Reconfigure the southbound approach to provide a dedicated left-turn lane, a shared through/left lane and a shared through/right lane. Optimize signal timing and splits. Right-of-way acquisition may be required. Implementation of these mitigation measures would improve PM peak hour operations to LOS C and reduce the impact to less than significant.	Caltrans
15	Intersection of Orange Street and Lugonia Avenue	Install a dedicated right-turn lane on the eastbound approach, install dual left-turn lanes on the southbound approach, and install an additional through lane on the northbound and southbound approaches. Optimize signal timing and splits. Right-of-way acquisition may be required. Implementation of these mitigation measures would improve AM and PM peak hour operations to LOS C and reduce the impact to less than significant.	Caltrans
<b>Roadways</b>			
3	I-10 from I-10/I-15 interchange to California Street; I-10 from California Street to Ford Street	Implementation of two express lanes in each direction from I-10/I-15 interchange to California Street; Implementation of one express lane in each direction from California Street to Ford Street for a total of 10 to 12 lanes; Auxiliary lanes, undercrossings, overcrossings, ramp reconstruction, and lane transitions where needed. This improvement is listed in the SCAG RTP/SCS as FTIP ID 20159903 and is expected to be completed by 2024.	Caltrans
4	I-210 from Highland Avenue to San Bernardino Avenue; I-210 between Base Line and 5th Streets; and I-210 at 5th Street eastbound on-ramp; I-210 at Highland Avenue eastbound off-ramp extending to Sterling Avenue	Add one mixed-flow lane in each direction from Highland Avenue to San Bernardino Avenue; Auxiliary lanes between Base Line and 5th Streets and an acceleration lane at 5th Street eastbound on-ramp and deceleration lane at Highland Avenue E/B off-ramp extending to Sterling Avenue This improvement is listed in the SCAG RTP/SCS as FTIP ID 20111625 and is expected to be completed by 2021.	Caltrans
5	I-10/Alabama Street Interchange	Widening overcrossing to two to three lanes in each direction and ramp reconfiguration. This improvement is listed in the SCAG RTP/SCS as FTIP ID 20159907 and is expected to be completed by 2024.	Caltrans
6a, 6b, 6c	9th Street (a); West Stuart Avenue (b); Wyatt's Auto Body Private Crossing (c)	Full crossing road closure with the implementation of Redlands Rail	City of Redlands
16	Alabama Street from Pioneer Avenue to Palmetto Avenue	Widen the roadway from one lane in each direction to two lanes in each direction	San Bernardino County
17	Lugonia Avenue from Tribune Avenue to Church Street	Widen this roadway from one westbound lane and two eastbound lanes to two lanes in each direction	Caltrans
18	Mentone Boulevard from Wabash Avenue to Mentone City Limits	Widen this roadway from two lanes in each direction to four lanes in each direction	Caltrans
19	Orange Street from Pioneer Avenue to City Limits	Widening of Orange Street to four lanes	City of Redlands

Figure 5-5: Roadway Classification



**Existing Roads**

- Freeway
- Boulevard
- Major Arterial
- Minor Arterial
- Collector
- Local Roads

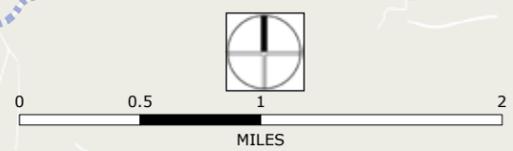
**Proposed Roads**

- Major Arterial
- Minor Arterial
- Rural Arterial
- Collector
- Modified Roads

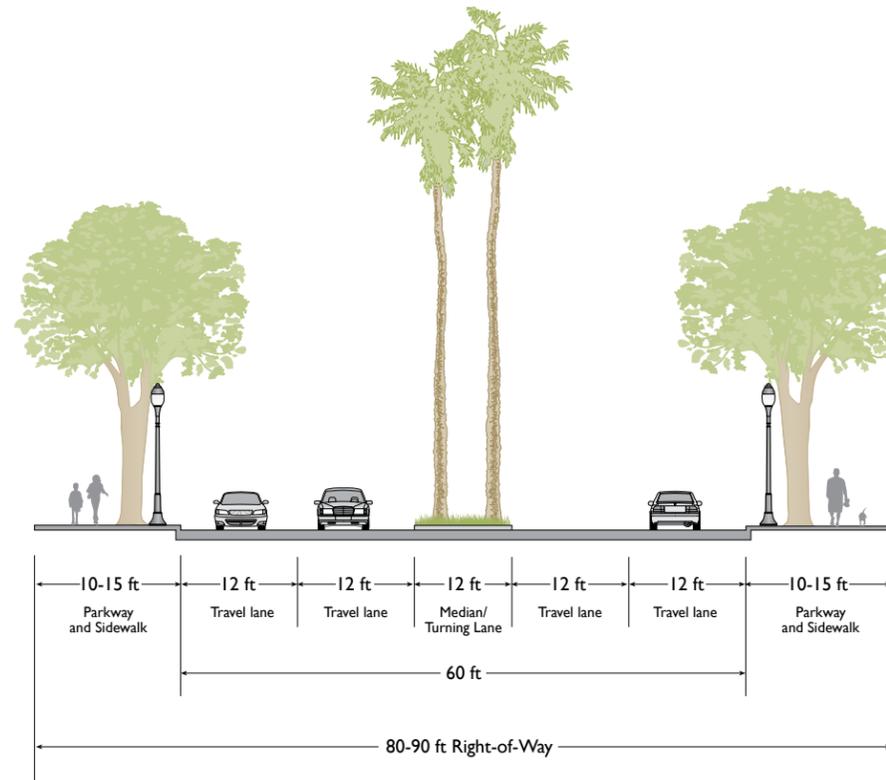
**Other Symbols**

- Parks
- City of Redlands
- Sphere of Influence
- County Boundary

Data Source: City of Redlands, California, 2017; Redlands Conservancy, 2015; San Bernardino County, 2015; ESRI, 2015; SANBAG, 2015; Dyett & Bhatia, 2017.

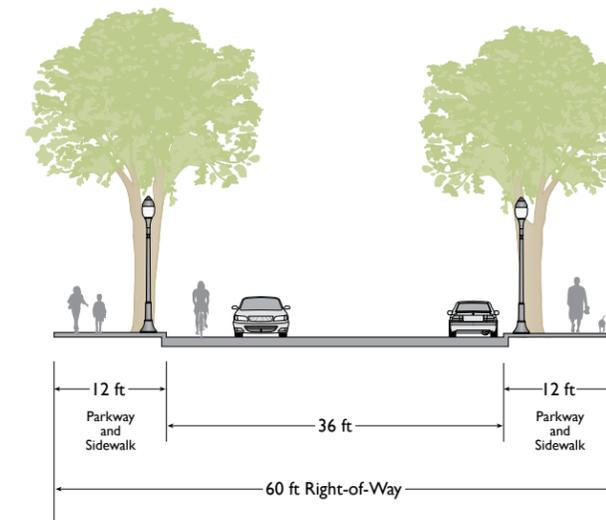


**BOULEVARDS**

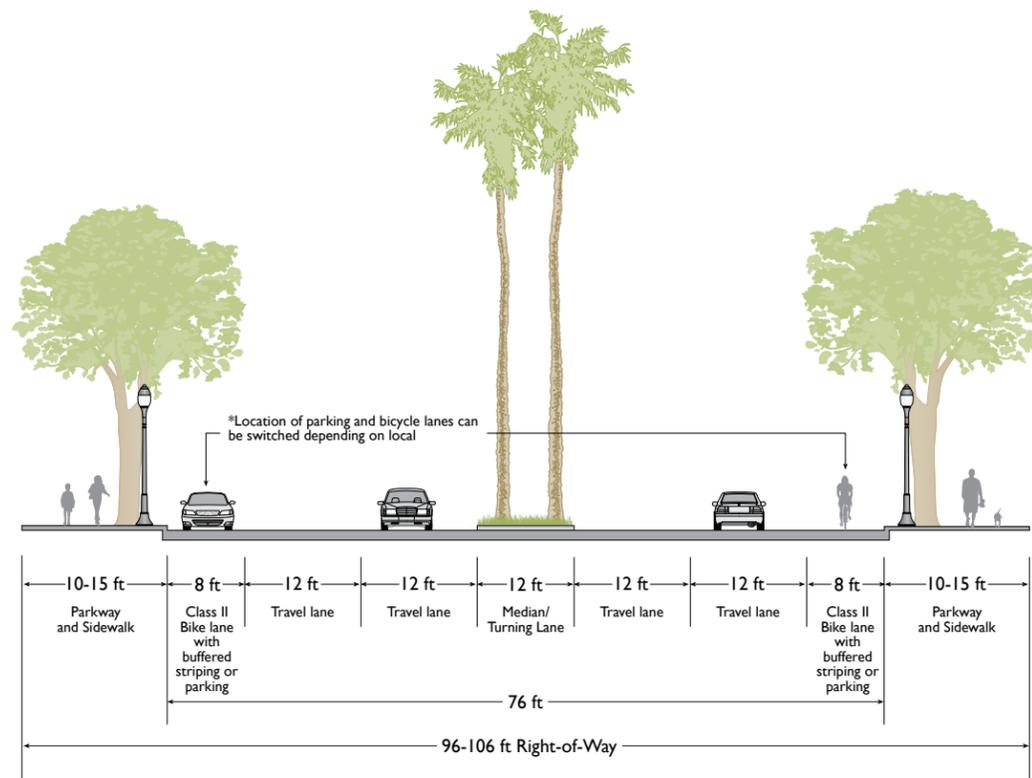


**a. Boulevard (Standard)**

**LOCAL STREET**



**c. Local Street (Standard)**



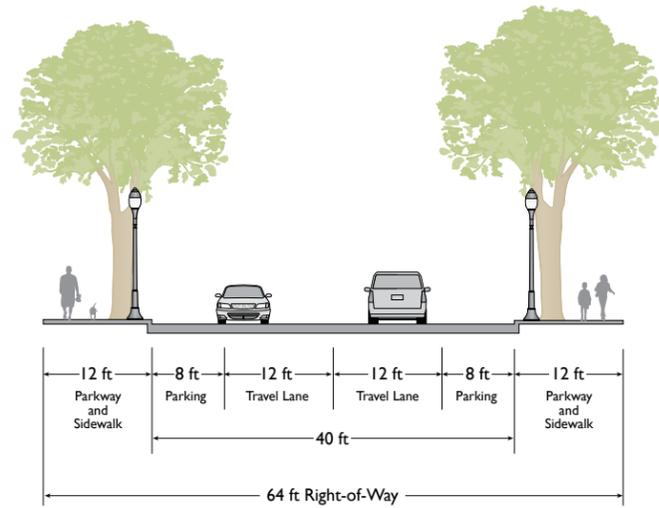
**b. Boulevard (Complete Streets)**

**Notes:**

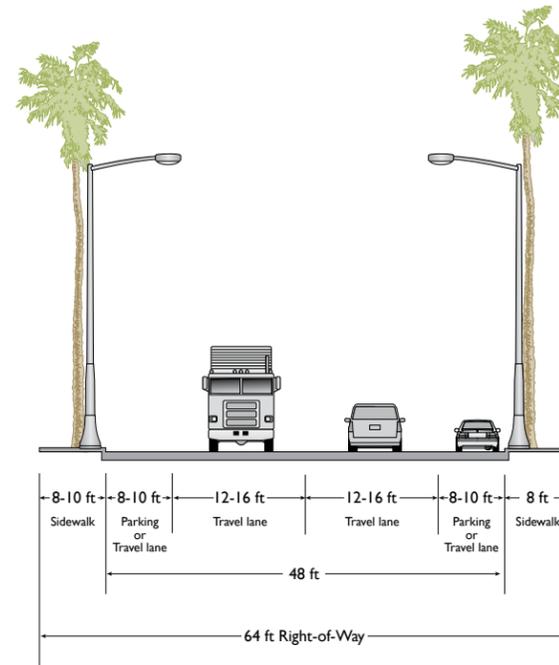
1. Street sections are illustrative. Minor variations and deviations from dimensions are permitted, and would not require a General Plan Amendment.
2. Bicycle facilities are based on dimensions included in the Bicycle Facility Design Guidelines for the Bicycle Master Plan (2015).

Figure 5-6: Illustrative Street Sections (Cont.)

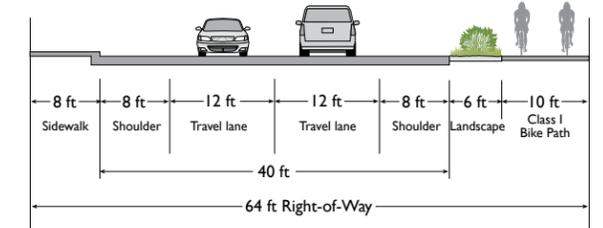
**COLLECTORS**



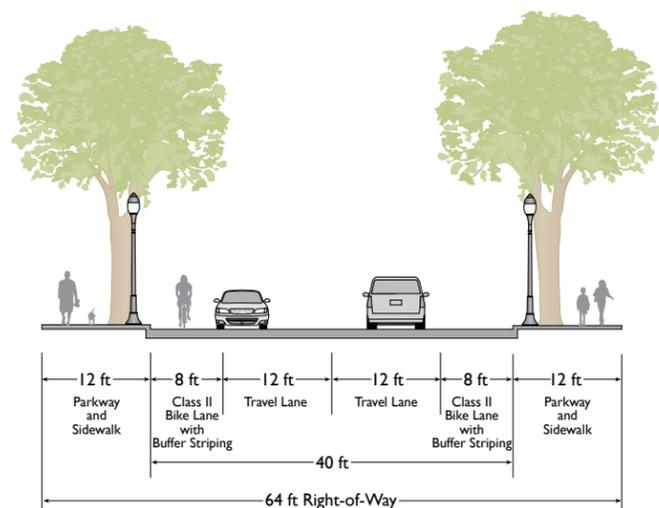
**d. Collector – Residential (Standard)**



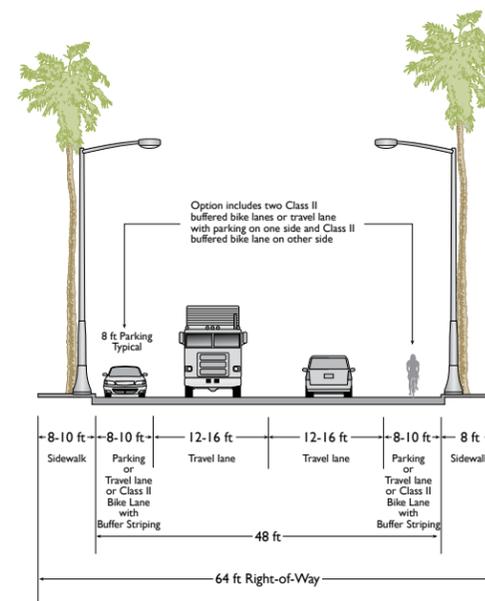
**f. Collector – Industrial (Standard)**



**h. Alternative Collector**



**e. Collector – Residential (Complete Streets)**

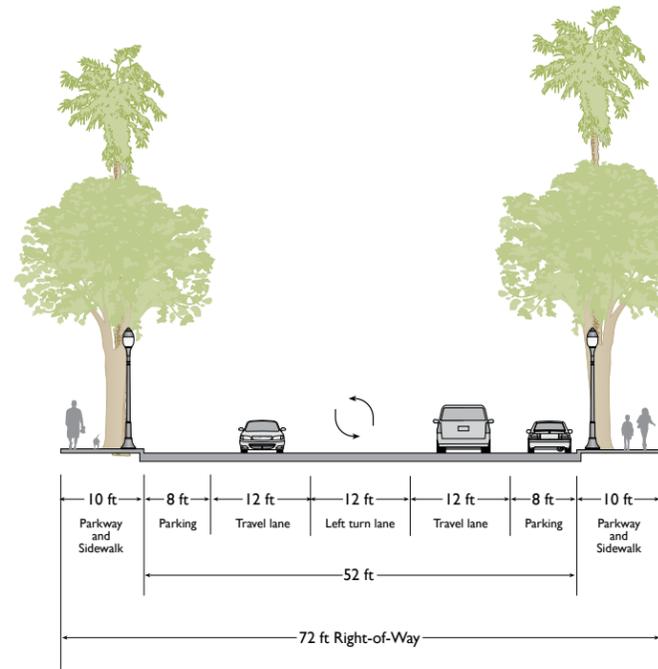


**g. Collector – Industrial (Complete Streets)**

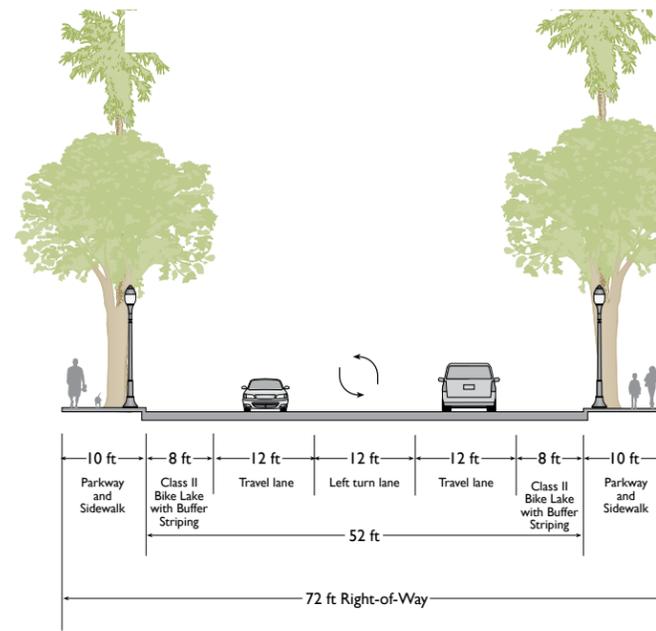
**Notes:**

1. Street sections are illustrative. Minor variations and deviations from dimensions are permitted, and would not require a General Plan Amendment.
2. Bicycle facilities are based on dimensions included in the Bicycle Facility Design Guidelines for the Bicycle Master Plan (2015).

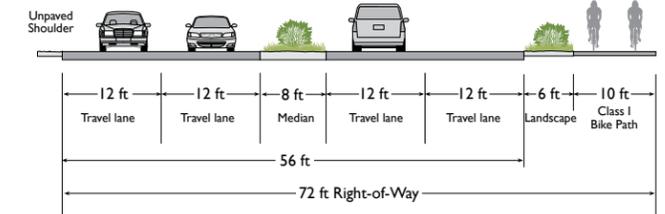
**MINOR AND RURAL ARTERIALS**



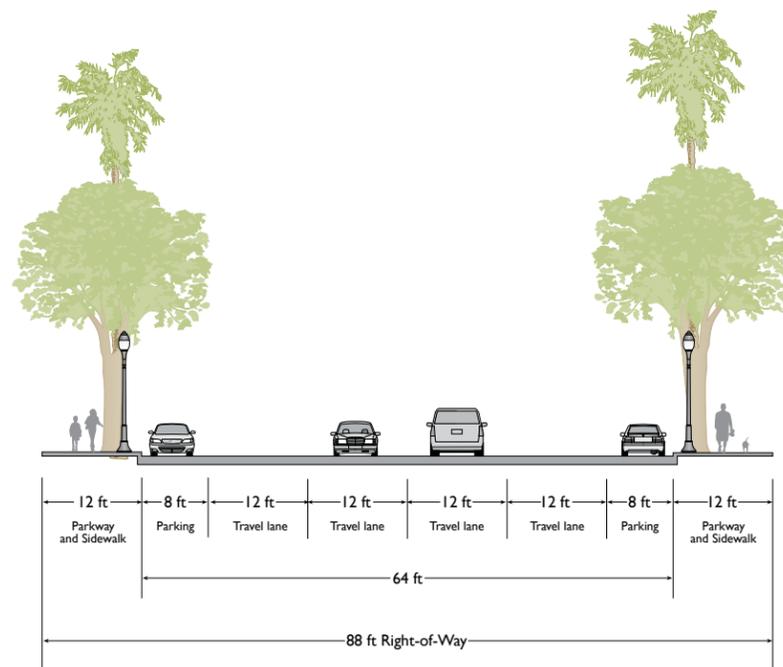
**i. Minor Arterial – 2 Lanes Plus Left Turn Lane (Standard)**



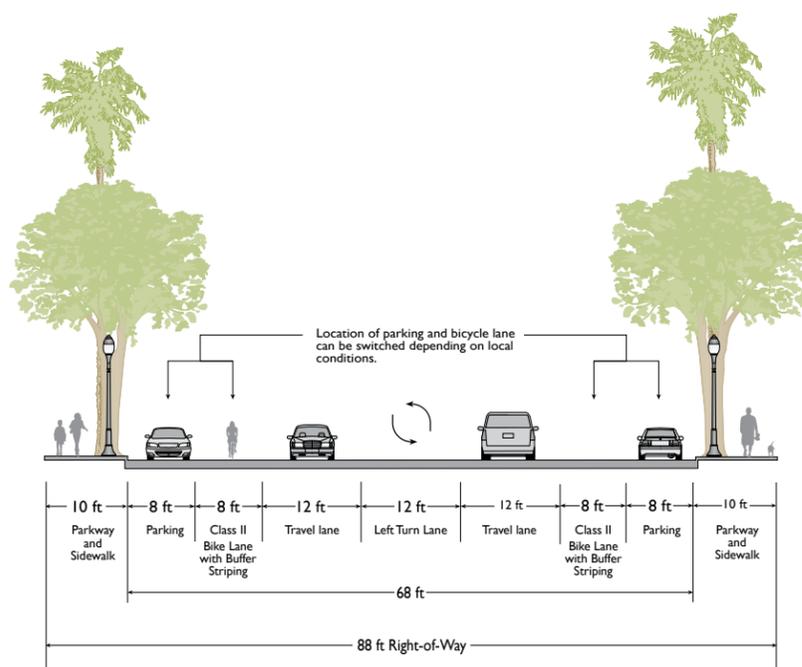
**k. Minor Arterial – 2 Lanes Plus Left Turn Lane (Complete Streets)**



**m. Rural Arterial**



**j. Minor Arterial – 4 Lanes Undivided (Standard)**

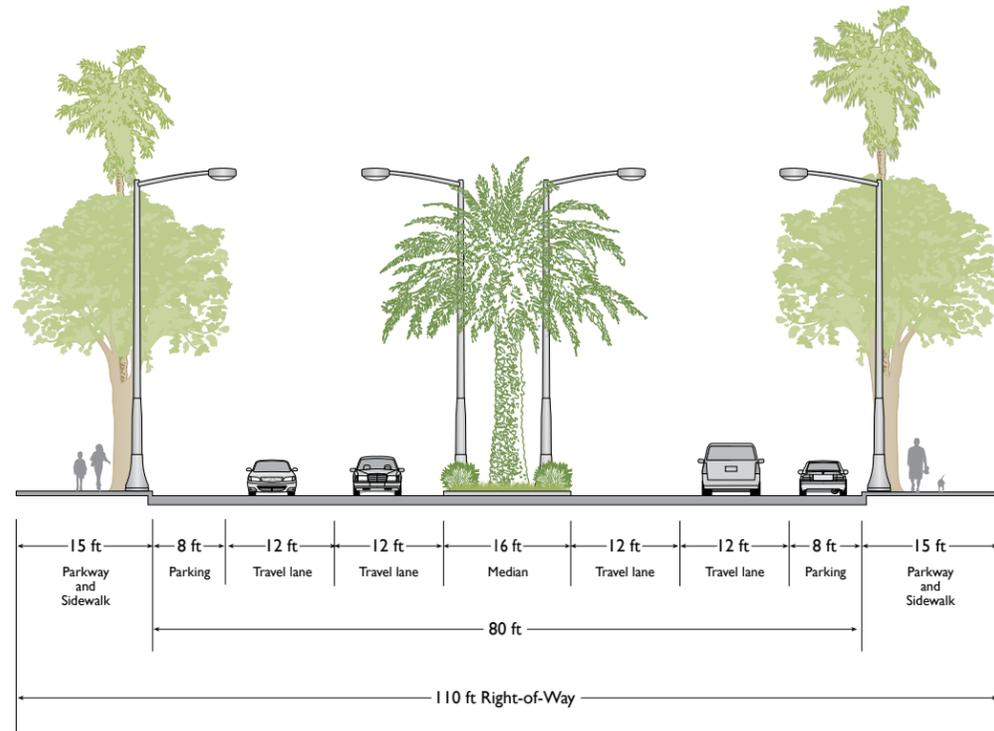


**l. Minor Arterial – 2 Lanes Plus Left Turn Lane, Bicycle Lanes, and Parking (Complete Streets)**

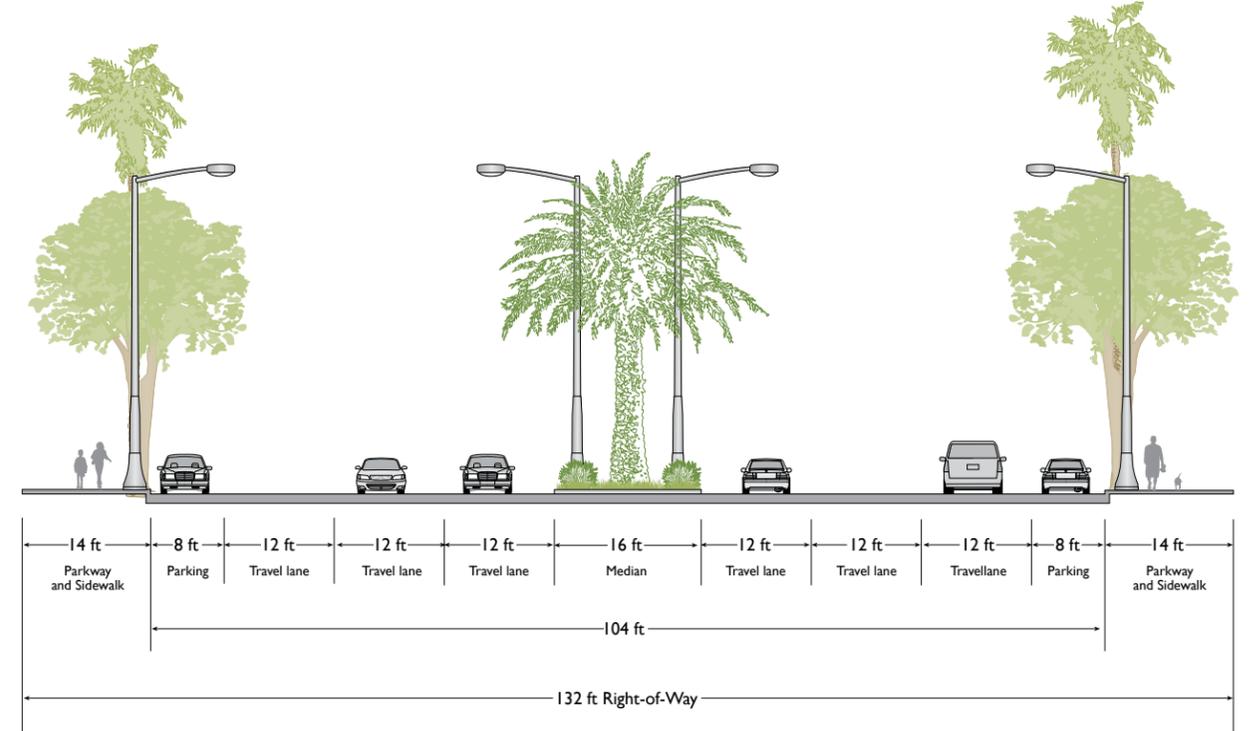
**Notes:**

1. Street sections are illustrative. Minor variations and deviations from dimensions are permitted, and would not require a General Plan Amendment.
2. Bicycle facilities are based on dimensions included in the Bicycle Facility Design Guidelines for the Bicycle Master Plan (2015).

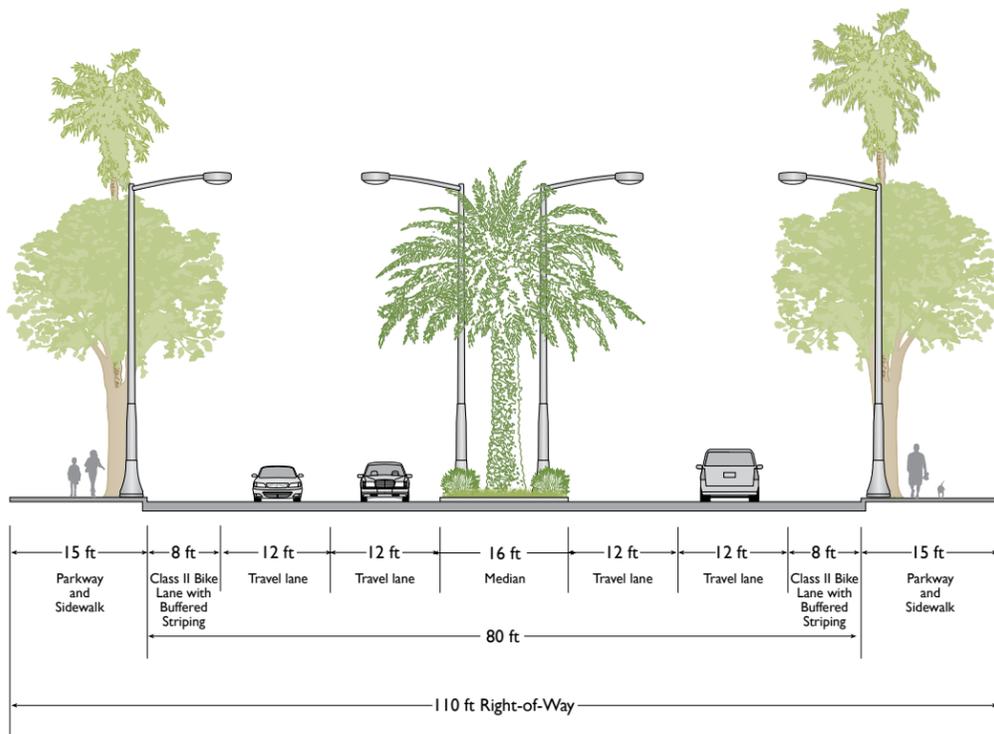
**MAJOR ARTERIALS**



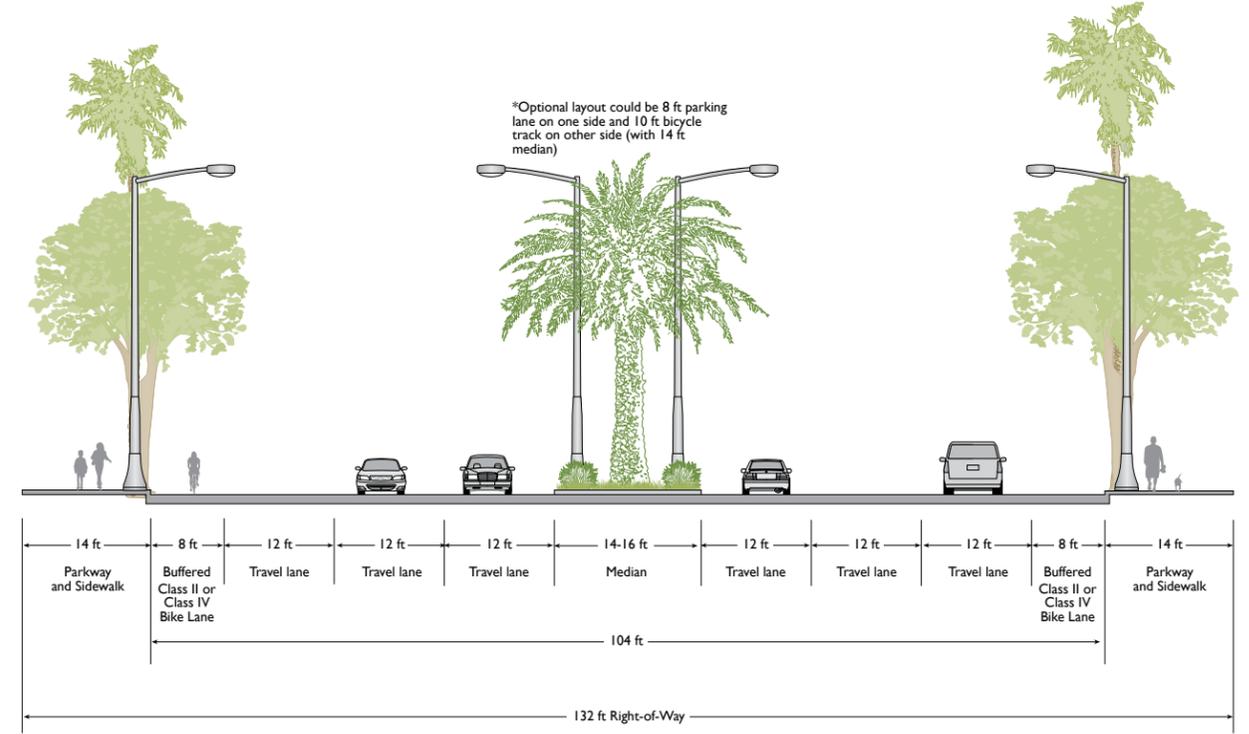
**n. Major Arterial – 4 Lanes Divided (Standard)**



**p. Major Arterial – 6 Lanes Divided (Standard)**



**o. Major Arterial – 4 Lanes Divided (Complete Streets)**



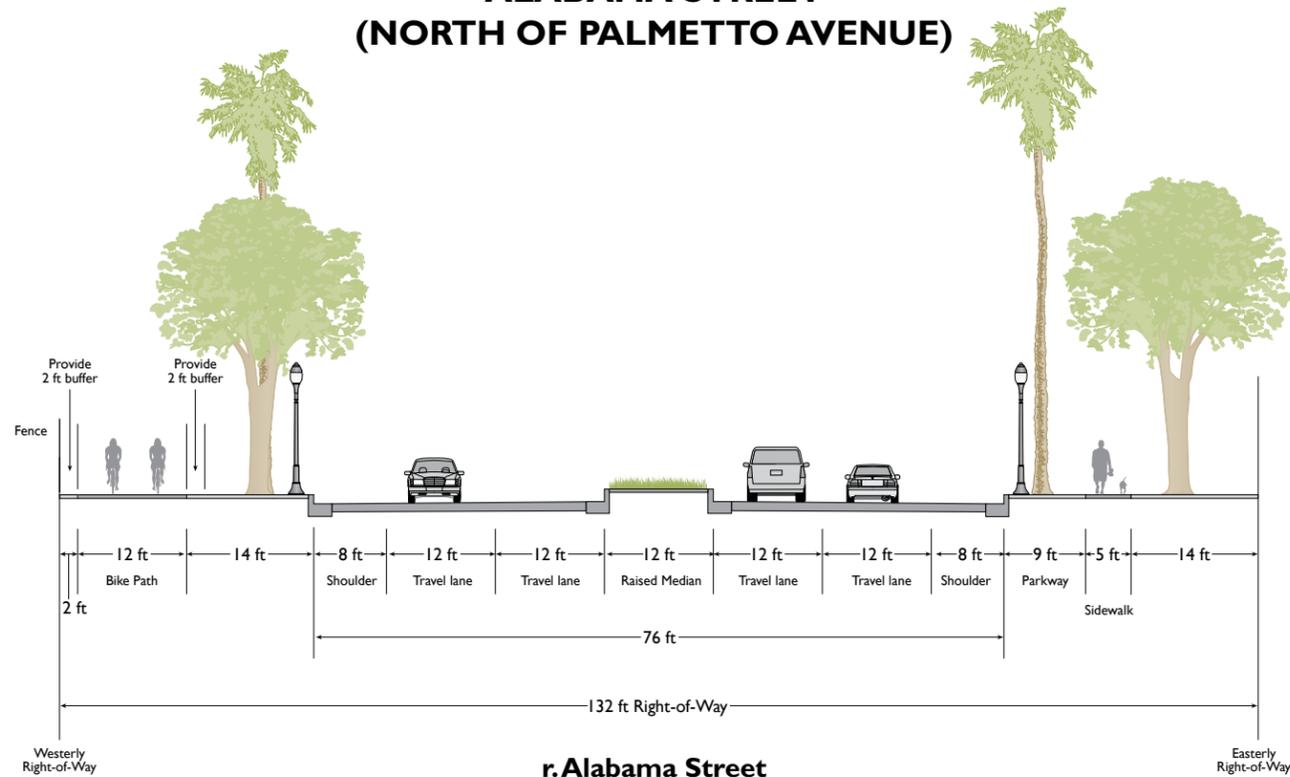
**q. Major Arterial – 6 Lanes Divided (Complete Streets)**

**Notes:**

1. Street sections are illustrative. Minor variations and deviations from dimensions are permitted, and would not require a General Plan Amendment.
2. Bicycle facilities are based on dimensions included in the Bicycle Facility Design Guidelines for the Bicycle Master Plan (2015).

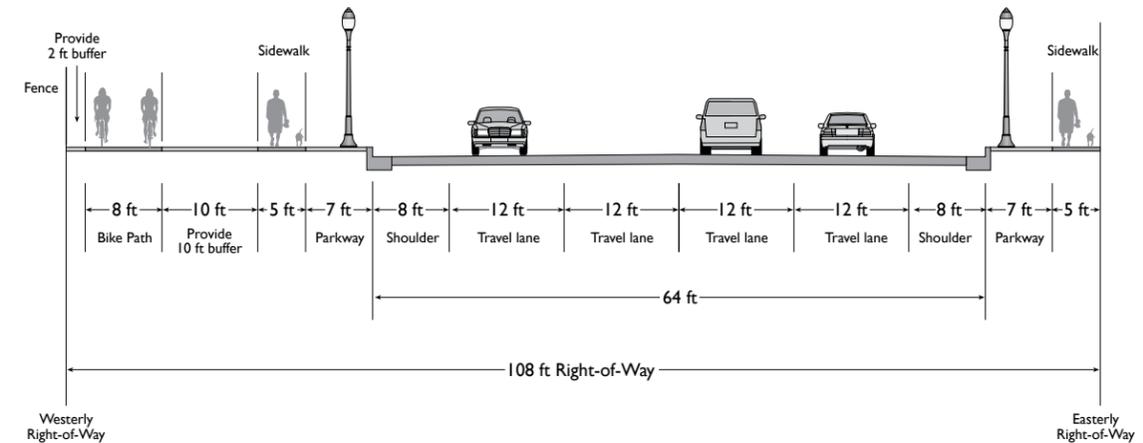
Figure 5-6: Illustrative Street Sections (Cont.)

**ALABAMA STREET  
(NORTH OF PALMETTO AVENUE)**

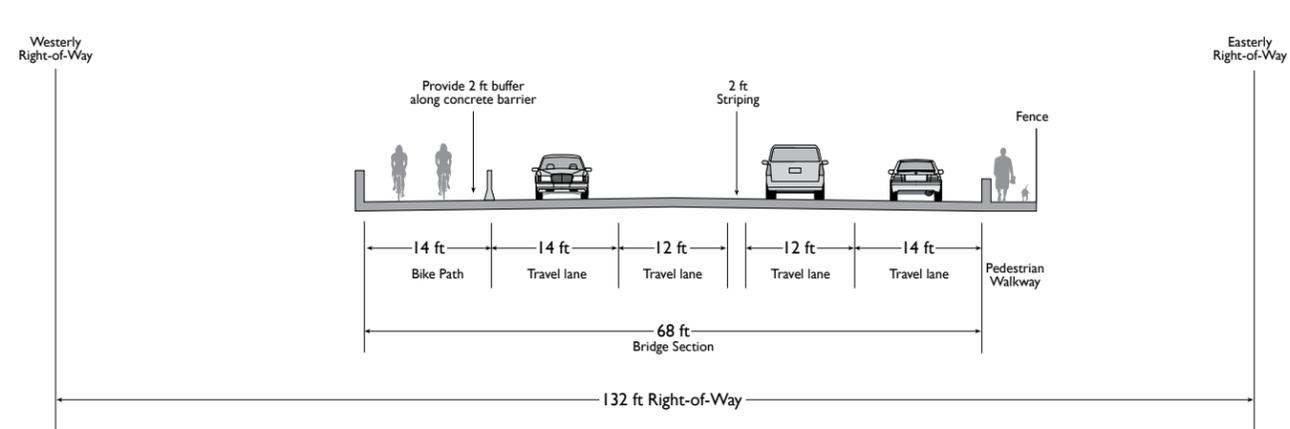


**r. Alabama Street**  
Typical Street Section Looking North

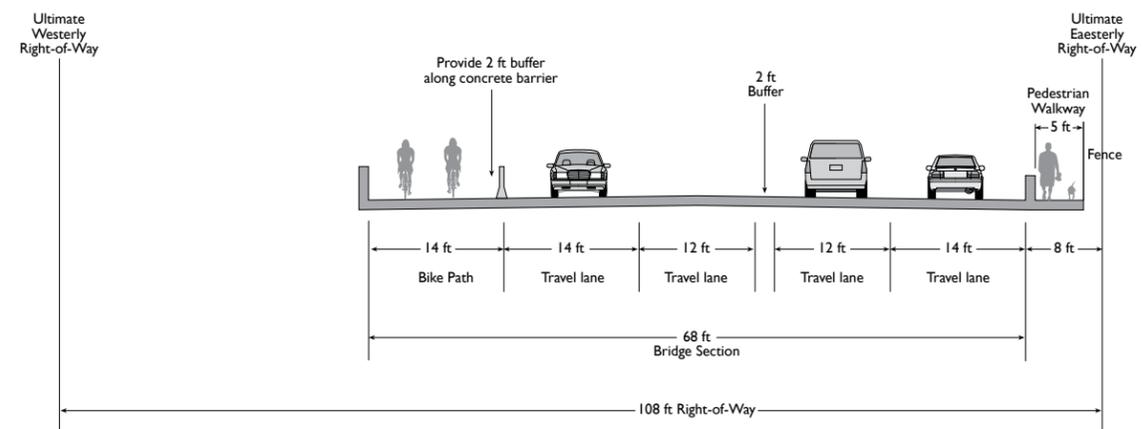
**ORANGE STREET  
(NORTH OF BLUFFS TRAIL)**



**t. Orange Street**  
Typical Street Section Looking North



**s. Alabama Street – Bridge**  
Typical Bridge Section Looking North



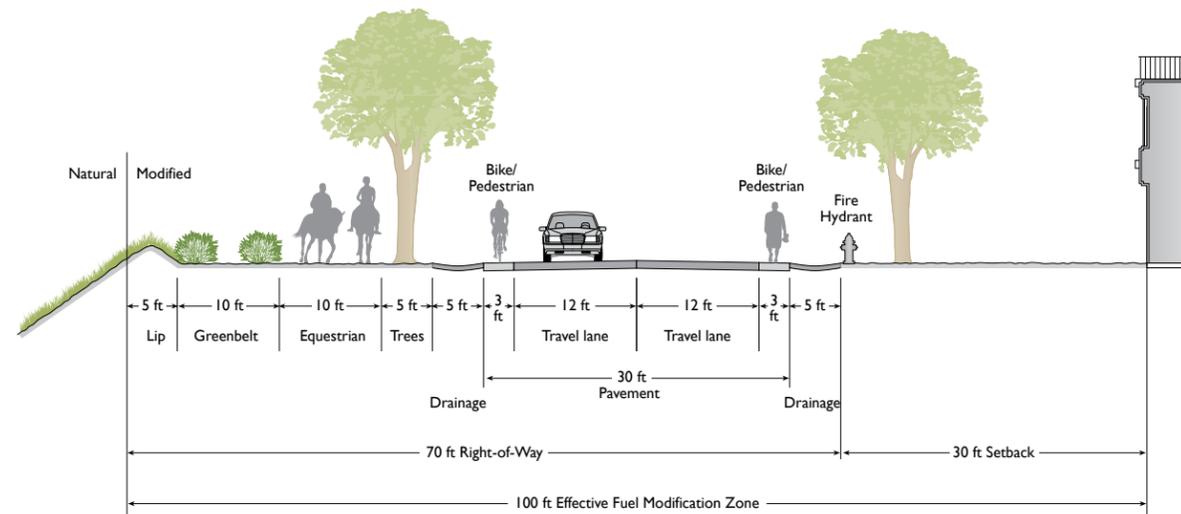
**u. Orange Street – Bridge**  
Typical Bridge Section Looking North

Notes:

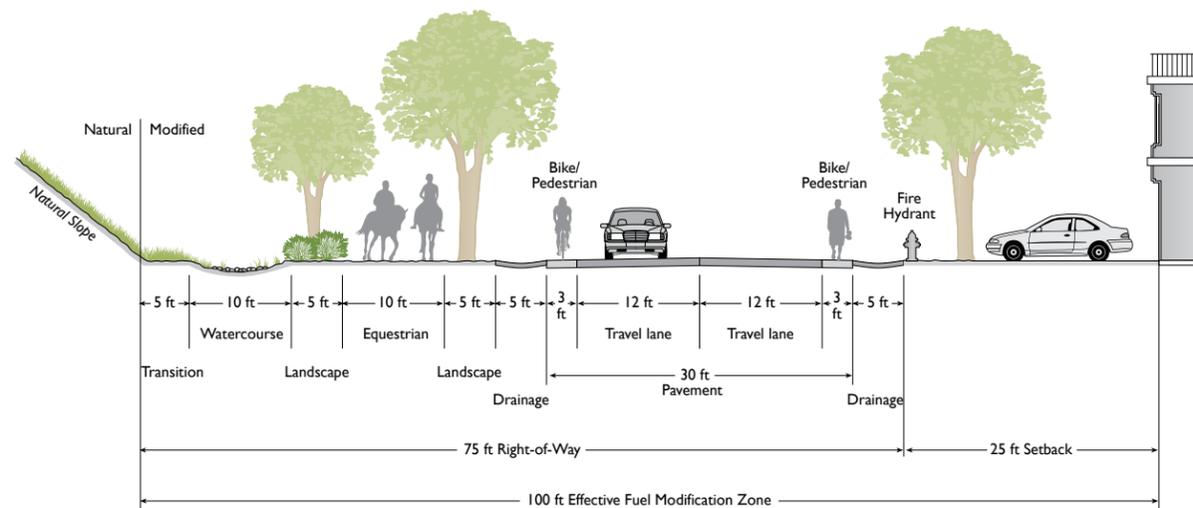
1. Street sections are illustrative. Minor variations and deviations from dimensions are permitted, and would not require a General Plan Amendment.
2. Bicycle facilities are based on dimensions included in the Bicycle Facility Design Guidelines for the Bicycle Master Plan (2015).

Figure 5-6: Illustrative Street Sections (Cont.)

**PERIMETER FUEL MODIFICATION / ACCESS AREA  
(PERFUMAA)**

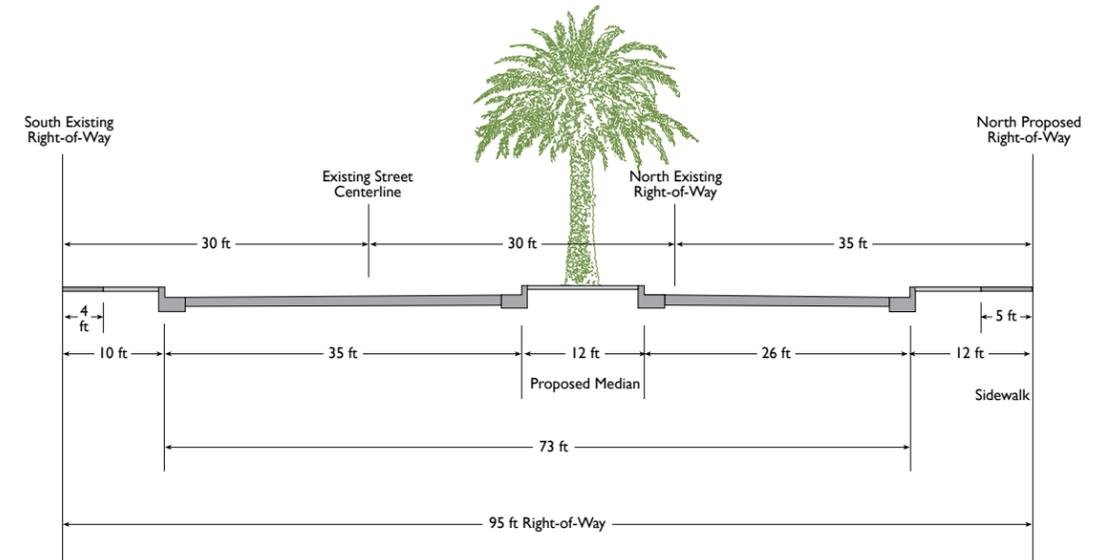


**v. Ridgetop PERFUMAA**



**w. Canyon Bottom Perimeter PERFUMAA**

**PIONEER AVENUE  
PROPOSED STREET SECTION EAST OF TEXAS STREET**



**x. Pioneer Avenue**

**Notes:**

1. Street sections are illustrative. Minor variations and deviations from dimensions are permitted, and would not require a General Plan Amendment.
2. Bicycle facilities are based on dimensions included in the Bicycle Facility Design Guidelines for the Bicycle Master Plan (2015).

## 5.3 TRANSIT

Redlands is accessible to neighboring communities via public transit. The city is served by Omnitrans bus routes connecting Redlands to San Bernardino, Loma Linda, Mentone, Fontana, Highland, Yucaipa, and Colton. Omnitrans also provides Redlands with ADA accessible buses.

### Passenger Rail

An inactive rail line runs through the center of Redlands. San Bernardino Associated Governments (SANBAG) is currently implementing the Redlands Passenger Rail project, which will extend rail transit to the city. This project is scheduled to be completed and in operation by 2020, providing commuter passenger service to San Bernardino, where it will connect with Metrolink, providing rail access to the greater Los Angeles region. SANBAG estimates that between 720 and 820 daily riders will use the Redlands route in 2018 and between 1,120 and 1,340 in 2038. The five proposed future stations within the city are shown in Figure 4.7; for more detail on planning around the stations, see Chapter 4.



Omnitrans offers bus service to many destinations in Redlands, including Redlands Boulevard.

## POLICIES

### Principles

- 5-P.26** Improve public transit as a viable form of transportation in Redlands.
- 5-P.27** Support passenger rail as an alternative mode of regional transit.

### Actions

- 5-A.57** Work with Omnitrans to accommodate and adjust transfer centers and bus service as necessary to support future rail service.
- 5-A.58** Work with Omnitrans to expand bus service to additional areas of the city and improve north-south connections.
- 5-A.59** Work with Omnitrans to plan for bus shelters, boarding areas, transfer centers, bus pads in the right-of-way, and bus turnouts.
- 5-A.60** Incorporate real-time information systems so that passengers will know when their bus or train is expected to arrive.
- 5-A.61** Support investments in passenger rail by providing effective on-site circulation and multi-modal connections to transit stations.
- 5-A.62** Develop station area plans to determine the appropriate modes of transportation to be accommodated at each passenger rail station, the inter connections between those modes, and the facilities to be provided to support each mode.
- 5-A.63** Upon completion of the passenger rail project, work with major employers, the University of Redlands, and major event

organizers (such as Redlands Bowl) on a shuttle system to link transit and major destinations.

- 5-A.64** Continue to collaborate with regional transit partners to achieve seamless transfers between systems, including scheduling, ticketing, and shared fare systems.

*Collaborative technologies include online applications and changeable message signs at major transit stops.*

- 5-A.65** Develop strategies to maximize off-peak use of transit.
- 5-A.66** Coordinate with other agencies and private entities to investigate methods of improving service and enhancing safety along the passenger rail corridor.
- 5-A.67** Encourage convenient and safe pedestrian linkages to and from transit service to provide better first-mile and last-mile connectivity.
- 5-A.68** Provide for direct pedestrian paths and access from new developments to the nearest public transportation stop.
- 5-A.69** Plan for passenger pick up / drop off location for ride sharing services and autonomous vehicles in the future to minimize impacts to traffic flow and ensure passenger safety.



The Redlands Rail Depot once welcomed rail passengers to the city. Though the Depot today is not part of the Redlands Passenger Rail project, it remains an icon of Redlands.

## 5.4 TRANSPORTATION DEMAND MANAGEMENT (TDM) AND PARKING

Transportation Demand Management consist of programs and policies to reduce the demand for the single occupant automobile trip. As part of the Congestion Management Program (CMP) developed by SANBAG, each local jurisdiction is responsible for adopting and implementing a trip reduction and travel demand ordinance. Common techniques include carpool programs, flexible work hours, shuttle services to nearby transit stations, employee transit subsidies (e.g. employers will subsidize bus or rail tickets), or installation of bicycle facilities (lockers, racks, lanes, showers at employment areas, etc.). In addition to implementing TDM policies, officials must reconsider parking policies in Redlands in order to adequately meet vehicular demand and minimize congestion.



*Downtown Redlands attracts a substantial number of drivers. TDM Policies may alleviate the stress of finding a parking spot.*

### POLICIES

#### Principles

- 5-P.28** Adopt and implement a Transportation Demand Management Program.
- 5-P.29** Ensure a balanced parking supply that adequately serves the community while employing strategies to reduce both the number of parking spaces needed, the area occupied by parking, and the number of vehicular trips needed within predominantly pedestrian oriented areas.

#### Actions

- 5-A.70** Locate Downtown public parking to encourage a park once approach. Provide pedestrian directional signage to direct persons from peripheral parking to downtown destinations.
- 5-A.71** Evaluate and include the following appropriate elements in a Transportation Demand Management (TDM) Program:
- Telecommuting from home
  - Telecommuting from a satellite work Center
  - Compressed work week
  - Flex time
  - Ridesharing
  - Ridesharing subsidy and tax credits
  - Ridesharing parking cost subsidy
  - Ridematching and carpooling
  - Guaranteed ride home
  - Car hire services
  - Commuter stores

- Car share programs
- Bike share programs
- On-site facilities for commuters
- Remote park-and-ride lots with amenities
- Preferential parking for ride sharers
- Transit pass programs
- Other new and innovate alternatives that may arise in the future

**5-A.72** Work with employers to implement TDM programs to reduce peak period trip generation.

**5-A.73** Provide adequate parking availability Downtown for residents, commuters, visitors, and shoppers throughout the day.

**5-A.74** Design parking to meet applicable urban design goals from area plans and minimize negative impacts on pedestrians, bicyclists, and transit users.

**5-A.75** Consider techniques to reduce the amount of area in the Transit Villages occupied by parking, especially for developments located within easy walking distance of the Passenger Rail stations.

*Techniques may include reduced parking requirements, unbundled parking, and others as appropriate.*

**5-A.76** Consider establishing reduced parking requirements for residential uses within a 10-minute walk of the University of Redlands campus.

**5-A.77** Encourage developers to meet their minimum parking requirements via shared parking between uses, payment of in-lieu fees, joint parking districts, or off-site parking within a reasonable walking time of 10 minutes or less.

**5-A.78** Develop flexible on-site vehicle parking requirements. Such requirements would include implementation of innovative parking techniques, implementing effective TDM programs to reduce parking demand, and consideration of other means to efficiently manage parking supply and demand.

**5-A.79** Keep abreast of alternative and innovative transportation management methods as they become feasible. Adopt the ones that are appropriate for Redlands.

**5-A.80** Design parking structures in a manner so that they can be adaptively reused if they become obsolete for parking needs in the future.



*Parking lots should feature landscaping and design elements.*

## 5.5 GOODS MOVEMENT

Goods movement is an important component of the city's circulation system, serving industrial, commercial, and retail uses. A street system that accommodates trucks is essential to ensure the safe and efficient movement of goods between business centers and freeways. Policies in this section support the movement of goods and also seek to reduce the impacts of truck operations on city streets and adjacent land uses. Figure 5-6 shows truck routes in the City of Redlands.



*Goods movement can be prioritized along specific routes that are designed to support heavy vehicle use and minimize potential safety and noise impacts.*



## POLICIES

### Principles

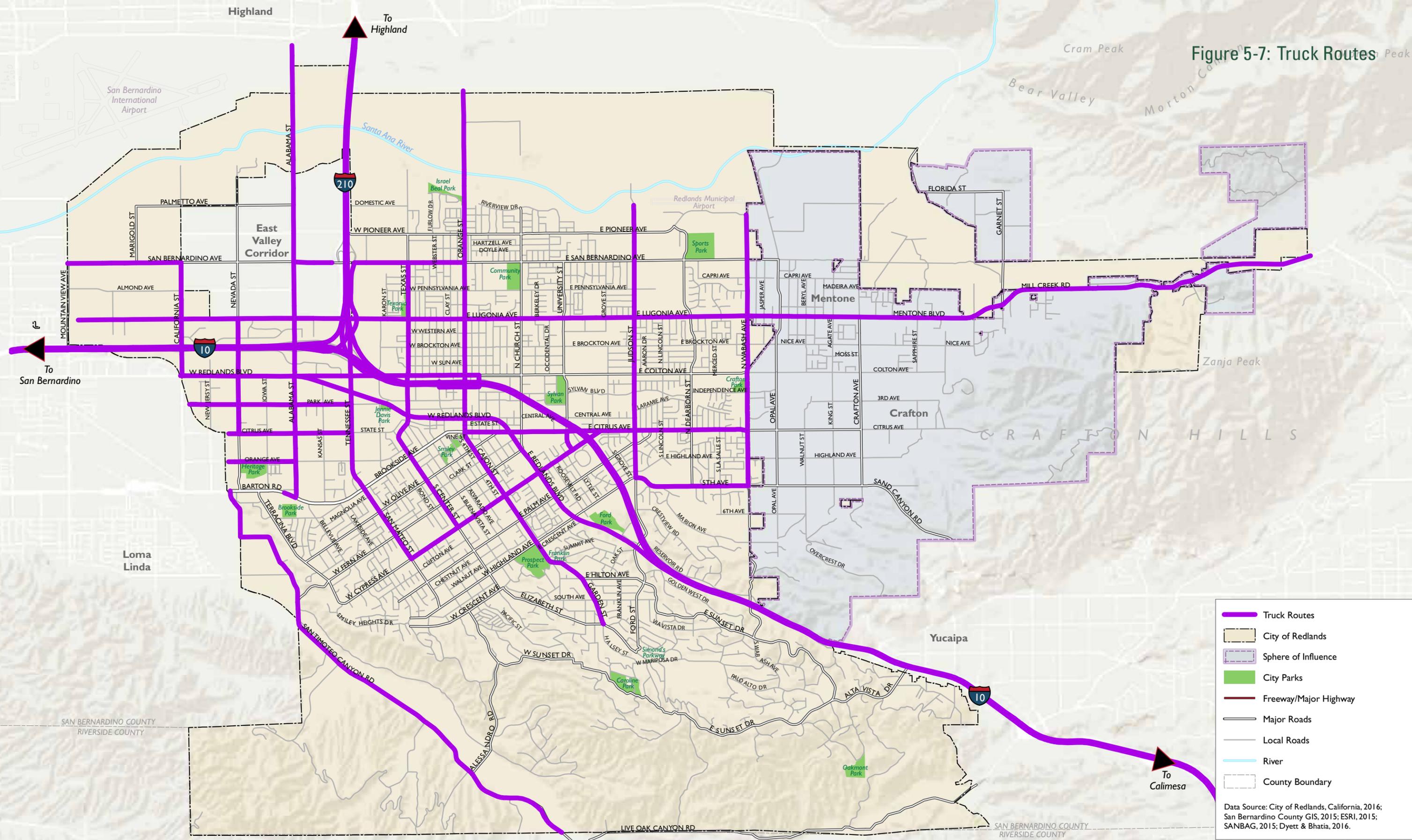
- 5-P.30** Prioritize goods movement along specific routes in the city, consistent with the layered network, to foster efficient freight logistics.
- 5-P.31** Update and implement a truck route map to ensure it serves shipping needs in the city while considering potential conflicts with preferred modes and other sensitive land uses in the city, consistent with the layered network.
- 5-P.32** Work to improve the efficiency and safety of rail freight through the city.

### Actions

- 5-A.81** Focus truck routes on roadways prioritized for automobiles, consistent with the layered network.
- 5-A.82** Maintain a truck route map and provide signage to direct truck traffic to designated routes. Design designated truck routes such that the pavement, roadway width, and curb return radii support anticipated heavy vehicle use.
- 5-A.83** Create easily understood truck route maps, potentially through on-line applications, to be distributed by the goods movement industry.
- 5-A.84** Conduct education programs for the goods movement industry on designated truck routes through the city.
- 5-A.85** Discourage truck traffic from parking, idling, or traveling through local streets in residential neighborhoods.

- 5-A.86** Seek to improve rail crossings in the San Timoteo Canyon area, exploring the potential for grade separation of all crossings in the canyon area.

Figure 5-7: Truck Routes



- Truck Routes
- City of Redlands
- Sphere of Influence
- City Parks
- Freeway/Major Highway
- Major Roads
- Local Roads
- River
- County Boundary

Data Source: City of Redlands, California, 2016; San Bernardino County GIS, 2015; ESRI, 2015; SANBAG, 2015; Dyett & Bhatia, 2016.

