

REVISED Existing Conditions Report



ACTIVE LE PLAN

Prepared for:



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1.0 Introduction and Planning Context

The Active LE Plan (the “Plan”) will lay the foundation for improving mobility for all modes of travel, particularly for pedestrians and bicyclists, within the City of Lake Elsinore. As part of the mobility improvements, the Plan will identify ways to improve connectivity and safety. This represents the City’s inaugural Active Transportation Plan, building upon recommendations set forth in numerous plans preceding this effort:

- The currently underway Lake Elsinore Circulation Element
- The *City of Lake Elsinore Climate Action Plan* (2011)
- Western Riverside County Council of Governments’ (WRCOG) *Western Riverside Active Transportation Plan* (2015)
- Regional sustainability frameworks
- The sixteen District Plans that underscore Lake Elsinore planning efforts
- The Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

The regional context of Lake Elsinore is displayed in **Figure 1-1**.

1.1 Background and Purpose

In 2017, the City was awarded a Caltrans Sustainable Communities Grant for the development of an Active Transportation Plan (ATP). Active transportation facilities and regional connections are essential to a community’s ability to reduce vehicle miles traveled and encourage a healthy, active lifestyle. To achieve the City’s

vision of becoming “*the ultimate lake destination where all can live, work, and play, build futures and fulfill dreams,*” this planning process will further leverage existing planning documents to foster, develop, and grow the City’s bicycle, sidewalk, and trail related network.

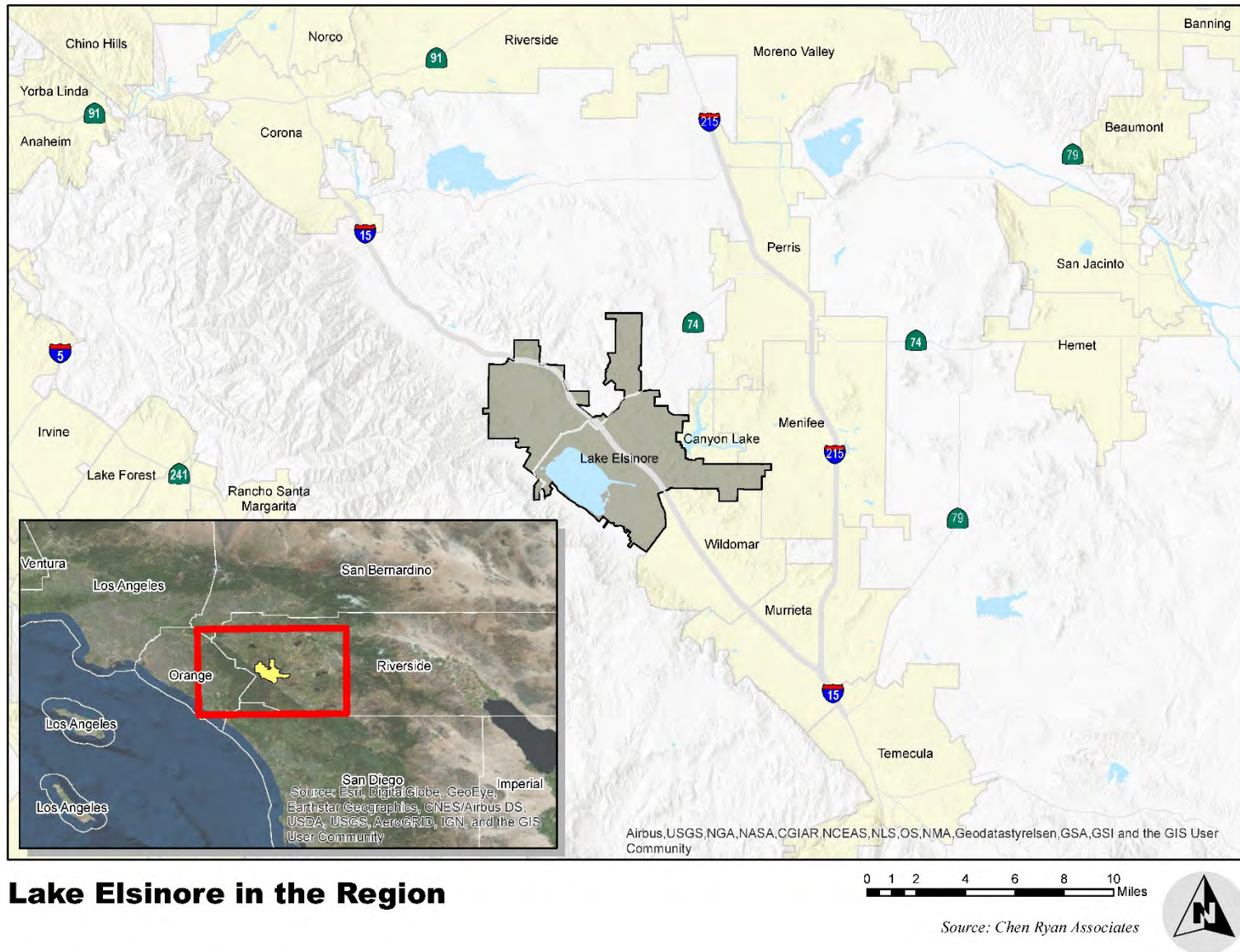
The planning process benefits from a thorough examination of existing conditions – the current physical and operational conditions of Lake Elsinore’s mobility networks. To fully understand the mobility environment in Lake Elsinore, a series of analyses were performed. These analyses will be supplemented by community outreach - people who live, work and play in Lake Elsinore know how the City operates and will add valuable firsthand insight to inform the existing conditions analyses. The results of this analyses and public outreach will shape the overall recommendations which will be set forth in this Plan.

1.2 Organization of the Report

This Existing Conditions Report is organized into the following chapters:

- **Chapter 1** introduces the context of the active transportation planning process and the legislative framework that underlies the Plan. Recent relevant documents summarize previous planning efforts in the City of Lake Elsinore to provide context for the Active Transportation Plan.
- **Chapter 2** provides a community profile for the City of Lake Elsinore, presenting land uses, population density, demographics, and community health factors.
- **Chapter 3** summarizes the existing pedestrian conditions related to infrastructure and safety.

Figure 1-1 Lake Elsinore within the Region



Lake Elsinore in the Region

- **Chapter 4** summarizes the existing bicycle conditions related to infrastructure and safety.
- **Chapter 5** presents existing transit-related conditions, particularly pertaining to the first-last mile access to transit that walking and biking can provide.
- **Chapter 6** provides a series of analyses used to identify opportunities and constraints related to the existing pedestrian and bicycle facilities, and identifies the key findings from the various analyses. This information will help identify and justify recommendations made throughout this report.

1.3 Legislative Framework

Several key planning efforts and legislative actions of the past decade have redefined the way community transportation planning is carried out, including Assembly Bill 1358 – The Complete Streets Act, Senate Bill 375 – The Sustainable Communities and Climate Protection Act, Assembly Bill 32 – The Global Warming Solutions Act, and the SCAG RTP/SCS. A unifying theme among these documents is to achieve a more balanced, multimodal transportation system that increases travel mode options for all users, with an emphasis on active transportation and public transportation.

Assembly Bill 32 *The Global Warming Solutions Act* was adopted in 2006, which codified California’s pursuit of a low-carbon, sustainable future. The Bill enacted a mandate of reducing California’s greenhouse gas emissions to year 1990 levels by 2020, which would constitute a 15 percent overall reduction relative to baseline conditions.

In 2008, Senate Bill 375 was adopted, requiring California Metropolitan Planning Organizations (MPOs) to formulate a

“sustainable communities strategy” (SCS) as part of their regional transportation plans, specifically identifying how the region will achieve targeted reductions in greenhouse gas emissions (GHG) from automobiles and light trucks.

Assembly Bill 1358 *The Complete Streets Act* went into effect in California on January 1, 2011, requiring the legislative body of a city or a county to plan for a balanced, multimodal transportation network that meets the needs of all roadway users, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban, or urban context of the general plan. The 2016-2040 RTP/SCS sets the precedent for how Southern California’s transportation network will accommodate the anticipated growth the area can expect by 2040. The Regional Plan demonstrates how SCAG will invest in infrastructure to provide more transportation choices, while strengthening the economy, and promoting a healthy environment.

1.4 Document Review

This Chapter describes previous and on-going planning efforts and relevant documents in the City of Lake Elsinore, to provide context for the Active Transportation Plan. The following documents were referenced:

- City of Lake Elsinore Circulation Element (Ongoing)
- Downtown Elsinore Specific Plan (2018)
- East Lake Specific Plan (2017)
- City of Lake Elsinore Climate Action Plan (2011)
- Lake Elsinore General Plan District Plans (sixteen total)
- RTA First & Last Mile Mobility Plan (2017)
- Western Riverside Active Transportation Plan (2015)

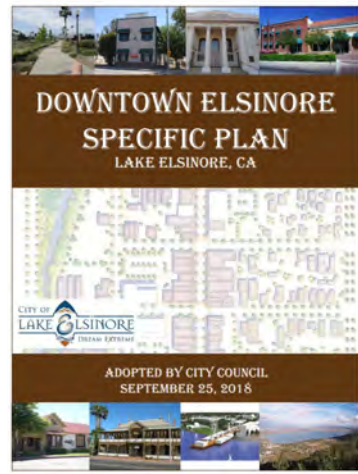
- SCAG 2016-2040 RTP/SCS (2016)
- WRCOG and SCAG Sustainability Frameworks (2012, 2016)

City of Lake Elsinore Circulation Element (Ongoing)

The upcoming Lake Elsinore Circulation Element, currently under development, offers an exciting opportunity for a cooperative consideration each form of mobility and how they relate to Lake Elsinore's unique built and natural environment. As this Plan continues forward, project staff will perform regular check-ins with the progression of this document to ensure that goals, policies, implementation measures, network development, and planned future conditions remain in line to serve as a well-integrated platform upon which future mobility options may be fostered.

Downtown Elsinore Specific Plan (2018)

The Downtown Elsinore Specific Plan (Specific Plan) provides a vision and strategic framework to guide future development in the City's historic downtown. It capitalizes on the City's unique assets with the overarching goal of vitalizing downtown and implementing the City's vision that "The City of Lake Elsinore will be the ultimate destination where all can live, work, and play, build futures and fulfill dreams." The Specific Plan will draw residents and visitors to the City's historic Main Street corridor by encouraging a mixed-use downtown



area that has a variety of commercial and residential uses, including restaurants with outdoor dining, entertainment, hotel, office, retail, service, high density and affordable housing, cultural and civic uses. The Specific Plan reimagines the previous 2011 Master Plan, and pursues the following mobility-related visions and objectives:

- Create a "park-once-and-walk" district.
- Enhance connectivity from the downtown to the lake with a realignment of Main Street, Lakeshore Drive, and Library Street.
- Create walkable streets, with new sidewalks, streetscaping, and quality lighting.
- Provide adequate parking.

The Specific Plan embraces a complete streets approach, laying groundwork for a pedestrian-friendly downtown core with a multimodal streetscape where accessible and equitable transportation options exist for people who live, work, or shop in Downtown. Specific design elements from the Specific Plan include:

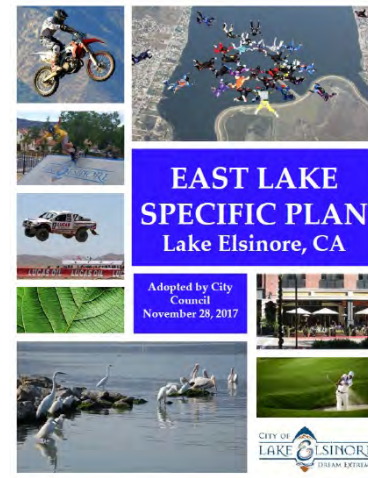
- Pedestrian circulation routes that are clearly defined.
- Mid-block street crossings to avoid conflicts with the turning movements of vehicles at intersections.
- Limited number and width of sidewalk curb cuts, particularly on Main Street, to minimize pedestrian-vehicular conflicts.
- Spaces between the sides of buildings should incorporate seating areas for enhanced pedestrian connections where appropriate.
- Pedestrian access from residential facilities into commercial areas through the use of restricted access pedestrian gates that facilitate access for residents to commercial services.

- Right-sizing of streets to reduce the number of vehicle travel lanes that a pedestrian must cross. If infeasible, then landscaped pedestrian refuge areas provided at mid-crossing.
- Bike racks at accessible, safe, well-lighted locations.
- Further encouragement for development of a bikeshare program and trolley service to connect Downtown to the Outlet Center, the Diamond Stadium, the Launch Pointe Recreation Destination & RV Park, and other points of interest in the City.

Recently, Class II bike lanes were installed along Graham Avenue and Main Street in the Downtown area. The California Natural Resources Agency Urban Greening Grant will provide for the construction of Class II bike lanes along Sumner Avenue and Pottery Street, as well as pedestrian and urban greening improvements along Heald Avenue, Sumner Avenue, Pottery Street, and the Riverwalk, which will complement the existing bike infrastructure. The City's General Plan highlights future goals to further extend Class II bike lanes along Pottery Street and south of Limited Avenue along Main Street and Lakeshore Drive, offering additional connections to the other areas of the City.

East Lake Specific Plan (2017)

The East Lake Specific Plan, adopted by City Council in November 2017, is a blueprint guide for the development of approximately 2,977 acres at the southern end of the City of Lake Elsinore. Adjacent to both the southeasterly shore of Lake Elsinore and Diamond Stadium, it has become home to active sports facilities such as skydiving, hang-gliding, motocross, as well as an 18-hole golf



course. The document, which encompasses nine planning areas, provides typical cross-sections and street standards for area roadways.

An important component of the Circulation Plan for East Lake is the provision of pedestrian and bicycle trails throughout the community. This non-vehicular system complements the overall circulation system and includes Class II bikeway lanes within the roadbed of Urban

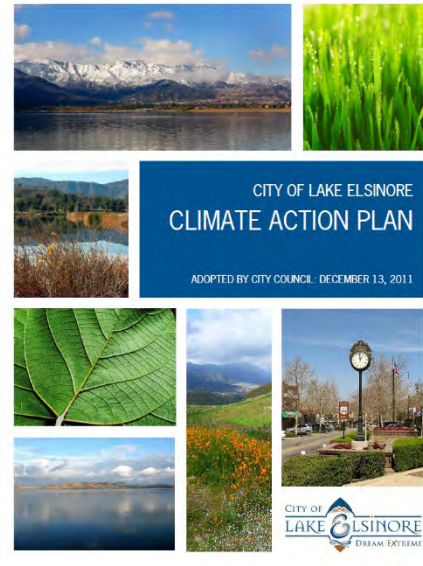
Arterial and Major streets, pedestrian pathways within street parkways, and completely separate off-road trails for pedestrian and bicyclist use. Class II Bike Lanes are identified for Cereal Street, Corydon Road, Diamond Drive, Lakeshore Drive, Lucerne Street, Malaga Road, Mission Trail, and Stoneman Street.

Within and near the Specific Plan Boundary, the Murrieta Creek Regional Trail and Levee Trail complement on-street facilities with recreational soft-surface trails. Additionally, a number of community trails are identified in nearby Lakeland Village which connect to other regions as well as the Cleveland National Forest.

City of Lake Elsinore Climate Action Plan (2011)

The City of Lake Elsinore Climate Action Plan (CAP) is a long-range plan to reduce communitywide greenhouse gas (GHG) emissions from activities that occur within the City limits. Specifically, the CAP is designed to accomplish each of the following large-scale goals:

- Benchmark Lake Elsinore's existing (2008) GHG emissions and projected emissions relative to statewide emissions targets.
- Establish GHG emissions reduction strategies and measures to reduce the City's proportionate share of emissions to meet the statewide targets identified in Assembly Bill (AB) 32 and Executive Order S-3-05.
- Set forth procedures to monitor and verify the effectiveness of the CAP and require amendment if the CAP is not achieving targeted levels of emissions.
- Mitigate Lake Elsinore's GHG emissions impacts (by reducing GHG emissions consistent with the State of California via the California Environmental Quality Act [CEQA] Guidelines, AB 32, and Executive Order S-3-05).



- Serve as the programmatic tiering document for the purposes of CEQA within the City of Lake Elsinore for GHG emissions, by which applicable projects will be reviewed.

The City has made a considerable effort to select emissions reduction targets that are both ambitious and practical, and consistent with AB 32 and Executive Order S-3-05. For local governments, there are several types of reduction targets that may be supported by substantial evidence and be consistent with the AB 32 and Executive Order S-3-05 targets, such as 1990 levels, a performance standard (% reduction) or an efficiency metric (e.g., emissions per capita or service population) (California Air Pollution Control Officers Association [CAPCOA], 2008). The City selected efficiency-based targets for the years governed by the General Plan to reduce community-wide emissions by 2020.

The Climate Action Plan also identifies strategies and measures to reduce municipal and community-wide GHG emissions in several categories, including transportation. Pertinent to active transportation are the following measures:

- Measure T-1.2: Pedestrian Infrastructure - Through the development review process, require the installation of sidewalks along new and reconstructed streets. Also require new subdivisions and large developments to provide sidewalks or paths to internally link all uses where applicable



and provide connections to neighborhood activity centers, major destinations, and transit facilities contiguous with the project site; implement through conditions of approval.

- Measure T-1.3: Street and Sidewalk Maintenance and Improvements - Continue, through the Pavement Management and Curb, Gutter, and Sidewalk Repair programs, to preserve the pedestrian and bicycle circulation system by annually identifying and scheduling street and sidewalk improvement and maintenance projects.
- Measure T-1.4: Bicycle Infrastructure – Through the development review process, require new development, as applicable, to implement and connect to the network of Class I, II and III bikeways, trails and safety features identified in the General Plan, Bike Lane Master Plan, Trails Master Plan and Western Riverside County Non-Motorized Transportation plan; implement through conditions of approval. The City will also continue to pursue and utilize funding when needed to implement portions of these plans.
- Measure T-1.5: Bicycle Parking Standards - Through the development review process, enforce short-term and long-term bicycle parking standards for new non-residential development (consistent with 2010 California Green Building Code [CalGreen], Section 5.106.4).

Lake Elsinore General Plan District Plans

The City of Lake Elsinore is divided into a total sixteen distinct districts that form a subset of the Lake Elsinore General Plan. The General Plan recognizes adopted Specific Plan land uses, as well as other existing neighborhoods in the City, through a series of District Plans. These Plans address the unique neighborhoods and planning

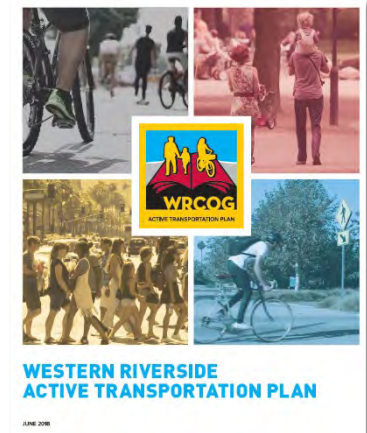
areas in the City. These District Plans aid the growth and development of Lake Elsinore, while honoring and preserving the City's physical environment, which contains a wide range of land uses, spanning from a traditional downtown, to rural estate residential, to modern master-planned commercial and residential development.

Each District Plan provides an invaluable guide to local land uses and senses of place, and provides tailored goals and policies to ensure that larger-scale plans, such as the Active LE Plan, honors the unique needs, preferences, history, and desired future direction for each District.

Western Riverside Active Transportation Plan (2015)

The Western Riverside Council of Governments (WRCOG) strives to support all residents and visitors of WRCOG whether they choose to walk, bike, take transit, or drive. This Western Riverside Active Transportation Plan (ATP) focuses on enhancing the non-motorized infrastructure throughout the region, in hopes of developing a robust network for people who choose or need to walk and/or bike.

Improvements to the active transportation network will ultimately benefit all users of the transportation system by providing more transportation choices. This plan serves as a resource for WRCOG



member jurisdictions and stakeholders to help identify important active transportation facilities they would like to see in their community and provides guidance on how each individual project can be achieved.



The ATP identifies facilities at the county level to enhance and increase active transportation options in the region. It builds forward from the preceding Western Riverside County Non-Motorized Transportation Plan (NMTP) published in June 2010, by significantly updating active transportation network improvement projects, implementation strategies, and funding opportunities found in that plan. The NMTP was helpful in identifying the gaps in the regional active transportation network, and few of the proposed projects were implemented. The goal and purpose of the ATP is to provide guidance to WRCOG and its member agencies in identifying projects, planning for them, and being able to successfully implement them.

In this vein, the ATP identifies several regional facilities within Lake Elsinore and its sphere of influence:

- Bautista Creek/Mission Trail Route (including regionally-significant on-road facilities along Mission Trail in Lake Elsinore),
- Lake Elsinore-Murrieta Creek Route,

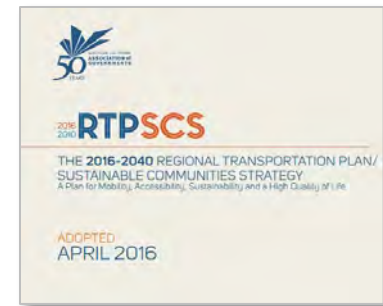
- Alberhill Ranch-Ramona Expressway Route,
- Butterfield Overland Trail, and
- Lake Elsinore Loop (including regionally-significant on-road facilities along Grand Avenue and Riverside Drive in Lake Elsinore).

SCAG 2016-2040 RTP/SCS and Sustainability Framework (2016)

Approved by the Southern California Association of Governments (SCAG) Board of Directors in April of 2016, the *2016-2040 Regional Transportation Plan (RTP/SCS)* serves as the overarching vision for the majority of Southern California over the next two and a half decades.

Developed in close partnership with the region's 191 cities, six counties, and tribal government, the RTP/SCS proposes a transportation network that will provide sustainable mobility choices and planning to support a sustainable and healthy region, a vibrant economy, and an outstanding quality of life for all. It includes greater investments in public transportation, bike paths, and pedestrian improvements and allows the region to meet and exceed GHG reduction targets. The primary objectives of the Regional Plan are to:

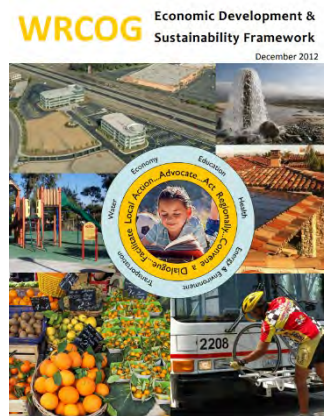
- Preserve the existing transportation system,
- Expand the regional transportation system to give people more alternatives to driving alone,
- Expand passenger rail,
- Improve highway and arterial capacity,



- Manage demands on the transportation system through Transportation Demand Management (TDM),
- Optimize the performance of the transportation system,
- Promote walking, biking, and other forms of active transportation,
- Strengthen the regional transportation network for goods movement,
- Leverage new advances in technology,
- Improve airport access, and
- Focus new growth around transit through support of High Quality Transit Areas (HQTAs), promotion of livable corridors, and strategies to bolster Neighborhood Mobility Areas (NMAs).

The Regional Plan includes a transportation network that identifies a number of public transit, highway, goods movement, bikeway, pedestrian, and supportive program projects to be implemented by 2040.

The RTP/SCS includes a financially constrained plan and a strategic plan. The constrained plan includes transportation projects that have committed, available or reasonably available revenue sources, and thus are probable for implementation. The strategic plan is an illustrative list of additional transportation investments that the region would pursue if additional funding and regional commitment were secured. Such investments are potential candidates for inclusion in the constrained RTP/SCS through future amendments or updates.



SCAG is anticipating it will obtain approximately \$556.5 billion in revenues through 2040. Of this, approximately 50% would be utilized for operations and maintenance of the existing regional transportation system, 44% for transportation capital improvements, and 6% for serving debt. Of the 50% of revenues earmarked for operation and maintenance, approximately 28% of revenues would be utilized for transit operations and maintenance, 12% for highway operation and maintenance, 7% for the operation and maintenance of locally significant roads, and 3% for the operation and maintenance of passenger rail. Because not all revenues will be available at once, transportation projects and programs will be phased over the life of the plan. Revenues are projected to flow from local sales tax (46%), countywide taxes (12%), core and additional federal funds (20%), and core and state funding (23%).

WRCOG Sustainability Framework (2012)

WRCOG's Sustainability Framework is the beginning point in a longer process to establish, implement, and continuously refine a subregional sustainability plan. The Framework serves four broad objectives:

- Provide a starting point for dialogue about sustainability and its importance to the region, and articulate a framework for the development of a subregional sustainability plan,
- Provide a vision for a sustainable Western Riverside County and establish goals to inform and guide regional collaboration and local action until the subregional sustainability plan is prepared,
- Define and prioritize short-term actions that WRCOG can pursue in the interim to begin realizing the Framework's vision and goals for sustainability, and

- Define initial indicators, benchmarks, and targets by which WRCOG can measure the effectiveness of efforts to create a more sustainable subregion.

The Framework establishes a work plan by which WRCOG can seek funding and implement new projects and programs that support the vision without having to wait until the subregional sustainability plan is prepared, fully vetted, and adopted.

Pertinent to active transportation, the Framework responds to and catalyzes a local cooperation with legislation such as AB 1358, the Complete Streets Act, placing a focus on local planning processes and ensuring the provision of local roadway infrastructure that is designed and operated to accommodate all roadway users, including bicyclists, public transit riders, and pedestrians of all ages and abilities.

RTA First & Last Mile Mobility Plan (2017)

This document, prepared as a collaboration between by the Riverside Transit Agency (RTA) and SCAG, establishes a goal of increasing transit ridership through developing strategies that address first and last mile barriers to transit use.

In addition to summarizing ridership characteristics, the First & Last Mile Mobility Plan highlights the future needs of RTA customers, station typologies in the RTA system, and provides an implementation plan for these strategies. It is believed that more people would take transit if it were more convenient, safe, and attractive to ride. Thus, the objective of the Plan is to provide

improved access to transit to both retain existing and add potential new transit users.

In Lake Elsinore, stations are identified as primarily of the “Suburban” typology, which carry a framework of recommendations that include wayfinding, bicycle network improvements, pedestrian network improvements (including crossing treatments), bus stop enhancements, carsharing, transit-oriented development, and placemaking efforts. The document also identifies the Lake Elsinore Outlet Center as a primary transit connection point on the RTA system.



Existing pedestrian crossing with flashing beacons. in

2.0 Community Profile

This chapter provides an overview of the City of Lake Elsinore, including its setting in relation to Western Riverside County and Southern California as a whole, land use characteristics, and places in the City that serve as community keystones and gathering places. Additionally, the chapter presents an overview of Lake Elsinore demographics and commuter characteristics.

2.1 Overview

The City of Lake Elsinore is located in western Riverside County in Southern California, approximately 60 miles south of Downtown Los Angeles and approximately 60 miles north of Downtown San Diego. Lake Elsinore is bordered by the unincorporated Riverside County to the north, the Santa Ana Mountains to the west, and southwest, the City of Menifee to the east, and the City of Wildomar to the southeast. Interstate 15 traverses the City in a north-south direction, providing the primary north-south freeway access to Lake Elsinore, while California State Route 74 connects Lake Elsinore with Orange County to the west, and the City of Perris located to the northeast.

The City of Lake Elsinore has several qualities contributing to the potential for an ideal walking and cycling environment, including a temperate Southern California climate, an active population, region-drawing recreation in the form the lake and mountains that form the backdrop of the City, and wide streets in many newer parts of the City that can, or already do, accommodate active transportation infrastructure. In addition, the City has embraced its community health initiative, called Healthy LE, which guides programming, infrastructure improvements, and community input strategies to promote a healthy active lifestyle.

2.1.1 Existing Land Use

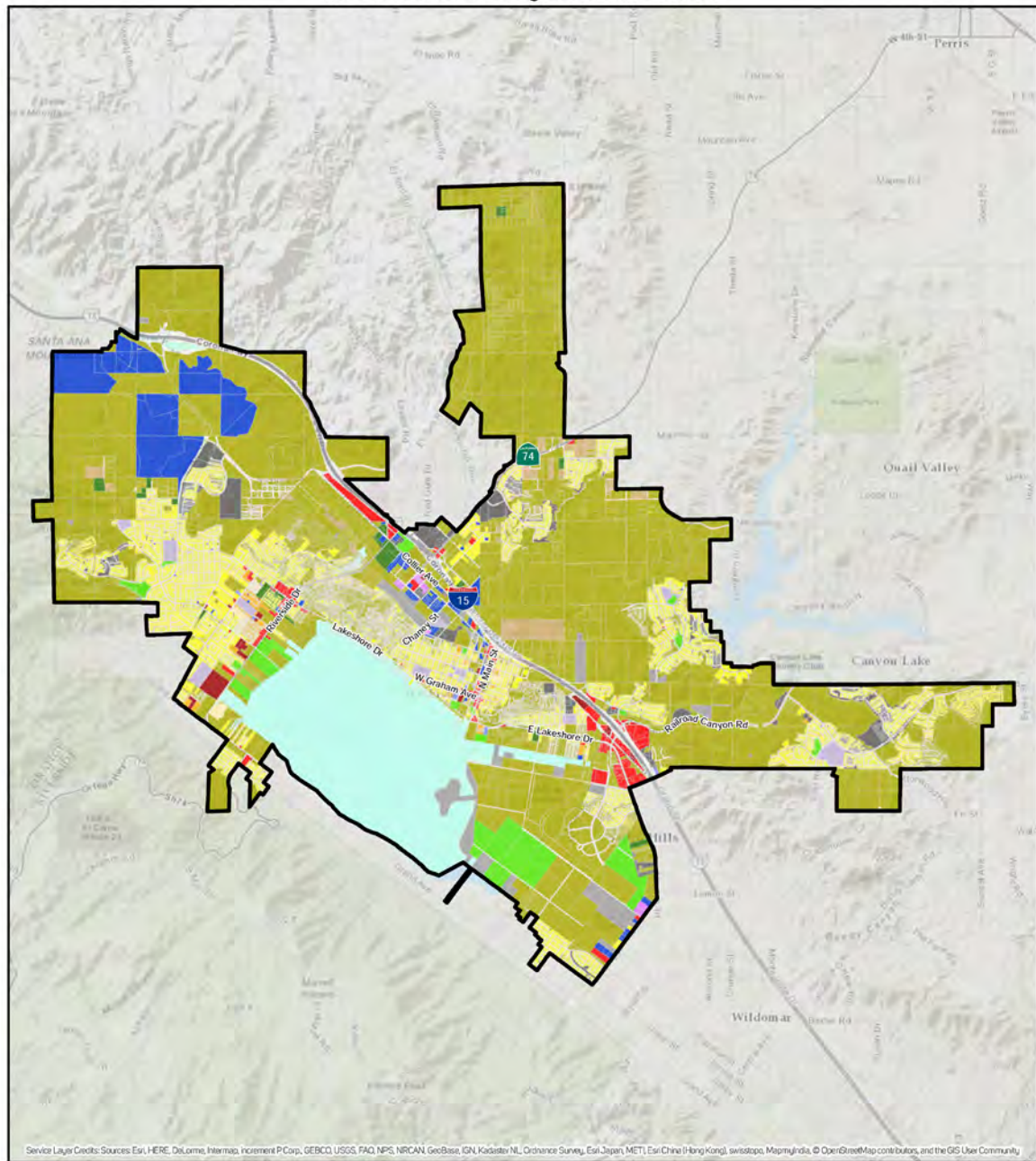
Lake Elsinore is truly unique in terms of its land use characteristics, particularly in relation to its neighboring communities. The City's heritage is evident in its range of built environments, which span development eras that range from a compact, walkable downtown, to hillside vista residential neighborhoods, modern master-planned communities, and region-drawing retail.

Additionally, the City is home to popular extreme recreational activities, such as skydiving, water sports, motor sports, mountain biking and trail use, and skydiving. As with commercial centers, the City's recreation destinations draw visitors from the region and beyond.

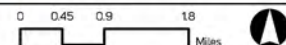
As presented in **Figure 2-2**, land uses generally contain commercial features near major transportation facilities, such as along I-15 and SR-74. Residential uses primarily consist of single-family units, dispersed around the lake, as well as near Downtown and into the canyons east of I-15.

Figure 2-2 Existing Land Uses (2016)

Existing Land Use in City of Lake Elsinore (2016 SCAG Existing Land Use Codes)



Source: SCAG, 2017
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2.1.2 Activity Centers

Key activity centers in Lake Elsinore include Downtown Lake Elsinore, area schools, parks, and retail districts. These locations represent portions of the City that serve as attractors for residents and visitors to the City. As the planning process progresses into identification of opportunities and constraints and network recommendations, these activity centers will become an important frame of reference for understanding the parts of the City that people are naturally attracted to. Activity centers are presented in **Figure 2-3**. As shown, The City contains activity centers in a relatively even distribution, including near the lake, the Interstate 15 corridor, and newly developed portions of the City near the eastern city limits and neighboring communities of Warm Springs, Canyon Lake, and Menifee.



2.1.3 Adopted Roadway Network

In conjunction with the Draft City of Lake Elsinore Circulation Element, the city's streets have been categorized by typology. This categorization effort takes a number of factors into consideration, including geographic setting, adjacent land use, anticipated traffic levels, and the overall function that a roadway is intended to serve as a component of the City's overall mobility network.

The City's roadway classifications are displayed in **Figure 2-4**. As shown, roadway mobility is supported by an even network of Urban Arterials and Major roadways, which also serve I-15. Supporting Secondary and Collector roadways feed residential and neighborhood traffic to these facilities. Downtown Lake Elsinore's compact, walkable environment is served by 2-lane Collector roadways.



The Downtown environment is supported by collector roadways (top), while arterials and major roadways serve much of the City, and connect to I-15 (bottom).

Figure 2-3 Activity Centers

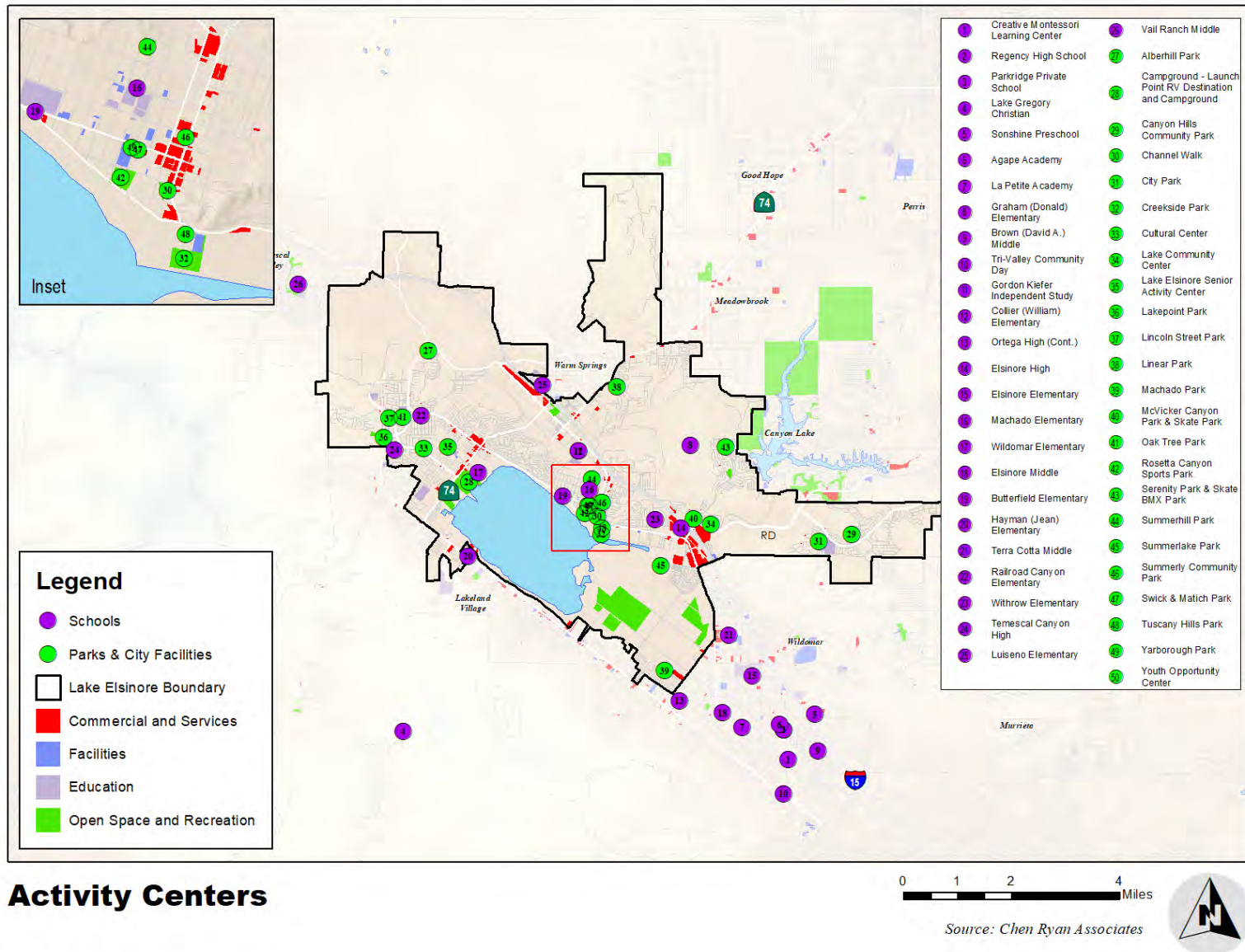
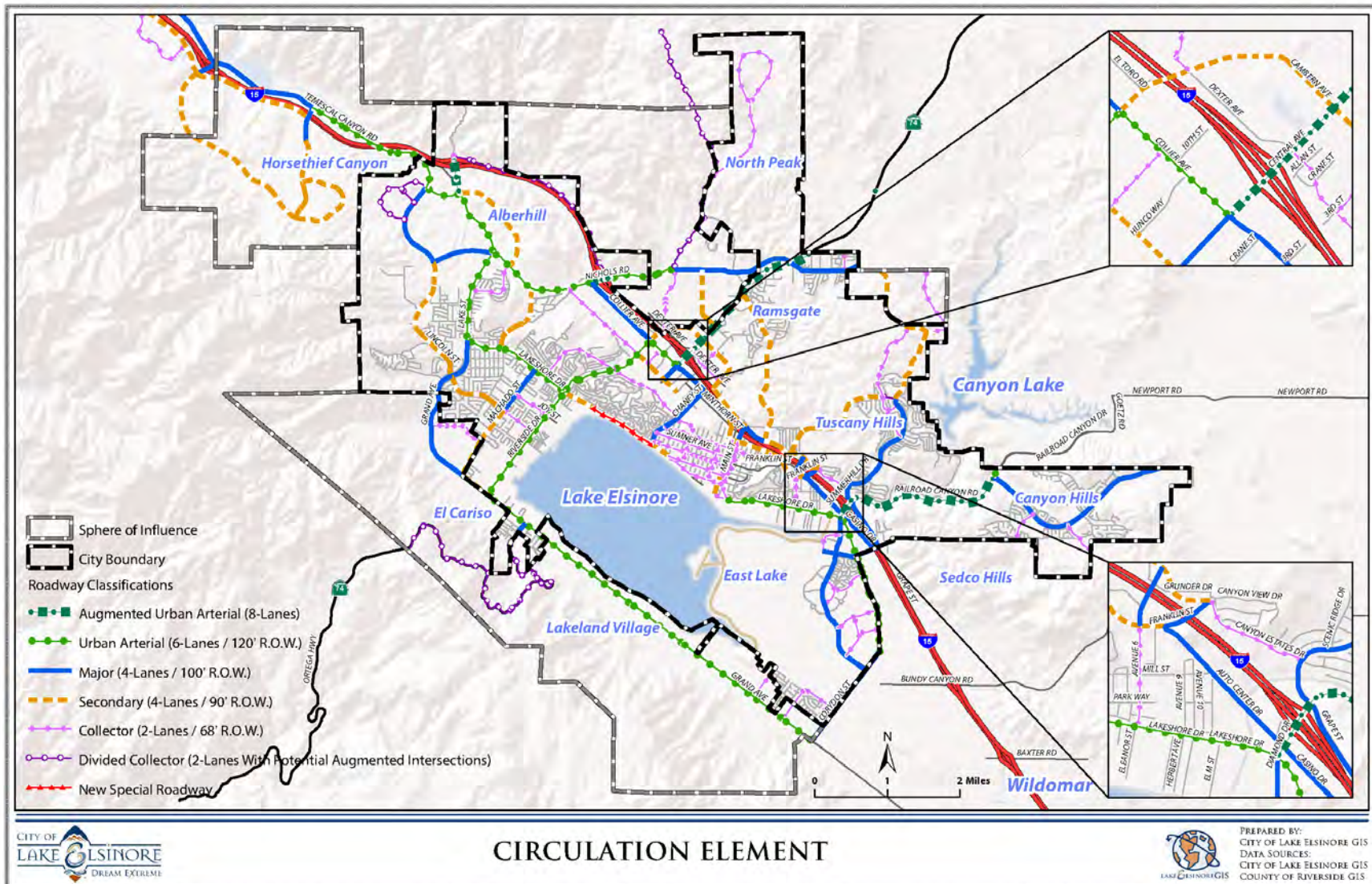


Figure 2-4 City of Lake Elsinore Roadway Classifications



Source: City of Lake Elsinore

2.2 Demographic Summary

Demographic information is used to better understand the people who live in Lake Elsinore today. Age groups, means of transportation to work, and vehicle availability are described in this section. Demographic information was obtained from the US Census 2013 – 2017 American Community Survey 5-Year Estimates, which represent the most recent available data.

A growing community such as Lake Elsinore is subject to continual change, thus it is expected that demographics and data may rapidly shift as Lake Elsinore develops further. Currently, growth areas include Canyon Hills, Summerly, Rosetta, and Alberhill. Future demographic analyses may indicate shifts relative to what is presented in this report, due to this ongoing development.

2.2.1 Population and Employment Density

Figure 2-5 displays the portions of Lake Elsinore with the highest population density. As shown, much of the City's land area is relatively rural, with several distinct clusters of density primarily located at the northwest shore of the lake, historic Downtown, the southeast shore of the lake, near the Wildomar border, and in neighboring communities of Canyon Lake and Menifee. Temescal Valley also exhibits relatively higher density than Lake Elsinore as a whole. These population centers exhibit notable similarity to the Activity Centers defined in Figure 2-3, which suggest opportunity to serve local catchment areas with facilities that allow residents to access activity centers near them by non-vehicular means.

In addition to developing an understanding of population density, employment density is a key indicator of the jobs-housing balance of

Lake Elsinore. This is also critical in uncovering the best potential treatments for a mobility network, since a large portion of trips are commute trips. Commute-related time periods are also related to peak periods of roadway congestion. **Figure 2-6** presents employment density by Census Block Group. As shown, the City's main employment areas are along the northeast shore of the lake, including Downtown and the portion of the City along the SR-74 corridor. Additional significant employment density is found along the I-15 corridor, adjacent to the Wildomar border. Elsewhere, the City is shown to be primarily residential in nature.

2.2.2 Youth and Senior Populations

Figure 2-7 shows the percent of population by age group for the City of Lake Elsinore and Riverside County. As shown, Lake Elsinore's population distribution by age is relatively younger than Riverside County as a whole, with more people in the Under 5, 5-9, 10-14, 15-19, 25-34, and 35-44 age groups than the County population, and somewhat fewer people in the 20-24, 45-54, 55-59, 60-64, 65-74, 75-84, and 85 and older age groups.

Figure 2-5 Population Density

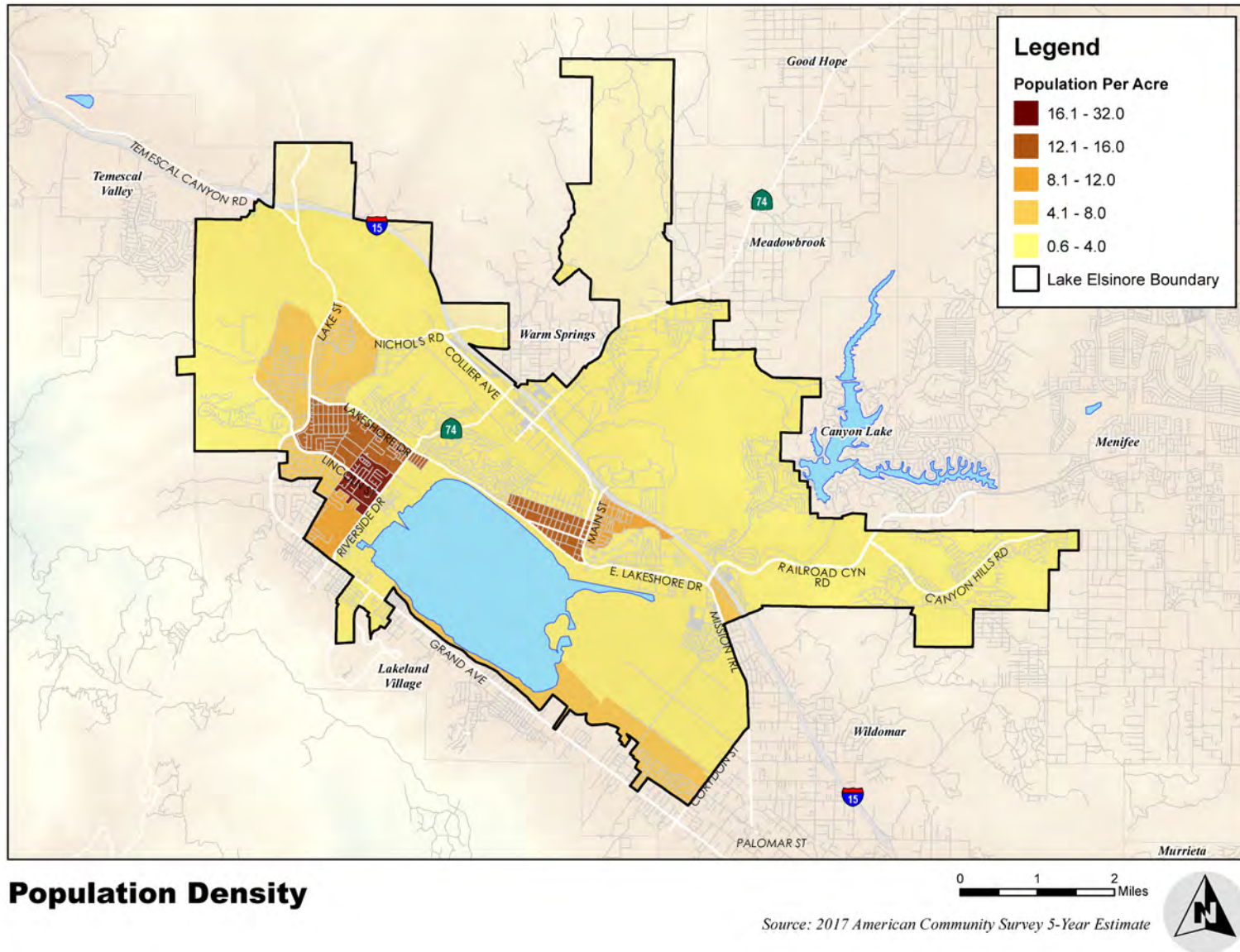


Figure 2-6 Employment Density

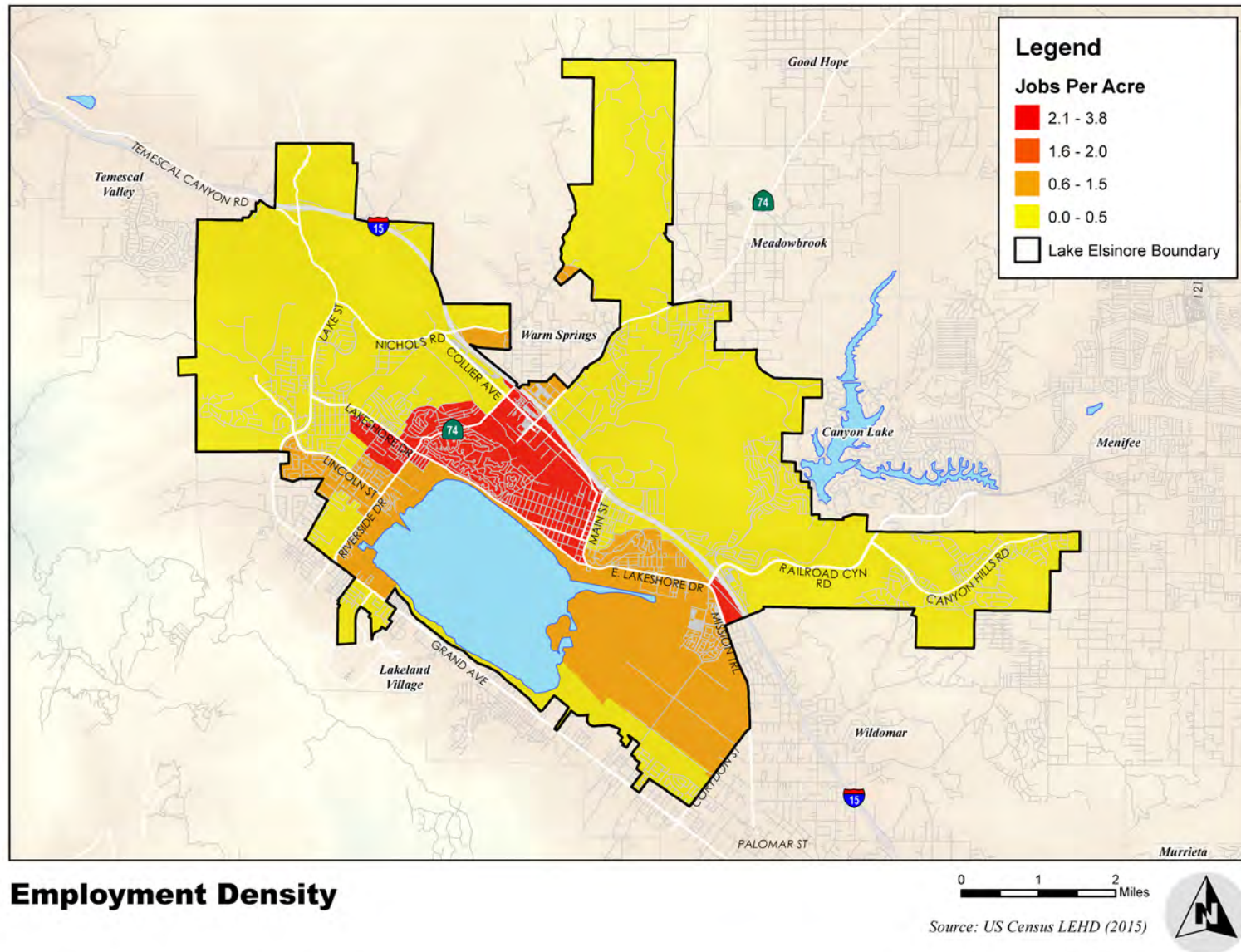
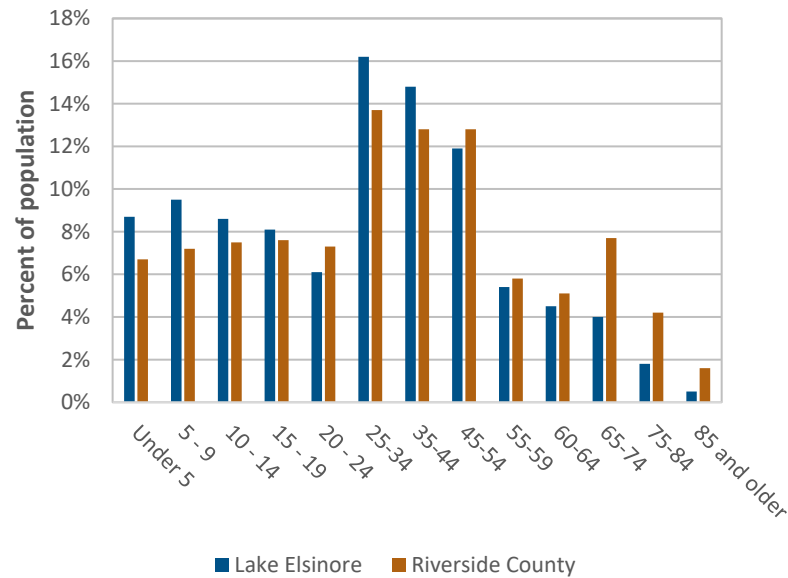


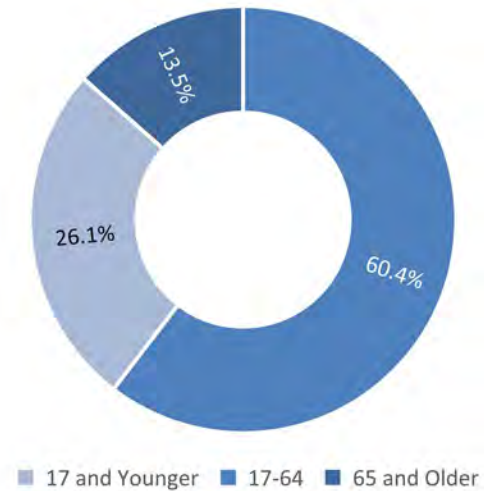
Figure 2-7 Percent of Population by Age Group – City of Lake Elsinore and Riverside County



Source: US Census, 2013 – 2017 American Community Survey 5-Year Estimates (2019)

Figure 2-8 identifies the percent of Lake Elsinore’s population making up youth (age 17 and younger) and seniors (age 65 and older). Youth and senior populations have more limited mobility options than the general adult population, making them more vulnerable and reliant on alternative transportation modes and infrastructure, and therefore requiring additional considerations when planning transportation networks.

Figure 2-8 Lake Elsinore Youth and Senior Populations



Source: US Census, 2013 – 2017 American Community Survey 5-Year Estimates (2019)

Figure 2-9 presents the distribution of the senior citizen population within the City of Lake Elsinore by Census Block Group. As shown, a large geographic portion of the City contains a senior population of 9% or lower. Distinct clusters, including the northwest portion of the lake, and the eastern border near Canyon lake, exhibit higher senior populations, which include up to 16% and 22.5% senior citizens, respectively.

Figure 2-10 displays the distribution of the youth population within the City, also by Census Block Group. Relative to senior populations, youths are more dispersed throughout the City. Though there are areas of slightly higher concentrations of youth populations, such as

Figure 2-9 Distribution of Senior Population by Census Block Group

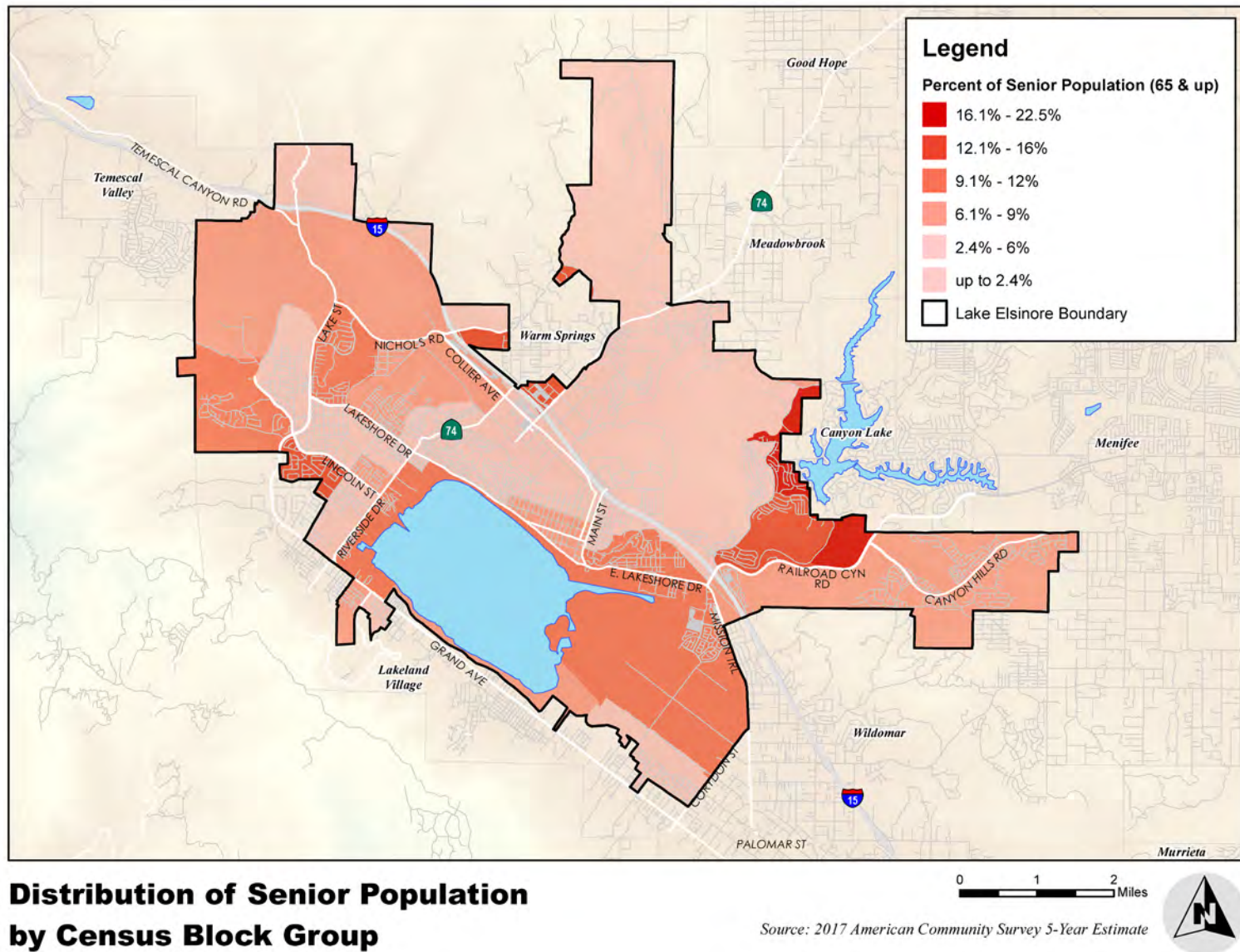
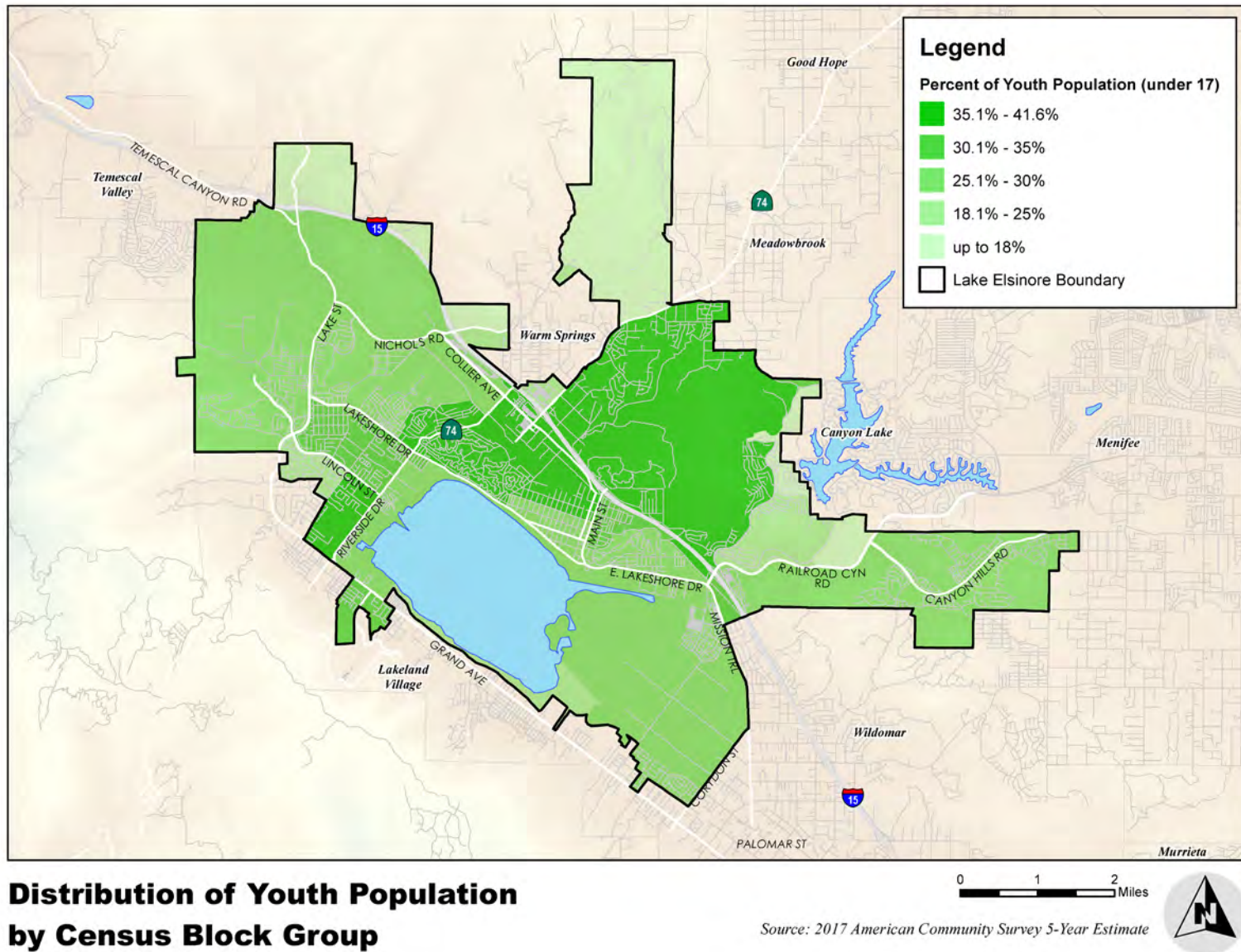


Figure 2-10 Distribution of Youth Population by Census Block Group



east of I-15, distinct population clusters do not exist to the same degree as is so for senior citizens. Since walking and riding to school are two key aims of this Plan, this illuminates a need to ensure that safe, comfortable facilities are present in an even distribution to ensure the best catchment of youth riders.

2.3 “Eight-to-Eighty” Approach

An “Eight-to-Eighty” city places a priority on both eight and eighty-year-old members of the community when planning. The intent of this approach is to produce planning outcomes that ensures a city functions properly and equitably for everyone’s ability. Generally, the past fifty years have produced planning outcomes for North American cities that prioritize driver-based mobility. Car-centric planning oftentimes neglects mobility for those that may be not be able to operate a motor vehicle, such as children and seniors. Among others, this approach reduces much of life’s daily physical activity. Rather, the eight-to-eighty approach shifts the focus back to people, resulting in healthier and more equitable cities supported by safe mobility infrastructure that accommodates all modes of travel.

Bicyclists form a highly diverse group of individuals whose cycling preferences and cycling skill is varied. Cyclists have been generally categorized as belonging to one of four types, based upon their comfort and interest in cycling (*Dill, et al; Four Types of Cyclists? Examination of Typology for Better Understanding of Bicycling Behavior and Potential, Portland State University*), as shown in **Table 2-1**.

Generally, when planning for bicycle facilities, various levels of bicyclist abilities are considered in relation to the community and

environment in which they live and cycle. Advanced cyclists are oftentimes happily served by bicycle *compatible roadways* designed to accommodate shared use by bicycles and vehicles. Basic riders, on the other hand, are more comfortable with *designated roadways* with bicycle facilities that encourage bicycle use.

A *compatible roadway* is one which incorporates design features that allow a competent bicyclist to safely share the roadway with a vehicle. Features may include carefully considered traffic volumes, speeds, and signage. Typically, this facility is a Class III bicycle route.

A *designated roadway* is one that encourages cycling through the use of lane markings and signage. Typically, this facility is a Class II bicycle lane or Class IV cycle track. Other considerations of a designated roadway may include traffic conditions, appropriate width and geometries, and directness of route. A Class I bicycle path is recommended for those inexperienced cyclists and other recreational uses since it is separated from the road and motorized traffic.

In Lake Elsinore, the experience level of cyclists predominantly falls into the “interested but concerned” category, based upon the small but steady number of cyclists observed throughout the city where roadway conditions are calm and inviting. There are also more experienced cyclists that bike longer distances, making use of the region’s rural open spaces. Implementation of the recommended network will ultimately result in bicycle facilities that can improve mobility for varying levels of cyclists. Caltrans-adopted bicycle facility classifications are presented in **Table 2-2**.

Table 2-1 The Four Types of Cyclists

Example	Description
	The “Strong and the Fearless” represent fewer than half of a percent of the population. These are the people who will ride regardless of roadway conditions. They tend to self-identify as “cyclists,” and riding is a strong part of their identity. They are generally undeterred by roadway conditions.
	The “Enthusied and Confident” are those who have been attracted to cycling and are comfortable sharing the roadway with automotive traffic, but prefer to do so operating on their own facilities. They are attracted to riding where streets have been redesigned to make them work well for bicycling. They appreciate bicycle lanes and bicycle boulevards. This demographic comprises approximately seven percent of the population.
	The vast majority of people are the “Interested but Concerned.” These individuals are curious about bicycling. They are hearing messages from a wide variety of sources about how easy it is to ride a bicycle regularly, about how bicycling is booming, about “bicycle culture”, and about the need for people to lead more active lives. They like riding a bicycle, and they would like to ride more. However, they are cautious toward most riding conditions, and are uncomfortable with riding in mixed traffic. Very few of this group regularly rides bicycles, and particularly not along arterials, or to major commercial and employment destinations. This group represents approximately 60 percent of the population. They would ride if they felt safer on the roadways—if cars were slower and less frequent, and if there were more quiet streets with few cars and paths without any cars at all.
	Approximately one third of the population falls into the last category - the “No Way, No How” group that is currently not interested in bicycling at all, for reasons of topography, inability, or simply a lack of interest.

Source: Dill, et al; Chen Ryan Associates (2019)

Table 2-2 Bicycle Facility Design Classifications

Example	Description
	Class I Multi-Use Path – Also referred to as a bike paths or shared-use paths, Class I facilities provide a completely separated right-of-way designed for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized. Multi-use paths can provide connections where roadways are non-existent or unable to support bicycle travel. The minimum paved width for a two-way multi-use path is considered to be eight-feet, with a two-foot wide graded area adjacent to the pavement.
	Class II Bike Lane – Provides a striped lane designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited. Bike lanes are one-way facilities located on either side of a roadway. Pedestrian and motorist crossflows are permitted. Additional enhancements such as painted buffers and signage may be applied. The minimum bike lane width is considered to be five-feet.
	Class III Bike Route – Provides shared use of traffic lanes with cyclists and motor vehicles, identified by signage and/or street markings such as “sharrows”. Bike routes are best suited for low-speed, low-volume roadways with an outside lane of 14 feet or greater. Bike routes provide network continuity or designate preferred routes through corridors with high demand.
	Class IV Cycle Track – Also referred to as separated or protected bikeways, cycle tracks provide a right-of-way designated exclusively for bicycle travel within the roadway and physically protected from vehicular traffic. Cycle tracks can provide for one-way or two-way travel. Types of separation include, but are not limited to, grade separation, flexible posts, or on-street parking.

Source: Chen Ryan Associates (2019)

2.4 Equity Analysis

A well-considered multimodal mobility network will serve the needs of all users, ages, and abilities. This section summarizes findings of the portion of the City that lacks access to a vehicle, as well as household income per census block group.

2.4.1 Zero-Vehicle Households

Vehicle availability for Lake Elsinore households is displayed in **Table 2-3**. Ninety-seven percent of households have access to at least one vehicle, while approximately seventy-four percent of households have access to more than one vehicle.

Table 2-3 Zero Vehicle Households by Census Block Group

Mode of Transportation	Households	Percent of Total
3 or More Vehicles Available	5,232	31.6%
2 Vehicles Available	7,010	42.4%
1 Vehicle Available	3,805	23.0%
No Vehicles Available	491	3.0%
Total Occupied Household Units	16,538	100.0%

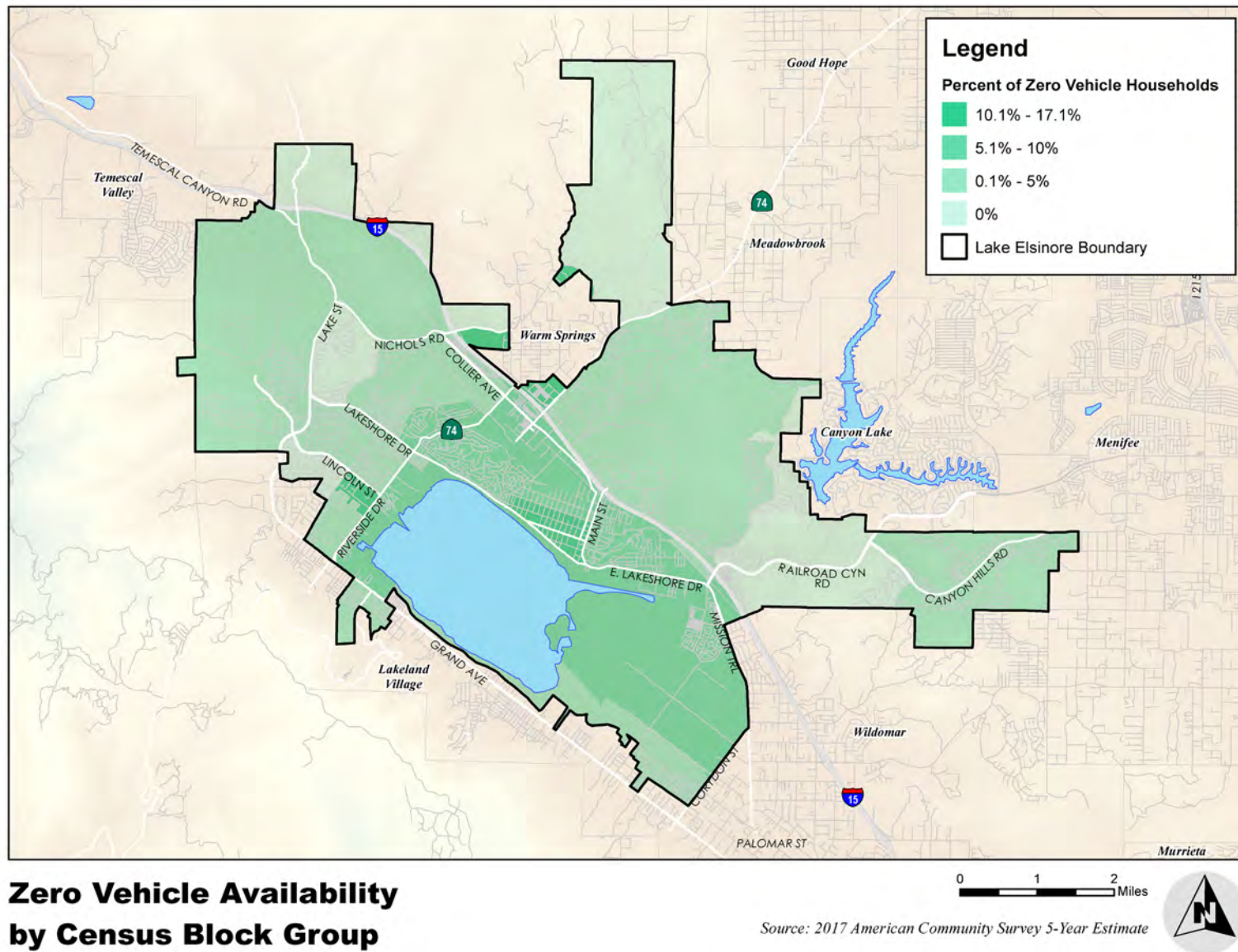
Source: US Census, 2013 – 2017 American Community Survey 5-Year Estimates (2019)

The distribution of households without vehicles can be seen in **Figure 2-11**. As shown, although few households lack access to a car, those that do are concentrated in higher percentages near downtown, where walking, cycling, and transit use are most feasible. Secondary clusters of zero-vehicle households are located along the northwest shore of the lake, and near the border with the unincorporated community of Warm Springs.



The greatest number of zero-vehicle households is found near Downtown Lake Elsinore.

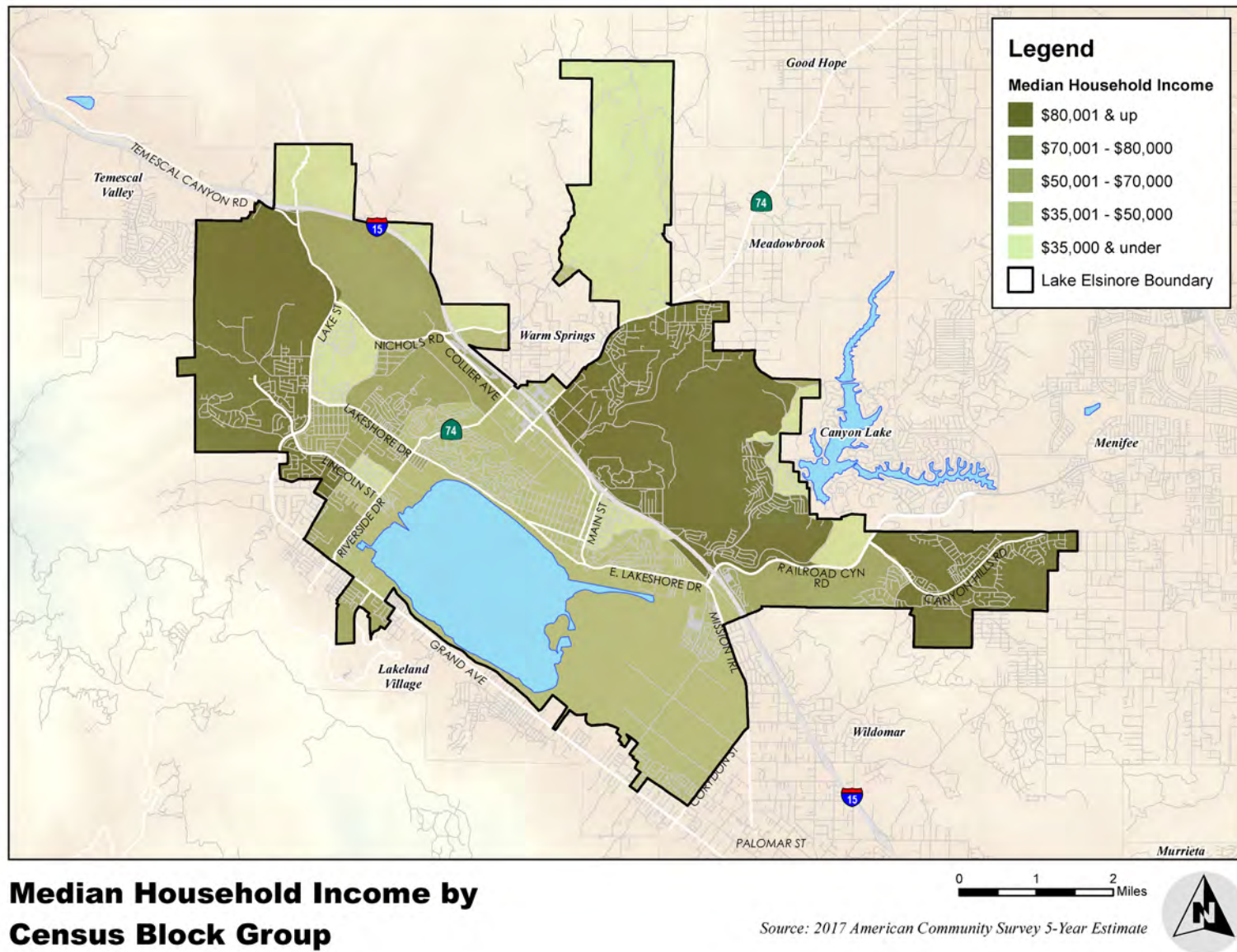
Figure 2-11 Zero Vehicle Availability by Census Block Group



2.4.2 Household Income

Figure 2-12 displays the median household income for the City of Lake Elsinore by census block group. As shown, there is a correlation between income and zero-vehicle household status, whereby the portions of the City with lower incomes tend to be located near Downtown, as well as the same census block group along the lake's northwest shore that exhibited relatively higher rates of zero-vehicle ownership.

Figure 2-12 Median Household Income by Census Block Group



2.5 Commuter Profile

Examining the current commuter patterns of the residents of the City of Lake Elsinore, provides a deeper understanding of how people are currently traveling, and in turn, will inform the decisions made for the City's future multimodal mobility network.

2.5.1 Means of Transportation to Work

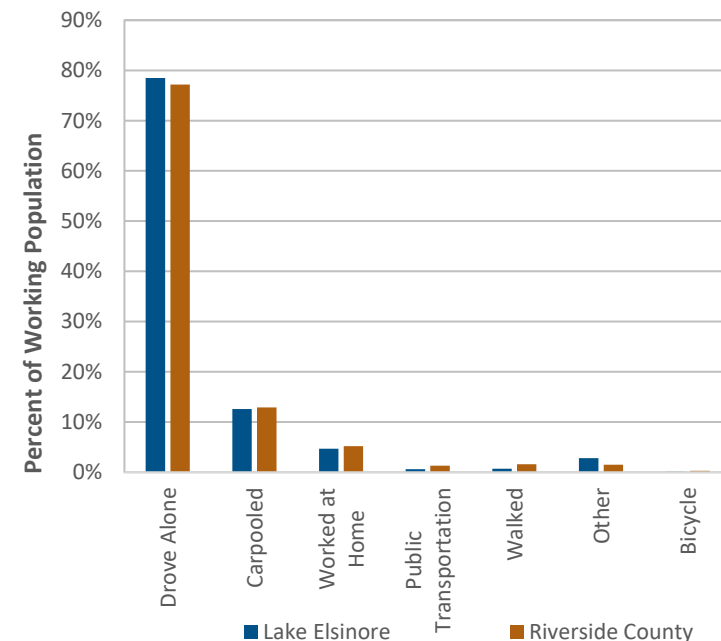
Figure 2-13 displays a comparison of means of transportation to work for Lake Elsinore and Riverside County. As shown below, Lake Elsinore has relatively similar rates of commuters driving alone to work, carpooling, working from home, and biking to work, as compared to Riverside County as a whole. Lake Elsinore has slightly fewer public transportation commuters and walking commuters than the County as a whole, and slightly more workers that commute via an "other" means.

Figure 2-14 displays the percentage of commuters who walk to work citywide, while **Figure 2-15** displays commuters who ride a bicycle to work. The level of pedestrian commuting is relatively higher in several areas throughout the community where residential density is generally higher, and where there is nearer proximity to jobs, such as near Downtown. Bicycle commuting is generally higher near Downtown as well. Lakeland Village, and neighborhoods along the northwest shore the lake, also show relatively higher rates of bicycle commuting.

Figure 2-16 presents the distribution of commuters who take transit to work and those use a vehicle to commute to work within the City of Lake Elsinore. As shown, those that reside in the central portion

of the City commute via transit at higher rates than those that live at the periphery of the City.

Figure 2-13 Means of Transportation to Work



Source: US Census, 2013 – 2017 American Community Survey 5-Year Estimates (2019)

Figure 2-14 Percent of Commuters Who Walk to Work by Census Block Group

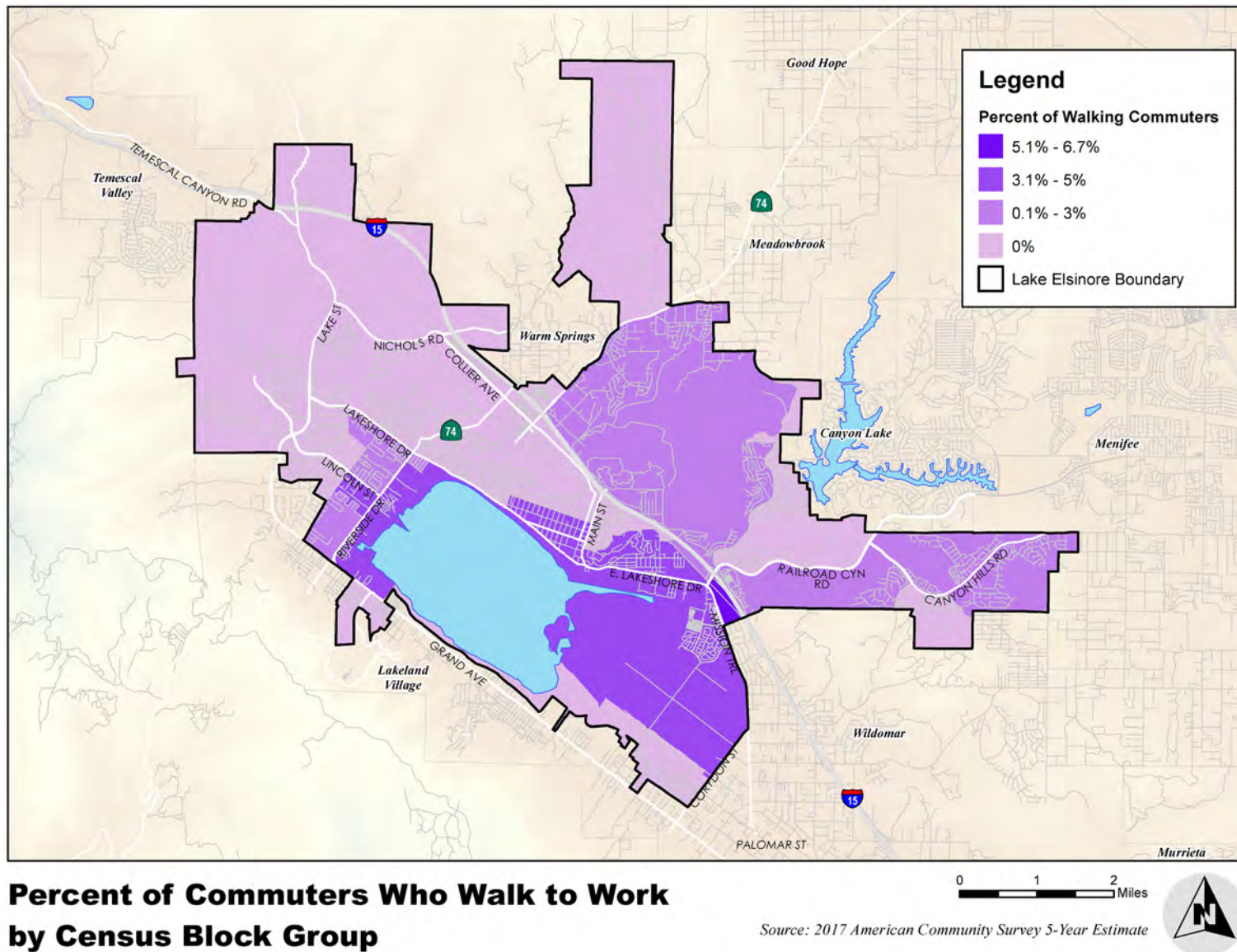


Figure 2-15 Percent of Commuters Who Bicycle to Work by Census Block Group

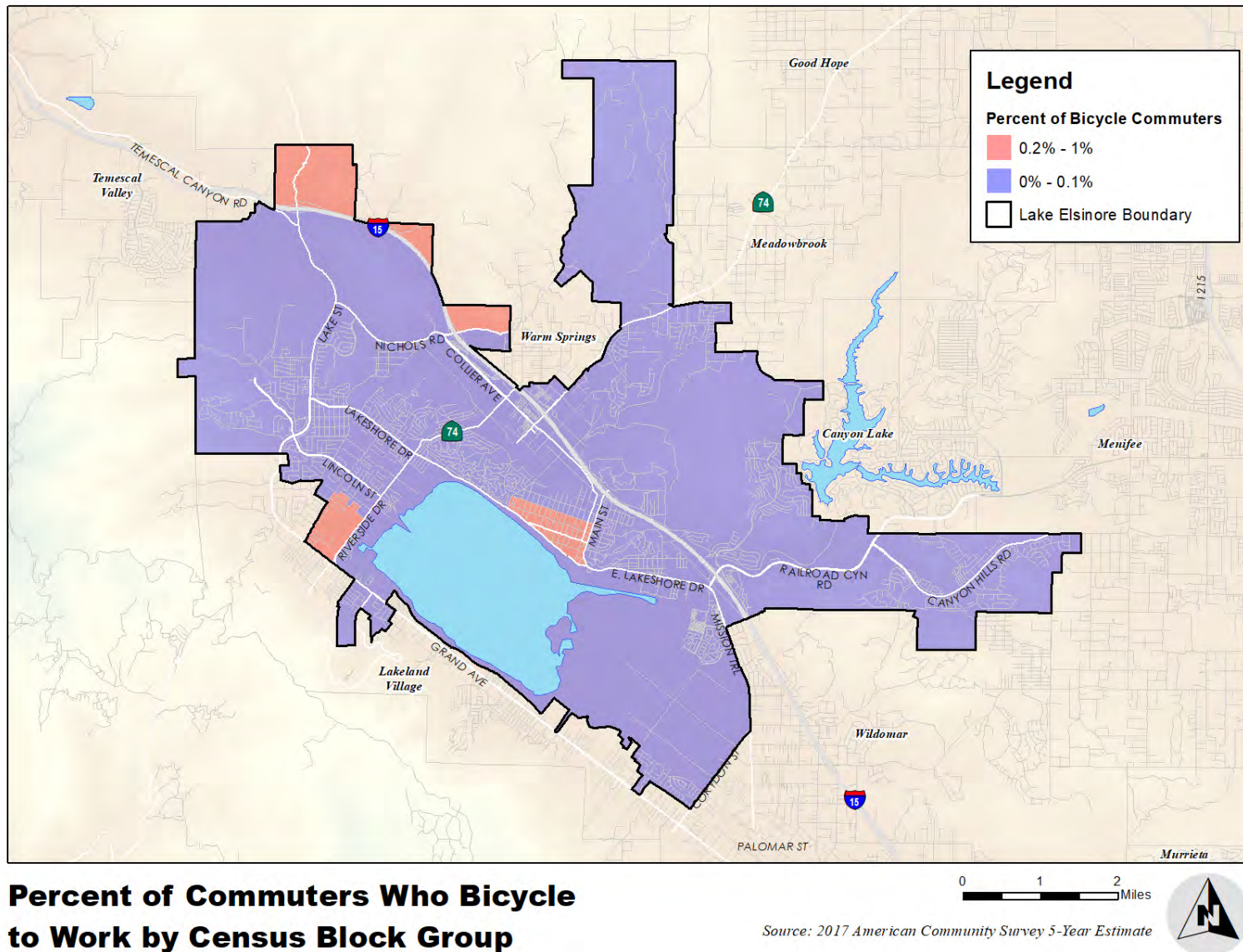
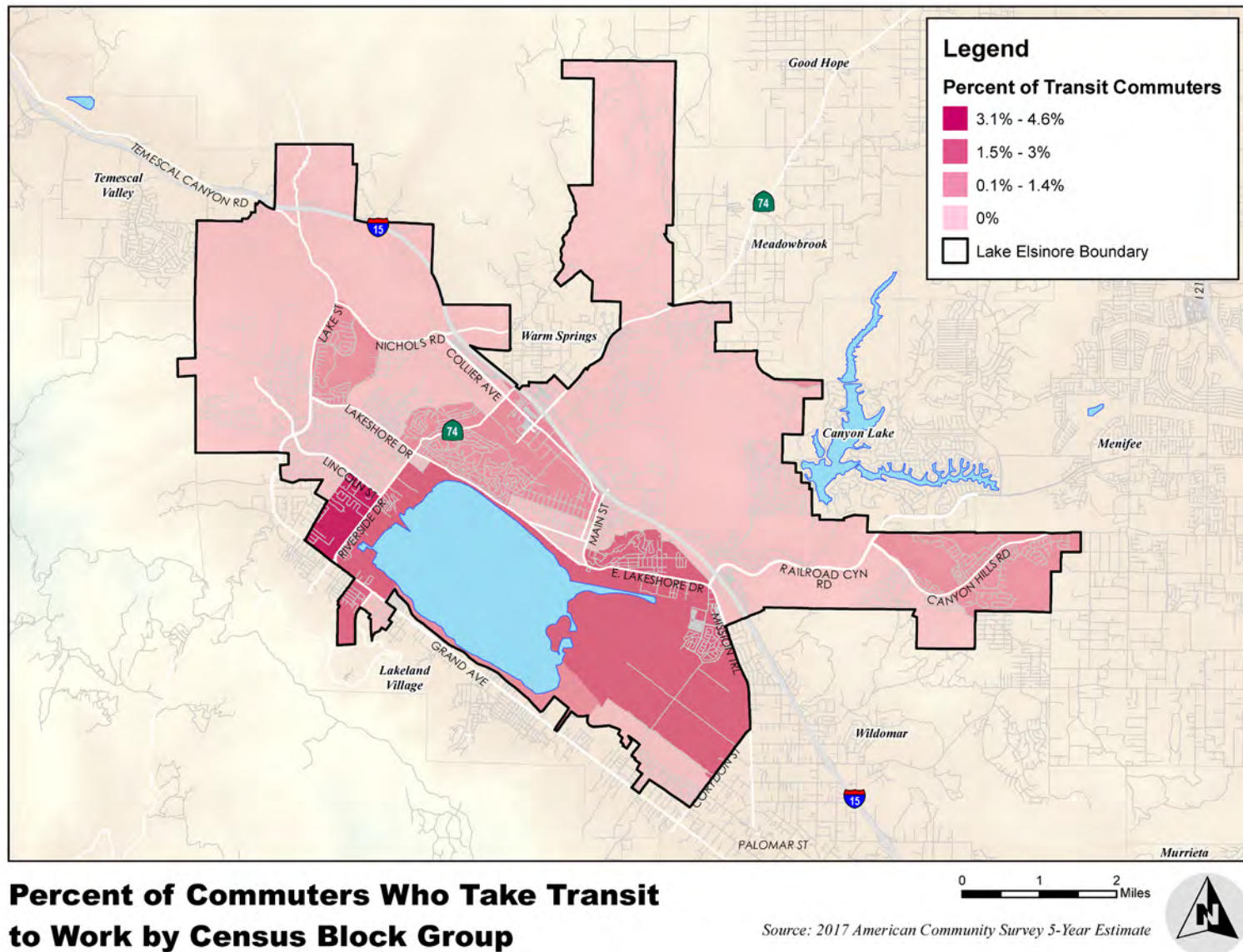


Figure 2-16 Percent of Commuters Who Take Transit to Work by Census Block Group



2.6 Travel Time to Work

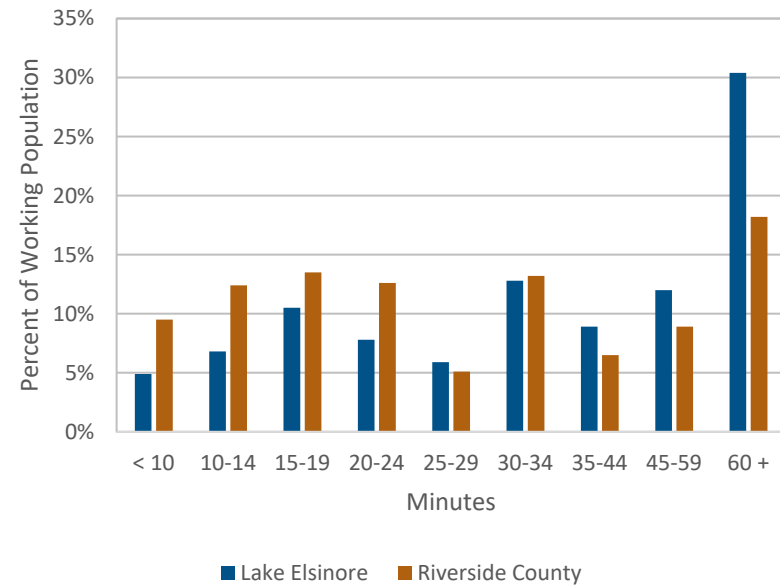
Figure 2-17 displays the mean travel time to work for residents of Lake Elsinore, relative to Riverside County as a whole. As shown, most Lake Elsinore residents have a longer commute than Riverside County residents as a whole. As a community with many residents that work outside the City limits, a greater proportion of Lake Elsinore residents commute 35 or more minutes than do other County commuters, while fewer Lake Elsinore residents have commutes of less than 35 minutes than do county commuters, as a whole. However, Lake Elsinore has a greater number of commuters that travel between 25 and 29 minutes to work than Riverside County as a whole.

The mean travel time for working residents of Lake Elsinore is 44.1 minutes, whereas the mean travel time to work in Riverside County as a whole is shorter, at 33.1 minutes.



I-15, a common commute corridor for Lake Elsinore residents.

Figure 2-17 Mean Travel Time to Work



Source: US Census, 2013 – 2017 American Community Survey 5-Year Estimates (2019)

2.7 Health Index

There are a number of community conditions including housing, education, economics, and social factors, among others, when grouped together can be used to assess a community's life expectancy. The California Healthy Places Index (HPI) is one such metric that is structured to highlight the community conditions shaping health outcomes in neighborhoods in California. It is designed to showcase a cross-section of data that properly frames and recognizes equity issues communities are experiencing. The HPI has been used as a prime resource throughout the State for guiding informed prioritization of public and private investments, resource allocations, program planning and service delivery. These social determinants of health have been grouped and analyzed to derive a general picture of the City of Lake Elsinore's health, using a total of eight factors, listed below.

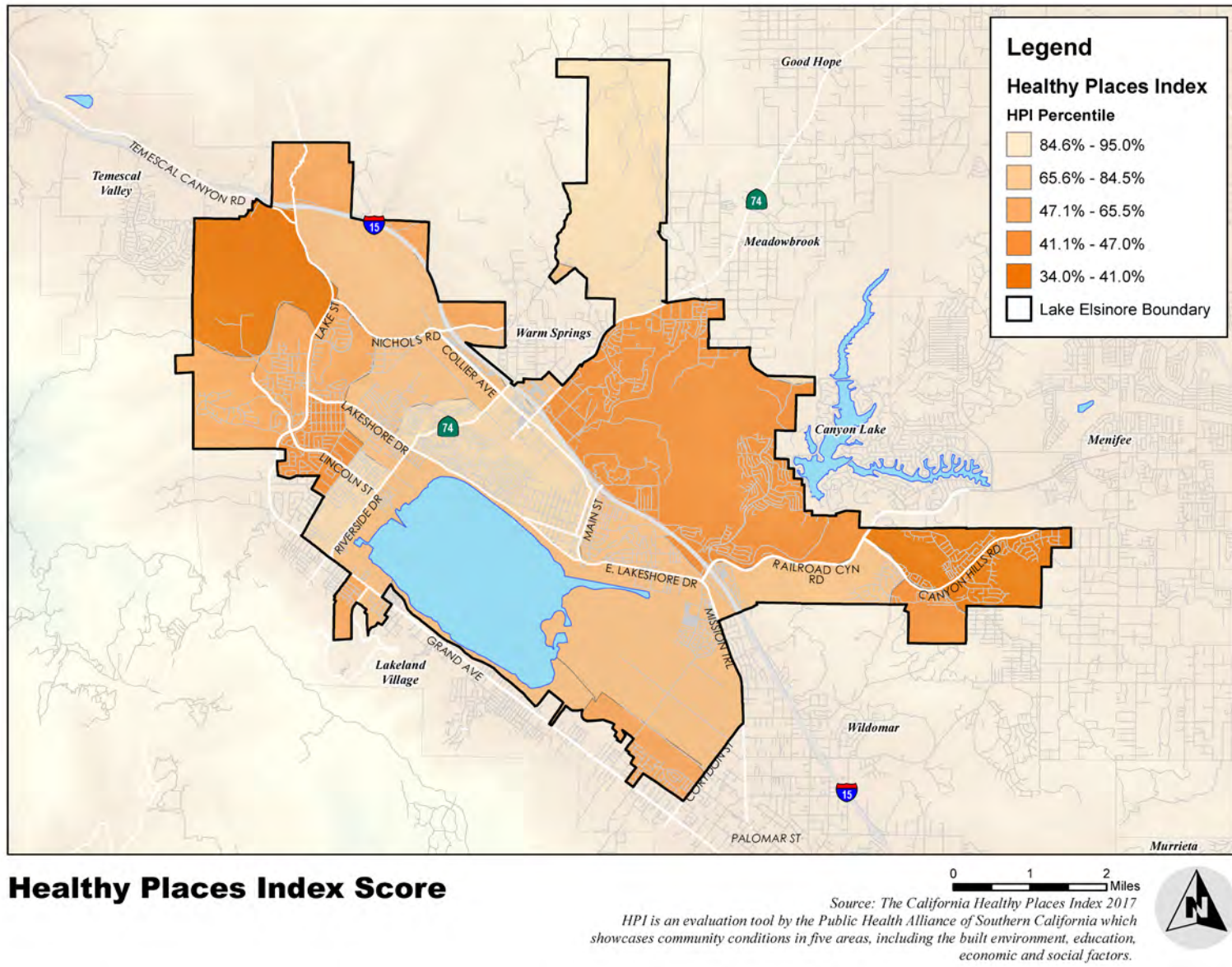
- Economic
- Education
- Housing
- Health Care Access
- Neighborhood
- Clean Environment
- Transportation
- Social Factors

The Economic category analyzes an area's poverty levels, employment rates and median household income. The Education category includes the number of postsecondary degrees or higher in the area, high school graduation rates, as well as preschool

enrollment rates. The Housing category includes homeownership rates, the burden of owning vs. renting, the percent of uncrowded housing, and the percent of housing stock which is habitable. The Health Care Access category includes the percent of insured adults in the community. The Neighborhood category includes retail density, supermarket access, park access, and tree canopy, in addition to the number of people who live within a quarter-mile of a store which sells alcohol. The Clean Environment category examines the availability of safe drinking water, as well as clean air in three different metrics: particulate matter, diesel particulate matter, and ozone. The Transportation category includes automobile access and rates of active commuting. The final category of Social Factors examines the percentage of two parent households and the percentage of registered voters.

Figure 2-18 presents the California Healthy Places Index Score, as a composite of these factors. The areas which are darker in color are statistically less healthy when all eight factors are taken into consideration, in comparison to the areas which are lighter in color. In all, a majority of the City is located within the 65.6% percentile or above. Highest scoring areas are count close to the lake, near Downtown, and in several outlying areas. Conversely, relatively lower scores are found further toward the City's periphery.

Figure 2-18 Healthy Places Index Score (2017)



3.0 People on Foot

This chapter provides an overview of existing pedestrian infrastructure, travel behaviors and demographics, and pedestrian collision histories.

3.1 Network Summary

The inventory of pedestrian infrastructure considered sidewalks, curb ramps, and crosswalks along the City's Circulation Element (CE) roadways. Resources used in this evaluation include geographic information system (GIS) data, satellite imagery, document review, and field review confirmations.

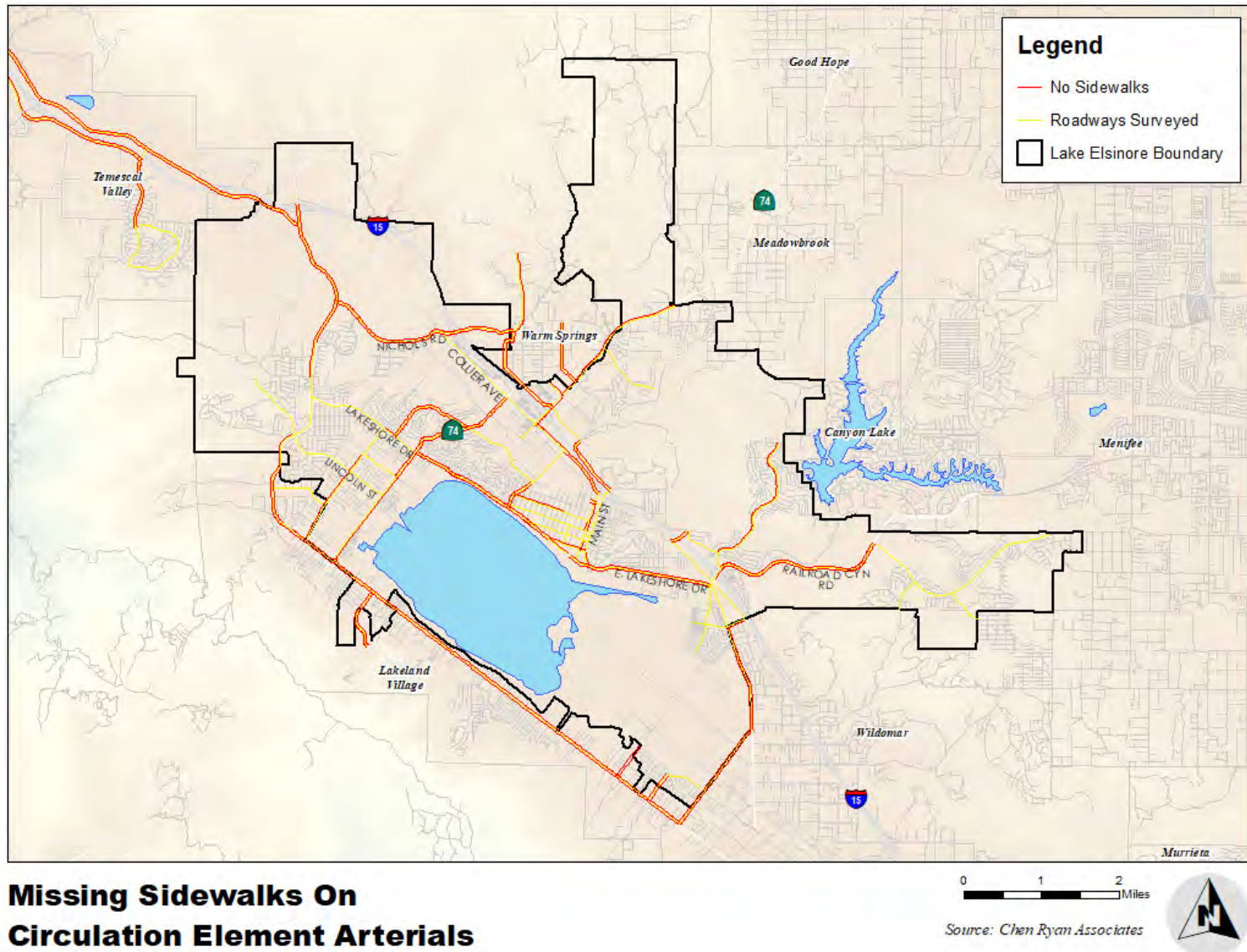
Figure 3-1 displays the location of missing sidewalks along CE roadways. As shown, a significant number of the City's CE roadways lack sidewalks on one or more sides of the street. Roadways with missing sidewalks are also found distributed throughout the City, rather than in a particular portion of the community. Note that in certain locations, particularly in Downtown, sidewalks are sometimes found in front of individual parcels, but do not reflect the overall condition. In these cases, the block was noted as missing sidewalks to identify that a need still remains.

A known deterrent to pedestrian mobility is a lack of space for the pedestrian that places him or her a safe, comfortable distance from passing vehicles. Sidewalk infill will become an important step toward building a robust pedestrian mobility network, particularly where land use characteristics or regional draws encourage pedestrian trips.



Sidewalks are commonly missing along older roadways (top), but can be found in newer developments (bottom).

Figure 3-1 Missing Sidewalks on Circulation Element Arterials



3.2 Pedestrian Collision Analysis

Collision data can be used to identify potential deficiencies related to pedestrian travel. The collision review draws from five years of data (January 2013 – December 2017) obtained from the California Statewide Integrated Traffic Records System (SWITRS). The analysis was used to identify trends and patterns related to collision locations, causes, time, party-at-fault and victim age.

3.2.1 Collision Locations

A total of 64 pedestrian-involved collisions were reported in Lake Elsinore during the five-year analysis period. **Figure 3-2** displays the location of the pedestrian collisions across Lake Elsinore. As shown, the northwest shore of the lake, particularly along the Riverside Drive, Lincoln Street, and Lakeshore Drive corridors, were locations of multiple pedestrian-involved collisions. Downtown Lake Elsinore, as well as southeast Lake Elsinore also recorded several collisions in each respective location.

Table 3-1 identifies the locations where multiple pedestrian involved collisions were reported.

Table 3-1 Multiple Pedestrian Collision Locations (Pedestrian): January 2013 – December 2017

Rank	Intersection	Collisions
1	Riverside Drive and Joy Street	3
	Lakeshore Drive and Terra Cotta Road	3
	Lakeshore Drive and Hursh Street	2
2	Lincoln Street and Riverside Drive	2
	Riverside Drive and Grand Avenue	2
	Summerhill Drive and Canyon Estates Drive	2

Source: SWITRS (2019)

Table 3-2 reports pedestrian collisions by roadway location, differentiating between intersection and midblock locations. As shown, nearly two thirds of pedestrian-involved collisions occurred at intersections, whereas approximately one third of pedestrian-involved collisions occurred at midblock locations.

Table 3-2 Pedestrian Collisions by Roadway Location (January 2013 – December 2017)

Collision Location	Collisions	Percent of Total
Intersection	42	65.6%
Midblock	22	34.4%
Total	64	100%

Source: SWITRS (2019)

3.2.2 Party-At-Fault & Primary Collision Factors

The party at-fault is reported for pedestrian-involved collisions in **Table 3-13** and **Figure 3-3**. The driver was reported as at-fault for the majority of pedestrian-involved collisions, approximately 55 percent, while the pedestrian was reported as the party at-fault for approximately 45 percent of occurrences.

Table 3-3 Pedestrian Collisions by Party At-Fault (January 2013 – December 2017)

Collision Location	Collisions	Percent of Total
Pedestrian	29	45.3%
Driver	35	54.7%
Total	64	100%

Source: SWITRS (2019)

Figure 3-2 Collisions Involving People on Foot (2013 – 2017)

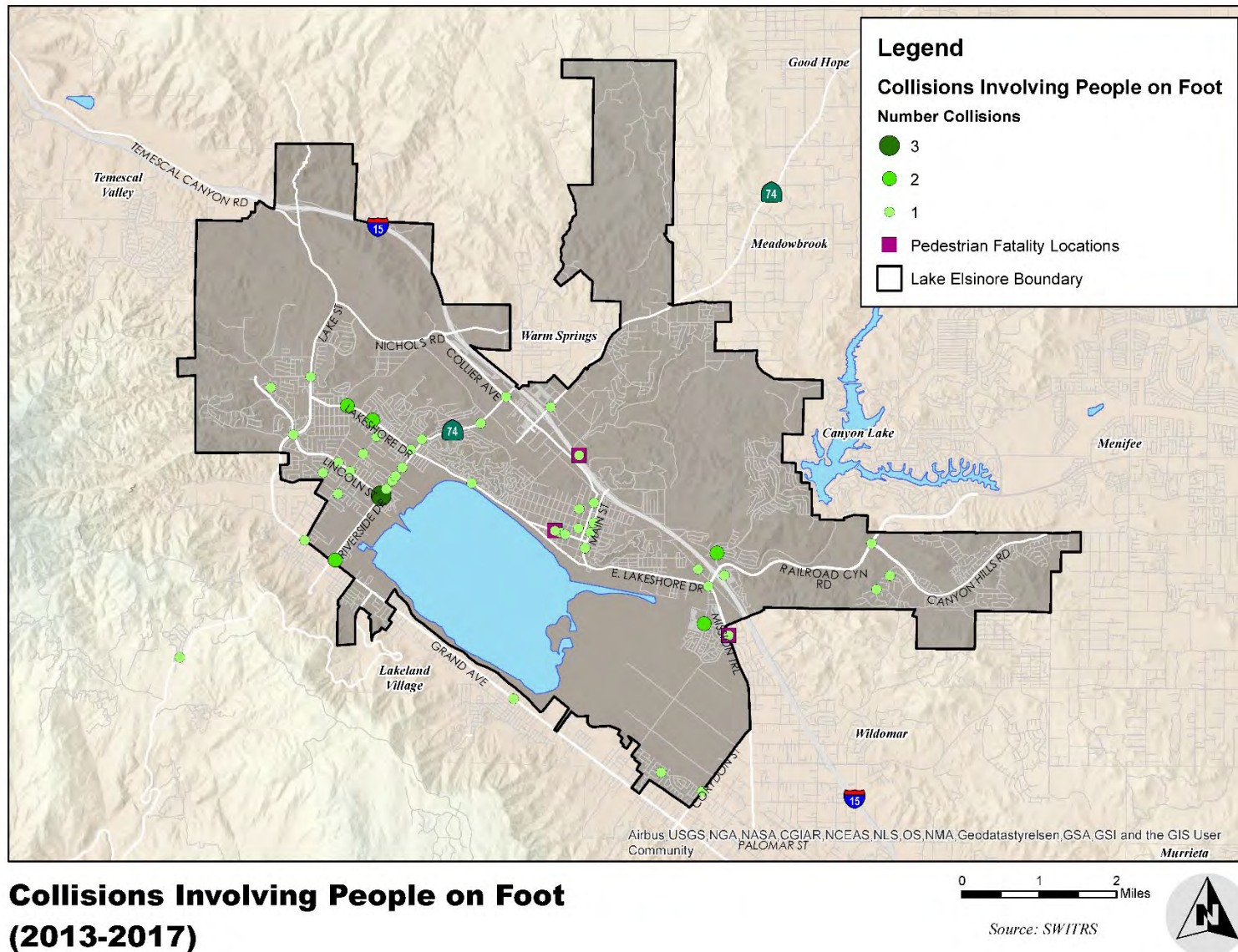
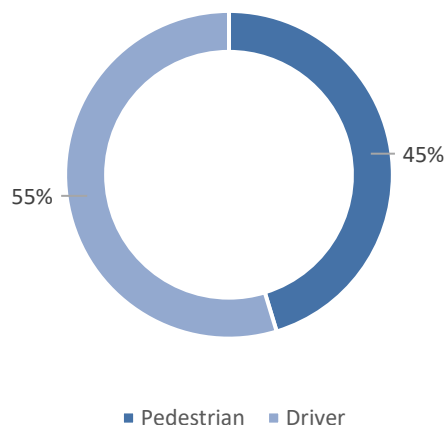


Figure 3-3 Pedestrian Collisions by Party At-Fault



Source: SWITRS (2019)

The primary collision factors for pedestrian-involved collisions are reported in **Table 3-4**. As shown, the leading cause was a pedestrian violation, accounting for 45.3 percent of collisions, followed by violating the pedestrian's right-of-way violations, representing 25.0 percent of collisions.

Table 3-4 Primary Pedestrian Collision Factor (January 2013 – December 2017)

Collision Cause	Collisions	Percent of Total
Pedestrian Violation	29	45.3%
Pedestrian Right-of-Way	16	25.0%
Improper Turning	9	14.1%
Unsafe Speed	4	6.3%
Unknown	3	4.6%
Traffic Signals and Signs	2	3.1%
Other Than Driver/Pedestrian	1	1.6%
Total	64	100.0%

Source: SWITRS (2019)

Table 3-5 reports the pedestrian action during the collisions. The pedestrian was reported as crossing in the crosswalk at an intersection for less than half the collisions (35.9 percent). The second leading cause was due to the pedestrian being in the road, including the shoulder, at (34.4 percent). Oftentimes a lack of sidewalks leads pedestrians to walk within the road, placing them within dangerous proximity to traffic.

Table 3-5 Pedestrian Action During Collision (January 2012 – December 2017)

Pedestrian Action	Collisions	Percent of Total
Crossing in Crosswalk at Intersection	23	35.9%
In Road, Including Shoulder	22	34.4%
Crossing Not in Crosswalk	16	25.0%
Not in Road	2	3.1%
Crossing in Crosswalk Not at Intersection	1	1.6%
Total	64	100.0%

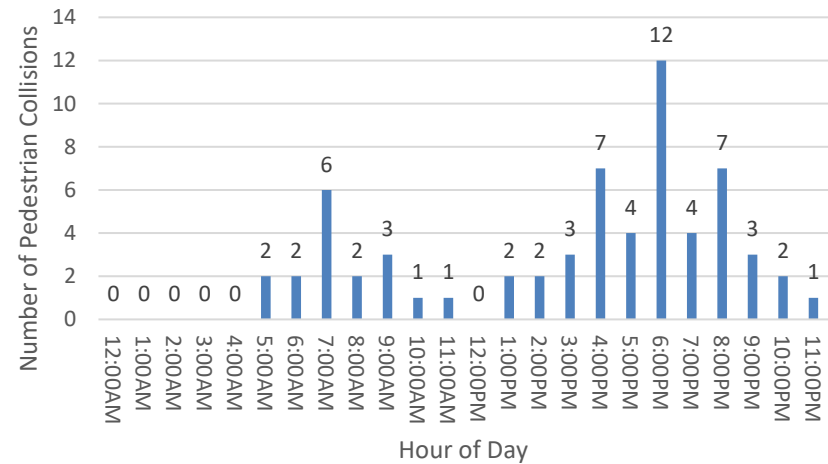
Source: SWITRS (2019)

3.2.3 Temporal Collision Assessment & Victim Ages

The temporal assessment reports collisions by time of day, day of week, and month of year. This information may be used to help identify potential factors contributing to collisions, such as lack of lighting (collisions occurring in the evening), or patterns, such as collisions occurring during peak commute hours (7:00 AM – 9:00 AM & 4:00 PM – 6:00 PM). Victim age is also examined in this section. The age group analysis will help determine whether any age group is experiencing a disproportionate amount of collisions.

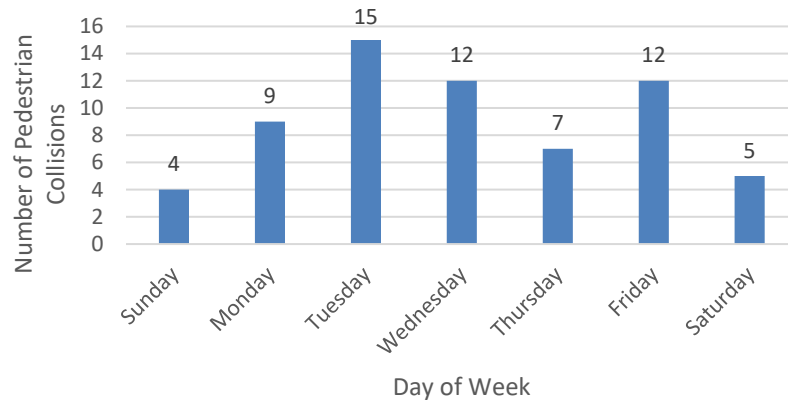
Pedestrian collisions are reported by hour in **Figure 3-4**. As shown, the hour between 6:00 PM and 7:00 PM has the highest number of pedestrian collisions (12 collisions). This is followed by the hours of 4:00 PM to 5:00 PM and 8:00PM to 9:00PM (7 collisions in each hour), and 7:00 AM to 8:00 AM (6 collisions). This timeframe includes the time before and after the school day, as well as the near the evening peak commute period, including twilight hours when people may be likely to go for a walk after work during potentially difficult lighting conditions.

Figure 3-4 Pedestrian Collisions by Hour (January 2013 – December 2017)



Source: SWITRS (2019)

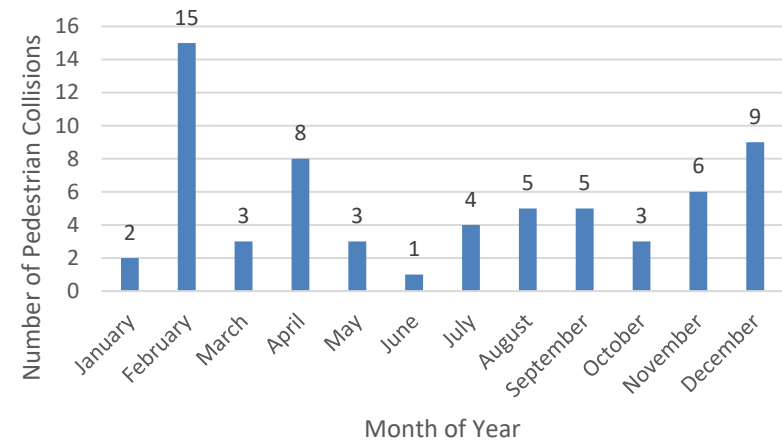
Figure 3-5 Pedestrian Collisions by Day of Week (January 2013 – December 2017)



Source: SWITRS (2019)

Pedestrian collisions by day of week are reported in **Figure 3-5**. Relatively greater pedestrian collisions were noted on Tuesdays (15 collisions). The fewest collisions were found to occur on weekends, with Saturdays and Sundays recording 5 collisions and 4 collisions, respectively. This potentially points to a relatively higher proportion of utilitarian, or commute-related walking in Lake Elsinore, since weekdays register larger numbers of collisions on the whole. It may also be possible that the greater traffic volumes that exist during typical commute periods may be a factor.

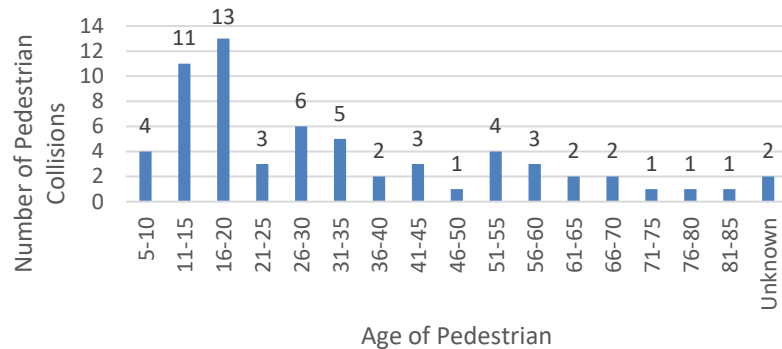
Figure 3-6 Pedestrian Collisions by Month (January 2013 – December 2017)



Source: SWITRS (2019)

Figure 3-6 reports pedestrian-involved collisions by month. The greatest number of pedestrian collisions were reported as occurring in February, with 15 collisions, followed by December, with 9 collisions, and April, with 8 collisions. This pattern may indicate a connection to weather factors, particularly to the rainier months of the year.

Figure 3-7 Pedestrian Collisions by Age (January 2013 – December 2017)



Source: SWITRS (2019)

Pedestrian collisions are displayed by age group in **Figure 3-7**.

3.2.4 Collision Severity

Pedestrian collisions are summarized by severity in **Table 3-6**. As shown, a majority of collisions resulted in “Complaint of Pain,” at 40.6 percent of all collisions, followed by “Other Visible Injury,” meaning an injury that is visible but not traumatic, at 25 percent of all collisions. A total of three pedestrian collisions, or 4.7 percent, were fatal.

Table 3-6 Pedestrian Collision Severity (January 2013 – December 2017)

Collision Severity	Collisions	Percent
Complaint of Pain	26	40.6%
Other Visible Injury	16	25.0%
Severe Injury	10	15.6%
Fatality	3	4.7%
Property Damage Only	9	14.1%
Total	64	100.0%

Source: SWITRS (2019)

3.3 Pedestrian Environment Quality Evaluation (PEQE)

All Circulation Element roadways in Lake Elsinore were evaluated using the Pedestrian Environment Quality Evaluation (PEQE), developed by Chen Ryan Associates based upon an adaptation of the San Francisco Department of Public Health’s Pedestrian Environmental Quality Index (PEQI). PEQE assigns a score to each side of a roadway segment based on four measures: horizontal buffer, lighting, clear pedestrian zone, and posted speed limit. Intersections are also scored based upon the presence of four features: physical features, operational features, ADA curb ramps, and type of traffic control. Additionally, mid-block crossings are scored based upon visibility, crossing distance, ADA features, and type of traffic control. These scores are used to assign facility ratings of high, medium, or low, indicating the relative pedestrian comfort associated with a particular intersection, segment, or midblock crossing. **Table 3-7** displays the attributes influencing the segment scores and, scoring evaluation.

Table 3-7 Pedestrian Environment Quality Ranking System

Facility Type	Measure	Description/Feature	Scoring
Segment between two intersections	1. Horizontal Buffer	Between the edge of auto travel way and the edge of clear pedestrian zone	0 point: < 6 feet 1 point: 6 - 14 feet 2 points: > 14 feet or vertical buffer
	2. Lighting		0 point: below standard/requirement 1 point: meet standard/requirement 2 points: exceed standard/requirement
	3. Clear Pedestrian Zone	5' minimum	0 point: has obstructions 2 points: no obstruction
	4. Posted Speed Limit		0 point: > 40 mph 1 point: 30 - 40 mph 2 points: < 30 mph
Maximum			8 points
Intersection by Leg	1. Physical Feature	- Enhanced/High Visibility Crosswalk - Raised Crosswalk/Speed Table - Advanced Stop Bar - Bulb out/Curb Extension	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
	2. Operational Feature	- Pedestrian Countdown Signal - Pedestrian Lead Interval - No-Turn On Red Sign/Signal - Additional Pedestrian Signage	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
	3. ADA Curb Ramp		0 point: no ramps and no truncated domes 1 point: ramps only, no truncated domes 2 points: meet standard/requirement
	4. Traffic Control		0 point: no control 1 point: stop sign controlled 2 points: signal/roundabout/traffic circle
Maximum			8 points
Mid-block Crossing	1. Visibility		0 point: w/o high visibility crosswalk 2 points: with high visibility crosswalk
	2. Crossing Distance		0 point: no treatment 2 points: with bulb out or median pedestrian refuge
	3. ADA		0 point: no ramps and no truncated domes 1 point: ramps only, no truncated domes 2 points: meet standard/requirement
	4. Traffic Control		0 point: no control 1 point: flashing beacon (In-pavement, RRFB, etc.) 2 points: signal/pedestrian hybrid beacon (HAWK)
Maximum			8 points

Source: Chen Ryan Associates (2019)

Table 3-8 displays the three possible ranks and a description of the environmental characteristics pertaining to each.

This analysis, which surveyed Circulation Element (CE) roadways only, indicates that there are approximately 157.7 sidewalk miles within the City along CE roadways. As shown, the majority of Lake Elsinore sidewalks surveyed were found to exhibit low characteristics (approximately 121.0 sidewalk miles) followed by medium characteristics (approximately 34.0 sidewalk miles) and high characteristics (2.7 sidewalk miles). Several segments were found to exhibit high characteristics, which were traffic-calmed segments in residential areas or in Downtown Lake Elsinore. Segments that received a low score are areas where a sidewalk is not present or partially discontinuous or where high vehicular speeds preclude the award of full points.

Few roadways in the City possess horizontal buffers separating the sidewalk from vehicular travel lanes. Of note, approximately 36.2 miles of CE roadways are missing sidewalks on both sides, and approximately 11.9 miles of roadways only contain sidewalks on one side. Together, this creates a total of approximately 84.3 miles of missing sidewalk along CE roadways.

Table 3-8 Sidewalk Inventory by PEQE Rating

Rating	Percent	Miles
Low	76.7%	121.0
Medium	21.6%	34.0
High	1.7%	2.7
Total Sidewalk Miles	100%	157.7
Missing Sidewalk Miles		84.3

Source: Chen Ryan Associates (2019)

Table 3-9 presents a summary of sidewalk features by PEQE rating type, including total and missing sidewalk miles.

Along segments, where buffers are present, they are usually in residential neighborhoods, and oftentimes only run for a portion of a given roadway segment. Thus, some roadways with sidewalk buffers were not able to receive full points for that category. Nonetheless, clear pedestrian zones were identified along most segments where full sidewalk coverage does exist.

Intersections were similarly noted to generally possess low characteristics, followed by medium characteristics. No intersections were found to exhibit high characteristics. In some locations, all four legs of the intersection are closed to pedestrian crossings. Some intersections lack curb ramps, or where they are present, are not ADA-compliant with truncated domes for use by the visually impaired. Additional physical and operational features, such as high-visibility “continental” crosswalks, bulb-outs, or pedestrian countdowns, were not noted in any significant capacity.

One mid-block crossing was noted in Downtown, with medium characteristics due to being less than 30 feet in crossing distance, containing ADA truncated domes and a flashing beacon, but lacking high-visibility striping.

Table 3-9 PEQE Classifications and Descriptions

PEQE Rank	Point Ranking	Characteristics
Low	< 4 points	- Facility has fewer than one example of each feature type on average, or is generally below standard. - Segments may lack a horizontal buffer, lighting may be below standard, sidewalks may be obstructed, and posted speed limits are generally high. - Intersections generally lack physical or operational features to enhance pedestrian crossing safety, may lack curb ramps and/or traffic controls, such as free vehicular movement near freeway ramps. - Mid-block crossings generally lack high visibility treatments, crossing distances are long, curb ramps may not be present, and there is generally no traffic control.
Medium	4 – 6 points	- Facility is generally adequate and most features are to standard. - Segments generally have some horizontal buffer, lighting is usually to standard, sidewalks are not obstructed, and posted speed limits are reasonable, but may be high. - Intersections generally possess a few operational or physical features to enhance pedestrian crossing safety such as pedestrian countdowns, or high visibility crosswalks. Curb ramps are generally present but may lack ADA-compliant truncated domes. Traffic controls are present. - Mid-block crossings generally have some pedestrian-friendly features, such as a high visibility crosswalk or flashing beacon, but often do not have full ADA compliance and/or traffic control features.
High	> 6 points	- Facility generally exceeds standards and is fully ADA compliant - Segments generally have ample horizontal buffer, pedestrian-scale lighting exceeds standards, sidewalks are not obstructed, and posted speed limits are low. - Intersections possess several operational or physical features to enhance pedestrian crossing including bulb-outs, leading pedestrian intervals, or high visibility crosswalks. Curb ramps are ADA-compliant. Traffic controls are present. - Mid-block crossings have several pedestrian-friendly features. Pedestrian refuges, bulb-outs, or other distance-shortening features are present. Curb ramps have full ADA compliance, and traffic control features are present to enhance pedestrian crossing safety.

Source: Chen Ryan Associates (2019)

Figure 3-8a displays the results of the PEQE roadway and intersection analyses along Circulation Element Roadways citywide, while complementing **Figure 3-8b** provides a localized inset of PEQE scores in and near Downtown Lake Elsinore.



Intersections generally contain basic pedestrian features, such as those found at the intersection of Mission Trail and Malaga Avenue near the Wildomar border, above.

Figure 3-8a Pedestrian Environment Quality Evaluation - Citywide

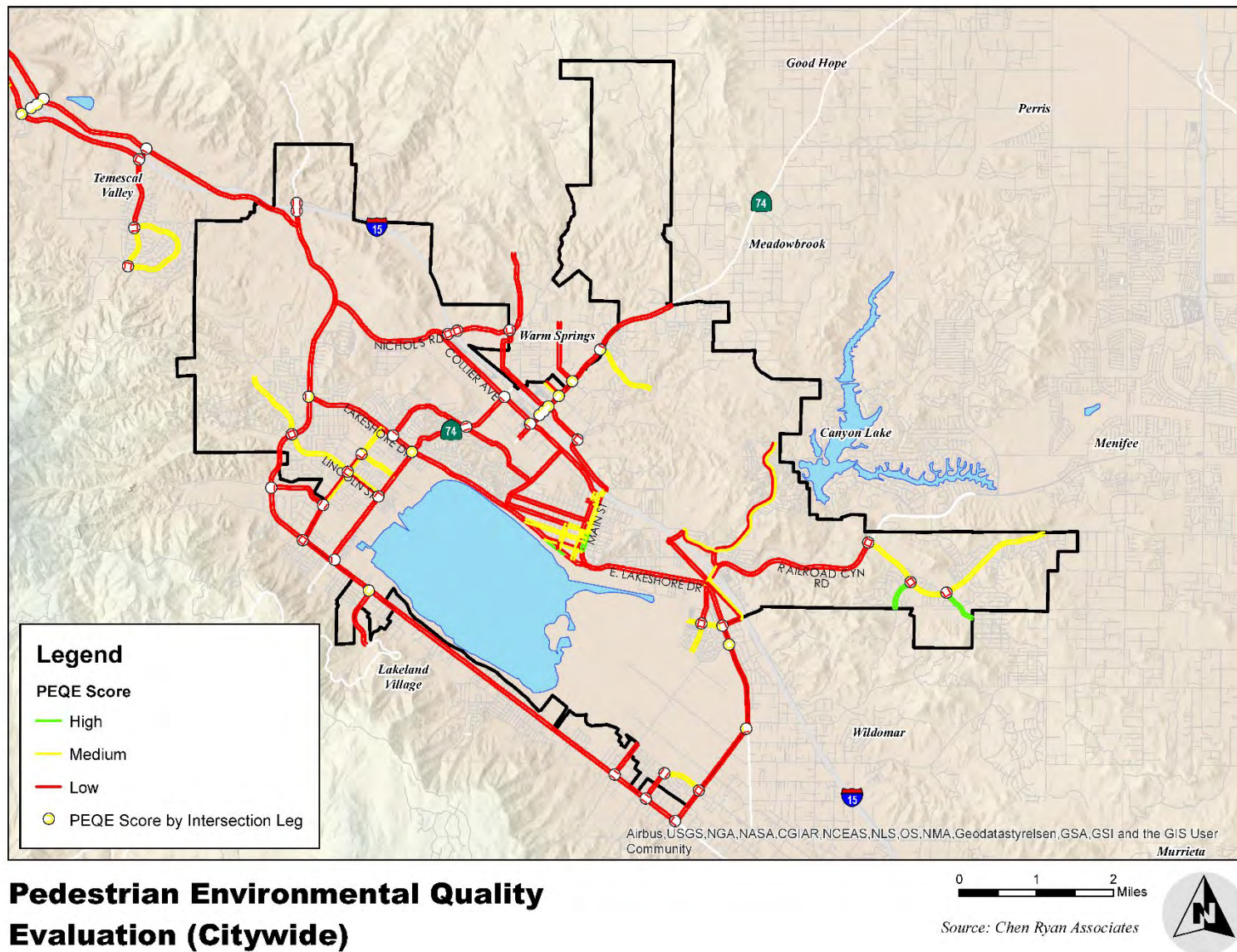
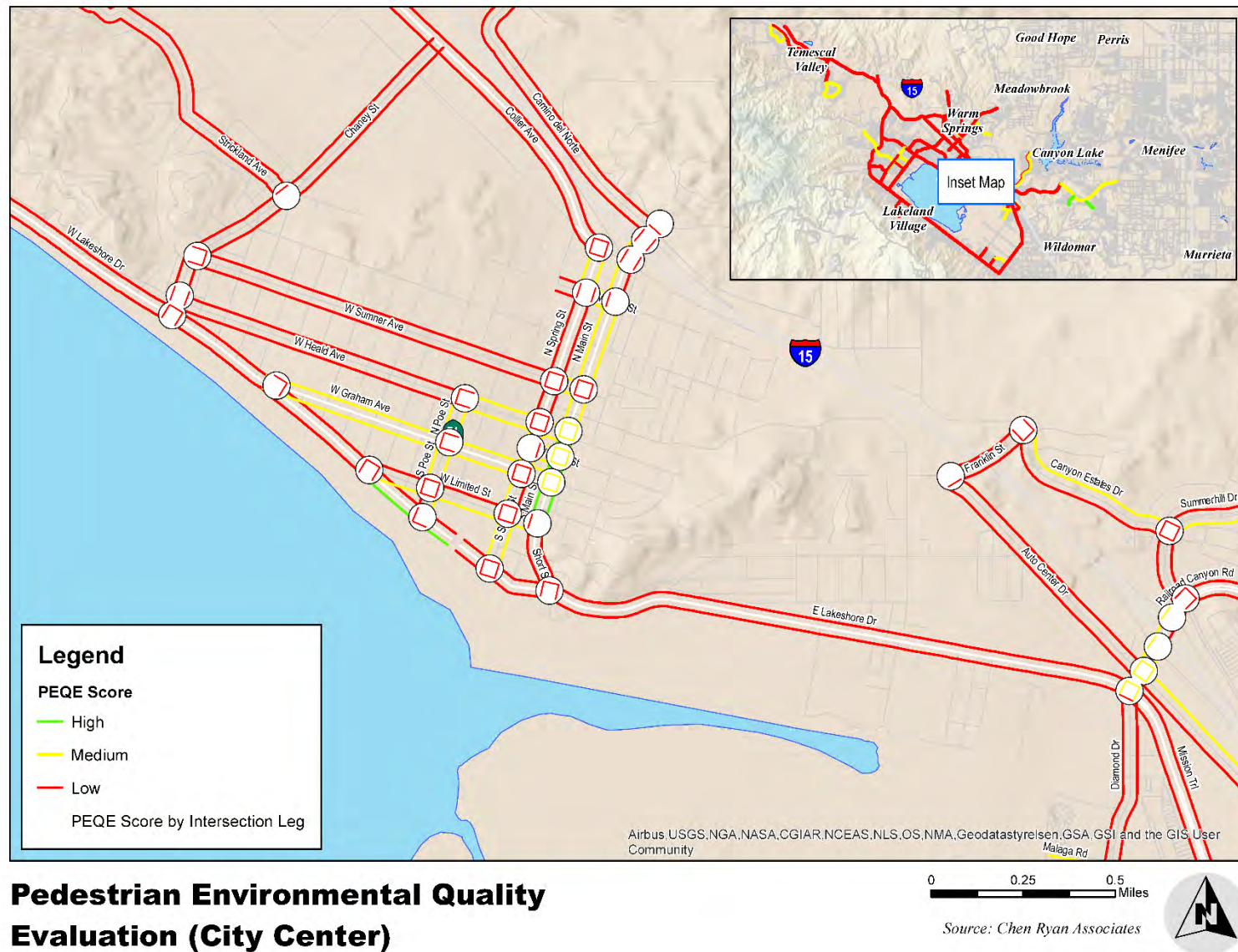


Figure 3-8b Pedestrian Environment Quality Evaluation – City Center



4.0 People on Bicycles

This chapter provides an overview of existing bicycle infrastructure, travel behaviors and demographics, and pedestrian collision histories.

4.1 Network Summary

As shown in Table 2-2, Caltrans currently recognizes four classifications of bicycle facilities, including Class I multi-use paths, Class II bicycle lanes, Class III bicycle routes, and Class IV cycle tracks. A summary of existing mileage per facility type is provided in **Table 4-1**. As shown, total mileage incorporates approximately 27 miles of facilities citywide.

4.1.1 Current Bicycle Network

Figure 4-1 displays the location of existing bicycle facilities within Lake Elsinore. As shown in conjunction with Table 4-1, the Lake Elsinore bicycle network is comprised of multi-use path (Class I), bike lane (Class II), and bike route (Class III) facilities. Bike lanes make up the bulk of the network, accounting for approximately 179.25 of the 27 miles of bikeway in Lake Elsinore. There are approximately 7.5 miles of Multi-Use Paved Path or Trails in the City of Lake Elsinore.

Multi-Use Path facilities exist along Nichols Road, the Lake Elsinore Canal, and along portions of the lakefront.

Bike lane facilities exist along Graham Avenue, McVicker Canyon Park Road, Lake Street/Grand Avenue, Lincoln Street, portions of Lakeshore Drive, Ardenwood Way, Rosetta Canyon Drive, portions of Mission Trail, portions of Railroad Canyon Road, Canyon Hills Road, Limited Avenue, Diamond Drive, and Lost Road.

Bike route facilities exist along portions of Lakeshore Drive and Main Street in Downtown Lake Elsinore.

Bike lanes and bike routes facilities provide cyclists opportunities to make short, local trips, but citywide connectivity is limited, as few segments currently intersect, and no facility provides connectivity across the entirety of the city limits.

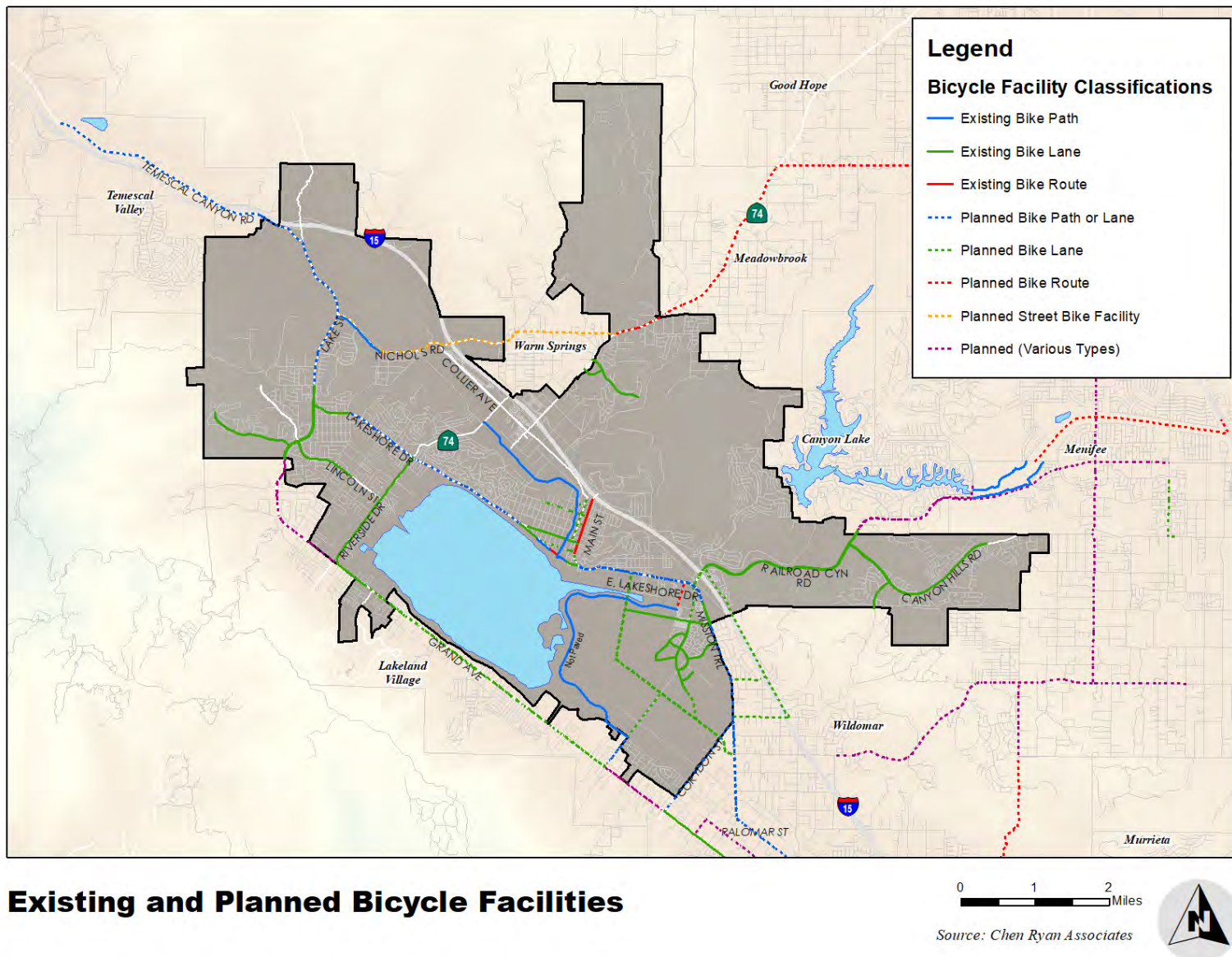
Table 4-1 Bicycle Facility Classifications and Existing Network Mileage

Class Description	Existing Mileage
Class I Multi-Use Path	12.8
Class II Bike Lane	17.39
Class III Bike Route	1.19
TOTAL MILEAGE	31.38

Source: Chen Ryan Associates (2019)

Existing bicycle facilities, as well as currently planned facilities per a review of relevant documents conducted in Chapter 2.0, is presented in **Figure 4-1**.

Figure 4-1 Existing and Planned Bicycle Facilities



4.1.2 Bicycle Support Facilities

An inventory of bicycle parking was conducted at civic facilities, parks, and Main Street in Downtown Lake Elsinore to provide greater insight as to the existence of end-of-trip facilities that support bicycle travel. The presence or lack of these facilities is known to play a role in one's choice whether to bike to a destination rather than drive.

Table 4-2 presents the number of bicycle racks found at each key location in the City, as well as the rack type, rack condition, and estimated number of bicycles that can be accommodated based upon the design standards of the particular style of rack used at each location. Available bicycle parking is also displayed in **Figure 4-2**.

Table 4-2 Existing Bicycle Racks and Support Facilities

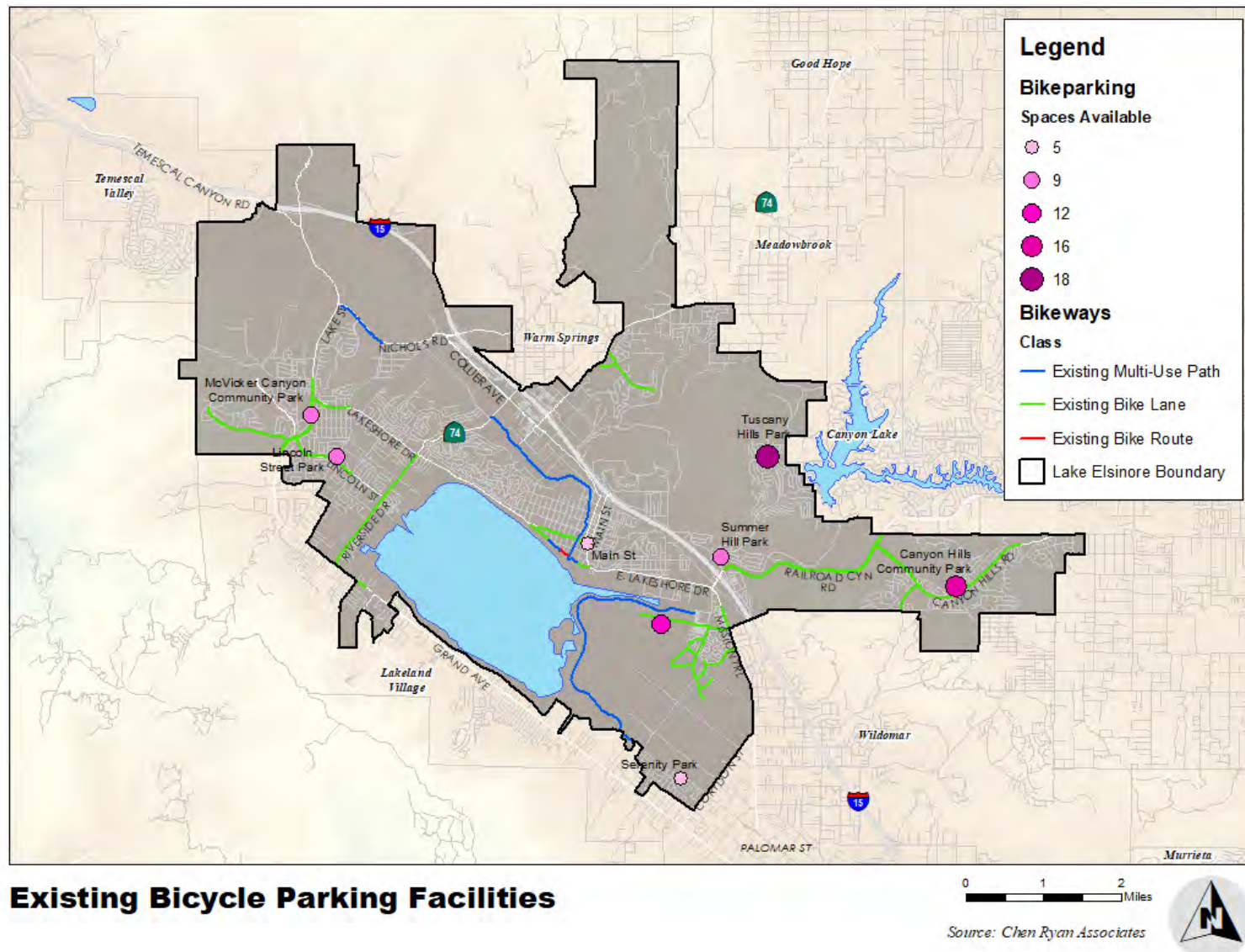
Location	Bicycle Racks	Rack Type	Condition	Total Estimated Capacity
Main Street (Heald Avenue to Limited Street)	1	Wave	Good	5
Cultural Center	0	-	-	-
Lake Community Center	0	-	-	-
Senior Activity Center	0	-	-	-
Youth Opportunity Center	0	-	-	-
Sharron Lindsay Community Center & Gym	0	-	-	-
Alberhill Ranch Community Park	0	-	-	-
Canyon Hills Community Park	2	Bollard	Good	8
Channel Walk	0			

Table 4-2 Existing Bicycle Racks and Support Facilities

Location	Bicycle Racks	Rack Type	Condition	Total Estimated Capacity
City Park	0		-	-
Creekside park	0	-	-	-
Lakepoint Park	0	-	-	-
Lincoln Street Park	1	Wave	Good	9
Linear Park	0	-	-	-
Machado park	0	-	-	-
McVicker Canyon Community Park	1	Wave	Good	9
Oak Tree Park	0	-	-	-
Rosetta Canyon Community Park	0	-	-	-
Serenity Park	1	Wave	Fair	5
Summerhill Park	1	Wave	Good	9
Summerlake Park	0	-	-	-
Summerly Community Park	2	Arch	Good	12
Swick and Matich Park	0	-	-	-
Tuscany Hills Park	2	Wave	Fair	18
Yarborough Park	0	-	-	-

Source: Chen Ryan Associates (2019)

Figure 4-2 Existing Bicycle Parking Facilities



4.2 Collision Analysis

Collision data can be used to identify potential deficiencies related to bicycle travel. The collision review draws from five years of data (January 2013 – December 2017) obtained from the California Statewide Integrated Traffic Records System (SWITRS). The analysis was used to identify trends and patterns related to collision locations, causes, time, party-at-fault and victim age.

4.2.1 Collision Locations

The bicycle collision assessment found 33 bicycle-involved collisions reported during the five-year analysis period. The bicycle collision locations are displayed in **Figure 4-3**. Bicycle collisions were found in the greatest number in the Downtown area, near the Riverside Drive Corridor, and near I-15 along Central Avenue.

Table 4-1 identifies the single location where multiple bicycle involved collisions were reported, at the intersection of Central Avenue and Collier Avenue.

Table 4-3 Multiple Bicycle Collision Locations: January 2013 – December 2017

Rank	Intersection	Collisions
1	Central Avenue and Collier Avenue	2

Source: SWITRS (2019)



Off-road facilities, such as along this canal, provide the greatest protection to the cyclist. On-road facilities can accomplish much of the same through use of horizontal and vertical buffer.

Figure 4-3 Collisions Involving People on Bicycles (2013 - 2017)

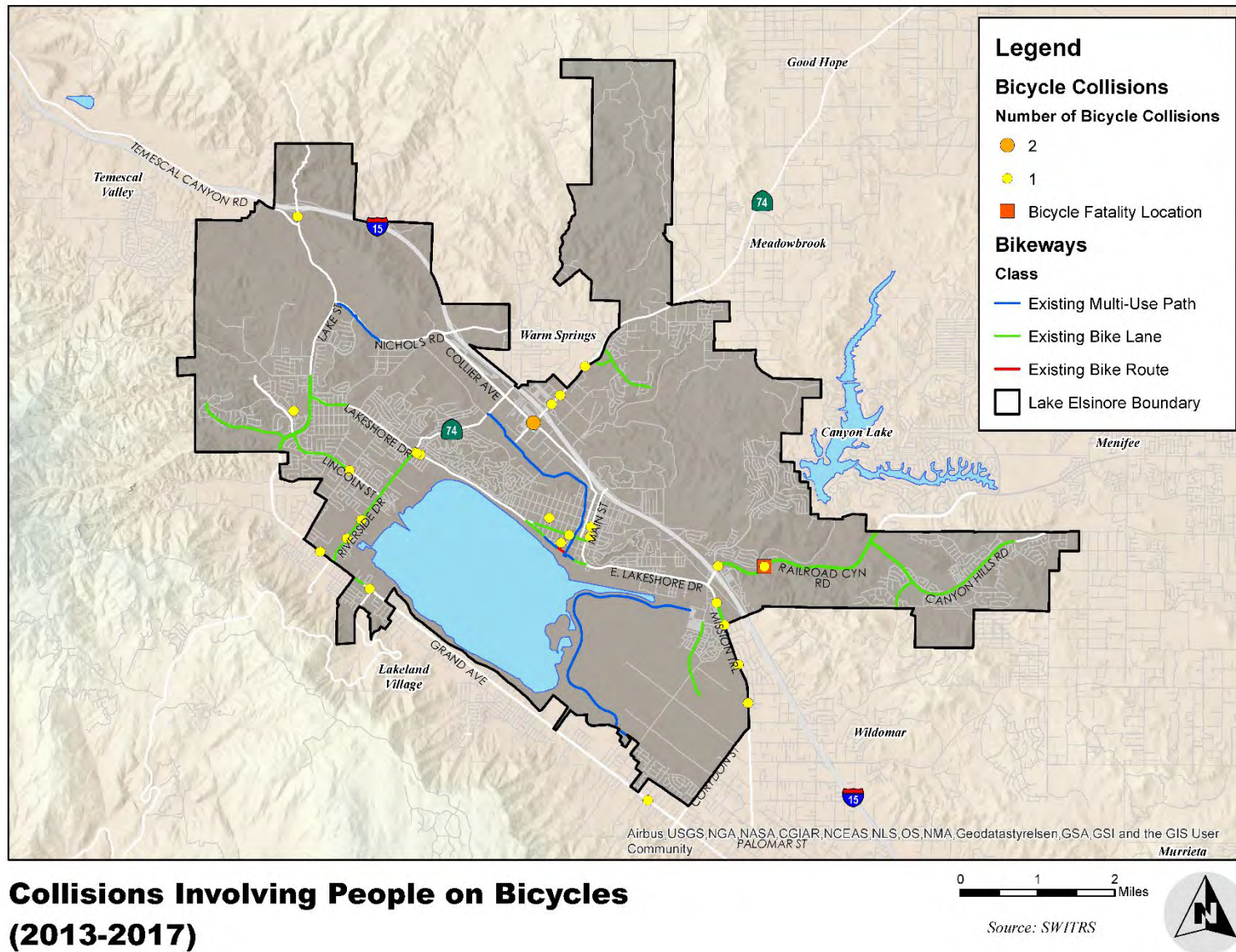


Table 4-4 displays bicycle-involved collisions by roadway location. As shown, approximately 46 percent of all bicycle collisions occurred at intersections. It is important to note that while some collisions may occur at midblock locations, a portion of the midblock collisions are within the influence area of major intersections, which likely exerts an influence on some collision factors. Note that one collision was not recorded as being at either an intersection or midblock location.

Table 4-4 Bicycle Collisions by Roadway Location (January 2013 – December 2017)

Collision Location	Collisions	Percent of Total
Intersection	15	45.5%
Midblock	17	51.5%
Not Specified	1	3.0%
Total	33	100.0%

Source: SWITRS (2019)

4.2.2 Party At-Fault & Primary Collision Factors

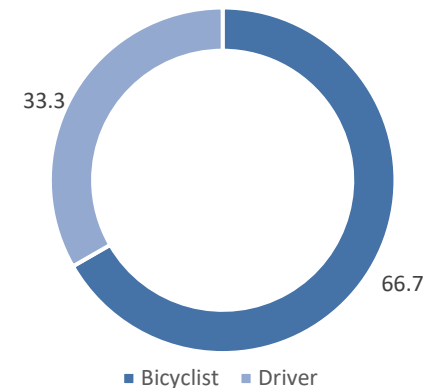
The party at-fault for bicycle-involved collisions is reported in **Table 4-5** and **Figure 4-4**. The bicyclist was reported as the party at-fault for the majority of bicycle-involved collisions, approximately 67 percent of occurrences, while the driver was reported to be at fault for approximately 33 percent of occurrences.

Table 4-5 Bicycle Collisions by Party At-Fault (January 2013 – December 2017)

Collision Location	Collisions	Percent of Total
Bicyclist	22	66.7%
Driver	10	30.3%
Not Specified	1	3.0%
Total	33	100.0%

Source: SWITRS (2019)

Figure 4-4
Bicycle Collisions by Party At-Fault



Source: SWITRS (2019)

Primary bicycle collision factors are reported in **Table 4-6**. The leading cause was attributed to bicyclists using the wrong side of the road, accounting for 24.3 percent of total bicycle involved collisions. Violation of an automobile's right-of-way was also a common cause, accounting for 21.3 percent of bicycle involved collisions.

Table 4-6 Primary Bicycle Collision Factor Violation (January 2013 – December 2017)

Collision Cause	Collisions	Percent of Total
Wrong Side of Road	8	24.3%
Automobile Right-of-Way	7	21.3%
Improper Turning	6	18.2%
Traffic Signals and Signs	3	9.1%
Pedestrian Right-of-Way	3	9.1%
Unsafe Speed	1	3.0%
Other Hazardous Violation	1	3.0%
Unknown	1	3.0%
Unsafe Lane Change	1	3.0%
Driving or Bicycling Under the Influence	1	3.0%
Lights	1	3.0%
Total	33	100%

Source: SWITRS (2019)

The bicycle collision type is reported in **Table 4-7**, with the leading category identified as broadside collisions. Broadside collisions are commonly driveway-related, particularly given that approximately 46% of bicycle collisions were linked to midblock locations.

Table 4-7 Bicycle Collision Type (January 2013 – December 2017)

Collision Type	Collisions	Percent of Total
Broadside	11	33.2%
With Vehicle/Pedestrian	8	24.3%
Sideswipe	6	18.2%
Other	2	6.1%
Rear End	2	6.1%
Not Stated	2	6.1%
Head-On	1	3.0%
Hit Object	1	3.0%
Total	33	100.0%

Source: SWITRS (2019)

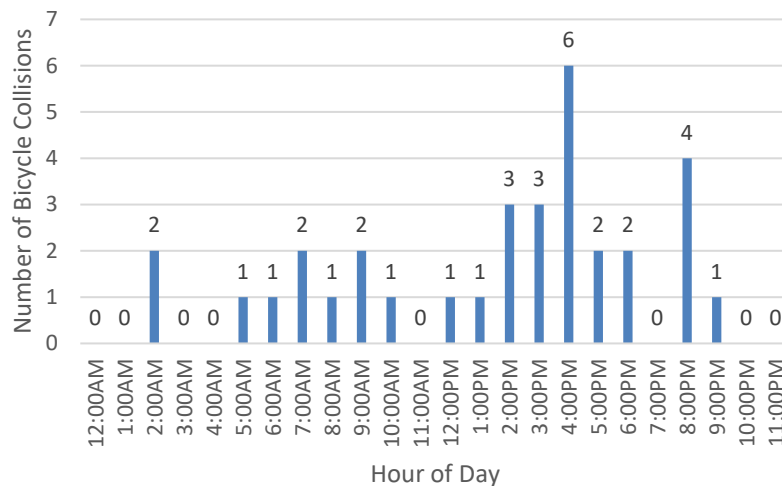


Bollards restrict vehicular access to multi-use facilities, such as above, ensuring safe separation of modes while allowing emergency access when needed.

4.2.3 Temporal Collision Assessment & Victim Ages

Bicycle collisions are reported by hour in **Figure 4-5**. As shown, the hour between 4:00 PM and 5:00 PM has the highest number of bicycle collisions (6 collisions). This is followed by the hour of 8:00 PM to 9:00 PM (4 collisions), and the hours of 2:00PM to 4:00PM (3 collisions each hour). This timeframe includes the evening peak commute period, after school hours, and twilight hours when recreational cyclists may be likely to go for a ride after work during potentially difficult lighting conditions.

Figure 4-5 Bicycle Collisions by Hour
(January 2013 – December 2017)

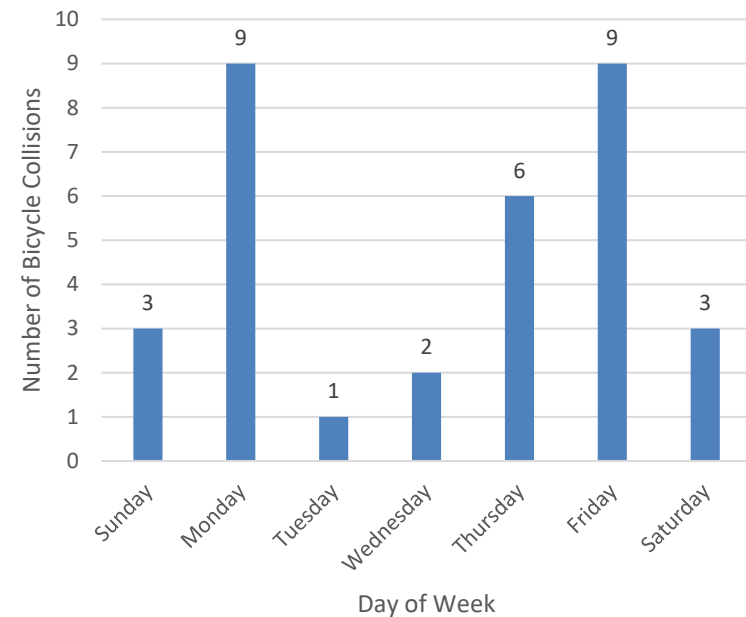


Source: SWITRS (2019)

Bicycle collisions by day of week are reported in **Figure 4-6**.

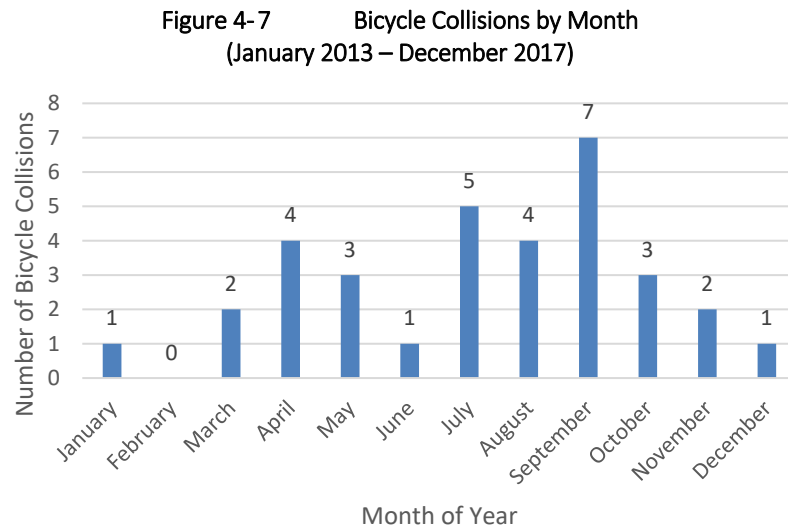
Relatively greater pedestrian collisions were noted on Mondays and Fridays (9 collisions), and relatively fewer collisions were noted on weekends (3 collisions). On other days of the week, a similar rate of bicycle collisions was found. This potentially points to a relatively higher proportion of utilitarian, or commute-related cycling among riders in Lake Elsinore, since the highest number of collisions is found on weekdays. It may also be possible that the greater traffic volumes that exist during typical commute periods may be a factor, given a relative lack of dedicated bicycle infrastructure in the City.

Figure 4-6 Bicycle Collisions by Day of Week
(January 2013 – December 2017)



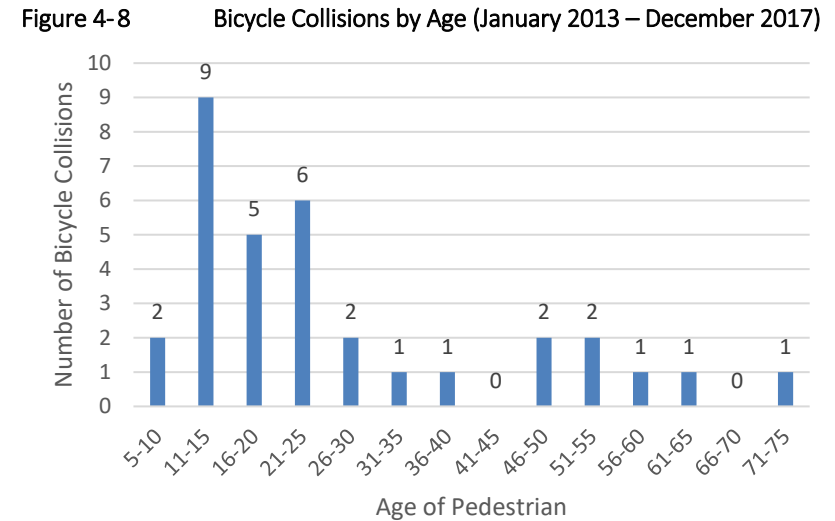
Source: SWITRS (2019)

Figure 4-7 reports bicycle-involved collisions by month. The greatest number of bicycle collisions were reported as occurring in September, with 7 collisions, followed by July, with 5 collisions.



Source: SWITRS (2019)

Bicycle collisions are displayed by age group in **Figure 4-8**.



Source: SWITRS (2019)

4.2.4 Collision Severity

Bicycle collisions are summarized by severity in **Table 4-8**. As shown, a majority of collisions resulted in “Complaint of Pain,” at 39.4 percent of all collisions, and “Other Visible Injury,” also at 36.4 percent of all collisions. Three bicycle collisions were fatal, or 9.1 percent of all collisions.

Table 4-8
Bicycle Collision Severity (January 2013 – December 2017)

Collision Severity	Collisions	Percent of Total
Other Visible Injury	13	39.4%
Complaint of Pain	12	36.4%
Property Damage Only	4	12.1%
Severe Injury	3	9.1%
Fatality	1	3.0%
Total	33	100.0%

Source: SWITRS (2019)

4.3 Level of Traffic Stress (LTS)

The bicycle environment was assessed using the bicycle Level of Traffic Stress (LTS) methodology for characterizing cycling environments, as developed by Mekuria, et al. (2012) of the Mineta Transportation Institute and reported in [Low-Stress Bicycling and Network Connectivity](#). LTS classifies the street network into categories according to the level of stress it causes cyclists, taking into consideration a cyclist's physical separation from vehicular traffic, vehicular traffic speeds along the roadway segment, number of travel lanes, and factors related to intersection approaches with dedicated right-turn lanes and unsignalized crossings.

Table 4-9 identifies the four LTS categories and provides a description of the traffic stress experienced by the cyclist and the

environmental characteristics consistent with the category. LTS scores range from 1 (lowest stress) to 4 (highest stress) and correspond to roadways that different populations may find suitable for riding on, considering their stress tolerance. Each LTS classification is associated with a cyclist traffic tolerance category as identified by Portland Bicycle Coordinator Roger Geller and documented in a Portland Bureau of Transportation memo titled [Four Types of Cyclists](#).

Figure 4-9 displays the bicycle Level of Traffic Stress results for all roadways and paths where cyclists are permitted. As shown, roadways in Lake Elsinore predominantly exhibit characteristics of LTS 1, 2 or 4 environments. Roadways with an LTS 1 or 2 environment are generally residential streets and collectors. These types of roadways are generally characterized as having one lane in each direction while providing adequate width for cyclists and vehicles, with a low posted speed.

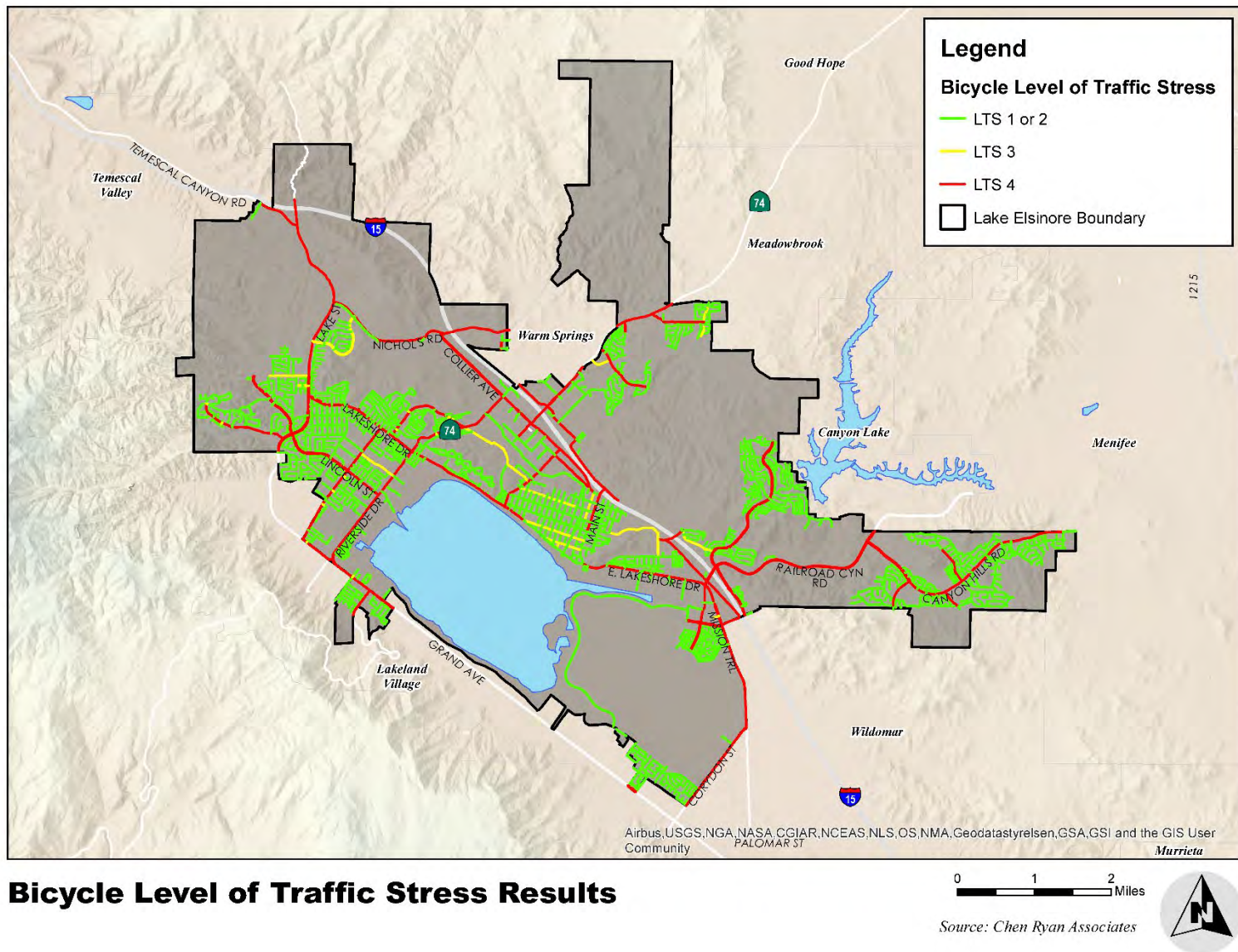
Several roadways in the City offer an LTS 3 environment, including near Downtown, or along main residential roadways. In these cases, speed limits, vehicular volumes, and roadway widths were sufficient to garner an LTS score improvement relative to most roadway conditions in the City, but may not be deemed comfortable enough for an average cyclist to prefer.

Table 4-9 Level of Traffic Stress Classifications and Descriptions

Level of Stress Category	Level of Stress Description	Collisions	Cyclist Comfort Level
LTS 1	Presenting little traffic stress and demanding little attention from cyclists; suitable for almost all cyclists, including children trained to safely cross intersections.	- Facility that is physically separated from traffic or an exclusive cycling zone next to a slow traffic stream with no more than one lane per direction - A shared roadway where cyclists only interact with the occasional motor vehicle with a low speed differential - Ample space for cyclist when alongside a parking lane - Intersections are easy to approach and cross	Interested but Concerned – Vulnerable Populations
LTS 2	Presenting little traffic stress but demanding more attention that might be expected from children.	- Facility that is physically separated from traffic or an exclusive cycling zone next to a well-confined traffic stream with adequate clearance from parking lanes - A shared roadway where cyclists only interact with the occasional motor vehicle (as opposed to a stream of traffic) with a low speed differential - Unambiguous priority to the cyclist where cars must cross bike lanes (e.g. at dedicated right-turn lanes); design speed for right-turn lanes comparable to bicycling speeds - Crossings not difficult for most adults	Interested but Concerned – Mainstream Adult Populations
LTS 3	Presenting enough traffic stress to deter the Interested but Concerned demographic	- An exclusive cycling zone (lane) next to moderate-speed vehicular traffic - A shared roadway that is not multilane and has moderately low automobile travel speeds - Crossings may be longer or across higher-speed roadways than allowed by LTS 2, but are still considered acceptably safe to most adult pedestrians	Enthusied & Confident
LTS 4	Presenting enough traffic stress to deter all but the Strong & Fearless demographic	- An exclusive cycling zone (lane) next to high-speed and multilane vehicular traffic - A shared roadway with multiple lanes per direction with high traffic speeds - Cyclist must maneuver through dedicated right-turn lanes containing no dedicated bicycling space and designed for turning speeds faster than bicycling speeds	Strong & Fearless

Source: Mekuria, et al., 2012; Chen Ryan Associates, 2019

Figure 4-9 Bicycle Level of Traffic Stress Results



Bicycle Level of Traffic Stress Results

5.0 People on Transit

Lake Elsinore is served by the Riverside Transit Agency (RTA), which offers fixed-route service, commuter bus routes, select long-distance service, and dial-a-ride service. In total, RTA's service area covers approximately 2,500 square miles, offering a combination of local and regional connectivity, as well as transfers to Metrolink, Coaster, and Sprinter regional rail service.

5.1 Existing Service

Within Lake Elsinore city limits, local bus service is provided by Route 8, Route 22, and Route 40. These local routes are supplemented by CommuterLink Express Route 205/206, which offers connectivity for long-distance commuters between Temecula and the City of Orange, by way of Lake Elsinore and the Corona Transit Center/Metrolink commuter rail station. RTA routes that serve Lake Elsinore are presented in **Figure 5-1**. As shown, transit coverage encircles the lake, and provides access throughout several of the City's residential communities and to major roadways that link Lake Elsinore to neighboring jurisdictions, such as Menifee, Meadowbrook, Wildomar, or points north along Interstate 15. There are no transit services in some of the hillier or newer portions of the City, generally located around the periphery of the City.

Currently, RTA vehicles have bike racks onboard. Since local transit provides accommodation for bicycles, there is a need for major destinations to also provide convenient bicycle parking. Bicycle parking is also preferable near transit stops, since not all transit patrons are able to bring bicycles on board if on-board bike accommodation is full. Common amenities at transit stops include shelters, benches, and trash cans. Amenities are maintained by RTA, and are located at stops with relatively higher ridership.

5.2 Transit Ridership

Figure 5-2 presents the City's transit ridership in terms of boardings and alightings at transit stops throughout the City, as collected by RTA. As shown, relatively more transit ridership originates and/or terminates near Downtown as compared to other portions of the City. Other locations with relatively higher ridership include communities along the southeast shore of the lake, Lakeland Village, and communities along the northwest shore of the lake.

The individual stops with the highest number of boardings and alightings were found in Downtown and in the commercial and retail districts that lie along the I-15 corridor.



A bus bench similar to the type commonly found in Lake Elsinore.

Figure 5-1 Transit Routes and Stops

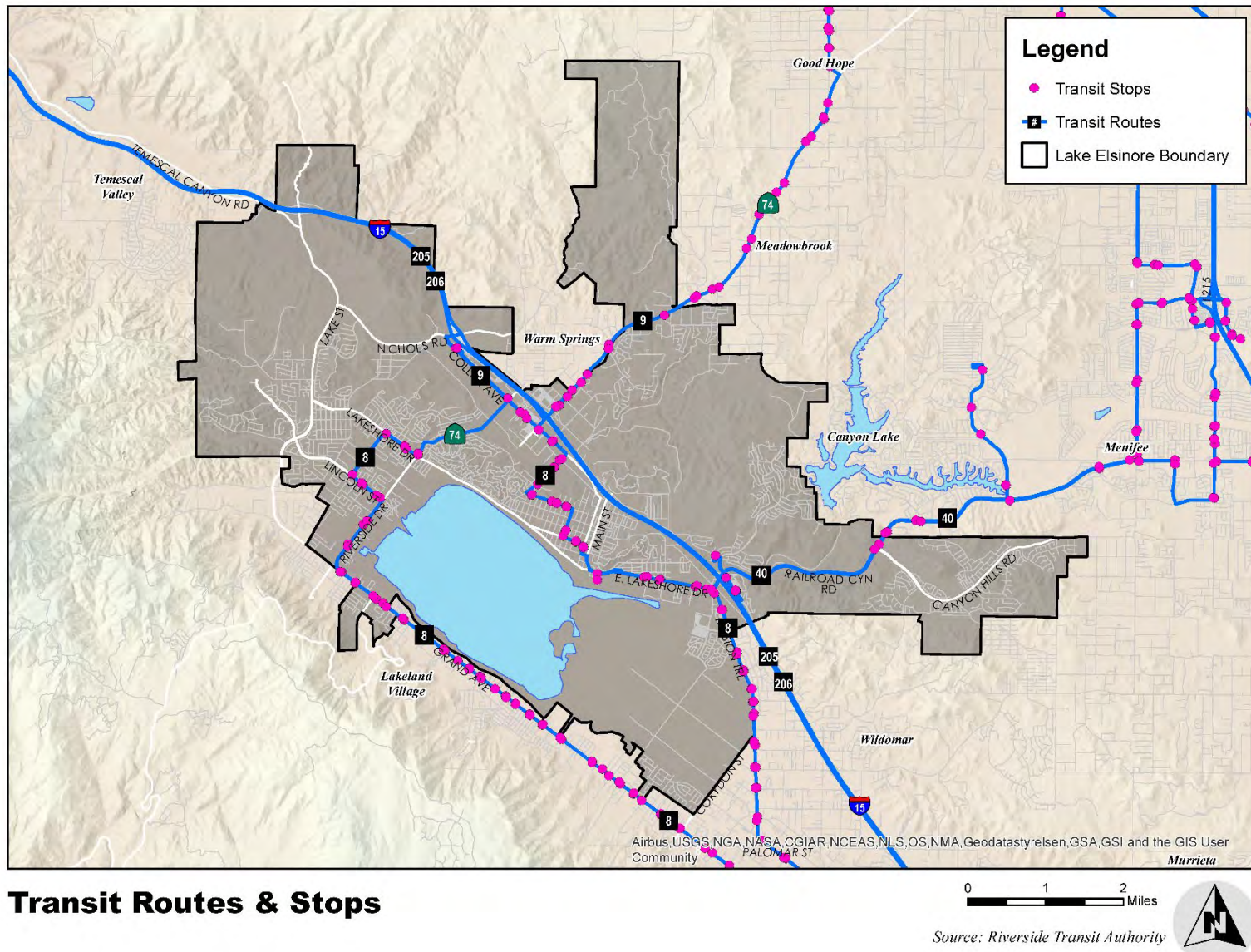
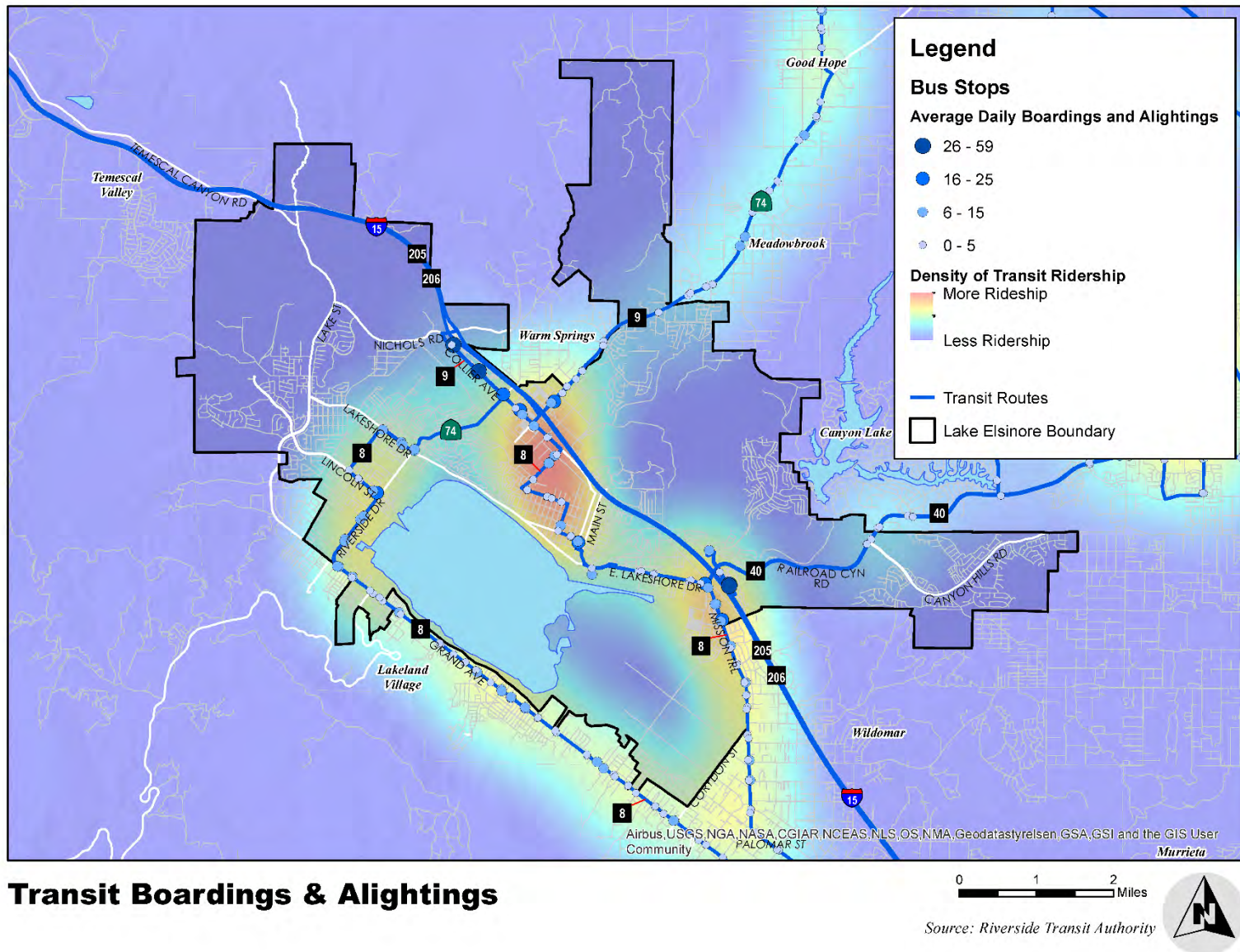


Figure 5-2 Transit Boardings and Alightings



Transit Boardings & Alightings



Higher-ridership locations, such as the Senior Center, garner additional stop amenities, such as this architectural shelter, bench, and trash can.

6.0 Additional Evaluations

This chapter presents additional analyses undertaken to identify areas of relatively greater demand and deficiency, including posted speed limits, and a series of models used to assist with identifying areas with greater latent demand are also presented. This chapter concludes with a summary of pedestrian and cycling needs in Lake Elsinore.

Areas of need are reflective of those with relatively greater demand and greater deficiency, drawing from the infrastructure review and

US Census information in the previous chapters, and the analysis results presented in this chapter.

6.1 Posted Speed Limits

Figure 6-1 identifies the posted speed limits. The vast majority of Lake Elsinore's residential streets have a speed limit of 25 miles per hour which create a pedestrian- and bicycle-friendly environment along those streets. Many other roadways have a speed limit of between 35 and 40 miles per hour. Although these roadways are primarily designed for higher volumes of traffic, residential frontage is common along some streets of this type, which detracts from the walking or bicycling environment once a pedestrian or cyclist leaves the interior of a neighborhood. The highest-speed roadways in Lake Elsinore have a speed limit generally between 45 and 50 miles per hour with some speed limits of 60 miles per hour. These roadways include portions of:

- Auto Center Drive
- Camino Del Norte
- Canyon Hills Road
- Collier Avenue
- Corydon Road
- Dexter Avenue
- El Toro Road
- Grand Avenue
- Grape Street
- Lake Street
- Lake Street
- Lakeshore Drive
- Minthorn Street
- Mission Trail
- Mission Trail
- Nichols Road

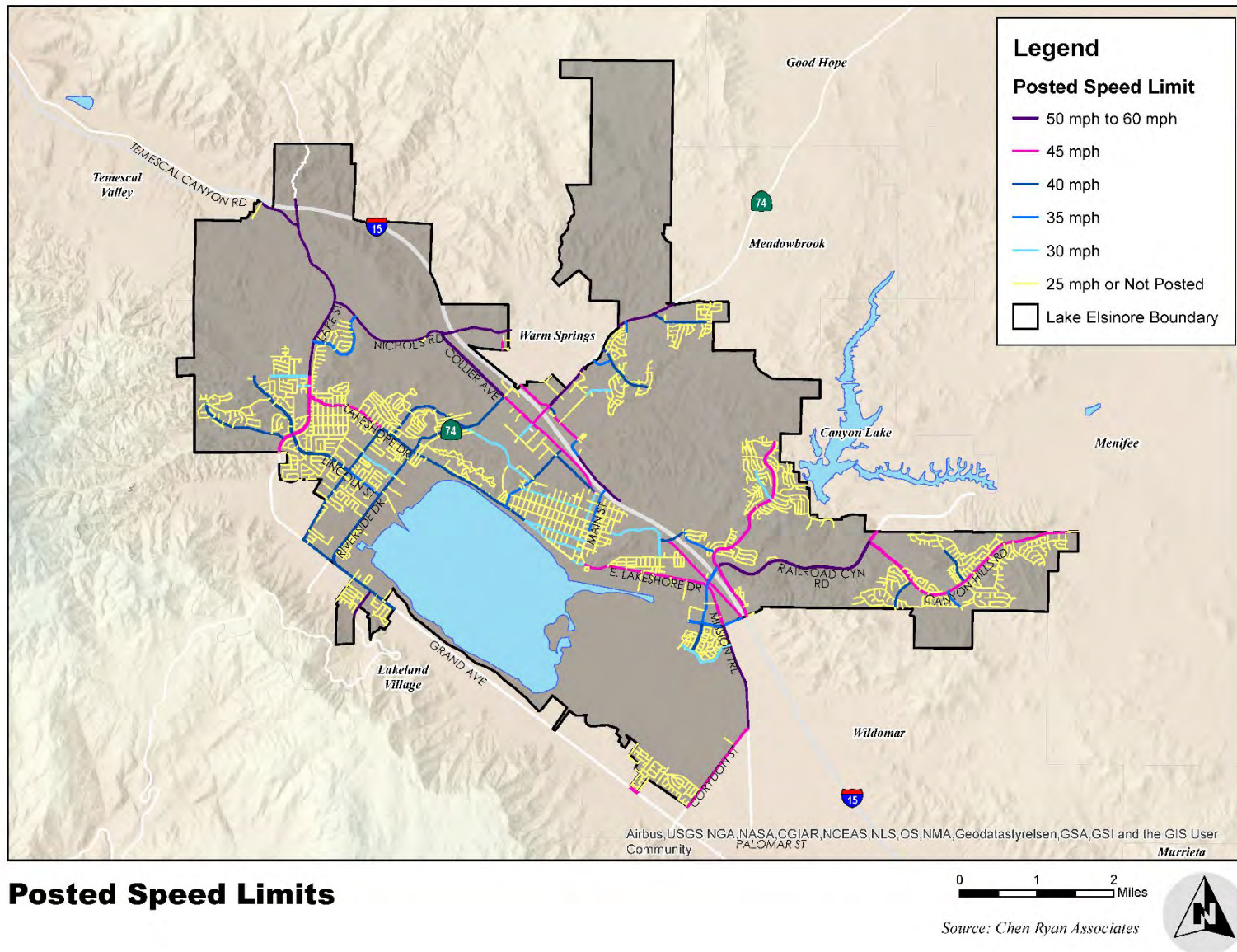
High speed limit roadways, continued:

- Railroad Canyon Road
- SR-74/Central Avenue
- Summerhill Drive
- Temescal Canyon Road



High speed limits are common in Lake Elsinore, and detract from cycling and pedestrian comfort.

Figure 6-1 Posted Speed Limits

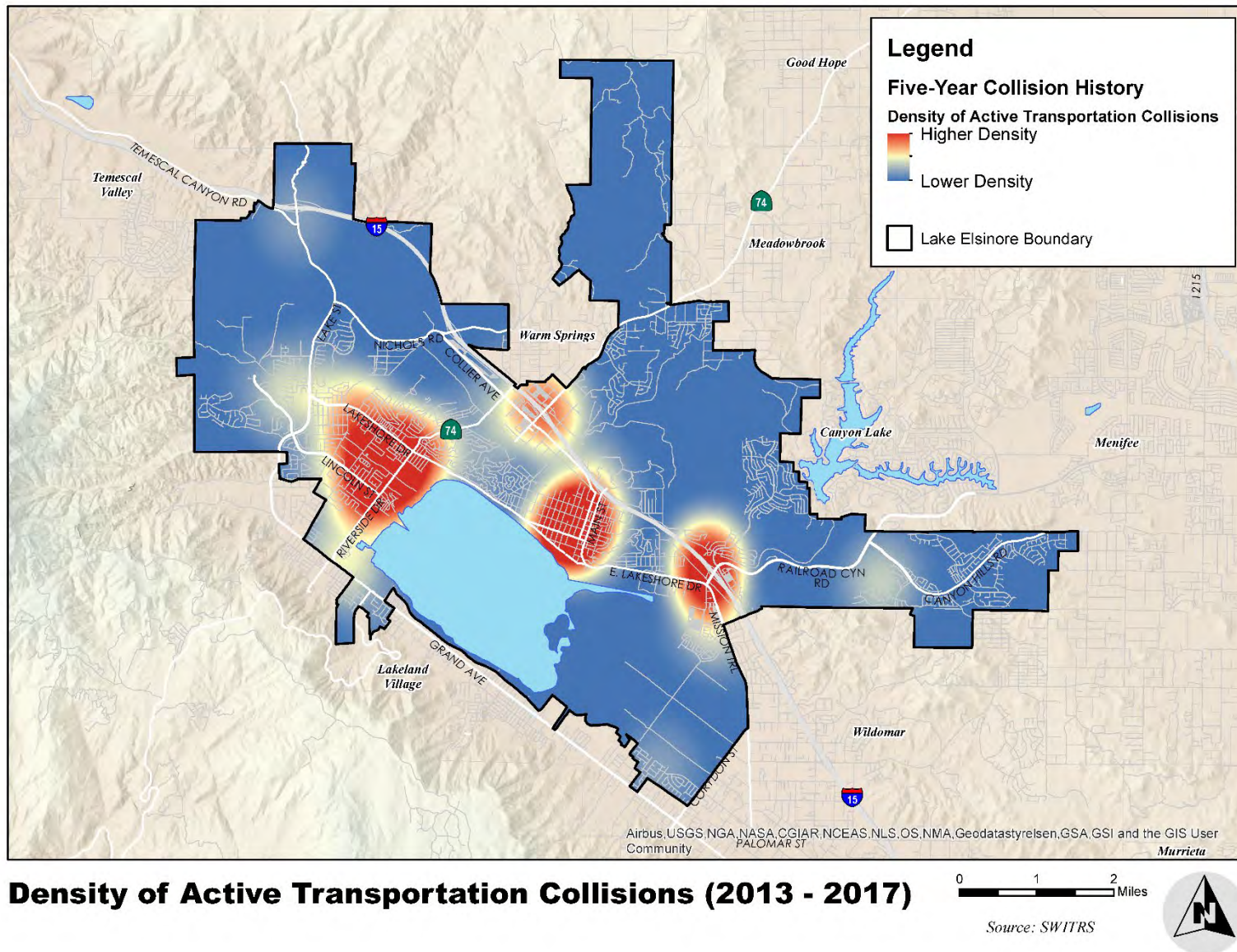


Posted Speed Limits

6.2 Combined Collision Analysis

A combined analysis of all active transportation-related collisions, including both bicycles and pedestrians, is presented in **Figure 6-2**. This figure is useful in depicting locations in the City that have relatively greater density of collisions involving people using non-motorized forms of transportation, to illuminate potential areas of need. As shown, four distinct clusters are identified as particularly hazardous in terms of historic collision data. These clusters include the northwest shore of the lake, including the Riverside Drive, Lakeshore Drive, and Lincoln Street corridors, SR-74 near the I-15 corridor, Downtown Lake Elsinore, and the I-15 corridor near Diamond Drive, Railroad Canyon Road, and Mission Trail. As shown in Chapter 2, each of these locations exhibits relatively greater population and/or employment density, and include locations where active travel is more prevalent, shown through commute mode share and percentage of zero-vehicle ownership. The popular nature of these locations can be used to guide development of a future bicycle network and targeted improvements to the pedestrian environment.

Figure 6-2 Density of Active Transportation Collisions (2013-2017)



6.3 Active Transportation Demand

A common analysis technique used to understand potential demand for cycling and walking – or the propensity to make a walk or bike trip – is through an assessment of population and land use characteristics. An “active travel” propensity model was created to support this assessment and combines likely walk and bike trip generator inputs – population, employment, zero-vehicle households, pedestrian commuters, and bicycle commuters – with likely walk and bike trip attractors, or key land uses understood to attract bicycle and pedestrian trips. These trip-attracting land uses include schools, retail, parks, recreational spaces, and beaches. When combined, the active transportation generators and attractors provide a foundation for understanding active transportation demand across the City of Lake Elsinore.

6.3.1 Active Transportation Trip Generators and Attractors

Table 6-1 displays the inputs, thresholds, and multiplier values used to create the active transportation trip generator submodel. Generator input values listed as “high” reflect conditions with a greater likelihood of generating an active transportation trip. Generator input values in the “low” range are understood to generate relatively fewer trips.

Table 6-1 Active Transportation Trip Generator Submodel Inputs

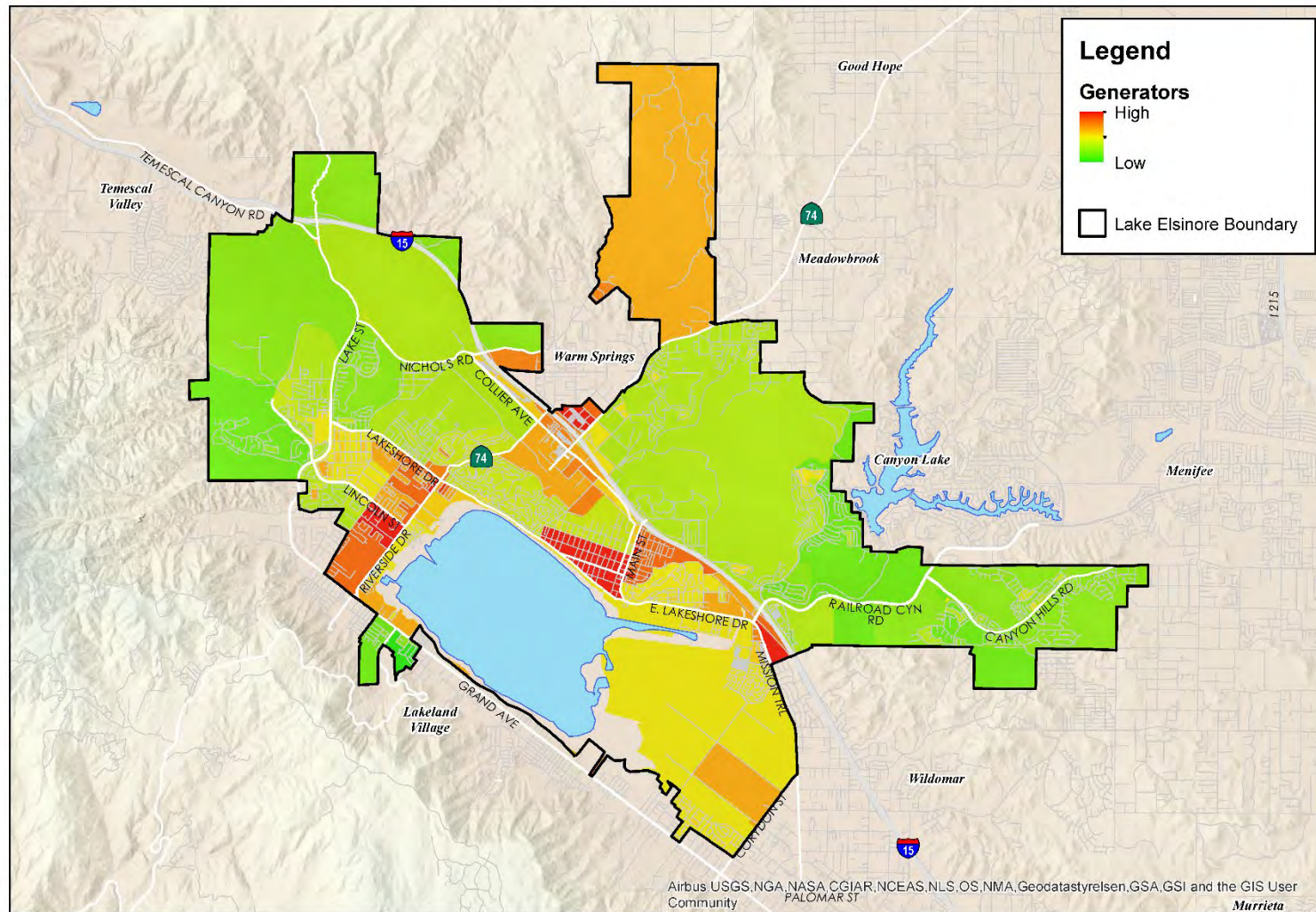
Generator	High	Medium		Low	Zero
	4	3	2	1	0
Population Density (persons per acre)	≥ 20	15.1 - 20	10.1 - 15	5.1 - 10	< 5
Employment Density (jobs per acre)	≥ 10	7.1 - 10	4.5 - 7	1.1 – 4	< 1
Bicycle Commuters (percent of commuters)	≥ 1%	-	0.1% - 1%	-	< 1%
Pedestrian Commuters (percent of commuters)	≥ 4%	2.1% - 4%	1.1% - 2%	0.1% - 1%	< 1%
Zero-Vehicle Households	≥ 10%	5-1% - 10%	3.1% - 5%	1.1% - 3%	< 1%

Source: US Census, 2013 – 2017 American Community Survey 5-Year Estimates (2019); Chen Ryan Associates (2019)

Higher population and employment densities are associated with potentially higher levels of active transportation trip generation. Bicycle and pedestrian commute rates, as well as zero-vehicle households, are also contributing factors to trip generation propensity.

Figure 6-3 displays the Active Transportation Trip Generator Submodel results. As shown, a relatively higher concentration of active transportation trip generators can be found near Downtown, as well as in neighborhoods near the northwest shore of the lake, and portions of the City northeast of I-15. This is consistent with findings of Chapter 2, whereby, these areas are also noted for higher rates of population and employment density, commutes by bicycle or walking, and a relatively greater number of zero-vehicle households.

Figure 6-3 Active Transportation Trip Generator Submodel Results



Active Transportation Generator Submodel Results

0 1 2 Miles

Source: Chen Ryan Associates



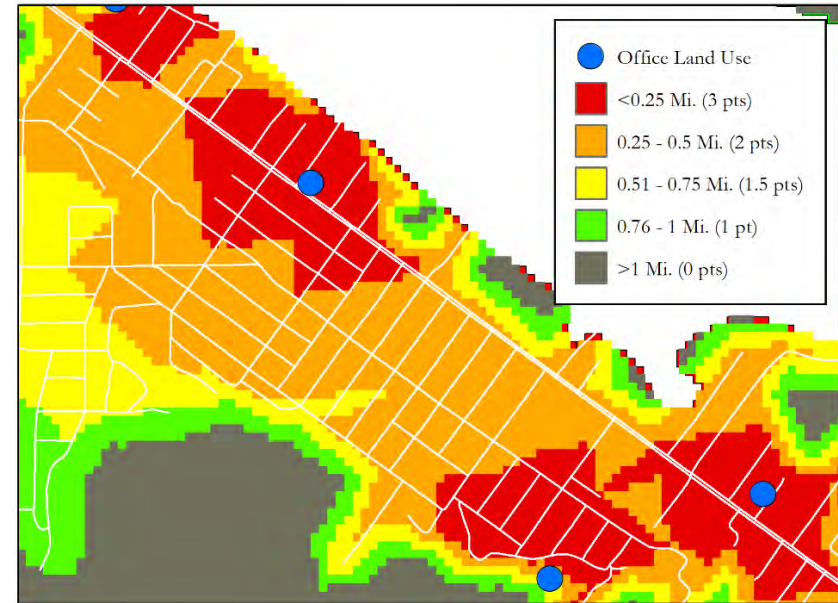
The Active Transportation Trip Attractor Submodel was created using the input variables displayed in **Table 6-2**. Each attractor is buffered by one-mile, with multipliers that decrease every quarter-mile interval away from the trip attractor. A point value is calculated by multiplying the distance multiplier by the weight assigned to each attractor. As shown in the graphic at right, particular land uses, in this case hypothetical office locations, garner progressively lower weights in terms of their ability to attract active transportation trips as the distance required to travel along the roadway network to reach them increases.

Table 6-2 **Attractor Submodel**

Land Use Attractors	Weights	Within ¼ Mile	Between ¼ and ½ Mile	Between ½ and ¾ Miles	Between ¾ and 1 Mile
	Multiplier	1.5	1.0	0.75	0.5
Retail Uses	4	6	4	3	2
Civic Uses	3	4.5	3	2.25	1.5
Office Uses	2	3	2	1.5	1
Parks	2	3	2	1.5	1
High, Middle and Elementary Schools	1	1.5	1	0.75	0.5

Source: Chen Ryan Associates (2019)

Figure 6-4 displays the Active Transportation Trip Attractor Submodel, combining each of the trip attractor inputs into a single composite map. The greatest concentration of trip attractors is located in census block groups in the northwestern portion of the City, as well as near Downtown and along the I-15 corridor. Additional attractors are found east of I-15, near the border with the communities of Canyon Lake and Wildomar. Lower concentrations of trip attractors are found in the hilly and primarily residential portions of the community.



As distance from a location increases, fewer trips by foot or bike can be attracted.

The Active Transportation Propensity Model, displayed as **Figure 6-5**, was created by combining the trip generator and trip attractor submodels with equal weighting. As shown, the results closely mirror those presented in the trip attractor and trip generator submodels, with the greatest propensity identified in neighborhoods nearest the lake, such as along the northwest shore and Downtown, with secondary concentrations along the I-15 corridor.

Higher propensity is indicative of areas with increased potential for active transportation due to relatively higher levels of trip attractors and trip generators. However, these areas may also have increased barriers related to active transportation, including higher posted speed limits and traffic volumes, more bicycle and pedestrian collisions, and more travel lanes.

Figure 6-4 Active Transportation Trip Attractor Submodel Results

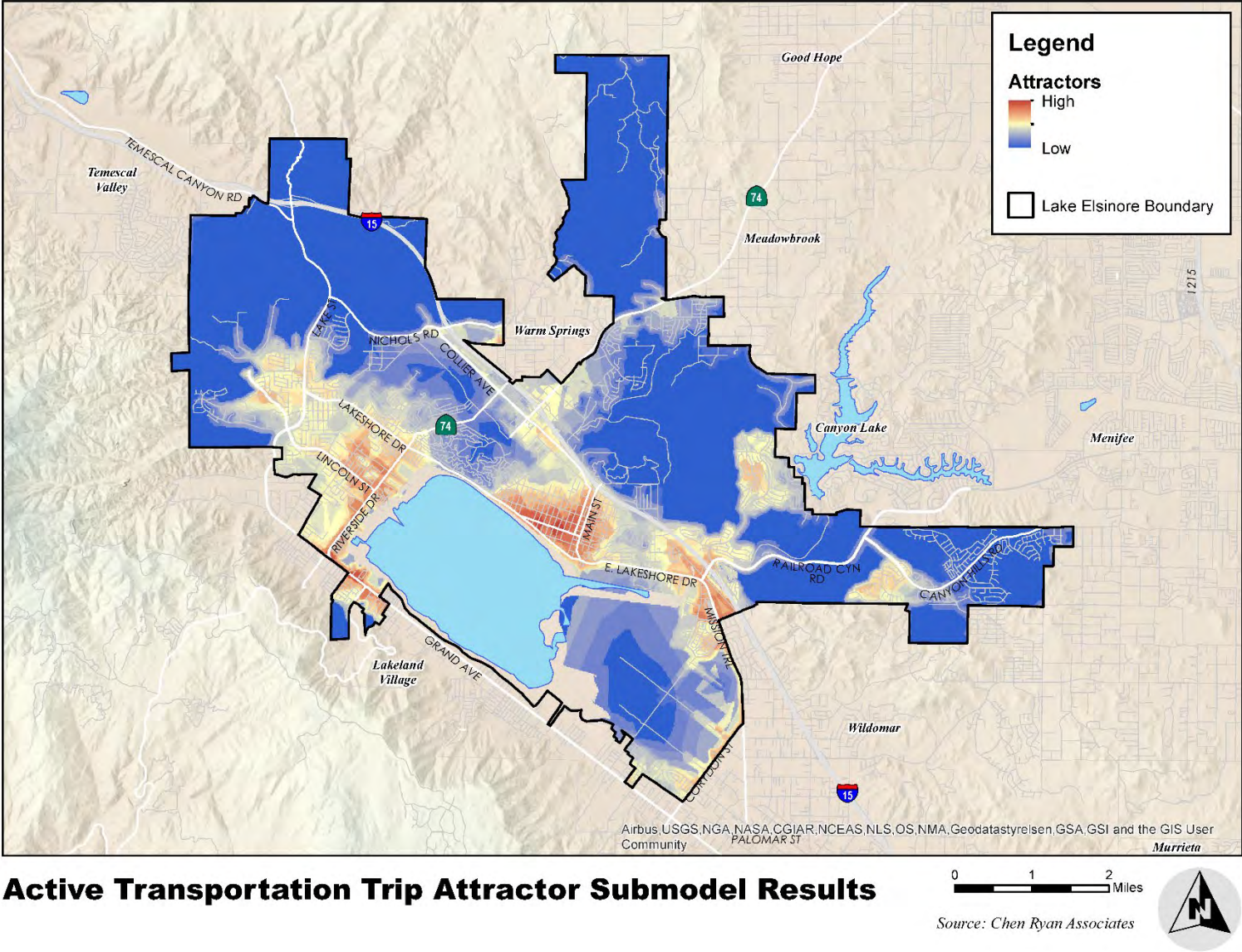
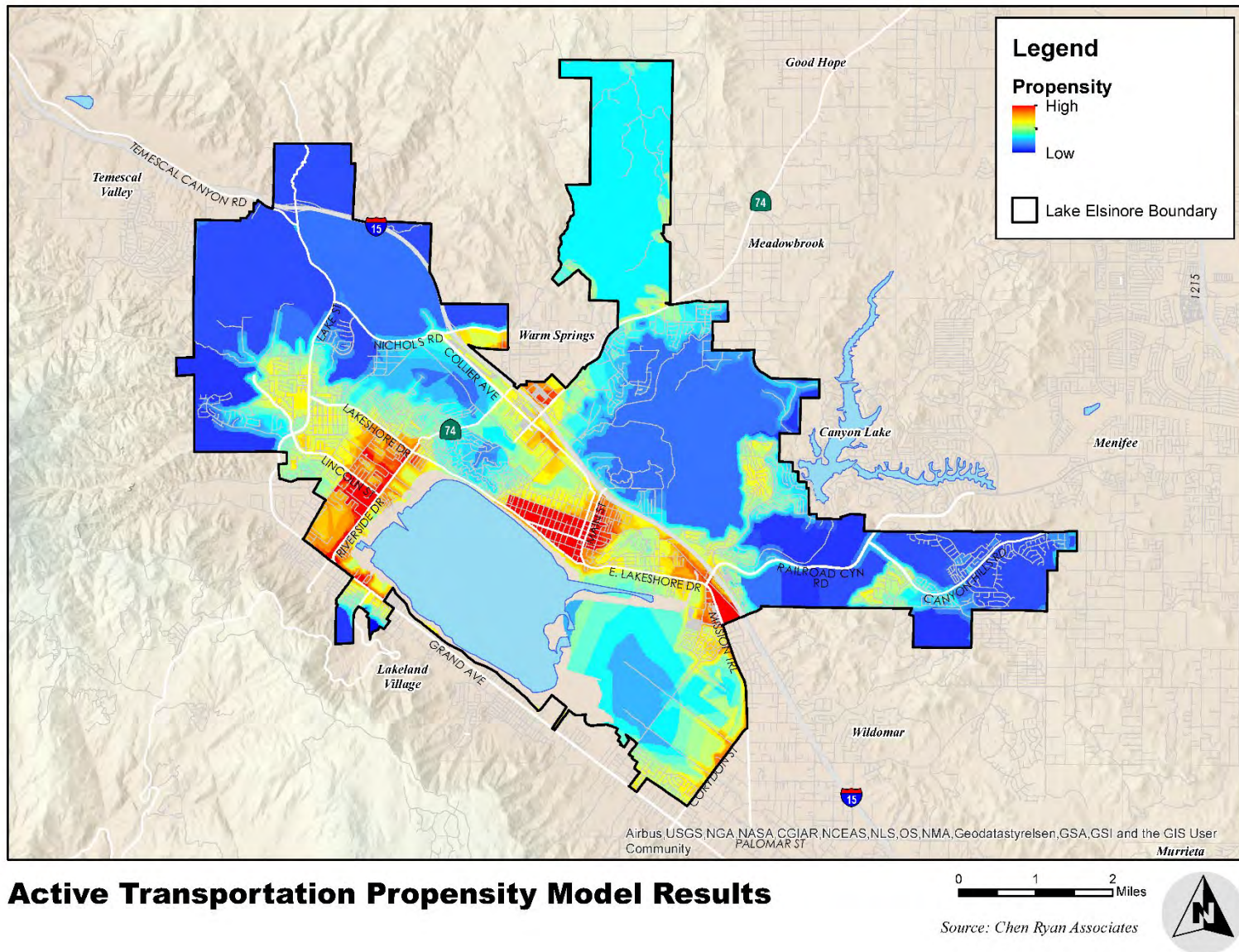


Figure 6-5 Active Transportation Propensity Model Results



Active Transportation Propensity Model Results

6.4 Connectivity to Schools

Home-to-school connections often provide an important benchmark in determining a city's active transportation connectivity, since children can lack mobility options relative to the adult population as a whole. Providing safe routes to school, either through an active transportation plan such as the project that this document is intended to support, or a formal Safe Routes to School (SRTS) plan, can make strides in developing a community's active transportation infrastructure in locations where there stands an established need, as well as serves a particularly vulnerable population.

Figure 6-6 presents an overview of Lake Elsinore Unified School District Schools, including some schools that are part of the district but are not located in Lake Elsinore City Limits and are attended by children in neighboring jurisdictions. Schools in Lake Elsinore Unified School District are scattered throughout the City, and are also located in neighboring Wildomar. Given the distribution of area schools, it is apparent that many school-aged students live within a distance from their school that may require the crossing of a major street. Other students may live a distance from their school that precludes walking, leaving the option of a bike or vehicular commute (either via private automobile, carpool, or school bus where services are provided).

As presented in Chapter 4.3, many of the City's streets outside of residential communities are of an LTS score that many parents (and children) would be uncomfortable using for a student's daily home-to-school commute. Thus, identifying a network of potential off-

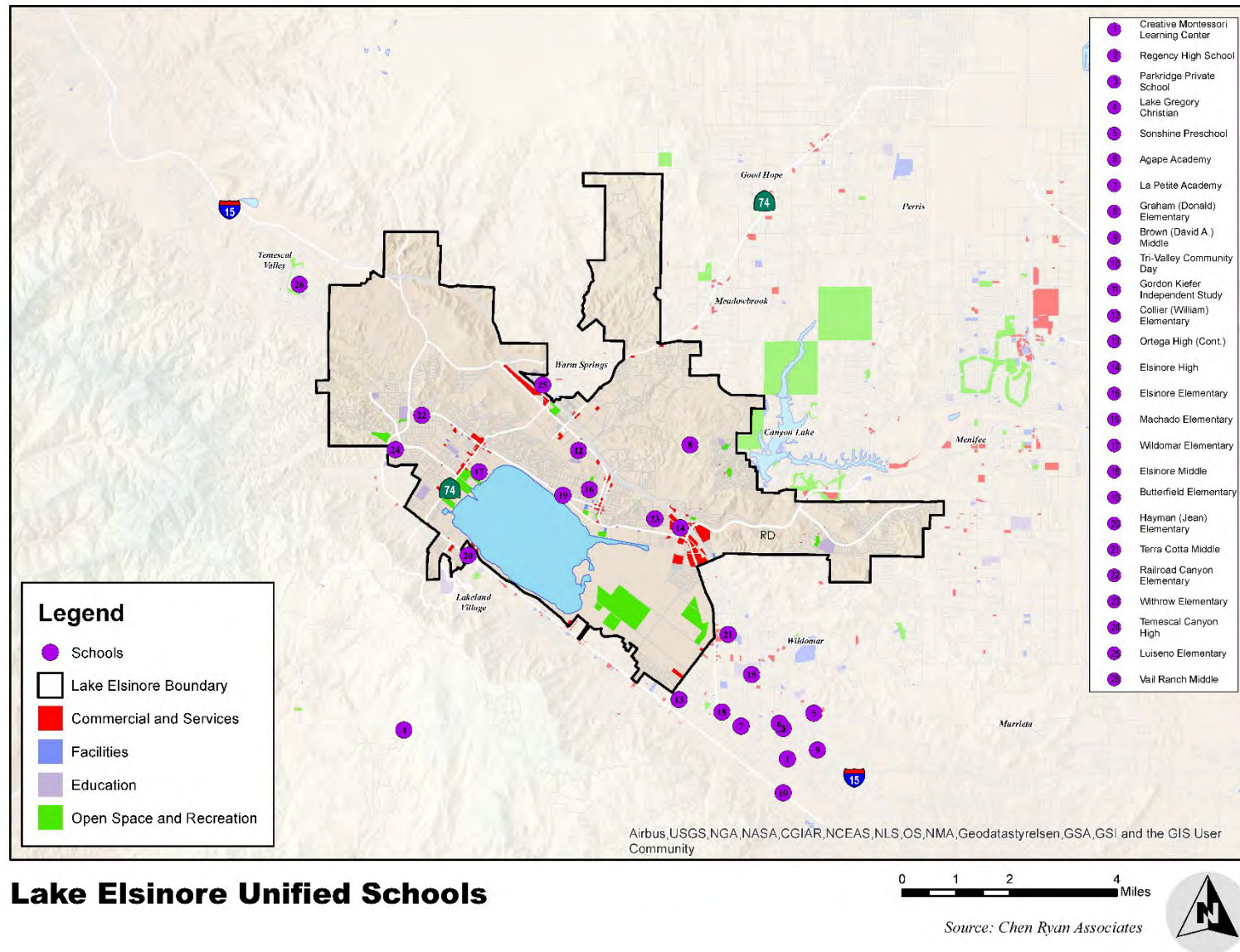
street bicycle facilities or facilities that are adequately buffered from traffic stands as a major objective of this Plan.

The network recommendations that are put forward from the opportunities and constraints identified in this Existing Conditions Report will be designed to be receptive to the needs of local students, and thereby further the "Eight-to-Eighty" approach introduced in Chapter 2.0



A school zone and well-marked crossing near Elsinore Elementary School. While many schools are located on traffic-calmed roads, crossing major roads is required for many students to access their local school, discouraging active home-to-school travel.

Figure 6-6 Lake Elsinore Unified Schools



Lake Elsinore Unified Schools

6.5 Opportunities and Constraints

This section summarizes the existing conditions analyses presented in this report and identifies opportunities and constraints related to bicycle and pedestrian travel in Lake Elsinore. The synthesis incorporates information derived from the review of existing documents, review of existing infrastructure, bicycle and pedestrian demand, and collision and needs analyses.

The City spans a variety of built environment types, ranging from a pre-automobile era, walkable downtown, to hillside vista communities, and master-planned developments. This range of built environments is also seen in the widespread need for a complete bicycle network that allows those in the City to have the option to travel without a personal vehicle. Currently, several disconnected facilities allow for comfortable travel along certain City streets, but whole trips generally require extended travel along roadways that do not have bicycle accommodation.

The City population also exhibits a young median age (30.3 years of age in 2018), which underscores a need to improve school-related active travel. The City's strengths in outdoor recreation provide a prime draw to the City, which can leverage its mountains and lake as opportunities to further enhance recreational cycling. However, ensuring that safe, comfortable facilities are available for a range of users and abilities – an eight-to-eighty network, will require that facilities include adequate buffer and balance on-road with off-road facilities. Additionally, to enhance the share of utilitarian, or non-recreational cyclists, it will be important to ensure that a complete network provides the ability to access popular destinations and schools throughout the City to ensure that entire trips may be made on facilities that people find comfortable.



Differing built environments reflect the span of Lake Elsinore's development – including modern, master-planned developments (top), a historic downtown (middle), and rural areas (bottom).

Much of the same may be said of sidewalk coverage, which has many gaps in its network. Coverage is generally present nearest Downtown and in new master-planned developments, but walking to accomplish errands, and for many, to school, requires a portion of the trip be made along roadways that have gaps in sidewalk coverage, or altogether missing segments. A completion of the City's sidewalk network along all Circulation Element roadways, through a combination of infill and entire-road project, will provide the City with a major milestone toward achievement of a balanced pedestrian network. Similarly, future sidewalks should consider buffer distances of six feet or greater, where possible, from vehicular traffic, as well as offer pedestrian-scale lighting and mid-block crossing opportunities along long block faces. Intersection crossings may be prioritized to receive continental-style striping, and future intersection improvements may make high visibility treatments standard, along with other pedestrian-oriented physical features such as pedestrian countdowns, or bulb-outs where applicable.



Missing sidewalks along Circulation Element roadways offer a strong opportunity to improve citywide pedestrian access.

The portions of Lake Elsinore in the center of the community and near Downtown were found to contain combinations of active transportation trip generators and attractors associated with the highest levels of cyclist and pedestrian demand. These opportunity areas may be useful in identifying priority for treatments, since the propensity model indicates a greater need to support bicycle and pedestrian travel in these areas. Potential treatments may include bike lanes, multi-use paths, and residential bicycle boulevards, and sidewalk completion in adjacent residential areas that may be prime feeders into the Downtown area.



Central Lake Elsinore offers a strong combination of attractors and trip generators, indicating a strong active transportation opportunity area that has recently been met with added Class II bike lanes..

High vehicular volumes and speeds are citywide constraints that may limit implementation of comfortable on-road facilities for pedestrians and/or cyclists without appropriate buffer. Potential treatments for these busy major roadways include implementing traffic calming measures along specific, targeted corridors. This would include reducing or limiting vehicle speeds, as well as implementing methods for increasing the awareness and visibility of pedestrians and cyclists, such as signage and prioritized phasing at signalized intersections. These facilities may parallel more traditional, vehicle-oriented roadways, thereby taking advantage of the strong grid of parallel roadways in the City, and delivering a reasonable facility based upon a division of roadway typology or modal focus.

Downtown Lake Elsinore offers an advantageous starting point for these features, and indeed currently possesses many of the features that make walking and cycling a safe, comfortable alternative to vehicular travel, such as the recent re-striping project along Main Street and Graham Street and provided new surface markings for Class III bike routes for shared vehicular/bicycle use. The Downtown Specific Plan, and under-development General Plan provide significant traction for the implementation of a vibrant, walkable and bikeable destination that can sustainably support the growth in jobs and residents anticipated in the City's future and further leverage the City's strategic, central location along the I-15 corridor in Western Riverside County.

Moving forward, it may be advantageous to start with improvements in this area, some of which have been recently implemented as of late 2018, and expand to connect with the surrounding residential areas, creating a core network of linear active transportation corridors across the City in which a more elaborate network can be expanded upon.



Downtown contains many features that have been shown to increase pedestrian comfort, and may be emulated elsewhere, such as bulb-outs, shown.