Sacramento

Neighborhood Connections Plan

DRAFT FINAL | January 2025

STREETS FOR PEOPLE
SACRAMENTO'S ACTIVE TRANSPORTATION PLAN

City of SACRAMENTO
Department of Public Works

KITTELSON & ASSOCIATES

Acknowledgments

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City of Sacramento

Jeff Jelsma, Project Manager

Leslie Mancebo, Senior Transportation Planner

Charisse Padilla, Transportation Planner

Jennifer Donlon Wyant, Division Manager, Mobility and Sustainability

Project Development Team

Alex Goloveshkin, Associate Civil Engineer

Bill Shunk, Senior Engineer

Joseph Garcia-Long, Senior Engineer

Pelle Clark, Senior Engineer

Consultant Team

Kittelson & Associates, Inc.

Placeworks

Mobycon

Please note that this report is intended to be viewed as a two-page spread.

Table of Contents

Table of Figures

Appendix

1 Introduction

Chapter 1: Introduction

The City of Sacramento has been actively redesigning its streets to better connect residents, workers, and visitors to their desired destinations by walking, biking, and rolling (active transportation). This includes projects like the Central City Mobility project which has recently introduced over 60 blocks of parking-protected bikeways and crossing enhancements. In response to the City's desire for more active transportation options that enhance connectivity, address safety concerns and comfort, and provide equitable access, the City launched the Slow and Active Streets pilot during the COVID-19 pandemic. This pilot project prioritized walking and biking on select residential streets using tools like signs and cones to temporarily reduce traffic speeds in neighborhoods. Building on the positive momentum from the pilot project, the City has developed the Neighborhood Connections network, a part of the City's Streets for People Active Transportation Plan. Streets for People identifies two types of active transportation routes:

- **Citywide Active Transportation Network:** Designed for longer trips along major corridors, including facilities such as separated bike lanes, standard and buffered bike lanes, and shared use paths on major collectors and arterials.
- **Neighborhood Connections:** Focused on neighborhood streets, featuring traffic calming treatments to slow traffic and support more comfortable walking, biking, and rolling to neighborhood destinations for people of all ages and abilities.

The City of Sacramento's **Neighborhood Connections** plan provides a framework for building and maintaining a comfortable and accessible neighborhood-oriented active transportation network for people of all ages and abilities. Sometimes referred to as "bicycle boulevards" or "neighborhood greenways," these routes are neighborhood streets designed to prioritize biking, walking, and rolling, as well as to make neighborhood streets people-oriented rather than oriented to motor vehicles. The Neighborhood Connections network emphasizes the importance of comfort and connectivity on neighborhood streets, recognizing that the transportation system significantly impacts the physical, mental, and social well-being of the City's residents.

The network's vision is to connect Sacramentans and visitors conveniently and comfortably to reach essential destinations within their neighborhoods, whether a grocery store, a school, a restaurant, a park, or a library. This Vision is consistent with the City's Climate Action and Adaption Plan to mitigate and adapt to climate change, including increasing active transportation mode share to 6% and transit mode share to 11% for everyday trips by 2030. The network identifies project opportunities designed for everyone, from those new to biking to occasional walkers and daily commuters.

Study Streets

The study streets for the Neighborhood Connections network include all local streets and minor collectors in Sacramento. These neighborhood streets provide an attractive alternative everyone can enjoy, while integrating traffic calming needs and supporting local access to destinations.

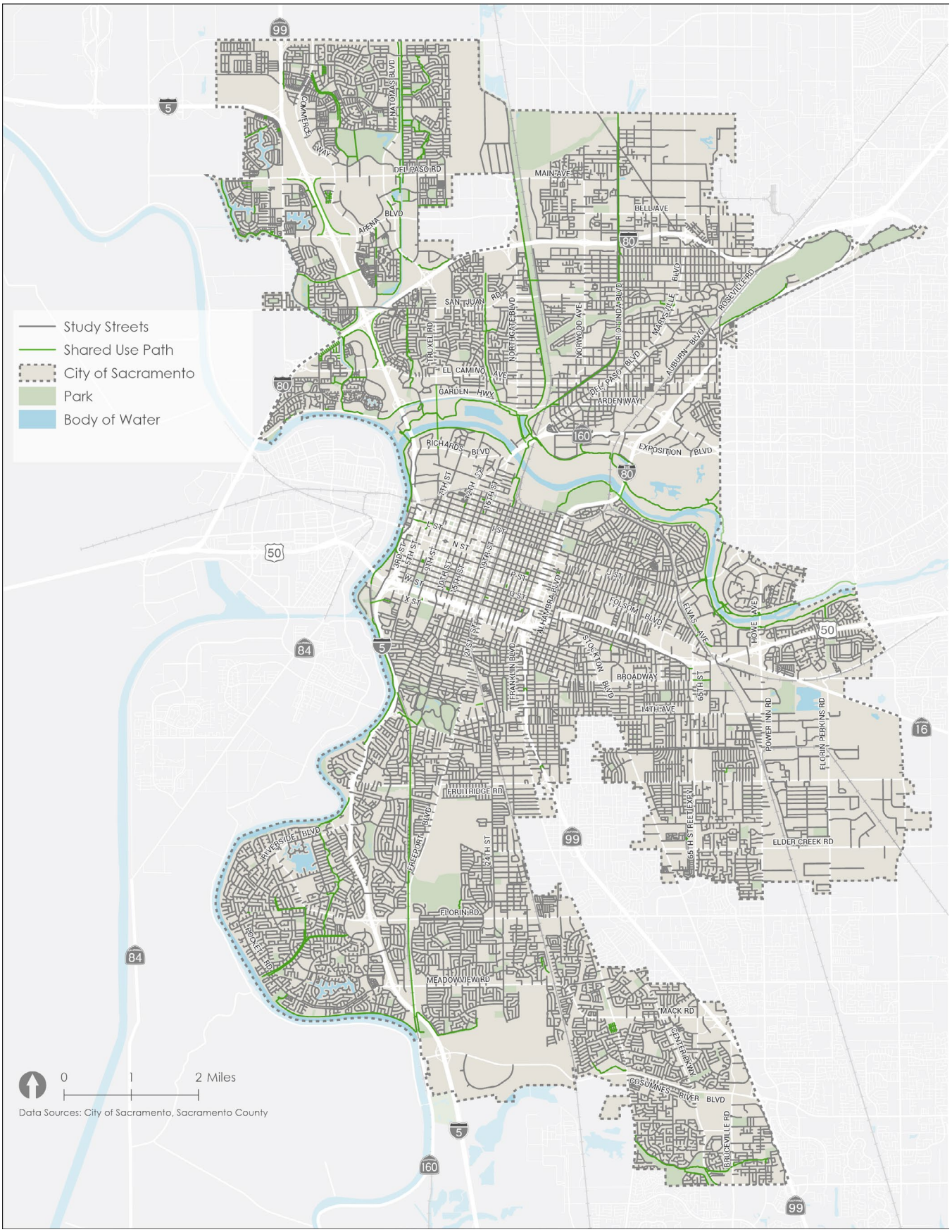
The Neighborhood Connections study area can be seen in **Figure 1** on the next page.

Report Organization

This report includes the following sections:

- **Why Neighborhood Connections:** Describes what, why, and who we are planning for.
- **Community Engagement:** Reports on engagement activities and how the community informed the network.
- **Existing Conditions:** Shares current multimodal, demographic, and land use characteristics in Sacramento.
- **Developing the Network:** Describes the process of defining the network.
- **Implementing the Network:** Identifies strategies to effectively slow streets and create a neighborhood connections network for all ages and abilities.

› **Figure 1 –** Study Streets



2

Why Neighborhood Connections?

Chapter 2: Why Neighborhood Connections?

What are Neighborhood Connections?

The City of Sacramento is working to redesign its streets to better connect people who work, live, and travel here to the places they want to go and people they want to see. The **Active Transportation** network develops convenient and comfortable connections for people walking and bicycling across the City between neighborhoods or regionally. The **Neighborhood Connections** network identifies neighborhood streets that are comfortable to walk, bike, and roll for people of all ages and abilities. Once implemented, they will utilize traffic calming measures, wayfinding, and walking and biking crossing enhancements to better connect people to schools, grocery stores, parks, and other everyday neighborhood destinations through active transportation.

Neighborhood Connections are defined as neighborhood streets with fewer, slower moving automobiles to make streets more people-oriented and prioritizes bicycling along the route and enhances conditions for walking and rolling. This slow and calm route is achieved through a variety of tools to help reduce the speed of cars and, in some cases, reduce the number of cars on a street as well. Lowering speeds and volumes of motor vehicles creates a more comfortable environment for walking, biking, and rolling. Neighborhood connections also include enhanced crossings at intersections, where appropriate, and wayfinding to help guide people along the route and to their destination.

The Neighborhood Connections network was developed based on an analysis of the transportation network, including:

- **Interaction:** The Neighborhood Connections Network (focused on local neighborhood streets and minor collectors) expects most biking to take place in a shared street environment. Comfort in shared lanes depends on slow and less frequent vehicle traffic. An analysis identified where additional traffic calming features may be needed to reduce speeds, improve comfort, and reduce the opportunity for conflicts.
- **Connectivity:** Walking and biking trips require direct and efficient routes. The network seeks to minimize detours by identifying parallel routes at regular intervals and removing dead end and looped streets to provide a cohesive network with minimal gaps.
- **Space:** Roadway geometry and facility widths also impact comfort when walking and biking. Wider bike lanes and sidewalks accommodate social travel, while narrower roadways and traffic calming help manage vehicle speeds.
- **Experience:** Walking and biking comfort is affected by traffic conditions and surroundings. Lower speeds, tree shade, and engaging environments improve the user experience. Analysis considered these factors for Neighborhood Connections.

Who are We Planning For?

The Sacramento **Neighborhood Connections Plan** is a plan to create streets that are comfortable to walk, bike, and roll on for people of all ages and abilities, whether they are eight or eighty. In practice, this might mean identifying and installing treatments on streets to slow or limit vehicle traffic, provide separate space for walking and biking, or increasing shade or lighting. This includes people of all social needs in the city including:

- Children, families, and seniors
- People on small wheels (e.g. scooters, skates, etc.)
- People accessing everyday needs walking, biking, or rolling
- Road bicycling enthusiasts
- People with disabilities
- Visitors
- Recreational

Each of these users are sensitive to a variety of road conditions including sensitivity to gaps in infrastructure, sensitivity to perception of safety, sensitivity to traffic volumes and speeds, and sensitivity to pavement quality.

Current City Practices Related to Neighborhood Connections

The City of Sacramento has a variety of existing plans that address local street connections, low-stress routes, and pedestrian connections, all of which are pivotal components for establishing the Neighborhood Connections network. Themes among the recommendations in the adopted plans include safety and access for people who walk, bike, and roll. The City also has adopted several Citywide documents which are related to or impact Neighborhood Connections.

GUIDANCE DOCUMENTS

The City has adopted roadway guidelines and procedures that recommendations must adhere to, including:

Criteria and Guidance for Creative Crosswalks (2021): Outlines criteria for artistic crosswalks in the city.

Pedestrian Crossing Guidelines – Treatment Applications Guide (2021): Offers design and implementation guidance for selecting pedestrian crossing treatments for new or existing crosswalks.

City of Sacramento Complete Streets Policy (2019): Promotes inclusive transportation network planning.

Design and Procedures Manual Section 15: Street Design Standards (2009): Aims to facilitate safer and efficient movement of people driving, biking, and walking while considering future maintenance costs.

City of Sacramento Speed Lump Program Guidelines (2014): Advances traffic safety, neighborhood livability, and uniformity in the installation of speed lumps within the city.

City of Sacramento Transportation Priorities Plan: Council adopted strategy to prioritize transportation investments across the City based on five community values:

1. Improving air quality, climate, and health
2. Providing equitable investment
3. Providing access to destinations
4. Improving transportation safety
5. Fixing and maintaining the system.

Climate Action & Adaptation Plan (CAAP): establishes Sacramento's greenhouse gas reduction target for 2030 and a goal of carbon neutrality by 2045. The CAAP adopted two transportation measures related to the Neighborhood Connections plan:

- **TR-1:** Improve active transportation infrastructure to achieve 6% active transportation mode share by 2030 and 12% by 2045
- **TR-2:** Support public transit improvements to achieve 11% public transit mode share by 2030 and maintain through 2045

CITYWIDE PLANS

Walking and Biking Plans

The existing Bicycle and Pedestrian Master Plans identify planned networks of infrastructure for people biking and walking. These plans have been reviewed to provide context for the Sacramento Streets for People Plan.

- Bicycle Master Plan (2016 – amended 2018)
- Pedestrian Master Plan (2006)

The Pedestrian Master Plan echoes a lot of the recommendations identified in the walk audit reports: adequate crossing times, minimized crossing distances, roadway width reduction, pedestrian refuge islands, and countdown signals. The Bicycle Master Plan also includes a recommendation for hundreds of miles of on- and off-street bikeways and amenities like parking and wayfinding. Equity is a key focus for prioritization in all plans.

Vision Zero

In January 2017, the City adopted a goal to work collaboratively in a data-informed effort to eliminate traffic fatalities and serious injuries by 2027. Vision Zero Plans include:

- Vision Zero Sacramento Action Plan (2018)
- Vision Zero Top 5 Corridors (2020)
- Vision Zero School Safety Study (2021)

The three documents complement each other. The Action Plan lays out goals and policies to achieve zero traffic fatalities and serious injuries by 2027 and provides an extensive list of recommendations to reach this goal. The Corridor and Safety Study reports make more location-specific recommendations along five one-mile corridor segments and around 20 local schools, including adding new signals and increased signage, reducing vehicles speeds to 15 mph, refreshed pavement markings and edge line striping, slowed green waves, and advanced dilemma zone detection.

3

Community Engagement

Chapter 3: Community Engagement Process

Engagement Phases and Events

Data only tells part of the story. It is important to validate our conclusions, identify gaps, and refine our recommendations using local knowledge from the people who travel on City streets every day. The community is a partner in this vision, and we want to make sure that the network is one that people feel meets their needs. The project consisted of three engagement phases:

Phase One: Informing the Network (Spring 2023 – Summer 2023)

The purpose of Phase One engagement was to introduce the project to the community, receive feedback about key destinations that residents travel to in and around their neighborhood, and how they typically get to those destinations.

Phase Two: Refining the Network (Summer 2024)

Engagement for this phase focused on ground-truthing draft recommendations and identifying neighborhood network gaps through a combination of community-scale focus groups, workshops, pop-in events, walking workshops, and online resources. The primary goals of Phase Two project engagement were to:

1. share potential destinations and network alignments with the community,
2. review options for neighborhood connection and traffic calming solutions, and
3. receive community feedback to help finalize the network alignment and develop community-supported implementation recommendations.

Phase Three: Public Draft Plan (Fall 2024)

During Phase Three, the project team presented the Public Draft Plan and received community input on recommendations for goals, network, and toolkit elements, as well as priorities for implementation of improvements.

Las Palmas Walking Workshop

The neighborhood connections plan is ultimately a series of community connections. To ensure that we were able to see both the neighborhood-scale and Citywide picture we employed several strategies designed to provide people options for how they wished to provide their input.

Focus Group Meetings

During the weeks of July 15th and 22nd, 2024, the City hosted a series of three virtual focus group meetings with representatives from neighborhood groups in College Area, Natomas and Northgate Areas, and South Sacramento as part of Phase Two.

Pop-Up Events and Community Meetings:

The City hosted pop-up events and attended community meetings in several neighborhoods to engage residents locally and reduce travel barriers to participation. These events provided project information and gathered input on key destinations and challenges to walking or biking in the area. They took place at parks, farmers' markets, and other community spots during Phase One (May – June 2023) and Phase Two (June – July 2024).

Online Storyboard and Engagement Map:

An engagement map for Phases One and Two was hosted by the larger Streets for People team but also included information on the proposed Neighborhood Connections network and allowed community members to leave comments on whether the draft neighborhood network met their needs. As part of Phase Two, and ArcGIS StoryMap provided project background information and goals, described the neighborhood network development process, and linked to the engagement map for community feedback.

Community Planning Team

To guide the development of Streets for People, the City created a Community Planning Team (CPT) composed of a diverse group of residents from the Streets for People focus plan areas. The CPT provided feedback for Neighborhood Connections in a June 17, 2024 meeting focused on project engagement and recommendations to meet the unique needs of each focus plan area.

Walking Workshops:

In-person walking workshops were held on corridors within five neighborhoods. These events provided the community with the opportunity to express their concerns about their perceptions of safety, accessibility, and comfort in real-time and brainstorm their vision for what the corridor could look like in the future. During Phase One (August – September 2023) locations included streets surrounding Steve Jones Park, Robertson Park, Robla Elementary School, Will C. Middle School, Irene B. West Elementary School, and Hiram Johnson High School. During Phase Two (July – August 2024) walking workshops occurred along Redding Avenue, N. Park Drive, Las Palmas Avenue, and Potomac Avenue.

Engagement Methods

The team prepared and distributed engagement materials including event flyers, social media posts, City blog posts, e-blasts, and event invitations sent directly to stakeholders. Event information was also provided on the project webpage at www.sacstreetsforpeople.org. Engagement and event materials for the general public were provided in English, Spanish, Mandarin, Vietnamese, and Hmong.

Robertson Community Center Popup

What We Heard

The project team used the knowledge gathered from each tool and event to refine the neighborhood connections network and the traffic calming recommendations. We recognize that not everybody has the time, capacity, or internet access to go out of their way to engage with projects like ours, which is why we went directly to many different parts of the city and provided multiple means of engagement as mentioned above. Below is a summary of what we heard during each phase of the project.

PHASE ONE: INFORMING THE NETWORK

Driver Behavior: Participants noted drivers seemed to be traveling at high speeds and noted concerns about driver behavior such as not looking during turns, veering into bike lanes, or evidence of tire marks from donuts or burnouts.

Crossing Concerns: Crossings felt unsafe due to traffic conditions, too infrequent, and pedestrian signal timing.

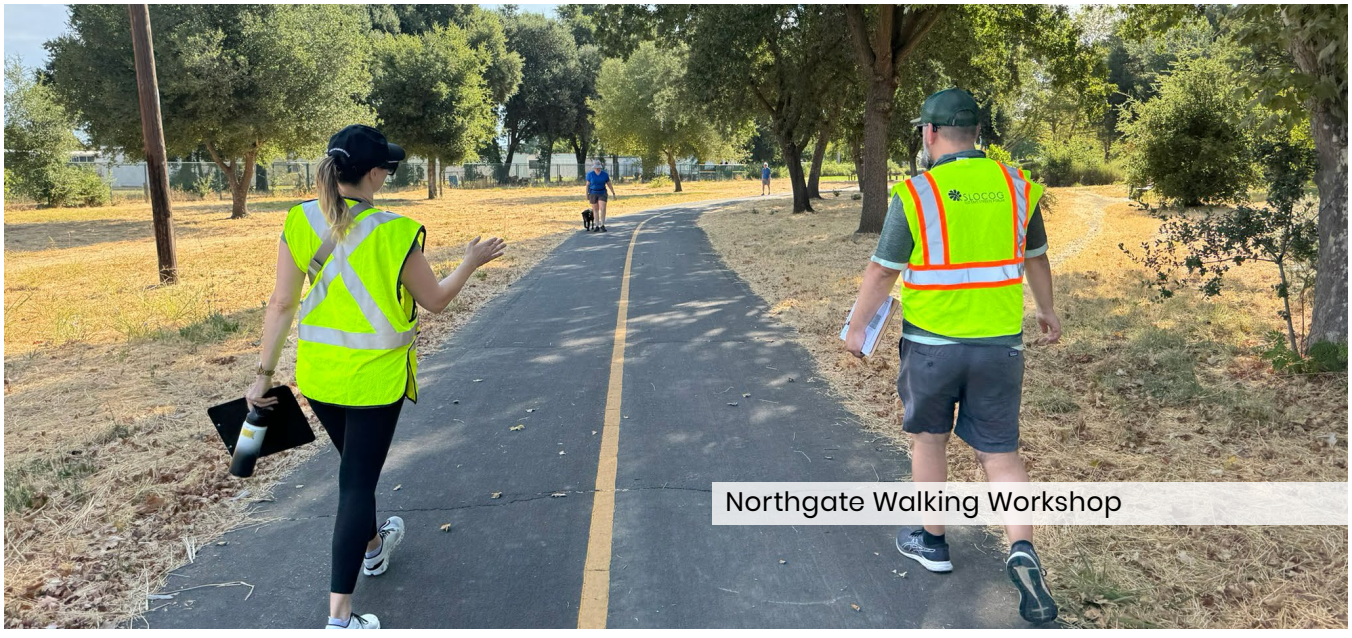
Sidewalk Issues: Sidewalks felt like they were too narrow to use comfortably, frequently cracked or in poor condition, and blocked by utility poles or boxes. Rolled curbs allowing the drivers to park on the sidewalk was a general concern.

Bike Facility issues: Bike lanes felt like they were too narrow, in poor condition, or were non-existent.

Lack of Shade: Lack of shade was a frequent concern both along sidewalks and at bus stops.

Lack of Lighting: A lack of pedestrian scale lighting was observed both throughout neighborhood streets and where multi-use paths were included, along the paths as well.

Destinations: The project team verified destinations (like schools, stores, or community centers) people want to go within their communities and how they get there or what route they would take if there were comfortable facilities.



Northgate Walking Workshop

PHASE TWO: REFINING THE NETWORK

Safety Concerns: Safety for pedestrians, cyclists, and scooter riders was a recurrent theme. Participants repeatedly raise issues regarding unsafe conditions for biking and walking on busy streets.

Cut-through Traffic: Vehicles using smaller neighborhood streets as a cut-through to avoid traffic on arterials can often result in high traffic speeds and safety concerns for pedestrians and cyclists.

Connectivity Challenges: There are significant concerns about east-west and north-south connectivity, particularly when navigating major roadways without a vehicle. There is also a desire to improve connectivity for active transportation methods to key destinations, such as parks, shopping centers, and river trails.

Infrastructure Improvements and Equity: There is a need for improved infrastructure, including bike lanes, sidewalks, and raised crosswalks to enhance walkability and safety. Prioritization of projects should be done in an equitable manner, with a focus on ensuring that all neighborhoods receive adequate attention and resources.

Environmental Considerations: Sustainable active transportation options reduce car dependency and air pollution. Trees and green spaces not only provide shade for enhanced walking and biking, but also improve air quality, public health, and well-being for the community.

PHASE THREE: PUBLIC DRAFT PLAN

Project Funding and Prioritization: How the plan will be moved forward into implementation, prioritization, and funding was a common theme. Community members requested clarification on the next steps for project implementation.

Speeding Implementation: Some workshop participants called for faster implementation of the recommended network via "quick build" projects.

Equity Considerations: Community members asked how equity would be considered for implementation, particularly where fewer active transportation facilities currently exists.

Youth Safety: School area improvements and other projects focused on addressing youth transportation needs was a theme in the virtual workshops.

4

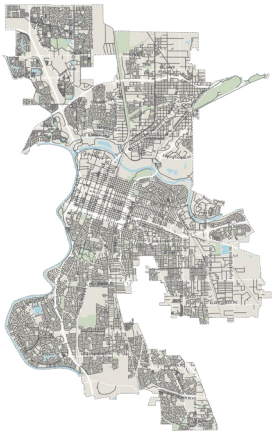
Existing Conditions

Chapter 4: Existing Conditions

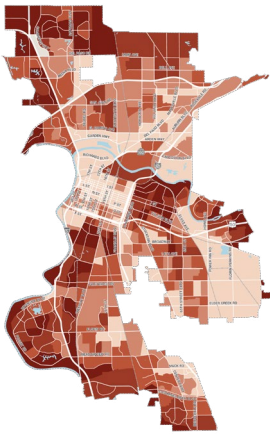
The Existing Conditions Report describes a layered approach to identify needs and opportunities in the City. This approach involved multiple factors and perspectives to comprehensively understand and address the community's needs. By layering various data, such as traffic patterns, safety concerns, and environmental impacts, key opportunities for improvement were identified. Understanding current mobility trends and challenges is essential for laying the foundation for Sacramento's future.

› **Figure 2 –** Existing Conditions Data Considered

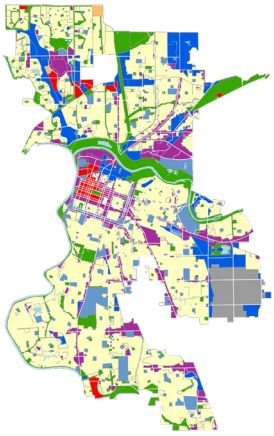
Street Network



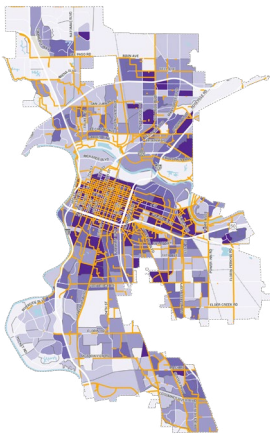
Social Needs



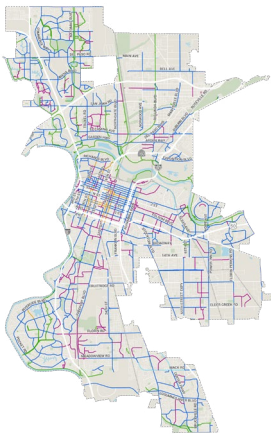
Land Use & Destinations



Travel Patterns

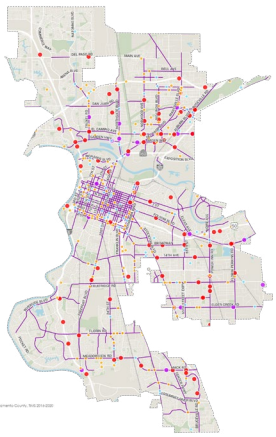


Walking & Biking Facilities



Transit Routes & Ridership

Crashes & Safety



Who Lives in Sacramento?

To better connect people who live, work, and travel throughout Sacramento, it is important to understand the demographic changes in the city. According to the 2021 5-Year ACS and 2010 5-Year ACS, Sacramento is increasing in age, education, wealth, and diversity. The following facts from the ACS data provide an overview of existing and emerging demographic trends in Sacramento:

The median age is 35.2 years old. A significant part of the population falls within the 24 to 34 age range, followed by those aged 35 to 44, and then by the 45 to 54 age group.

For residents aged 25 and older, the percentage of those with a bachelor's degree or higher increased by 5% between 2010 and 2021. In 2021, those who had obtained that level of education equated to 24% of the 25 and over population.

15% of the population lives below the poverty line of $49,000 as income.

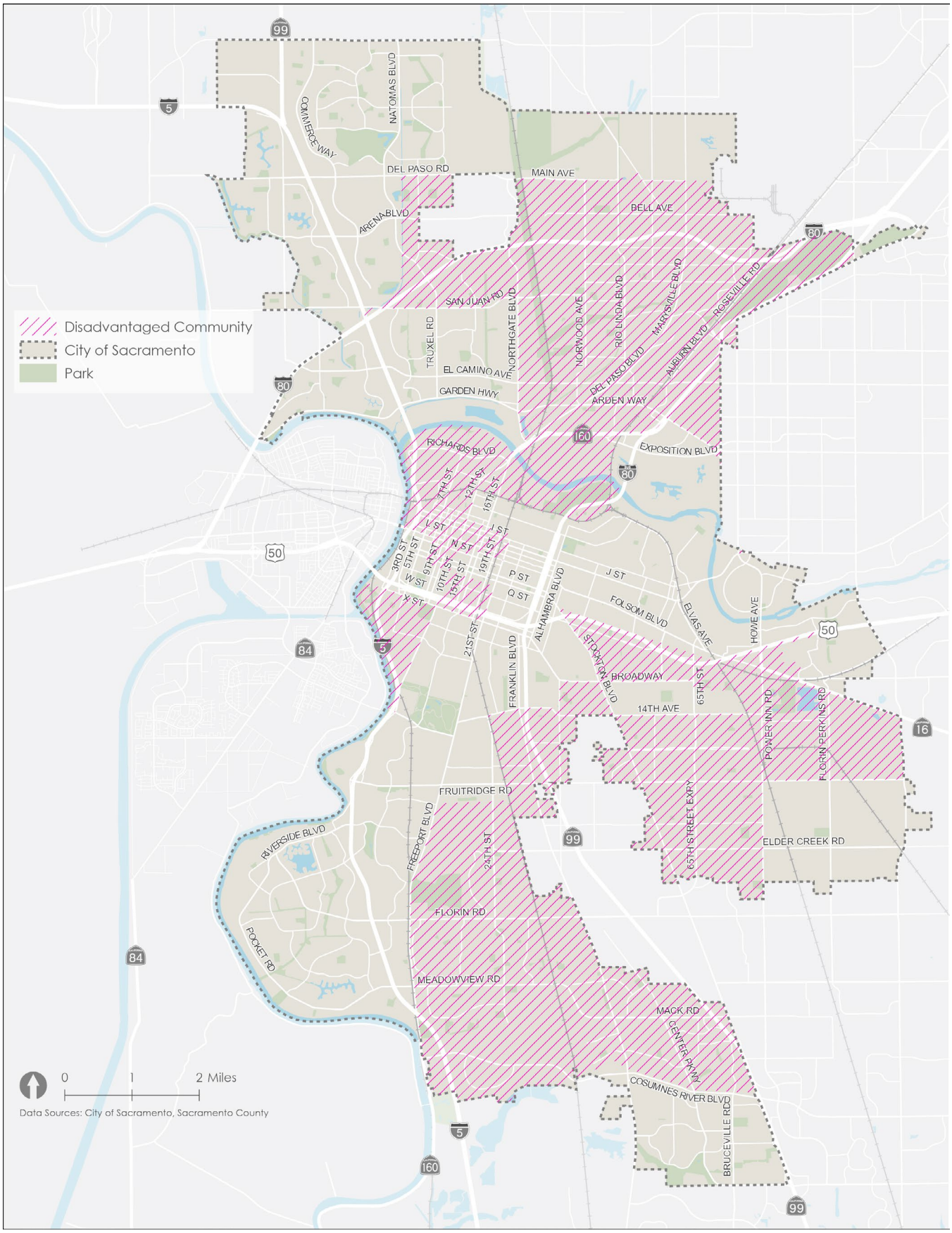
The city is diverse. Of the population, 31.14% of residents are white, 28.89% are Hispanic, 20.45% are Asian or Pacific Islander, 12.76% are black, 6.50% are two or more races, and 0.26% are American Indian. Of this demographic makeup, 12% live with a disability.

Compared to the State and County, the city has a higher percentage of minority residents, households below the federal poverty level, and households with no access to a vehicle. Individuals without vehicle access and disadvantaged populations are more likely to walk, bike, and use public transit. Disadvantaged populations (› **Figure 3**) are characterized by various factors, including low income, racial and ethnic minority status, limited access to grocery stores, and exposure to water and air pollution. For this effort, Disadvantaged Communities are identified as Census Tracts that rank in the top 25% of the California Office of Environmental Health Hazard Assessment's CalEnviroScreen tool or are designated as disadvantaged by the U.S. Environmental Protection Agency's Climate and Economic Justice Screening tool (CEJST).

Additionally, the Center for Neighborhood Technology (CNT) sets a "driving budget" for an area based on the average household income and the concept that no more than 15% of income should be allocated toward transportation. The CNT estimates that the average annual cost of vehicle ownership in the City of Sacramento is $14,784, which is 136% higher than the area's affordable "driving budget". Additionally, the CNT's Housing & Transportation Index sets a threshold of 45% of household income that should reasonably go toward housing and transportation. Sacramento households spend 46% of their income on housing and transportation which means that the average resident is housing and transportation burdened.

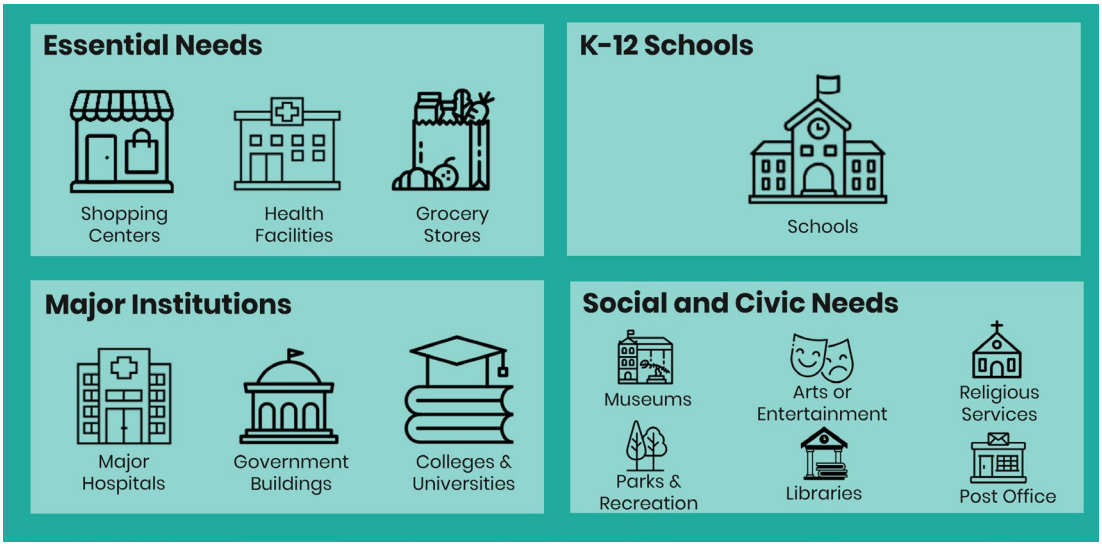
As shown in › **Figure 3**, much of the City is either considered a Disadvantaged Community or Housing and Transportation cost burdened. Improving the network for people walking and biking expands travel options for people who do not have access to a vehicle and increases opportunities for people to walk or bike to access community destinations. Further details can be found in the Sacramento Neighborhood Connections Existing Conditions Analysis in **Appendix A**.

› **Figure 3 –** Disadvantaged Communities



Where Do We Want to Go?

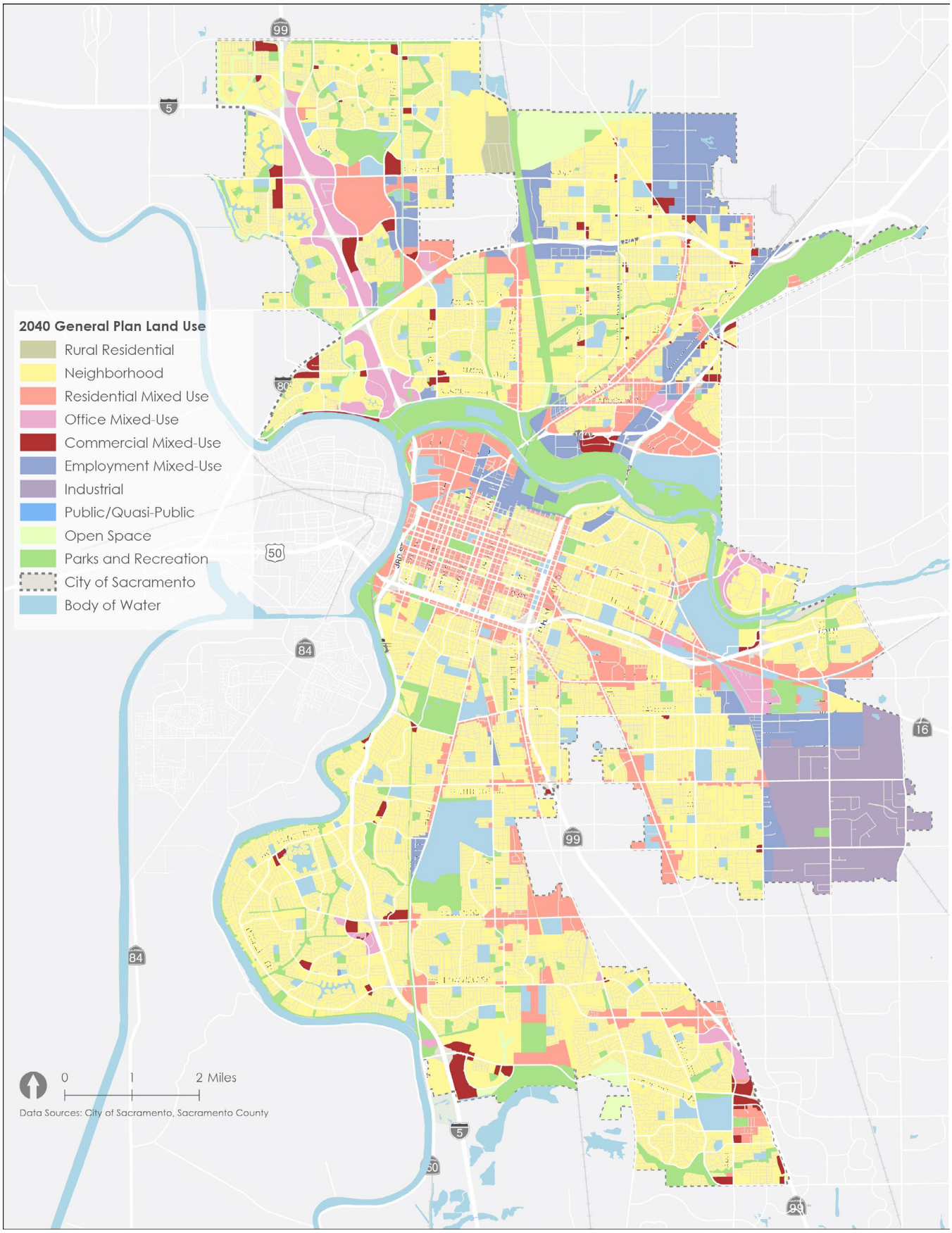
Differences in land use significantly affect active transportation access to neighborhood destinations. The current land use in the city can be seen in **› Figure 4**. In Midtown and Downtown, people can generally bike, walk, or roll to destinations due to the greater proximity of various services and amenities. In contrast, in much of the rest of the city where destinations are separated from neighborhood homes, people experience more limited access. Additionally, commercial development in these areas is often concentrated along major corridors, further impacting accessibility for people walking, biking, or rolling. Neighborhood Connections focus on improving connections for walking and biking to everyday needs including the following uses, located throughout the city as shown in **› Figure 5.**



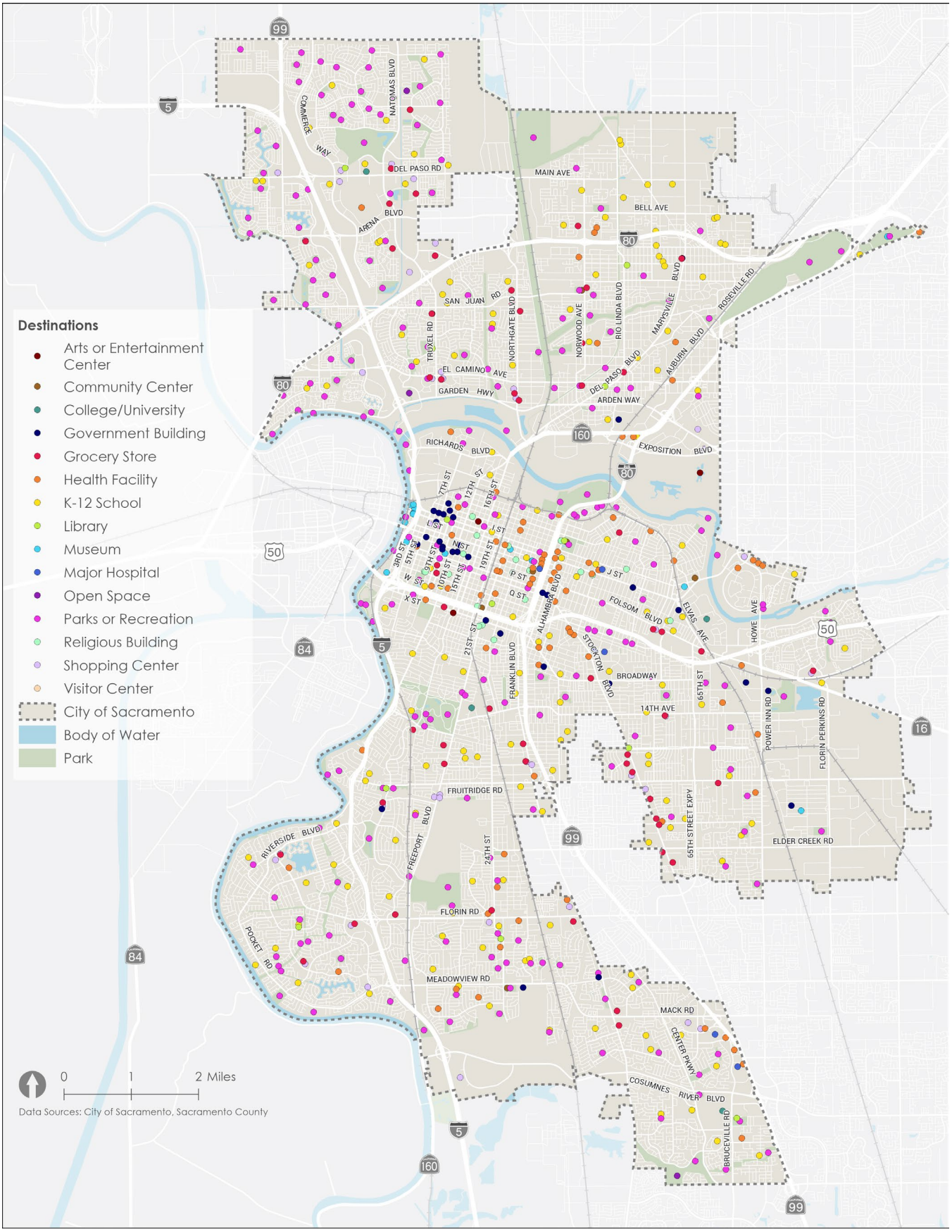
Completing these trips by foot, bike, or other nonmotorized means offers residents of Sacramento more opportunities to save money, contribute to climate action, and engage in physical activity. To better understand the way people move around Sacramento, the Neighborhood Connections Plan reviewed modeled trip lengths using Replica. Replica is a private company that aggregates data from cellular locations, the census, credit card purchases, and other datasets to estimate travel behavior for where people are going and how they get there (such as by walking, biking, or driving). This software was used to identify where trips of 2 miles or less – approximately a 15-minute bike ride – are frequently taken. The results, seen in **› Figure 6**, provided insights on where the potential demand for low-stress connections aligns with the need for improved access to key destinations.

Nearly half of the trips Sacramentans take are to do things like shop, eat, socialize, and run errands, while work or school trips make up the other half. While driving remains the most common mode of transportation, Sacramentans choose to walk or bike in certain contexts. For example, although most trips to and from work are made by people driving, nearly one in four students walks or bikes to school. For trips of five miles or less, residents choose to walk or bike nearly a quarter of the time. Frequent walking trips often occur along major roadways, particularly in areas with diverse land uses. Short trips are more prevalent in locations with a higher concentration of neighborhood destinations. The Neighborhood Connections Network seeks to make these short trip connections more comfortable and appealing when walking, biking, or rolling.

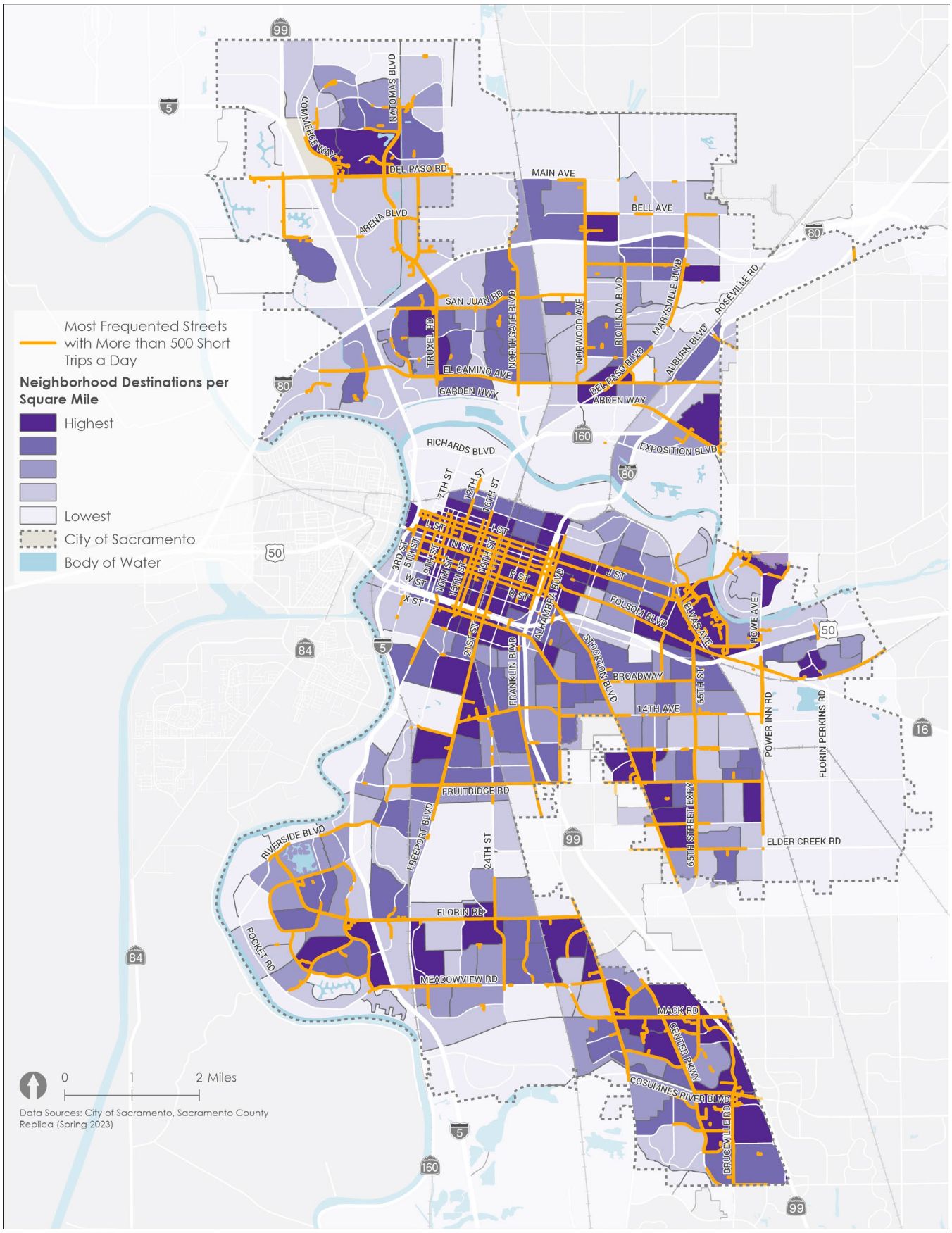
› **Figure 4 –** Land Use



› **Figure 5 –** Neighborhood Destinations



› **Figure 6 –** Frequent Short Trips



Walking Today

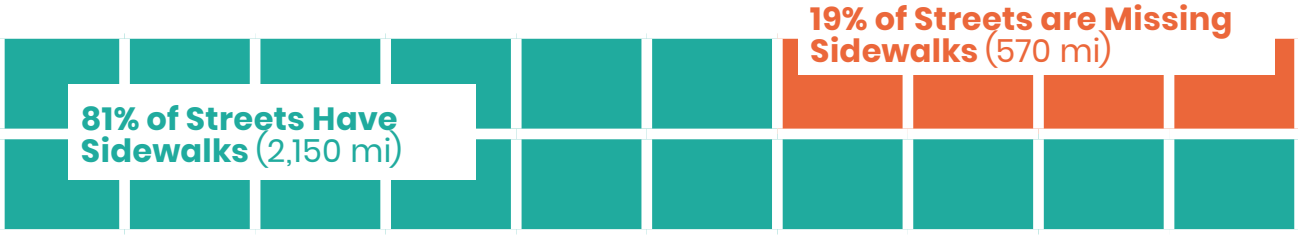
Sacramento is a diverse city that is growing in its urban and suburban areas. Mixed use infill development increases opportunities for people to walk and bike as the distances between their destinations decrease with more limited opportunities to change existing infrastructure. New suburban development offers opportunities for new infrastructure to help provide comfortable connections. As Sacramento develops, the demand for transportation options is increasing. To address these changing needs and desires, it is important to understand what makes a place feel safe and comfortable for walking. People walking are:

- Sensitive to detours that increase the time or distance to their destination;
- More comfortable when routes provide shade, water, and places to rest; and
- In need of walkways with accessible and comfortable designs for people who use mobility devices and people with hearing and visual impairments.

SIDEWALKS IN SACRAMENTO

Sidewalks are present on most streets in Sacramento. However, infrastructure is missing on one or both sides of the road in the north- and southeastern reaches of the City, where land uses are characterized by rural homes and industrial uses. Additionally, some local streets in residential areas are lacking sidewalks. › **Figure 7** shows the miles of sidewalks and gaps in Sacramento today.

› **Figure 7 –** Miles of Sidewalks in Sacramento



CROSSING THE STREET

One of the most significant barriers to walking is how frequently and comfortably someone can cross the street to get to their destination. Having frequent crossings and pedestrian access points can significantly decrease the distance needed to walk to a destination. In Downtown, crossings are frequent even across major roads. Outside of Downtown, there are fewer opportunities to cross. Additionally, the type of crossing can have a major impact on mobility for people walking. For example, signalized intersections generally provide a dedicated time and space for people walking to cross. However, most intersections are not signalized. The types of crossing treatments which can be found in Sacramento at unsignalized intersections are shown and described on the next page.

Full Crossings have marked crosswalks on all legs of the intersection.

Half Crossings have marked crosswalks on at least one leg of each street.

Partial Crossings have a marked crosswalk that crosses one street.

Midblock Crossings facilitate crossing to places people want to cross where no stop signs or traffic signals regulate the crossing.

Rectangular Rapid-Flashing Beacons are user-actuated yellow flashing lights to improve safety at uncontrolled, marked crosswalks. They are used to alters drivers to yield where people walking have the right-of-way crossing a road.

WALKING COMFORT

In order to understand comfort for people walking on a given roadway, a pedestrian comfort metric was developed. A variety of factors are known to influence comfort for walking, such as the speed and volume of traffic, presence of a sidewalk, available shade, and design of the road. As illustrated below, the walking comfort metric ranges from Level 1 through 4. Level 1 indicates facilities are comfortable for people of any age or ability to walk and roll on like neighborhood streets or shared use paths along streets with low vehicle speeds and numbers of lanes. Level 4 indicates facilities that people might only walk or roll along if they have no other choice, such as a high speed arterial or a street with no sidewalks and higher numbers of lanes or speeds. This analysis includes surface streets and shared use paths, but freeways are not analyzed as walking and biking is prohibited.

Comfort Scoring

The criteria shown in **Table 1** were used to determine the walking comfort scores shown in **› Figure 8** for each street in Sacramento.

Table 1 – *Walking Comfort Criteria for Streets in Sacramento*

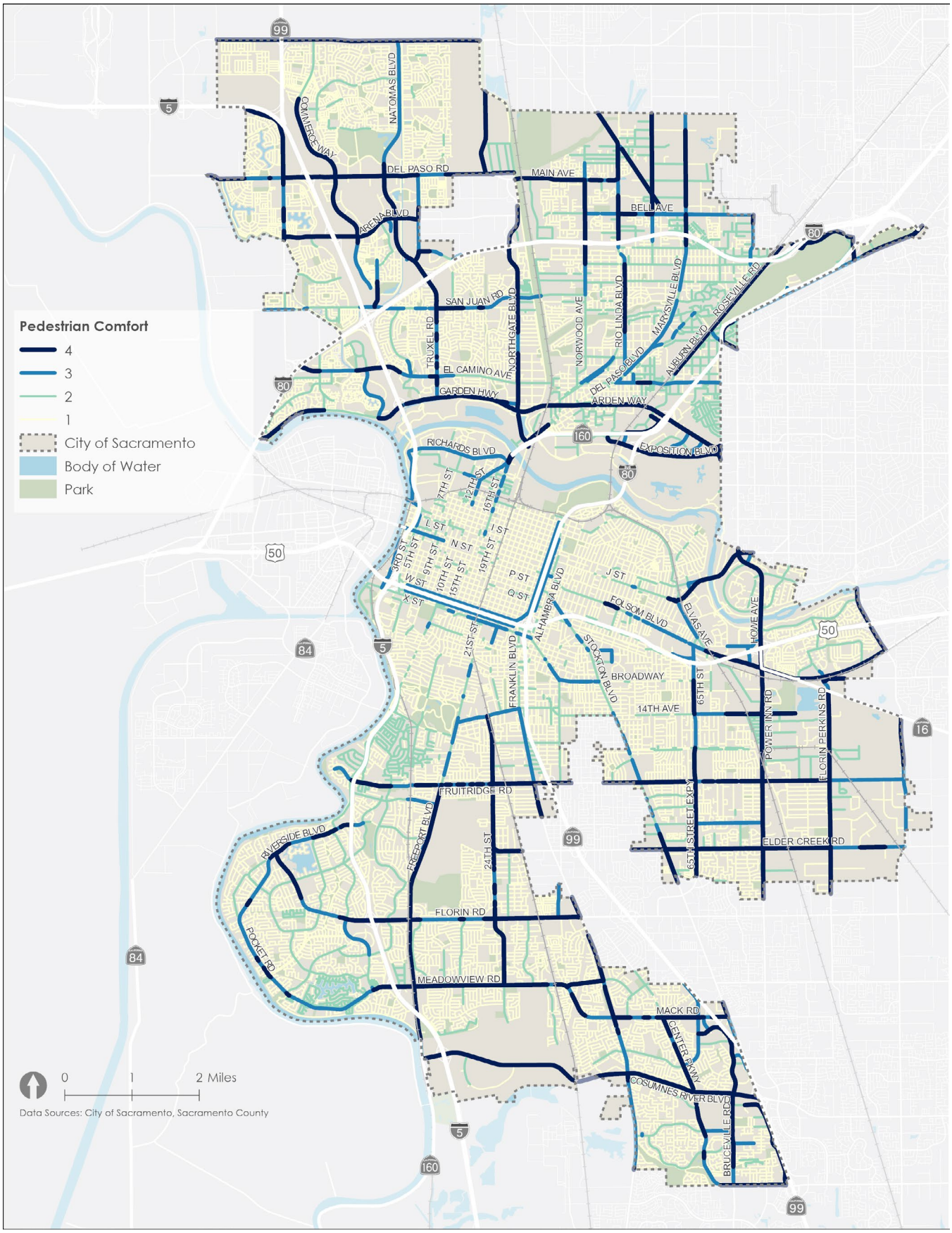
Posted Speed Limit	Number of Lanes	No Sidewalk	Sidewalk	Shaded Sidewalk*	Shared Use Path
25 MPH or Lower	2 Lanes	2	1	1	1
	3 Lanes	4	2	1	1
	4+ Lanes	4	3	2	1
30-35 MPH	2-3 Lanes	3	2	1	1
	4-5 Lanes	4	3	2	1
	6+ Lanes	4	4	3	3
40 MPH or Greater	2-3 Lanes	4	3	2	1
	4-5 Lanes	4	4	3	2
	6+ Lanes	4	4	4	3

**For the purposes of this analysis, a shaded sidewalk is one in which the estimated tree canopy provides coverage over at least 50% of the street as measured in linear feet. The City's street tree layer was utilized to identify tree locations, and an average 20' canopy (10' in each direction from tree trunk center point) was assumed per tree.*

Walking Comfort Level (1 - Most Comfortable to 4 - Least Comfortable)

1 2 3 4

› **Figure 8 –** Walking Comfort



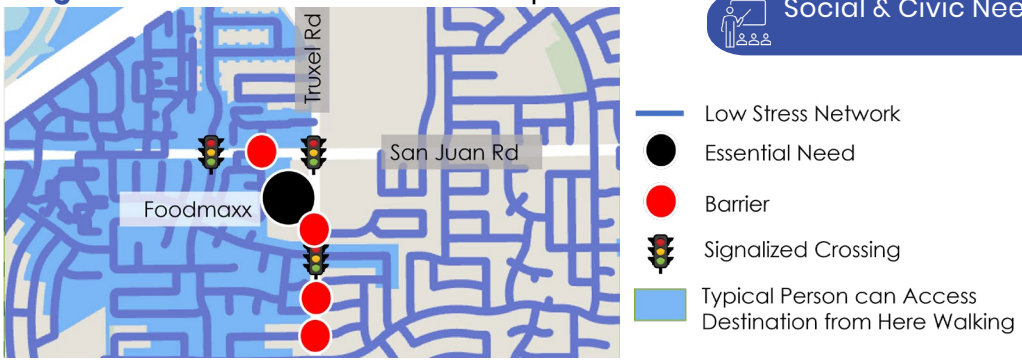
WALKING ASSESSMENT

While sidewalks are one key element in determining comfort for people walking, they do not tell the whole story. As noted previously, things like missing or uncomfortable crossings, proximity to the street, and other elements can create barriers to walking. In order to evaluate access to destinations via walking, a walkability assessment was conducted which identifies the presence of sidewalks as well as crossings, destination locations, and other elements. Access to the key destinations was assessed for people walking using the following elements:

- Determine key destinations (see › **Figure 5**).
- Define the low stress network and crossings and identify barriers for people walking. The analysis assumes people of all ages and abilities will walk along low stress streets and cross at low stress intersections, but that not all people will utilize higher stress streets or intersections.
- Calculate the area people can comfortably walk from a given destination for a person walking four feet per second on a 15-minute trip—just under 0.70 miles.

› **Figure 9** shows an illustrative example of the analysis of a 15-minute walk shed for the typical rider. Notably, people living east of Truxel Road are unable to access the Foodmaxx due to limited places to cross the street. The high speeds and volumes also make Truxel Rd a high stress road.

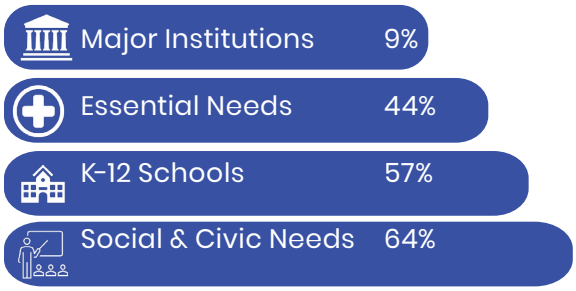
› **Figure 9 –** Walk Access Barrier Example



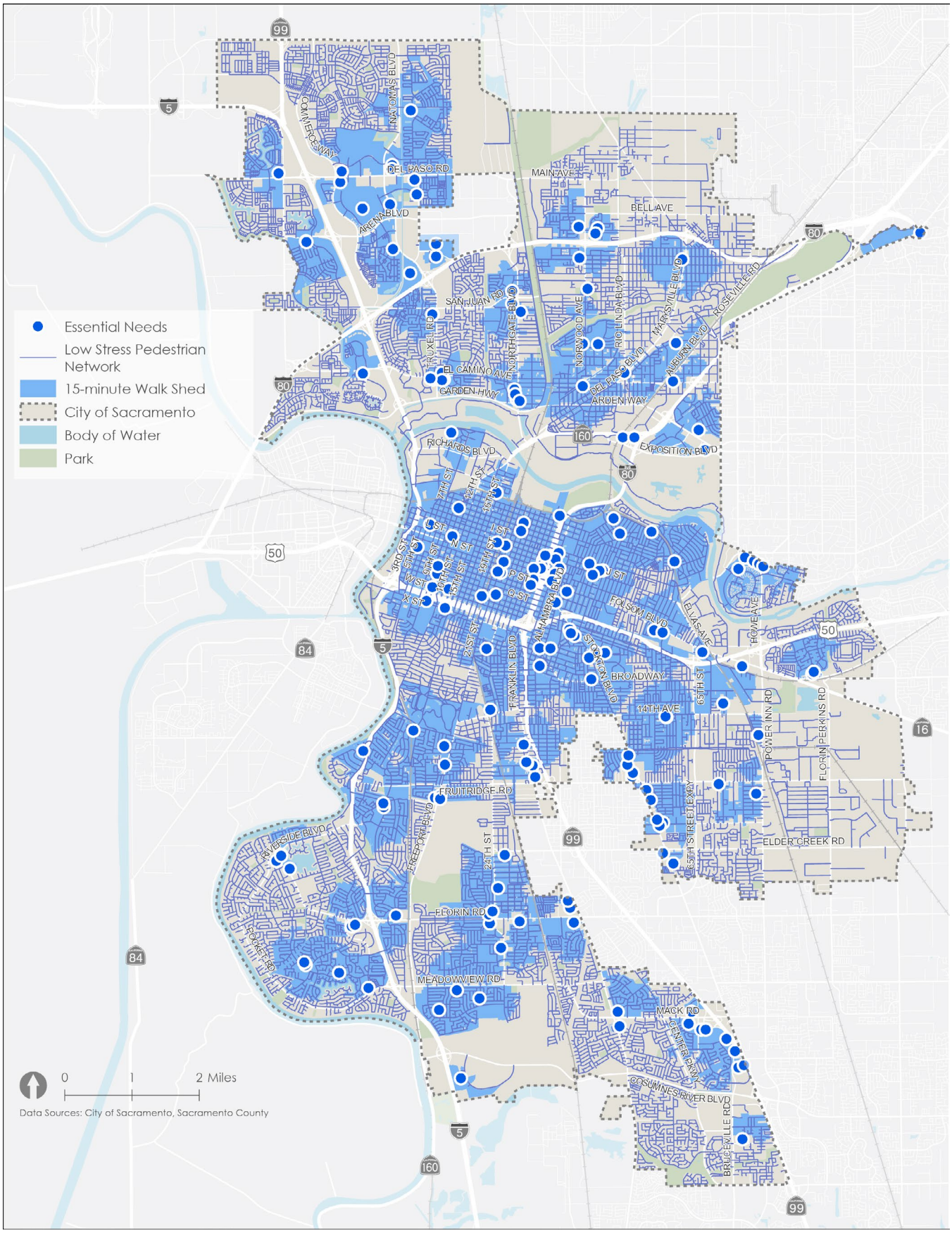
The analysis interprets Federal Highway Administration's (FHWA) Guidebook for Measuring Multimodal Network Connectivity and National Association of City Transportation Officials' (NACTO) Designing for All Ages and Abilities, as well as taking into consideration local conditions and available data to create a tailored model for Sacramento. This analysis includes surface streets and shared use paths, but freeways are not analyzed as walking and biking is prohibited. For more information on the calculations, see the Existing Conditions Analysis in **Appendix A**.

The results of the walking analysis can be seen in › **Figure 10** The following key observations resulted from the walking assessment:

- Less than half (44%) of residents have access to essential needs (grocery stores, health care, and shopping centers) by walking.
- Proximity and directness are critical to access destinations walking.
- Not everyone walks at the same pace or "average speed" – people who walk slower due to age or disability may have less access.
- Places to cross barriers like highways, rivers, and major streets are limited, which makes it less convenient to access some destinations.



› **Figure 10 –** Walk Access to Essential Needs



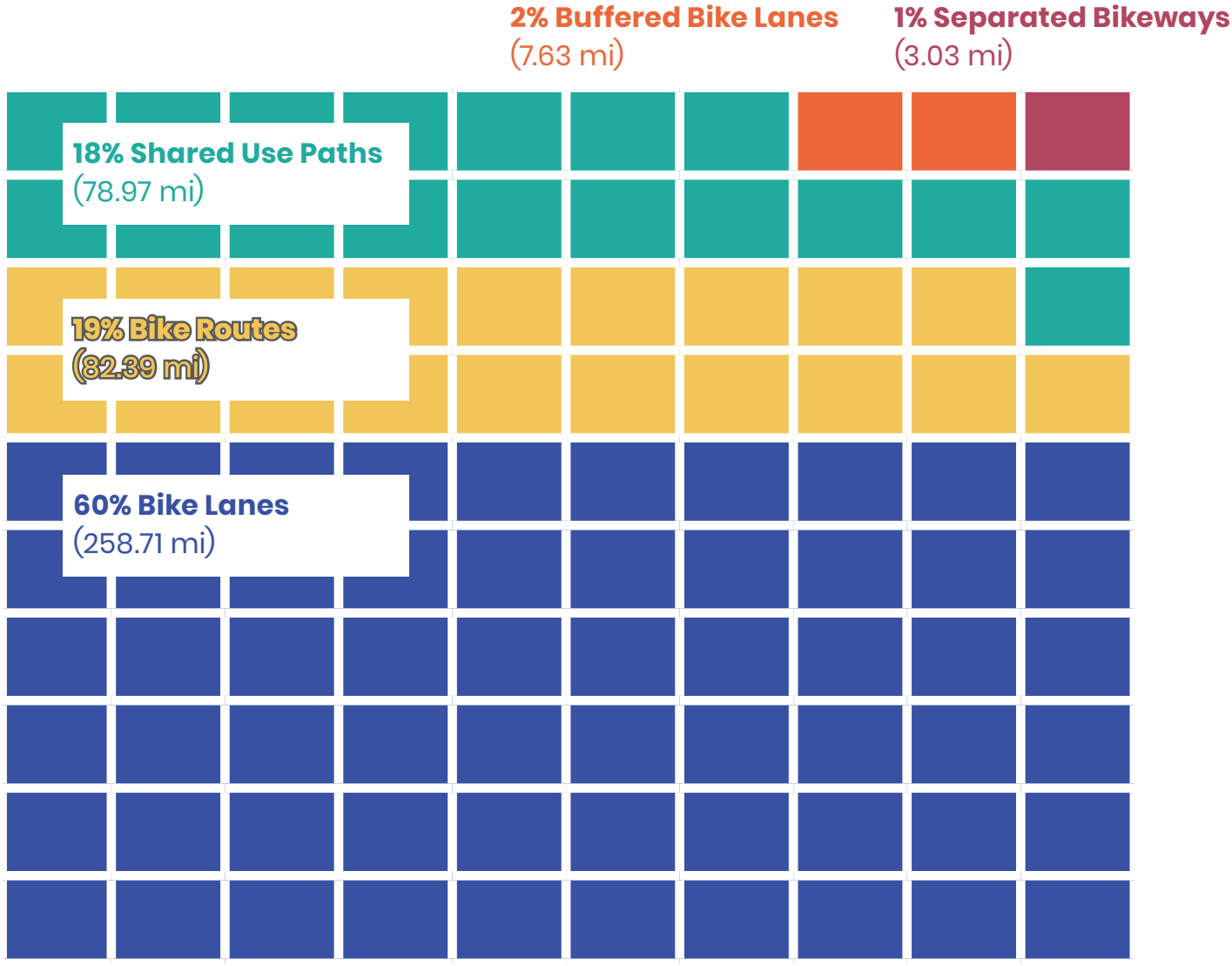
Biking Today

A complete, connected bike network that feels safe and comfortable for people of all ages and abilities is critical to make biking a viable transportation option in Sacramento. Expanding and enhancing the bicycle network throughout the city can help reduce congestion as people can choose to bike rather than drive. This shift can lead to better health, less traffic congestion, and reduced greenhouse gas emissions.

BIKE FACILITIES IN SACRAMENTO

The next page shows examples of bike facilities currently provided in Sacramento. › **Figure 11** shows the lane miles of each facility type in Sacramento today. State facility classes are noted in parentheses for each, as defined in the California Highway Design Manual.

› **Figure 11 –** Mileage of Bike Facilities by Type



Shared Use Paths (Class 1) are paved trails, physically separated from motorized traffic and designed for use by people biking, walking, and rolling. These facilities are generally considered comfortable for all users and are used for commuting, access to everyday needs, and recreation. Shared use paths run along the Sacramento River and American River, as well as in several neighborhoods throughout the city.

Bike Lanes (Class 2) are striped lanes with pavement markings and signs that designate an exclusive lane for bicycle use only. Bike lanes are dispersed throughout the city. Bike lanes are most appropriate on lower speed and volume streets; those on multi-lane streets or those with higher vehicle speeds and volumes may not be comfortable for most users.

Buffered Bike Lanes (Class 2) are bike lanes with a striped buffer between the bikeway and vehicle traffic and/or adjacent parking lane. The buffers can improve user comfort.

Bike Routes (Class 3) are signed and/or marked streets where drivers share the travel lane with people biking. Bike routes may include additional traffic calming elements to improve user comfort (sometimes referred to as bike boulevards). Bike routes on higher speed and volume roads are generally not considered comfortable for most users. Typically bike routes are appropriate with speeds under 25 mph and vehicle volumes of 3,000 per day or less.

Separated Bikeways (Class 4) are physically separated from other modes of traffic. Separated bikeways can be designed for one direction of traffic or bi-directional. Some forms of separation include flex posts, curbs, planters, or other forms of separation. Separated bikeways may be designed at street level or elevated to sidewalk level. These types of bikeways are generally considered comfortable for most users.

BICYCLE COMFORT

Neighborhood connections are focused on creating places to bike that are comfortable for anyone, regardless of their age, skills, or ability. As with walking, a variety of factors are known to influence comfort for biking, such as the speed and volume of traffic, presence and type of bicycle facility, and the design of the road. As illustrated below, the biking comfort metric ranges from low-stress streets comfortable for children (Level 1) to high-stress streets only comfortable for experienced riders (Level 4). This analysis includes surface streets and shared use paths, but freeways are not analyzed as walking and biking is prohibited. Bicycle LTS results of city streets can be seen in > **Figure 12**.

Roadways without designated bike infrastructure were analyzed as "Mixed Traffic." Routes with mixed traffic pose barriers to people biking as most are major roads with higher speeds, more travel lanes, and greater traffic volumes. These factors also limit the number of comfortable crossings located throughout the city. The map shows that while neighborhood streets might be comfortable to most, many streets can be uncomfortable to some due in part to the lack of traffic calming along a roadway, lack of dedicated bicycle facilities, and stress caused by adjacent motor vehicles.

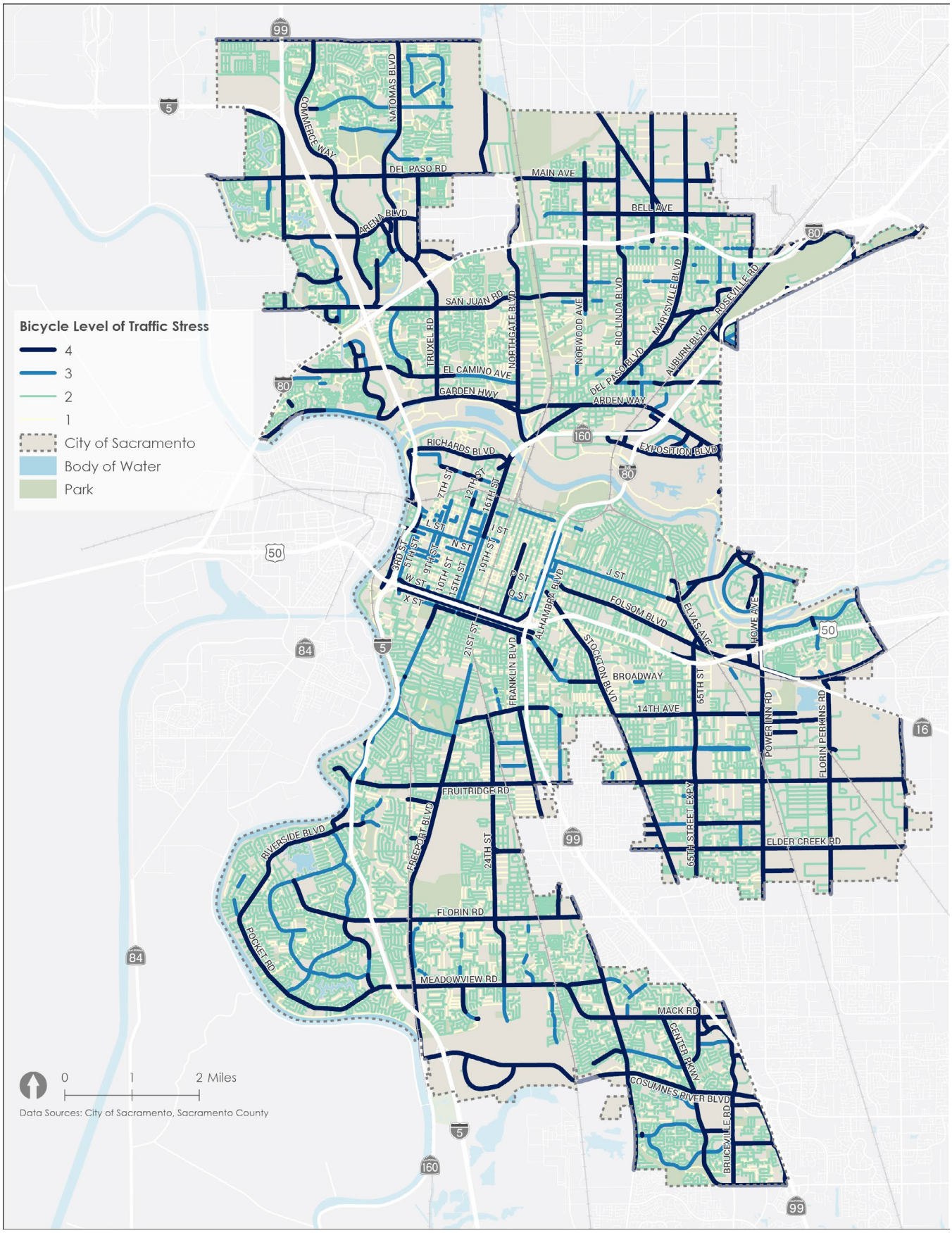
Table 2 – *Bicycle Level of Traffic Stress Criteria for Streets in Sacramento*

Posted Speed Limit	Number of Lanes	Mixed Traffic / Bike Routes	Bicycle Boulevards	Striped Bike Lane	Buffered Bike Lane	Protected Bike Way	Shared Use Path
25 MPH or Lower	2 Lanes	2	1	1	1	1	1
	3 Lanes	3	2	1	1	1	1
	4+ Lanes	4	4	1	1	1	1
30 MPH	2 Lanes	3	2	1	1	1	1
	3 Lanes	4	4	1	1	1	1
	4-5 Lanes	4	4	3	2	1	1
	6+ Lanes	4	4	4	3	2	1
35 MPH	2-3 Lanes	4	4	4	2	1	1
	4-5 Lanes	4	4	4	3	1	1
	6+ Lanes	4	4	4	4	3	1
40 MPH or Greater	2-3 Lanes	4	4	4	4	2	1
	4-5 Lanes	4	4	4	4	2	1
	6+ Lanes	4	4	4	4	3	1

Biking Comfort Level (1 - Most Comfortable to 4 - Least Comfortable)

1 2 3 4

› **Figure 12 –** Bicycle Level of Traffic Stress (LTS)



BIKING ASSESSMENT

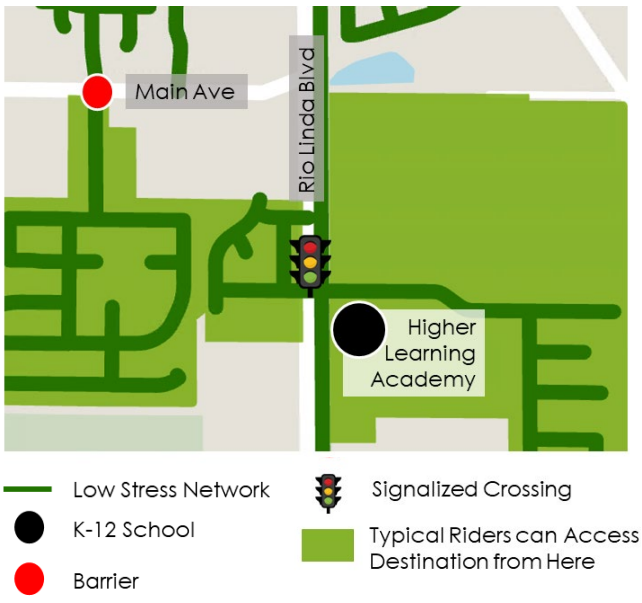
People biking experience the roadway differently than people driving and may be dissuaded from riding entirely if the infrastructure does not feel safe. As with walking, the type of bike infrastructure as well as the treatment at crossings can make biking more or less comfortable. A "bikeability assessment" was conducted beginning with the "low stress network" and integrating additional elements related to crossing infrastructure and locations of destinations. Steps in the biking assessment include:

- Determine key destinations (see **› Figure 5**).
- Define the low stress network and crossings and identify barriers for people biking. The analysis assumes people of all ages and abilities will bike along low stress streets and cross at low stress intersections, but that not all people will utilize higher stress streets or intersections.
- Calculate the area a typical bike rider that travels 8 MPH, or up to 2 miles, can reach on a 15-minute trip. People riding electric bikes and athletic riders that may be capable of higher average speeds can likely access more destinations than the typical rider; however, using the typical rider allows the sheds to reflect a greater portion of the biking population.

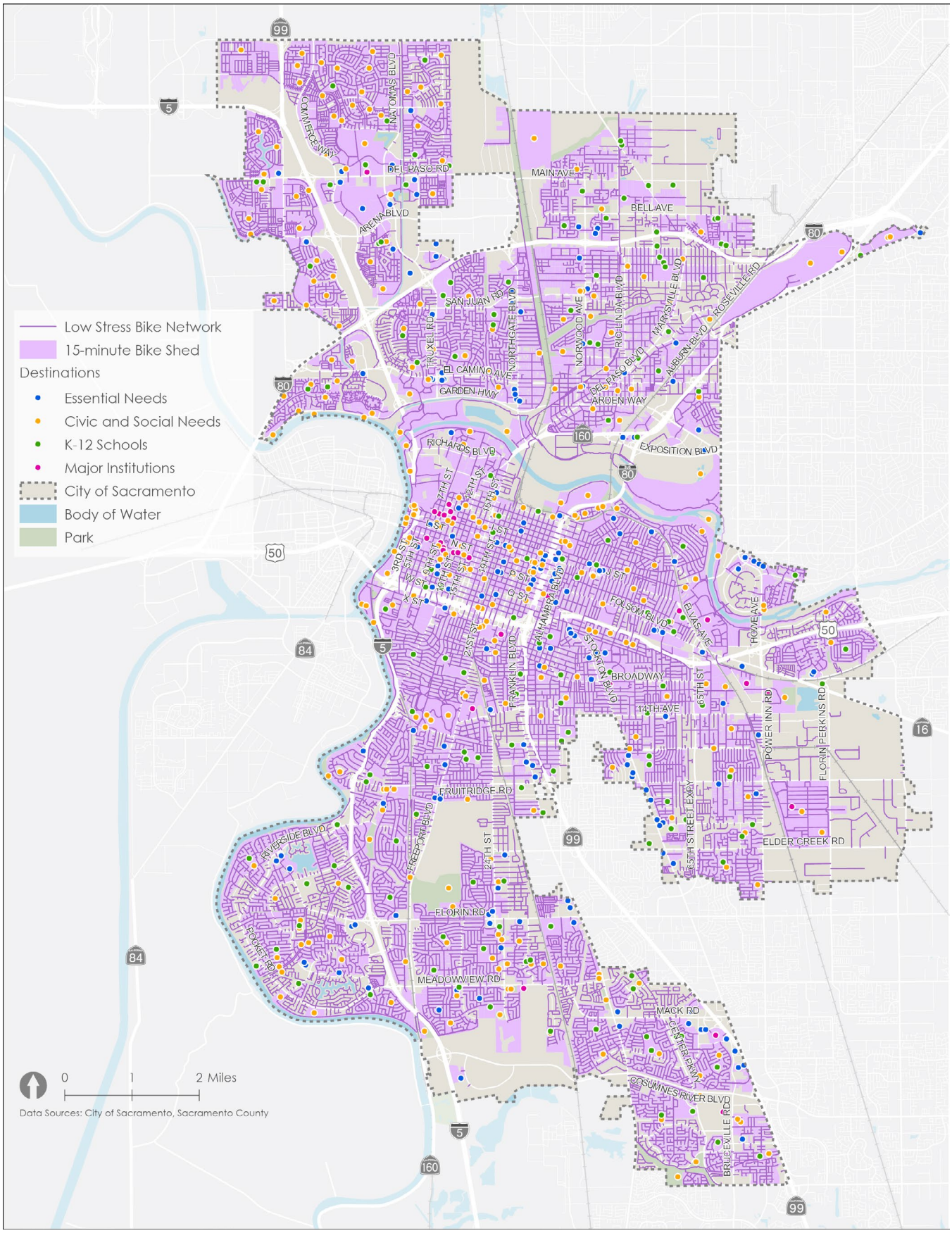
› Figure 13 shows an illustrative example of the analysis of a 15-minute bike shed for the typical rider. Notably, the low stress network is not continuous enough to provide typical riders access to the K-12 schools in the area. Higher Learning Academy has a barrier along Main Avenue as it is a 40MPH road with unsignalized intersections. This segregates the northern portion of the neighborhood from accessing the school.

The analysis interprets FHWA's Guidebook for Measuring Multimodal Network Connectivity, FHWAs Bikeway Selection Guide, and NACTO's Designing for All Ages and Abilities as well as taking into consideration local conditions and available data to create a tailored model for Sacramento. This analysis includes surface streets and shared use paths, but freeways are not analyzed as walking and biking is prohibited. For more information on the calculations, see the Existing Conditions Report **(Appendix A)**.

› Figure 13 – 15-Minute Bike Shed Example

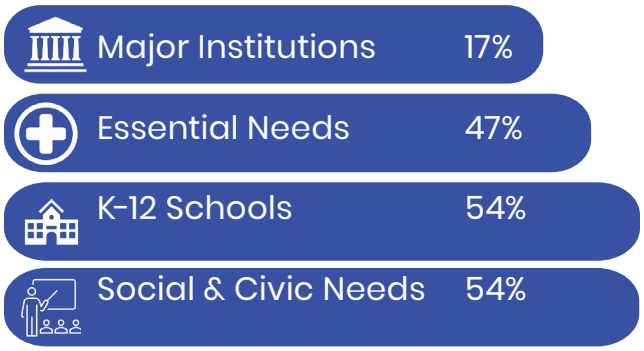


› **Figure 14 –** Bike Access to At Least One Neighborhood Destination



The results of the biking analysis can be seen in **› Figure 14.** The following key observations resulted from the biking assessment:

- Less than half (47%) of residents have access to essential needs by bike.
- The distance traveled for a rider in 15 minutes varies; people using e-bikes might travel faster and families riding with children might travel slower.
- Places to cross barriers like highways, rivers, and major streets are limited, which makes it less convenient to access some destinations. Suburban residents are most disconnected from daily needs, schools, and major destinations because destinations are often located along major roads.



Walking and Biking Safety

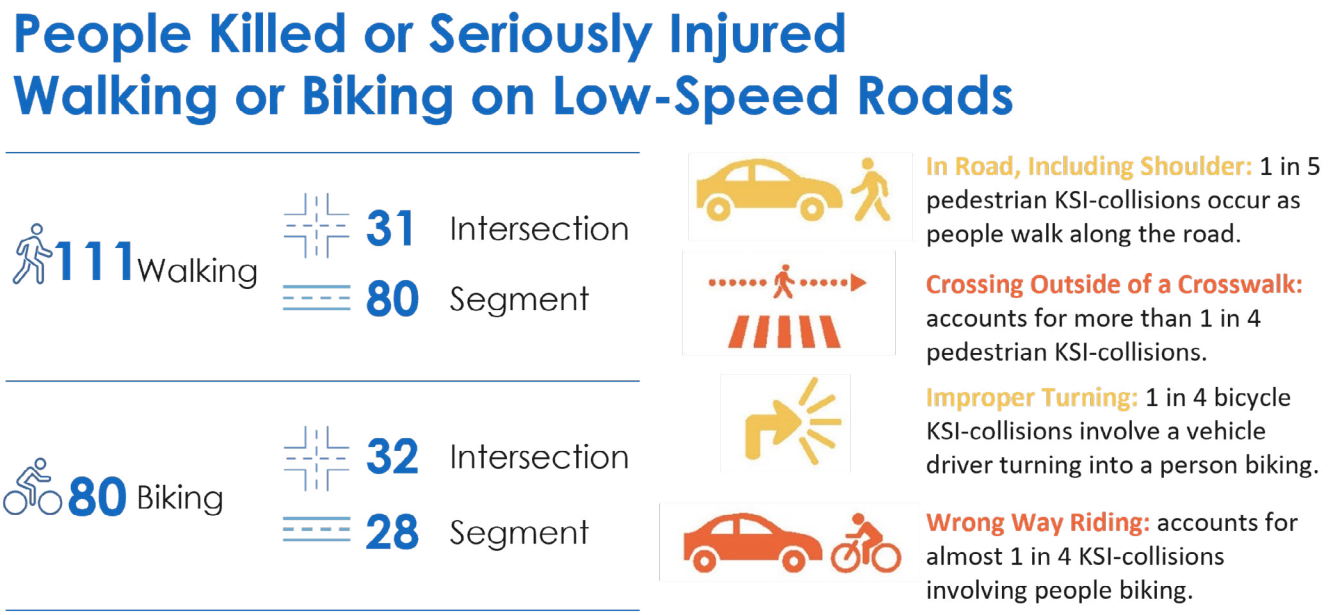
While the comfort scores above are centered around the perception of comfort, the feelings of comfort along a roadway are directly associated with safety experienced along a roadway. As a result, experienced safety is a barrier for Neighborhood Connections, and streets that are perceived as unsafe are often avoided by people walking, biking, or rolling. Along the Neighborhood Connections network, a history of crashes involving people walking and biking was found at crossings of major and minor roads as well as streets without traffic calming elements in place.

Crashes were evaluated for a five-year period between 2016 and 2020 using the Transportation Injury Mapping System (TIMS), which is maintained by SafeTREC at the University of California, Berkeley. Of the people killed or seriously injured walking or biking on low-speed roads, the crash analysis found that 111 involved a person walking and 80 involved a person biking. Of the 111 walking fatal or serious injury crashes, 31 occurred at an intersection while 80 occurred along a roadway segment. Of the 80 bicycle fatal or serious injury crashes, 32 occurred at an intersection while 28 occurred along a roadway segment.

Other key findings include:

- 1 in 5 pedestrian fatal or serious injury crashes occur as people walk along the road.
- 1 in 4 pedestrian fatal or serious injury crashes occur due to crossing outside of a crosswalk.
- 1 in 4 bicycle fatal or serious injury crashes involve a vehicle driver turning into a person biking.
- 1 in 4 bicycle fatal or serious injury crashes occur due to wrong way riding.

› **Figure 15 –** Key Facts: Collisions on Low-Speed Streets



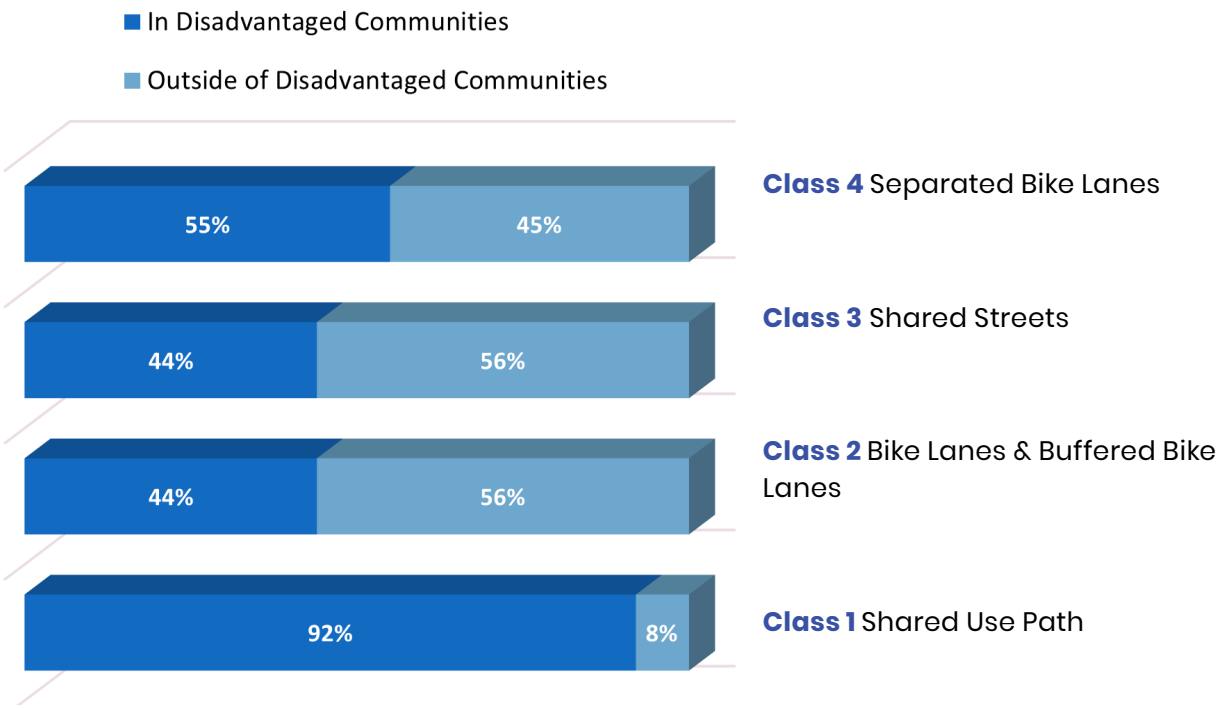
How Equitable is Our System?

Transportation equity is about more than making sure people have comfortable places to walk and bike. Different population groups have different needs when it comes to transportation. We also know that historically in the United States, transportation decisions have had greater negative impacts on racial and ethnic minority groups. These groups often stand to gain the most from transportation improvements today when those investments meet their unique needs.

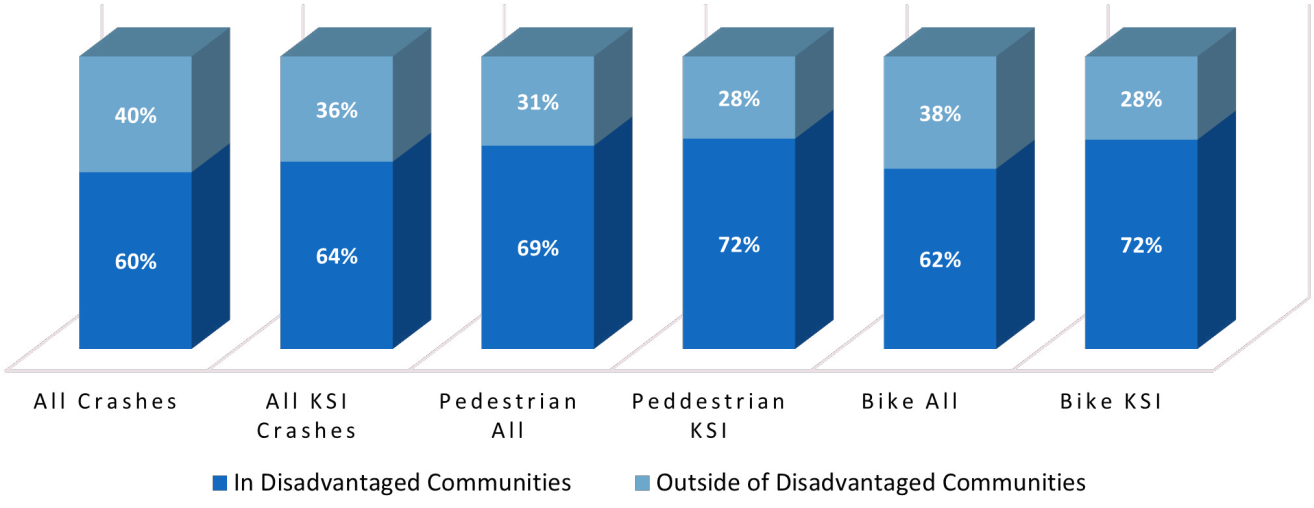
To understand how equitable the Sacramento transportation system is today, a screening was conducted based on the previous analyses as compared to Disadvantaged Communities as mapped in **› Figure 3** and defined in the **Who Lives in Sacramento?** section. The findings include:

- **Comfort for People Walking:** 57% of street miles considered uncomfortable streets for walking (those scoring a 3 or 4 on the comfort scale) are in Disadvantaged Communities. Regarding comfortable streets (those scoring 1 or 2 on the comfort scale), 45% of street miles are located in Disadvantaged Communities.
- **Comfort for People Biking:** As with walking, street miles considered uncomfortable for biking (those scoring LTS 3 or 4) are slightly overrepresented in Disadvantaged Communities and comfortable streets are slightly underrepresented. 54% of LTS 3 or 4 street miles and 45% of LTS 1 or 2 street miles are located in Disadvantaged Communities.
- **Bike Facilities:** Approximately 45% of streets with bike facilities are located within Disadvantaged Communities. As shown in **› Figure 16**, the most comfortable facilities (Class 1 and 4) are more often located in Disadvantaged Communities than in other places.
- **Traffic Calmed Streets:** Approximately 56% of traffic calmed streets are located in Disadvantaged Communities.
- **Households with No Vehicles:** Approximately 11% of households in Disadvantaged Communities do not have access to a vehicle, whereas only 7% do not have access to a vehicle citywide.
- **Crashes:** Generally, all crash types, including those involving people who are killed or seriously injured (KSI), are overrepresented in Disadvantaged Communities, as shown in **› Figure 17**.

› **Figure 16 –** Bike Facility Types in Disadvantaged Communities

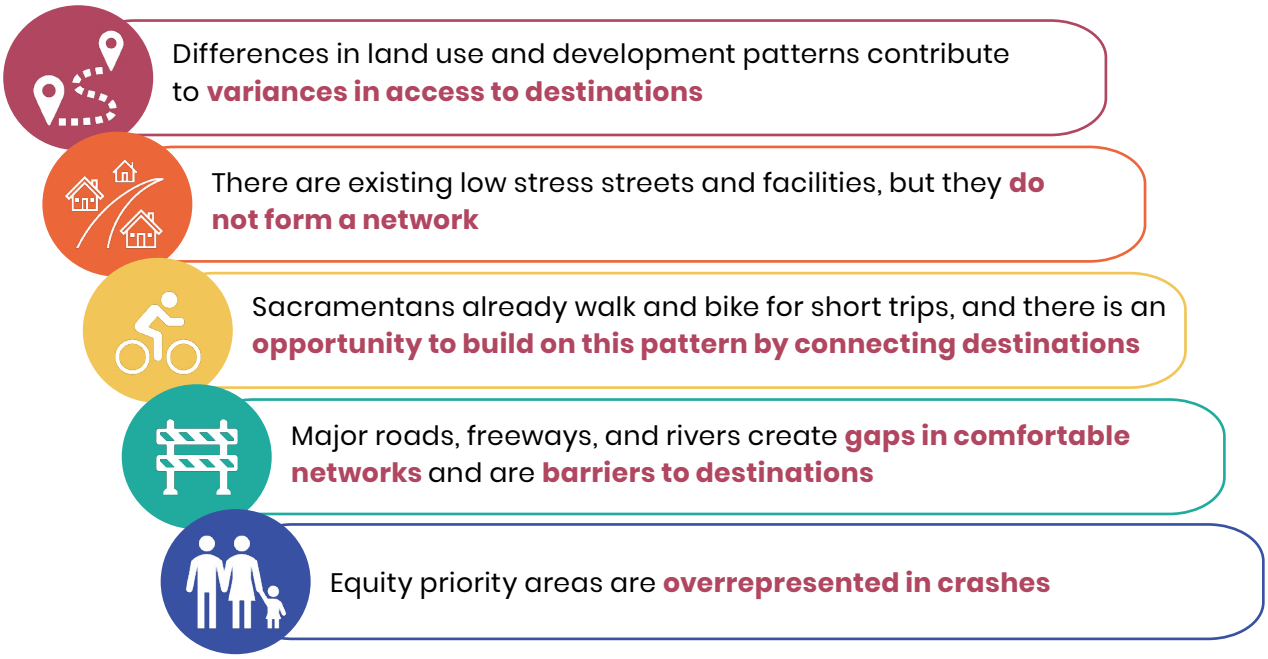


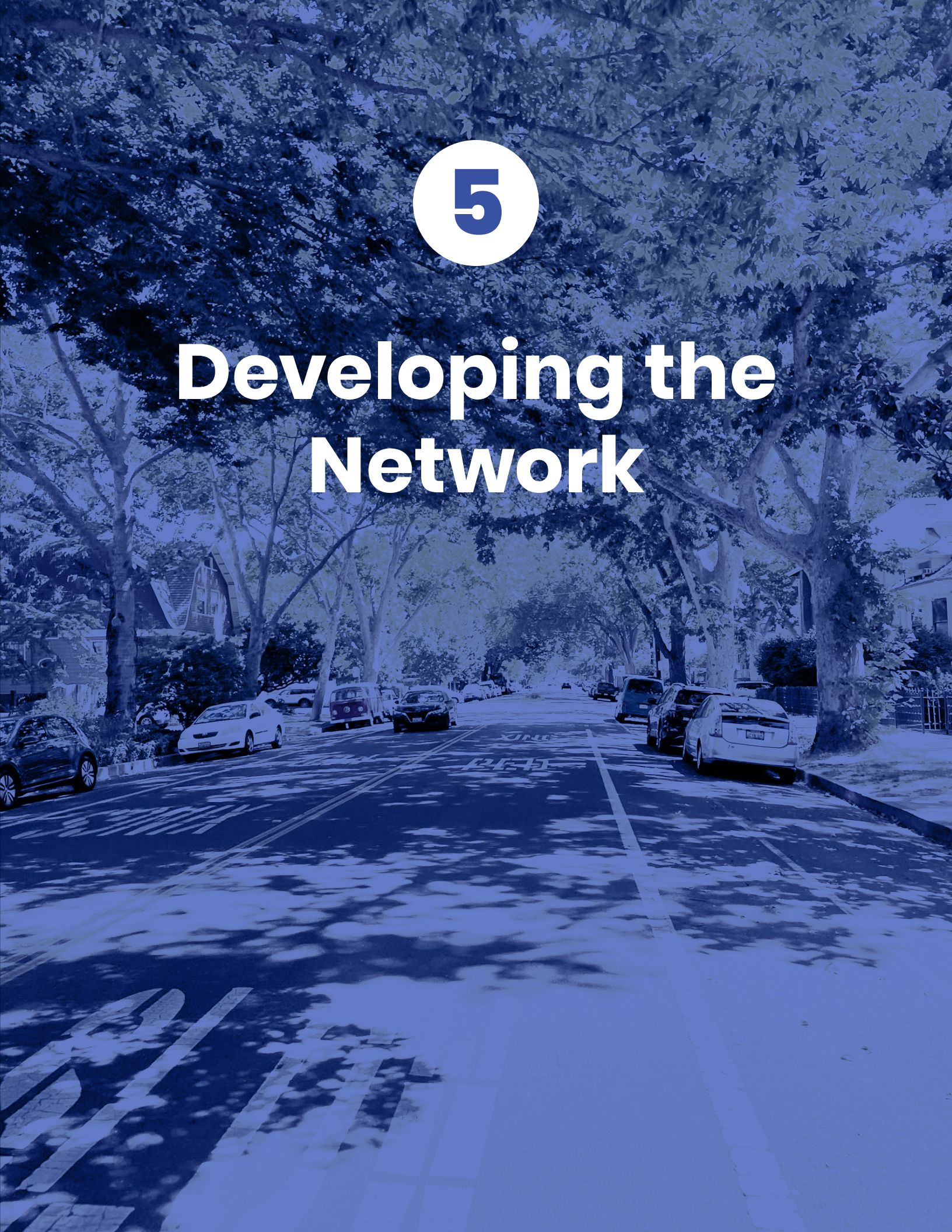
› **Figure 17 –** Crashes in Disadvantaged Communities



Summary of Existing Conditions

The following conclusions can be drawn from the existing conditions. These conclusions helped define the baseline for the Neighborhood Connections network and treatment development.





5

Developing the Network

Chapter 5: Developing the Network

Network Principles and Network Development Process

Based on the existing conditions assessment and community input, streets were identified that are appropriate for the Neighborhood Connections network. The destinations, as defined in the prior chapter, include essential needs, K-12 schools, major institutions, and social and civic needs. Routes within the network were identified that could provide comfortable access to these neighborhood destinations for people walking, biking, or rolling. This process involved several considerations, including routes highlighted by community engagement efforts, the need for access to neighborhood destinations, and low stress routes. Streets with a high level of activity were also identified, specifically those with over 500 short trips per day as reported by the Replica analysis in the prior chapter and seen in › **Figure 6**.

The core principles guiding the development of the Neighborhood Connections network include:

- Establishing direct, people-oriented connections to everyday destinations.
- Connecting to or crossing major roads, rather than running parallel to them.
- Implementing measures to slow traffic.
- Providing facilities that accommodate people of all ages and abilities.

The network development process was comprised of five steps as outlined one the next page.

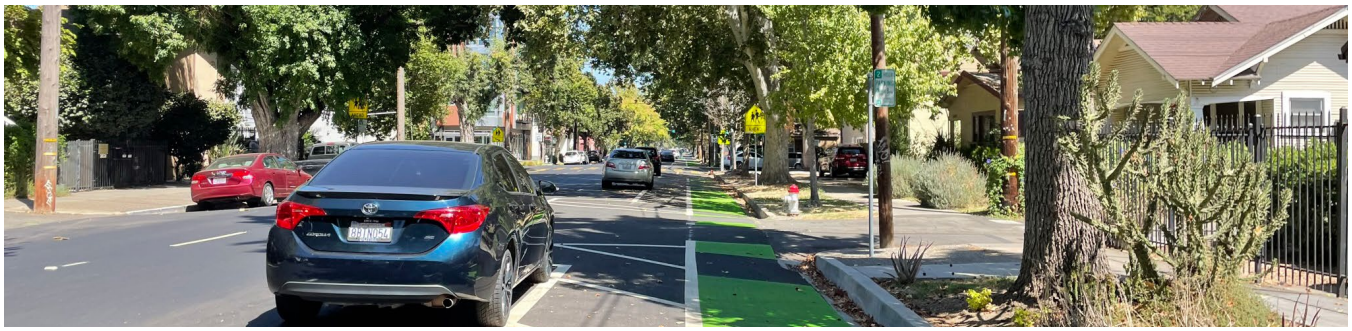


Table 3 – *Network Development Process*

Define the Network	1 **Identify Destinations**	• Identify destination type (e.g., education, retail, recreation). • Consider user needs and existing or desired travel patterns.
Define the Network	2 **Identify Neighborhood Connections**	• Remove Arterials and Major Collectors from consideration. • Remove disconnected or dead-end streets from consideration. • Connect to major roads but do not identify neighborhood connections on these roads. • Close gaps in existing and planned facilities. • Connect network to destinations. • Meet desired network density where feasible.
Identify Routes	3 **Select Primary Routes**	• Build on the existing walking, biking, and rolling facilities. • Highlight routes identified in engagement. • Identify direct routes to destinations. • Avoid roads with level of traffic stress of 3 or 4 where feasible. • Identify "feeder" secondary routes to the primary network.
Refinement	4 **Refine Network**	• Refined based on community input. • Refined draft network with City staff to confirm the network meets neighborhood access needs.
Refinement	5 **Integrate Active Transportation Network**	• Overlay the Neighborhood Connections network with the **Active Transportation** network. • Identify critical crossing gaps where the Neighborhood Connections network crosses high-stress Arterials and Major Collectors roadways which can be addressed by the **Active Transportation** network.

What is the Network?

The Neighborhood Connections Network consists of two complementary components:

Primary Routes: These routes provide access to everyday destinations. Future efforts will focus on implementing traffic calming measures and enhancing the comfort of streets and access to destinations for individuals of all ages and abilities, facilitating walking, biking, and rolling to destinations, as well as additional signage and wayfinding to assist navigation to destinations from neighborhoods.

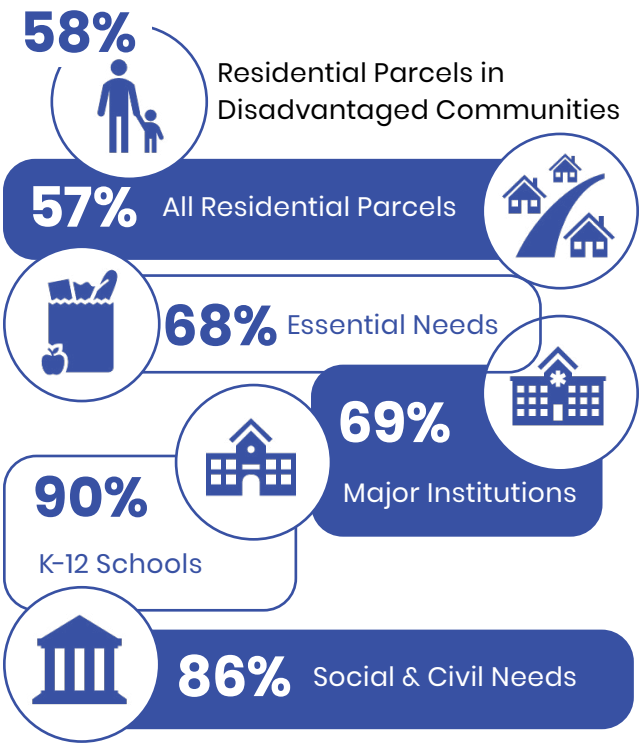
Secondary Routes: Serving as "feeder routes," these streets will extend connectivity, linking additional users to their desired destinations. Designed primarily as bike routes, they will feature additional signage and wayfinding to assist navigation to and from the main network.

The Neighborhood Connections network, shown in › **Figure 18**, will integrate with the **Active Transportation Network**. The active transportation network will establish a plan for walking and biking facilities, including separated bikeways and shared use paths, to support longer-distance travel between communities and across the region.

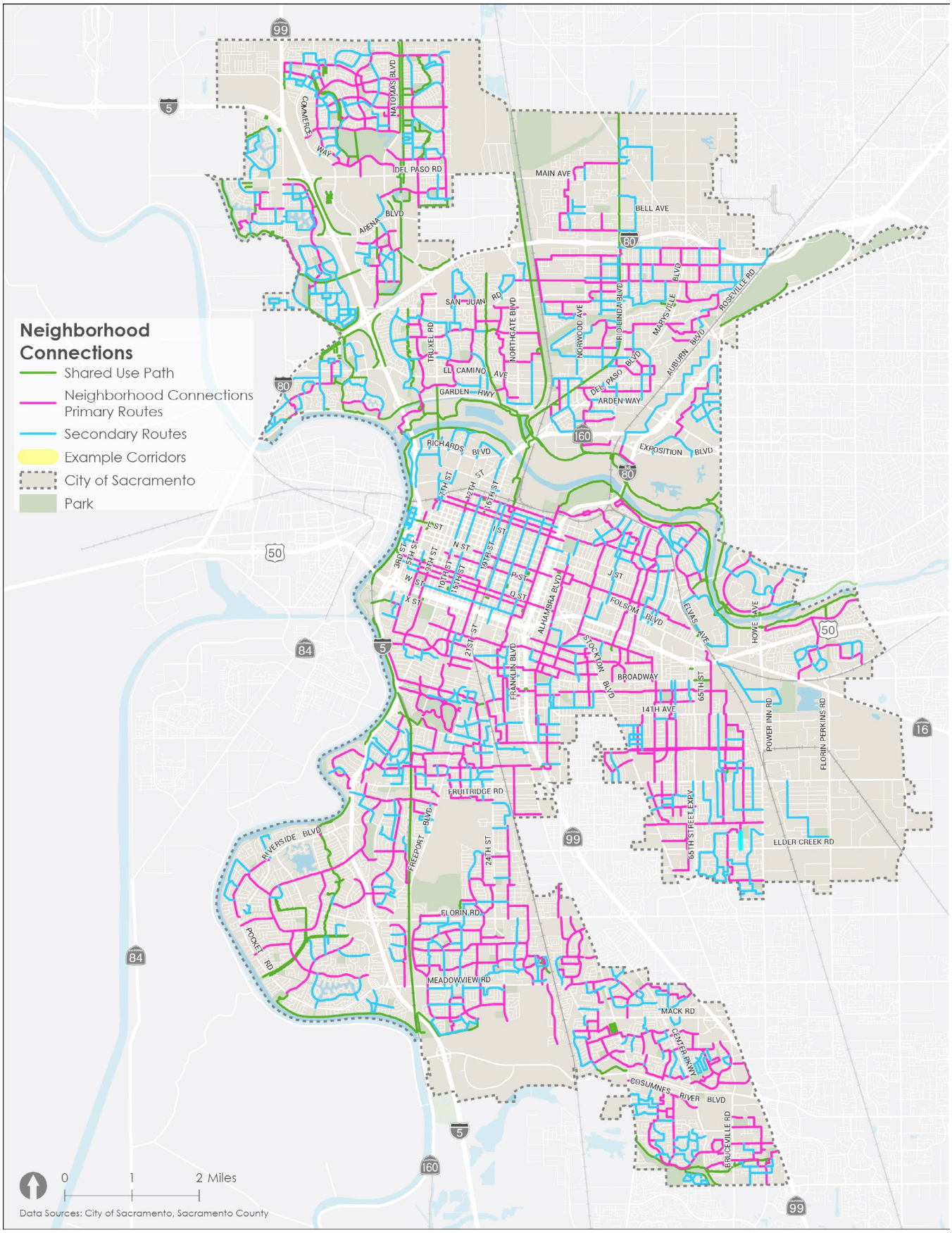
Network Access and Benefits

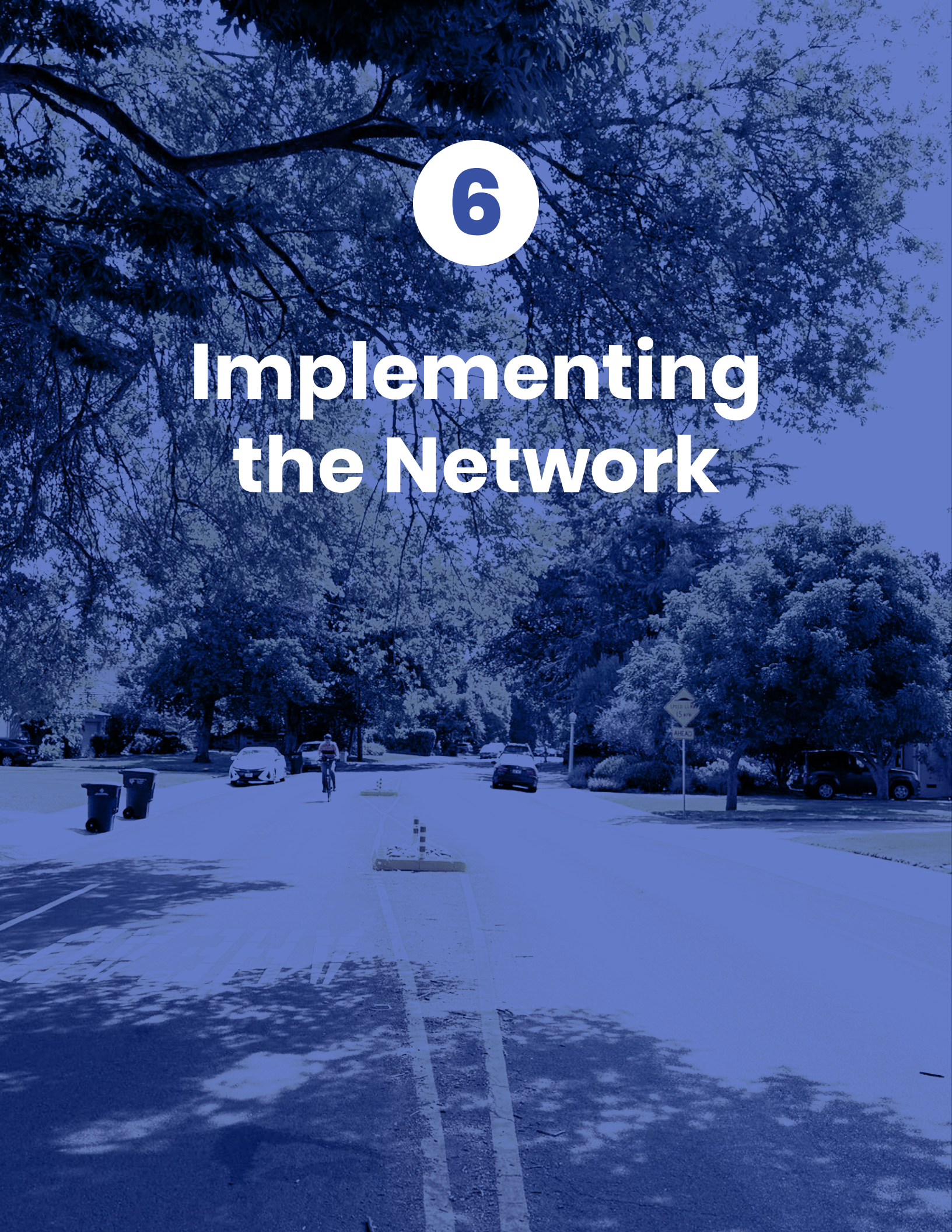
The Neighborhood Connections network is a part of the City's **Active Transportation Network** to ensure seamless citywide connectivity. However, it is important to assess the connectivity provided by the Neighborhood Connections network independently. As proposed, the Neighborhood Connections network is designed to meet access needs across much of the City.

Within 200 feet of the Neighborhood Connections Network, Sacramentans can Reach...



› **Figure 18 –** Neighborhood Connections Network





6

Implementing the Network

Chapter 6: Implementing the Network

How Do We Get This Done?

Implementing the Neighborhood Connections network will take place over time and within the context of many competing priorities for the city. This chapter lays the groundwork for what a Neighborhood Connection route could look like and describes the tools that are available to support comfortable access to neighborhood destinations for people walking, biking, and rolling. Beyond design, funding and building the network will require an incremental approach. The network has been segmented into projects to help develop logical networks of Neighborhood Connections and connect those routes to likely funding sources. A map of the network broken into routes is shown in **> Figure 19 and > Figure 20**. A full list of the Neighborhood Connections route extents can be found in **Appendix B**.

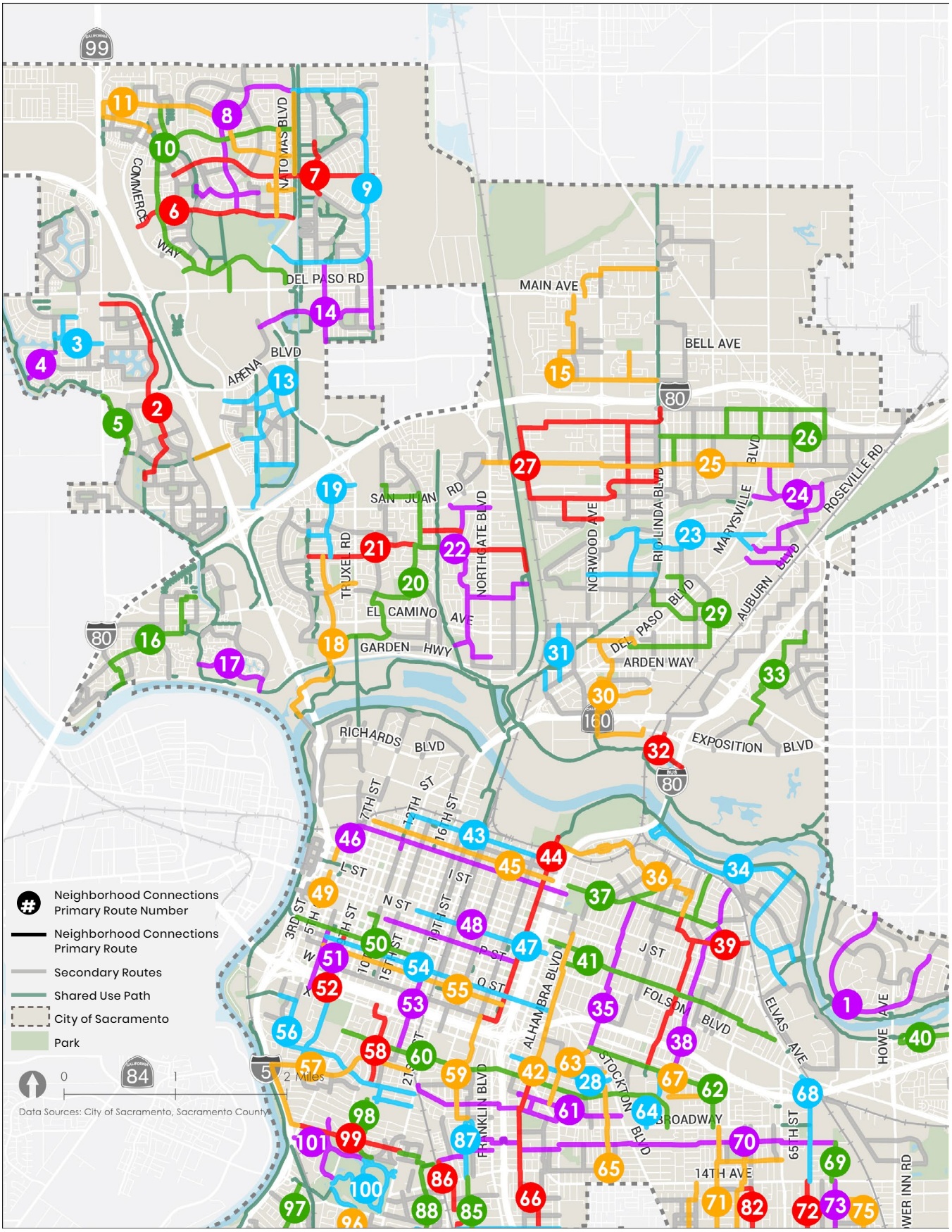
Prioritization of the implementation of the Neighborhood Connection routes will be done through the City's Transportation Priorities Plan (TPP). The TPP was adopted by City Council in March 2022 to guide the prioritization of investments in the transportation system in Sacramento. This prioritization method is based on criteria framed around five community-identified transportation values and priorities:

- Improves Air Quality, Climate, and Health,
- Provides Equitable Investment,
- Provides Access to Destinations,
- Improves Transportation Safety, and
- Fixing and Maintains Transportation System.

Neighborhood Connection projects identified in this plan will be evaluated and prioritized based on the TPP metrics to develop an overall priority list for all of the City's transportation projects.

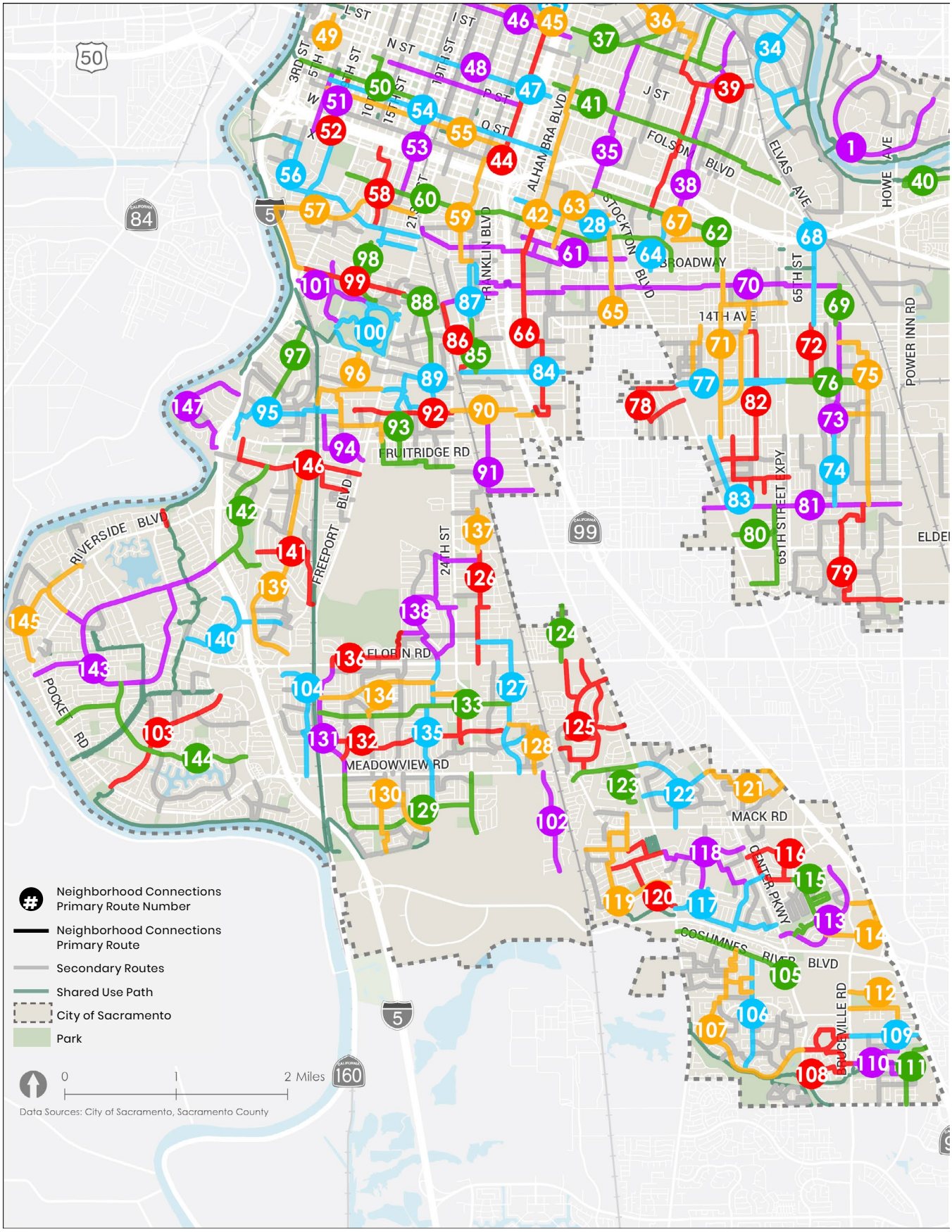
Finally, the chapter closes with consideration of additional actions the City may undertake or study to support implementation of the Neighborhood Connections routes and its associated goals.

› **Figure 19 –** Neighborhood Connections Routes - Northern Half of Sacramento



Notes: Route colors are for visual differentiation only. Route numbers do not indicate priority.

› **Figure 20 –** Neighborhood Connections Routes - Southern Half of Sacramento



Notes: Route colors are for visual differentiation only. Route numbers do not indicate priority.

What does a Neighborhood Connection Look Like?

Once the Neighborhood Connections network is finalized, recommended treatments are evaluated to enhance comfort for people walking and biking. While some streets may already meet comfort standards, most will require a combination of additional treatments to effectively calm traffic and ensure comfortable crossings.

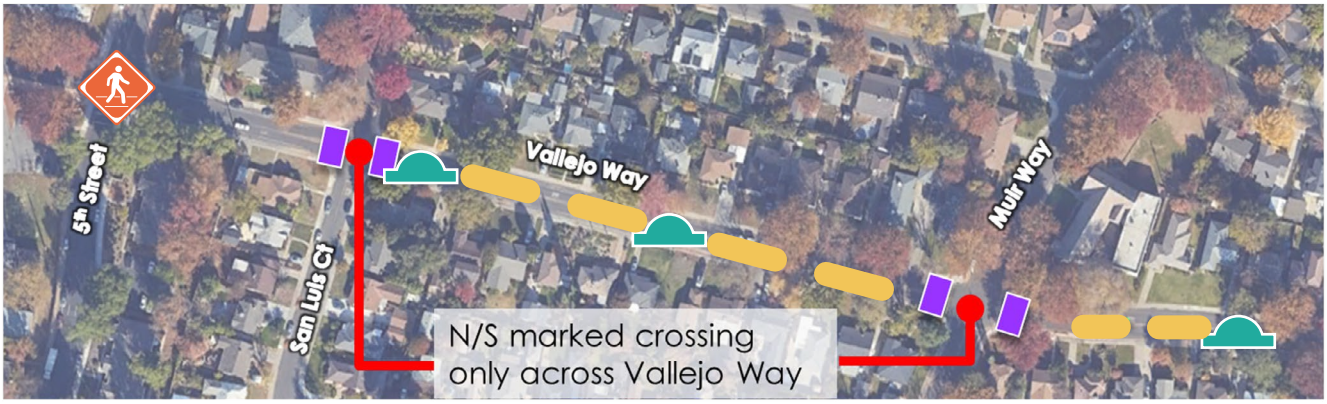
The City has already been implementing traffic calming treatments which could create great neighborhood connections. For example, the City recently installed improvements on Vallejo Way from 5th Street to Muir Way in Land park. The treatments included pedestrian refuges, median islands, and speed lumps spaced every 50 to 180 feet. Marked places for people to cross the street are present every 300 to 750 feet. The combination of treatments and frequent crossing opportunities makes it comfortable to walk, bike, roll, and slowly drive through the area.

› **Figure 21 –** Traffic Calming Treatments

Pedestrian Refuge

Median Island

Speed Lump



Pedestrian refuge

Marked crosswalk

Speed lump

Median island

What is Traffic Calming?

Traffic calming treatments are recommended on the Neighborhood Connections network to make the streets comfortable for people walking, biking, and rolling. Sacramento already has many treatments implemented on neighborhood streets, including speed humps, curb extensions, and median islands. With the establishment of the Neighborhood Connections, additional treatments are assessed to be placed in combination with existing treatments to further enhance the experience and safety of those walking and biking throughout their neighborhood. Design treatments include those that slow vehicle speeds, lower vehicle volumes, and create comfortable places to cross the street.

To successfully slow speeds, reduce traffic volumes, and provide comfortable facilities for people walking and biking, the following treatments can be considered:

- **Horizontal deflection:** Horizontal deflection provides motorists visual cues to slow down by creating horizontal shifts in long, straight roads. These may include median islands, roundabouts, traffic circles, chicanes, or pinch points. These treatments are most effective at lowering speeds when spaced about every 250 to 500 feet.
- **Vertical deflection:** Vertical speed control measures are wide, slight pavement elevations to slow vehicle speeds. These may include speed lumps, tables, or raised crosswalks. These treatments are speed reducing treatments which may also encourage lower vehicle traffic. These treatments are most effective at lowering speeds when spaced about every 250 to 500 feet.
- **Lane width and edge friction:** Narrowing lanes and adding visual cues creates perception of a constrained roadway making drivers more aware of traffic and other road users. This treatment helps support primary elements, such as the horizontal and vertical deflection treatments, and can provide comfort and placemaking elements. This treatment may not reduce speeds on their own and should be used in combination with other treatments.
- **Intersection calming:** Crossing and turning movement treatments occur at intersections. Crossing treatments improve the experience of crossing the street by shortening crossing distances and increasing visibility for users. Crossing treatments may also be implemented at mid-block. Such treatments include curb extensions or raised crossing facilities. Turning movement treatments slow turning vehicles and improve visibility between people driving and people walking or biking across the street. Such treatments include geometry changes, reduced curb radii, and hardened centerlines.
- **Filtered permeability:** Restricts vehicle traffic while allowing walking and biking traffic to proceed through an intersection. This treatment is primarily to control traffic volumes. Traffic diverters successfully shift traffic to other streets.

The above list of treatment recommendations will help make walking and biking more comfortable through inclusion of regular crossings, shade, and other treatments to lower vehicle speeds and volumes. Vertical, horizontal, and intersection calming treatments are the most effective treatments while lane width and edge friction should be considered supplemental.

Traffic Calming Toolbox

To slow traffic speeds and lower vehicle volumes to a level that people of all ages and abilities feel comfortable sharing the road with vehicle traffic, the following treatments were assessed for ten corridors. The full toolbox can be found in the **Appendix C**.

Speed Lump: Elevated mounds 3-4 inches in height placed in the roadway to slow vehicles.

Traffic Diverter: Barriers that partially or fully close the street to cars while still allowing access for people walking and biking.

Median Island: Placed in the center of the road, requiring people driving to navigate around them to slow traffic. They may include a cut out to provide a protected space for people walking and biking when crossing the street.

Mini Roundabouts / Traffic Circles: An unsignalized, circular intersection where incoming traffic yields to traffic in the intersection. Traffic circles require less space and may be stop controlled.

Chicanes: Segments of curb, landscaping, or other treatments to create a narrow or curved roadway, requiring people driving to slow down.

Pinch Point: Horizontal extension of the curb into the street, narrowing travel lanes by 1 to 2 feet requiring drivers to yield to each other.

Raised Crosswalks / Intersections: Crosswalks or intersections that are elevated to the sidewalk level, which helps to slow drivers and improves the visibility of people who are walking across the street or who are waiting to cross.

Street Trees: Trees planted along a street can change the perception of drivers such that the road appears narrower than it is. Street trees also provide shade and can decrease temperatures on hot days.

On Street Parking: Reduces roadway width by allowing parking along a roadway curb, causing a driver to experience increased "friction" on the side of the road resulting in lower driver speeds.

Lane Narrowing: Narrowing lanes to 11 feet reducing the total of space vehicles have. This provides a visual cue for drivers to slow down through painted striping or adding a bikeway.

Curb Extensions: Horizontal extensions of the curb slowing vehicles, expanding the space where people can stand, and providing shorter crossing distances for people walking.

Hardened Centerline: Treatments are typically a flexible delineator post of raised speed hump along the road centerline at an intersection to narrow the path through the intersection, slowing turning drivers.

Curb Radii / Geometry Changes: Changing roadway geometry or narrowing curb radii increases the amount of curb space, requiring vehicles to slow down when turning. This treatment can also be used to realign skewed intersections to right angles.

Example Neighborhood Connections Corridor Applications

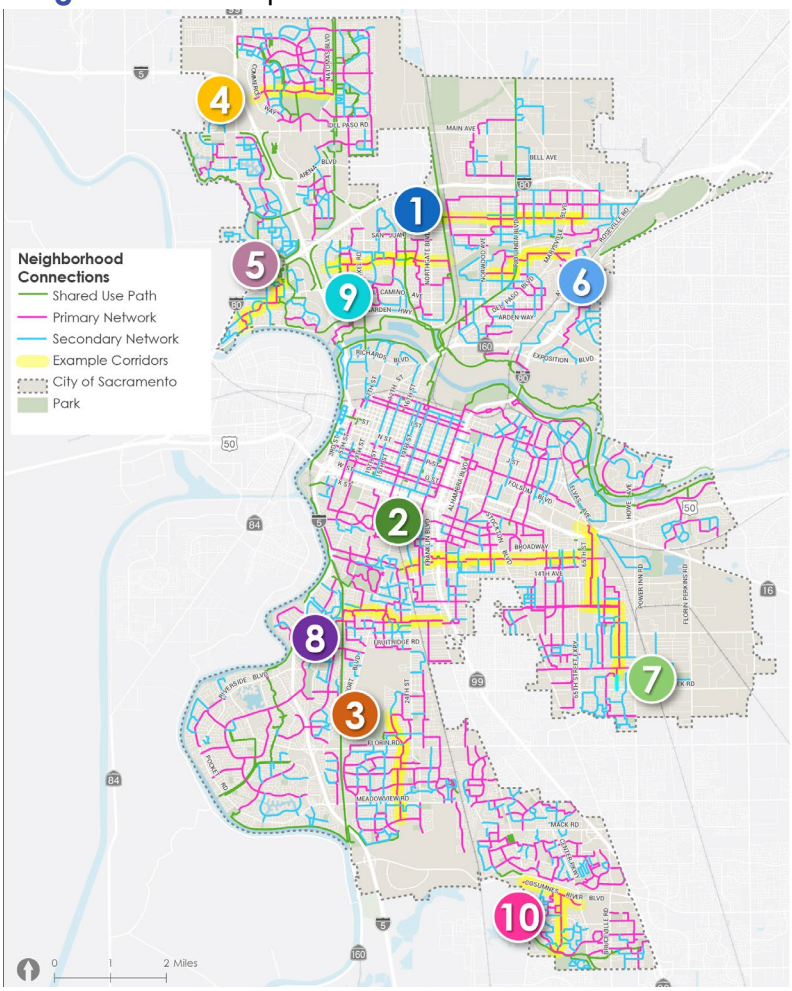
Ten Neighborhood Connections primary routes were selected to demonstrate application of the traffic calming toolbox and network principles to support comfortable neighborhood walking, rolling, and biking routes across a broad cross-section of community contexts within Sacramento.

The ten example corridors are shown in **› Figure 22**. Sample drawings are shown in the following pages and in further detail in **Appendix D.**

1. **South Ave/Altos Ave/Ford Rd** (Del Paso Heights)
2. **8th Ave/9th Ave** (Oak Park/Tahoe Park)
3. **Tamoshanter Way** (Golf Course Terrace/Meadowview)
4. **N Park Dr** (North Natomas)
5. **W River Dr** (Willow Creek)
6. **Las Palmas Ave/Sonoma Ave** (Richardson Village/Hagginwood)
7. **Redding Ave/Bradford Dr/75th St** (Tahoe Park/Colonial Manor)
8. **Wentworth Ave/Irwin Ave/26th Ave** (South Land Park/Hollywood Park)
9. **Pebblewood Dr/Potomac St** (Northgate/South Natomas)
10. **Ehrhardt Ave/Carlin Ave** (Valley Hi/ North Laguna)

Each of these corridors would be subject to additional engineering study and design to further understand the feasibility of the improvements prior to seeking funding for implementation. The example corridors emphasized capturing as many applications of the traffic calming toolbox treatments as possible – ultimate treatments selected may be different to better respond to design constraints and/ or neighborhood preferences.

› Figure 22 – Example Corridors



1 SOUTH AVE / ALTOS AVE / FORD RD

South Avenue is on the Primary Network. South Avenue from Larchwood Drive to Kern Street is a two-lane street with on-street parking provided along the corridor. The posted speed limit ranges from 15 to 35 mph and there are existing speed lumps along the corridor.

QUICK FACTS

- Primary Network
- **4** Connections to HIN Streets
- In DAC
- **2** Shared use path connection
- **2.8 MI** Length

MULTIMODAL FEATURES:

- Desire line to access Ueda Parkway.
- Intersection with the Sacramento Northern Bike Trail.
- Transit route on Rio Linda Boulevard.
- Bicycle Level of Traffic Stress (LTS): 3 High Stress.
- 1 bicycle serious injury crash at the intersection of South Avenue and Kern Street.

MAJOR CORRIDORS SERVED:

- Northgate Boulevard
- Norwood Avenue
- Rio Linda Boulevard
- Marysville Boulevard

DESTINATIONS SERVED:

- Garden Valley Elementary School
- Garden Valley Park
- Del Paso Park
- Grant West High School
- Castori Park
- Michael J. Castori Elementary

CORRIDOR EXTENTS:

Larchwood Drive to Kern Street (2.80 miles)

NEARBY DESTINATIONS:

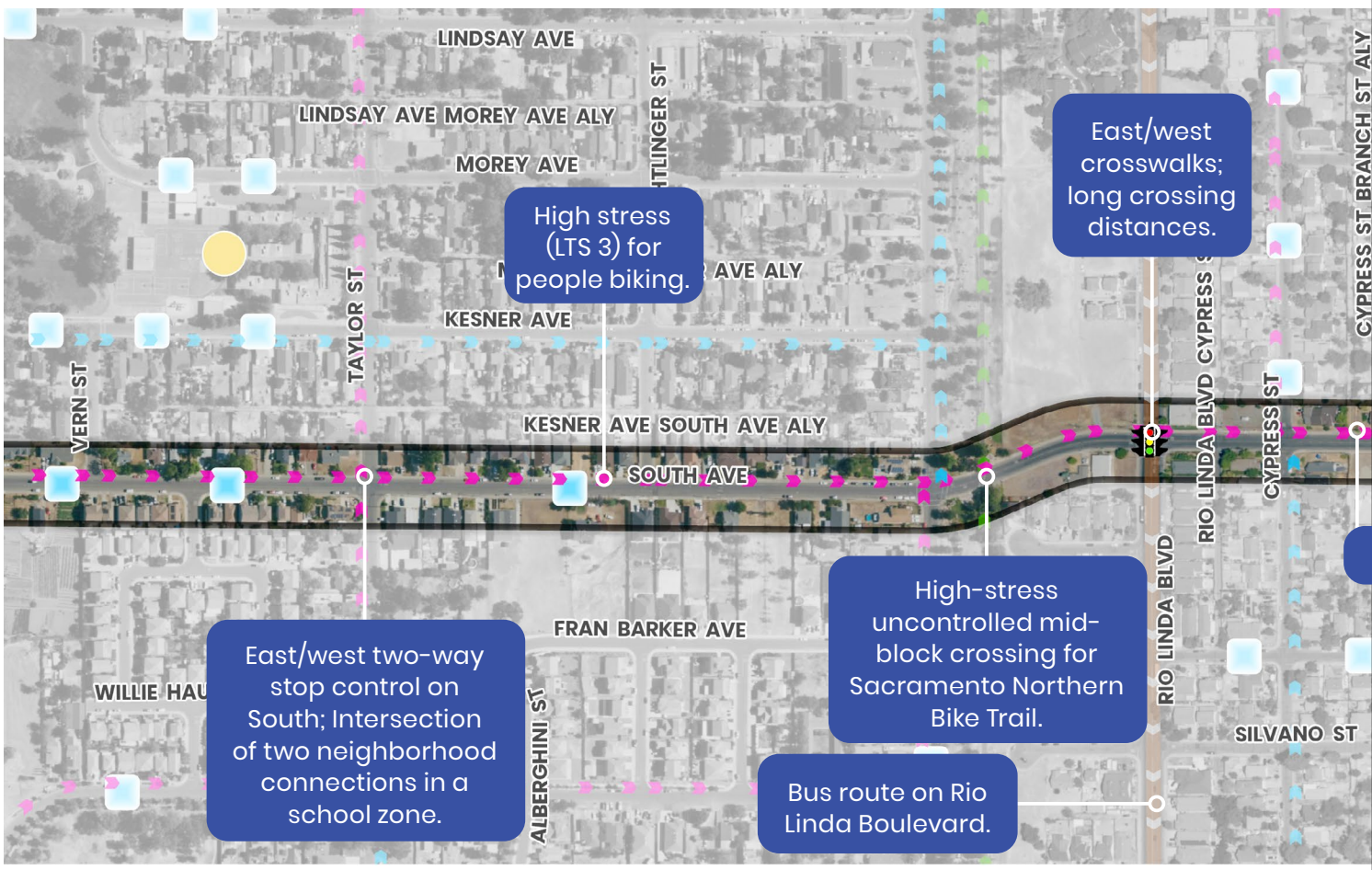
- Garden Valley Elementary School
- Garden Valley Park
- Del Paso Park
- Grant West High School
- Castori Park
- Michael J. Castori Elementary

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

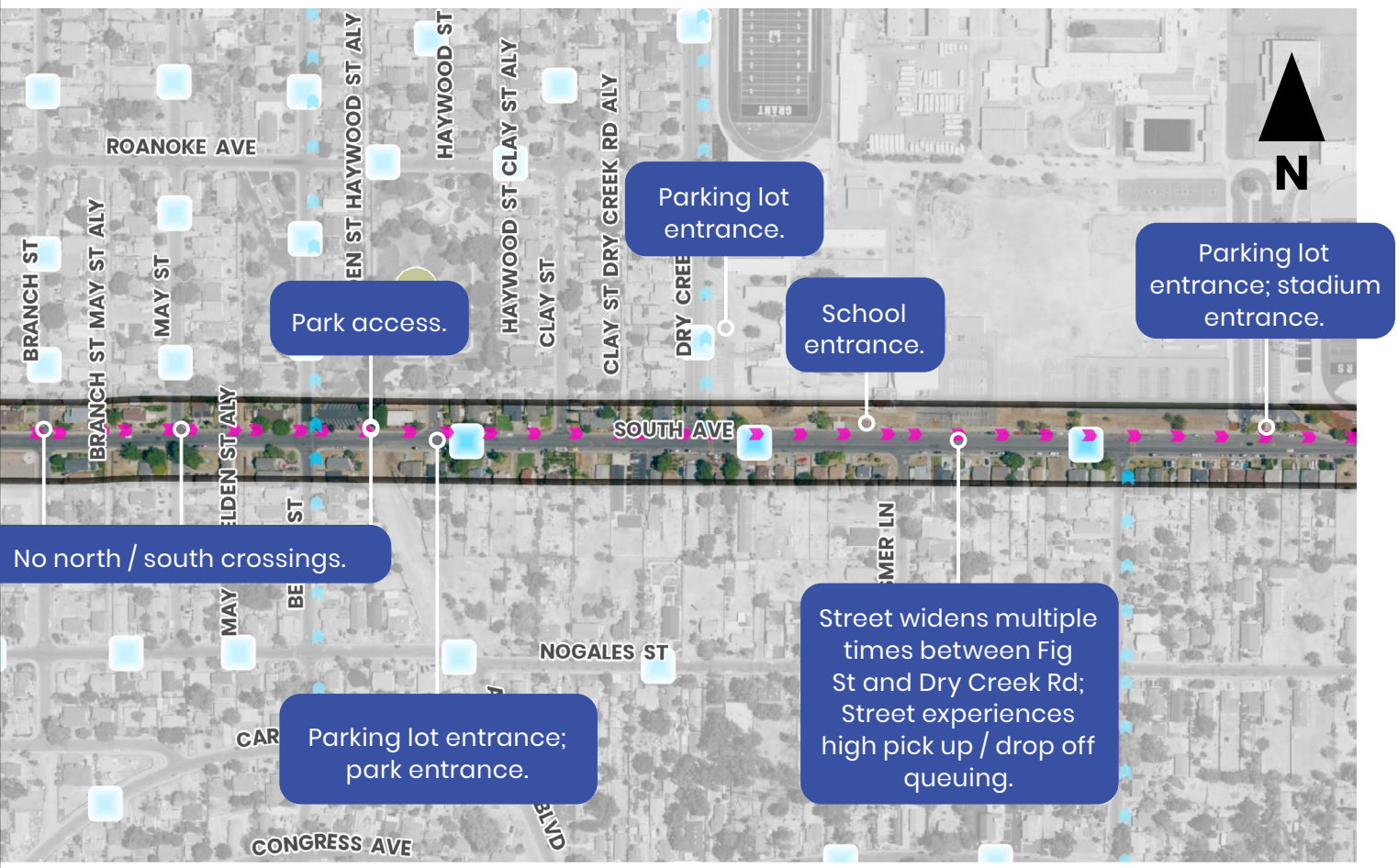
ISSUE	COUNTERMEASURE
CORRIDOR-WIDE RECOMMENDATIONS	
Limited marked crossings across South Avenue.	Add high visibility marked crossings at stop-controlled intersections.
Level of Traffic Stress 3 (High Stress).	Add traffic calming along the corridor to slow vehicles; add shared lane markings on South Avenue.
Inconsistent speed lump placement.	Add speed lumps along the corridor.
Vehicular speeding.	Add curb extensions at placement of proposed speed lumps along South Avenue east of Taylor Street.
LOCATION-SPECIFIC RECOMMENDATIONS	
Missing crosswalks at Taylor Street (Primary Network) near Del Paso Heights Elementary.	Add raised intersection and high visibility marked crosswalks.
Wide turning radii on side streets.	Add curb extensions at Knightlinger Street, Altos Avenue, Rio Linda Boulevard, and Cypress Street.
High-stress, uncontrolled midblock crossing at Sacramento Northern Bike Trail.	Add raised crosswalk.
Missing crosswalks at Belden Street (Secondary Network) near Mama Marks Park.	Add raised intersection and high visibility marked crosswalks.
Missing crosswalks at Dry Creek Road (Secondary Network) near West High School.	Add raised intersection and high visibility marked crosswalks.
Wide cross section near West High School.	Evaluate for sidewalk level separated bikeway or very wide shared use path from Dry Creek Road to Marysville Boulevard.
High-stress, uncontrolled midblock crossing at High Street (Secondary Network) near West High School.	Add raised crosswalk.

Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.

1 SOUTH AVE / ALTOS AVE / FORD RD



Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

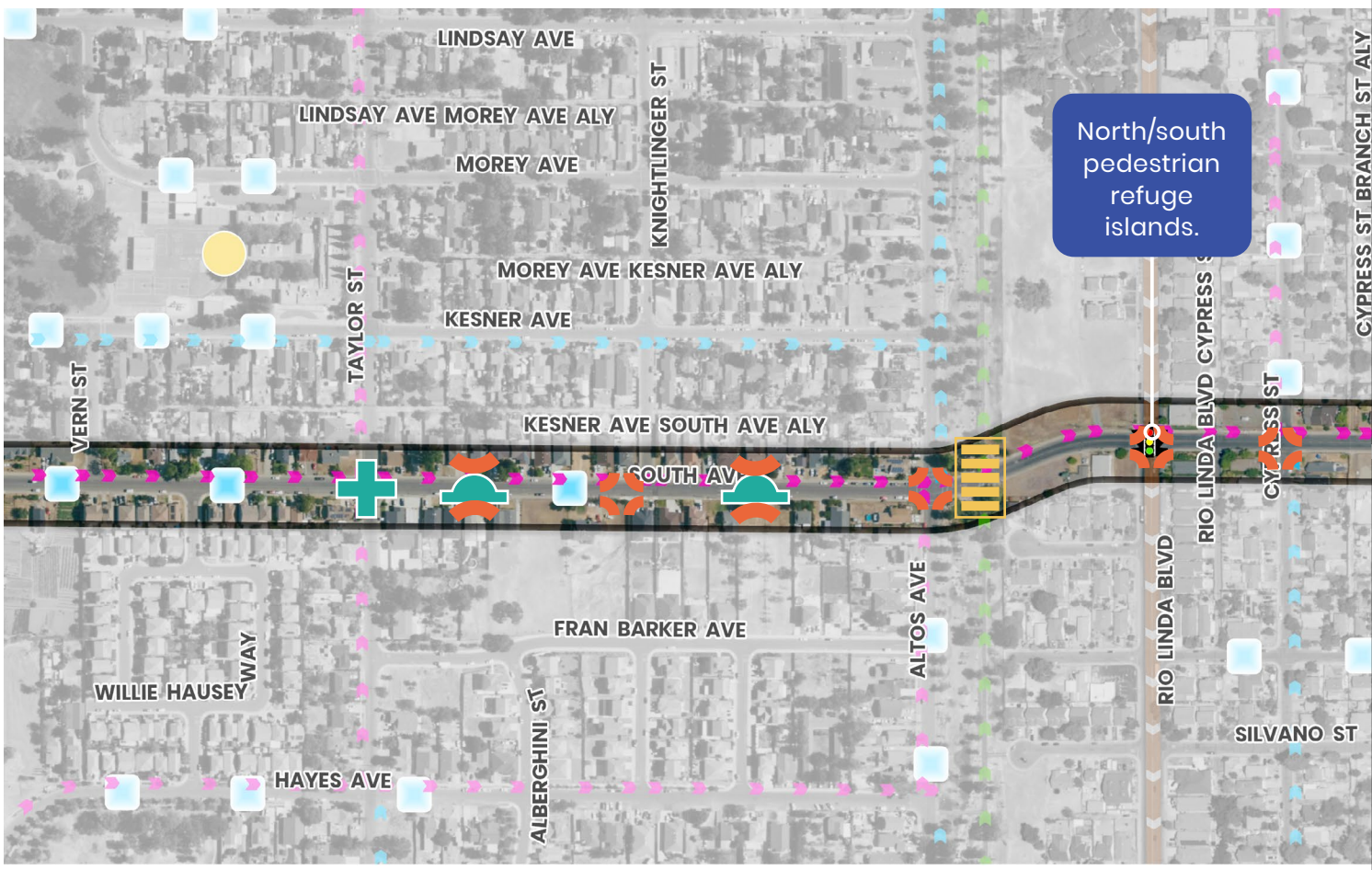
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

1 SOUTH AVE / ALTOS AVE / FORD RD



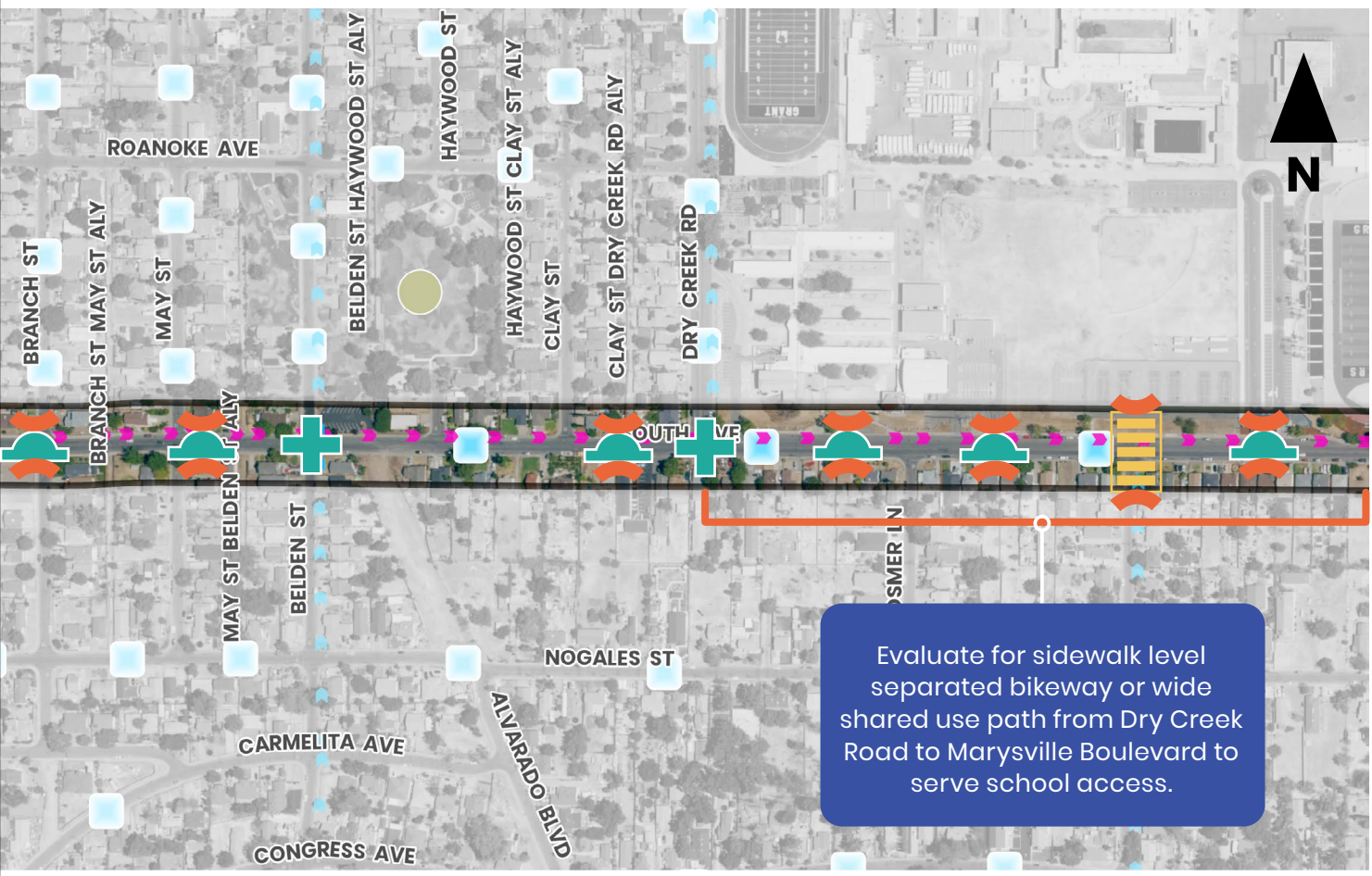
RECOMMENDED TREATMENTS:

- Curb extension
- Raised crosswalk
- Raised intersection
- Speed lump

ADDITIONAL TREATMENTS:

- Shared lane markings on South Avenue
- Evaluate lighting at all crossings
- Evaluate opportunities for street tree planting
- All crosswalks should be evaluated for enhanced crossing treatments

Recommendations



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

2 8TH AVE / 9TH AVE

8th Avenue is on the Primary Network. The project corridor along 8th Avenue, from 10th Avenue to 65th Street is a two-lane street with on-street parking provided along the corridor. The posted speed limit ranges from 25 to 35 mph and there are existing speed lumps along the corridor on 9th Avenue.

QUICK FACTS

- Primary Network
- **4** Connections to HIN Streets
- In DAC
- **2** Shared use path connection
- **3.4 MI** Length

MULTIMODAL FEATURES:

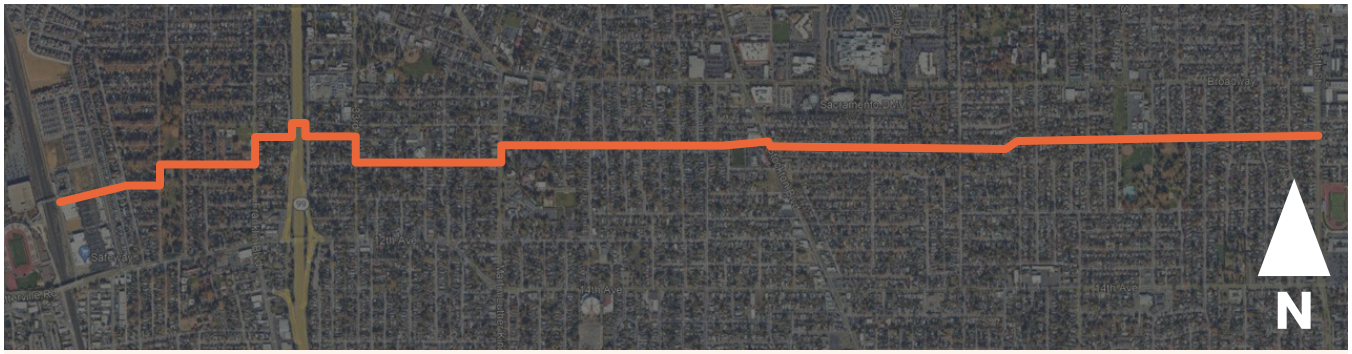
- Transit route on Franklin Boulevard and Martin Luther King Junior Boulevard.
- Connection to bicycle lanes on Martin Luther King Junior Boulevard and Stockton Boulevard.
- Multimodal connection through Curtis Park and Tahoe Park.
- 1 pedestrian serious injury crash at the intersection of 9th Avenue and 33rd Street.

MAJOR CORRIDORS SERVED:

- 24th Street
- Franklin Boulevard
- Martin Luther King Jr Boulevard
- Stockton Boulevard
- 65th Street

DESTINATIONS SERVED:

- Hughes Stadium
- Curtis Park
- Bret Harte Elementary School
- Oak Park Community Center
- Tahoe Elementary School
- Tahoe Park



CORRIDOR EXTENTS:

10th Avenue to 65th Street (3.40 miles)

NEARBY DESTINATIONS:

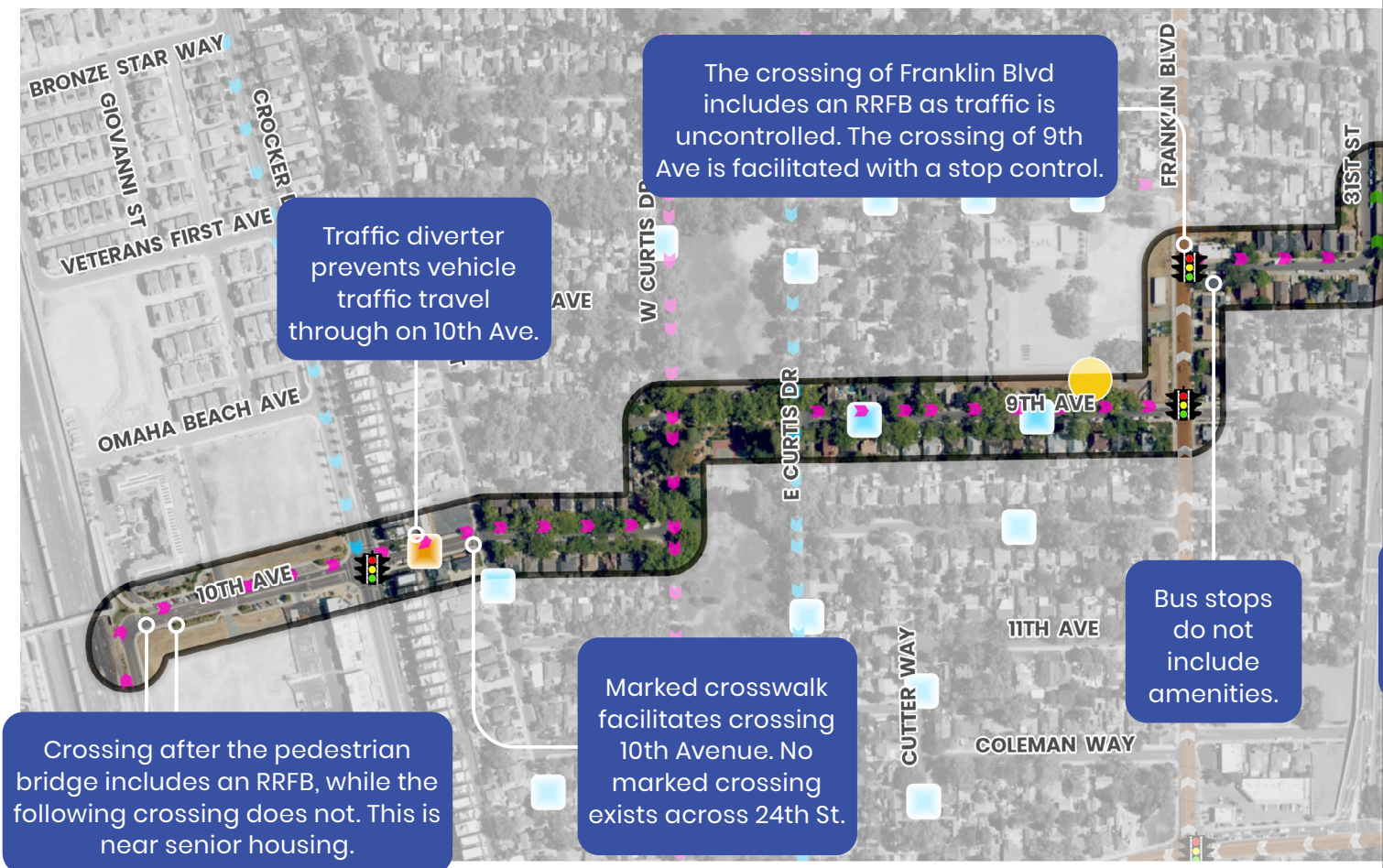
- Hughes Stadium
- Curtis Park
- Bret Harte Elementary School
- Oak Park Community Center
- Tahoe Elementary School

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
CORRIDOR-WIDE RECOMMENDATIONS	
Limited pedestrian visibility.	Evaluate lighting at all crossings.
Limited shade.	Evaluate presence of street trees.
LOCATION-SPECIFIC RECOMMENDATIONS	
High-stress, uncontrolled midblock crossing at the Curtis Park Pedestrian Bridge.	Add raised crosswalk.
Missing multimodal park connections.	Add marked crosswalks at 9th Avenue and W Curtis Drive and E Curtis Drive to connect to Curtis Park.
Speeding on 10th Avenue near Curtis Park.	Add speed lump between 24th Street and W Curtis Drive.
Speeding on 9th Avenue near Bret Harte Elementary School; widely spaced speed lumps.	Add a chicane between speed lumps between E Curtis Drive and Franklin Boulevard.
High demand for path through Curtis Park.	Widen path through Curtis Park.
Wide turning radii at intersection of 9th Avenue and Franklin Boulevard (HIN segment and bus route).	Add curb extensions.
Missing connections and midblock crossing to pedestrian overpass at 8th Avenue over the S Sacramento Freeway.	Add raised crosswalks on 8th Avenue, east and west of the pedestrian overpass.
Narrow path on pedestrian/bike bridge.	Improve comfort and quality of bridge.
Vehicle speeding on bicycle connection on 33rd Street from 8th Avenue to 9th Avenue.	Add speed lumps on 33rd Street spaced approximately 500' apart north of 8th Avenue and north of 9th Avenue.
Missing marked crossings at all-way stop at 33rd Street and 9th Avenue (Primary Network intersection).	Add marked crosswalks on all intersection legs.
Missing marked crossings at all-way stop at 37th Street (Secondary Network) and 9th Avenue.	Add marked crosswalks on all intersection legs.
Missing bicycle and pedestrian connections on Martin Luther King Junior Boulevard between 9th Avenue and 8th Avenue.	Construct a shared use path along Martin Luther King Junior Boulevard.

Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.

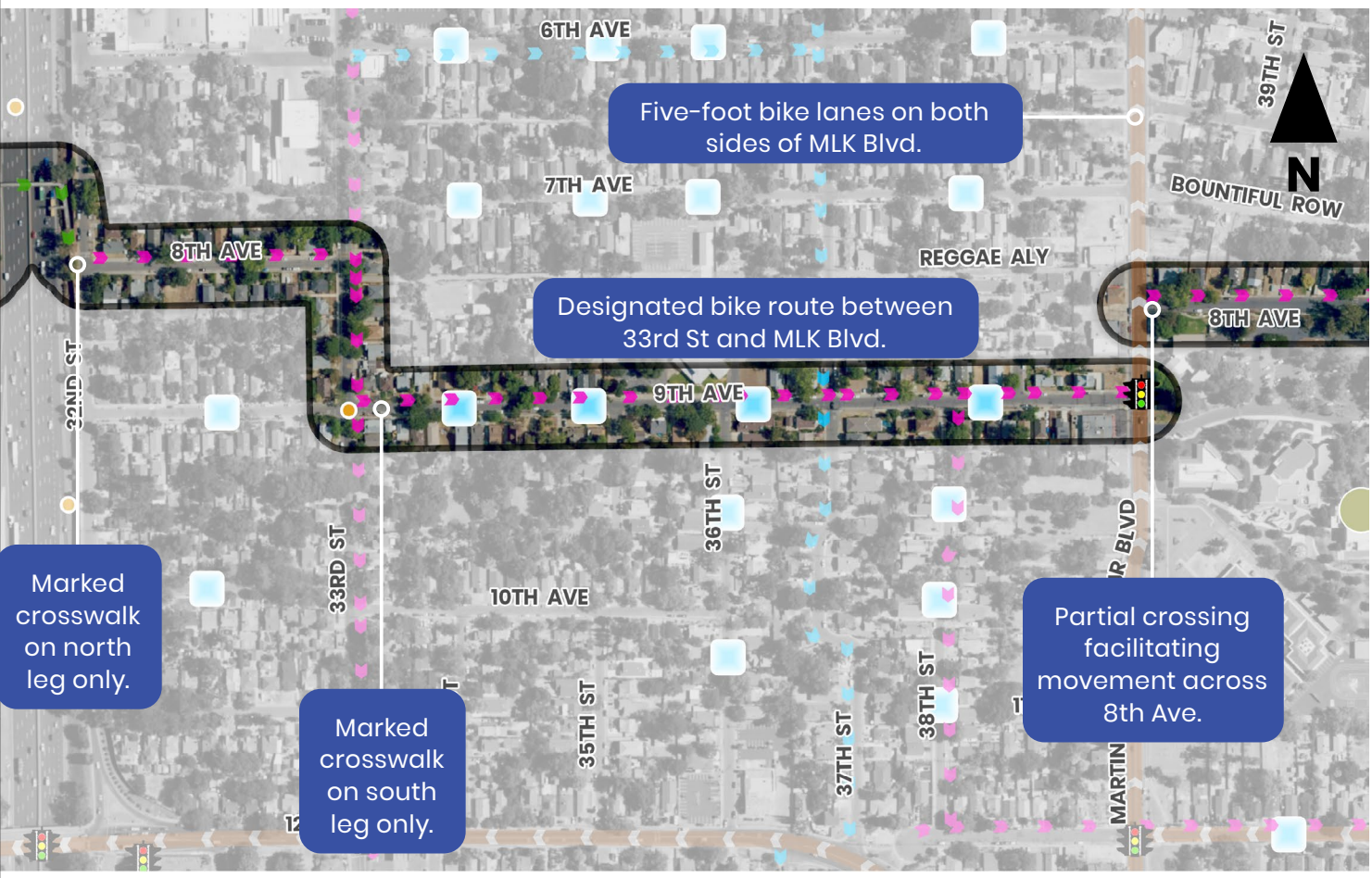
2 8TH AVE / 9TH AVE



OTHER:

- Vulnerable users along corridor with senior facility and elementary school

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

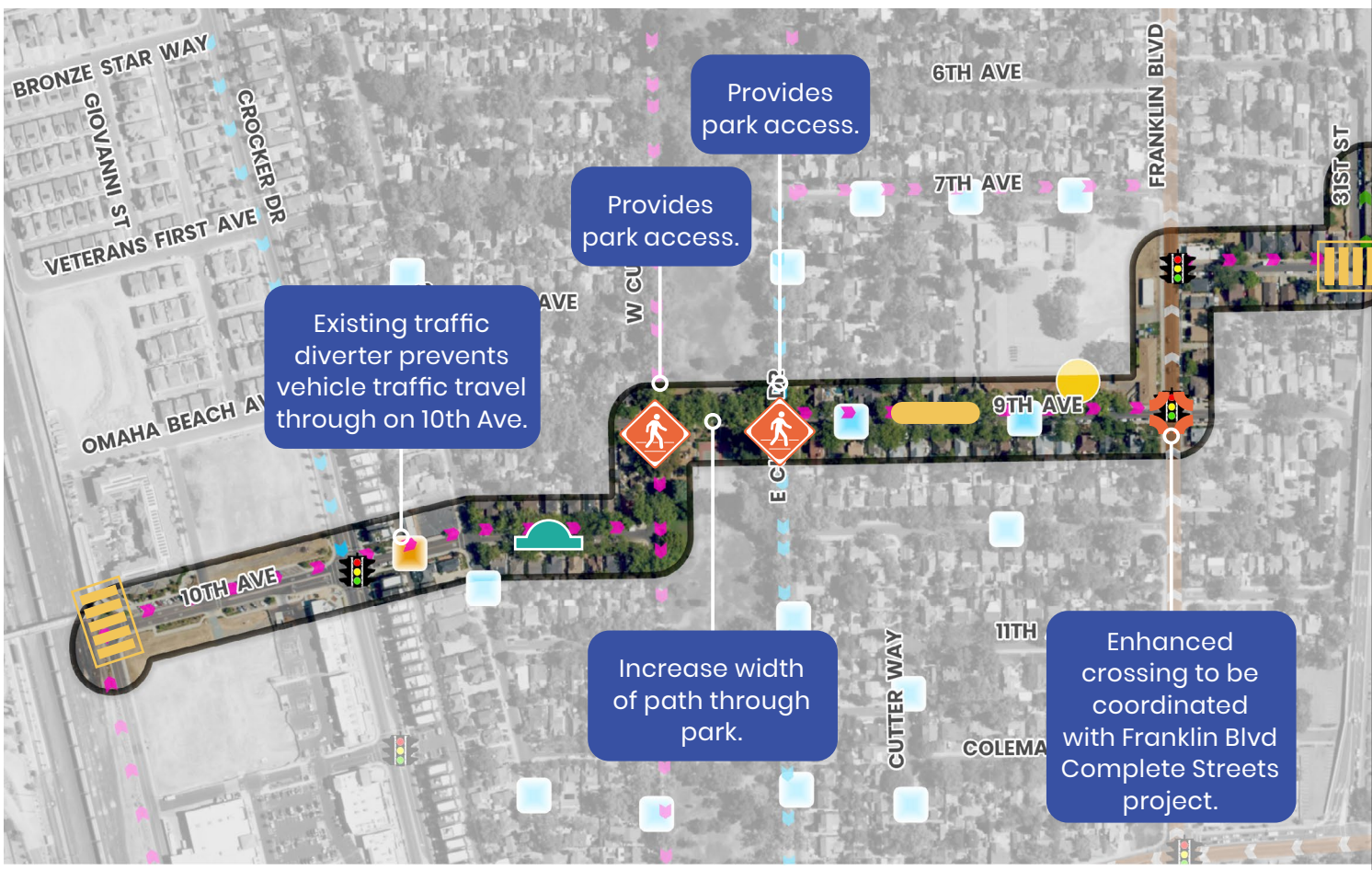
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

2 8TH AVE / 9TH AVE



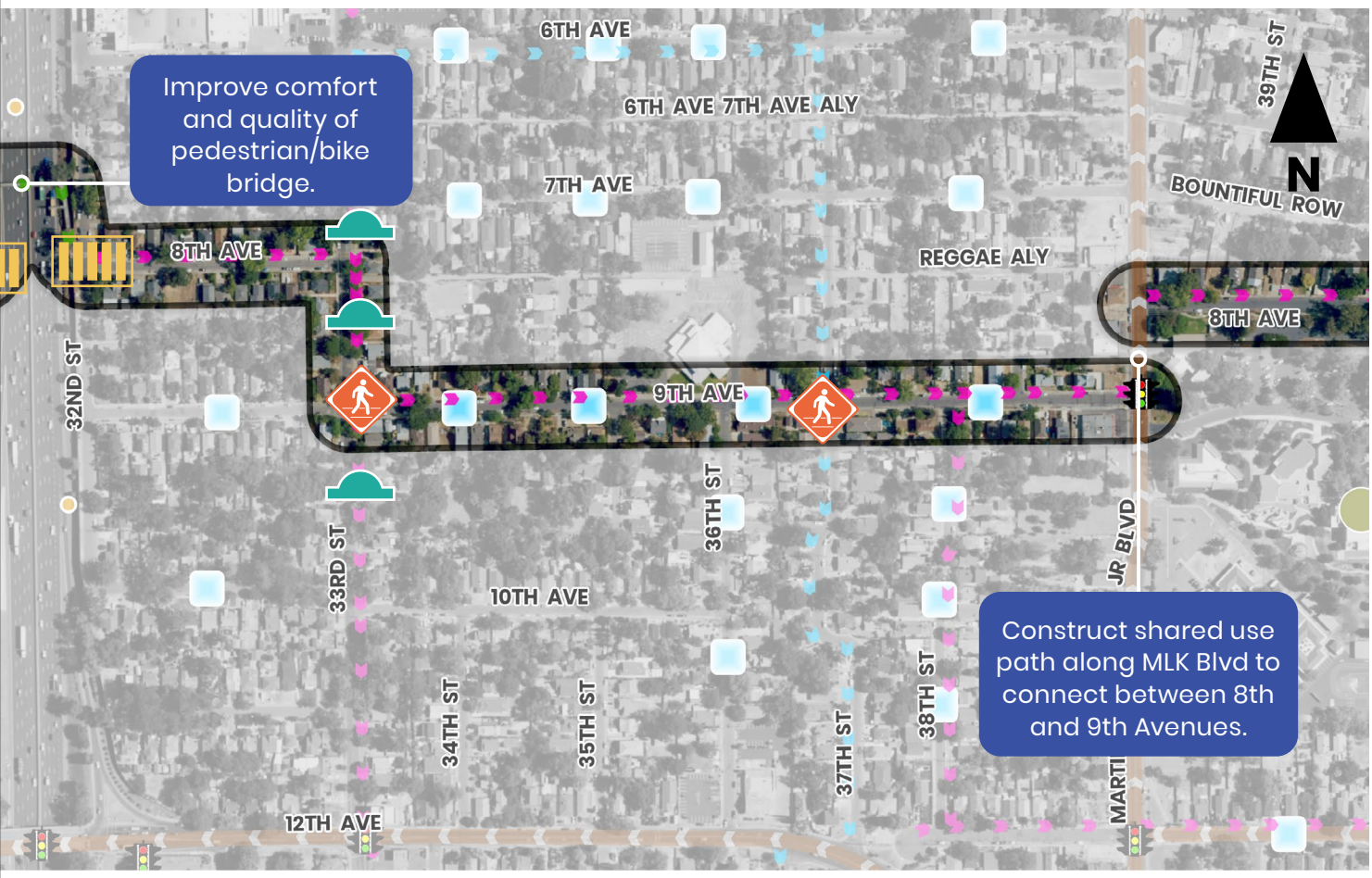
RECOMMENDED TREATMENTS:

- Curb extension
- Marked crosswalk
- Raised intersection
- Raised crosswalk
- Speed lump
- Median island

ADDITIONAL TREATMENTS:

- Shared lane markings on Patio Avenue and South Avenue
- Evaluate lighting at all crossings
- Evaluate opportunities for street tree planting
- All crosswalks should be evaluated for enhanced crossing treatments

Recommendations



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

3 TAMOSHANTER WAY

Tamoshanter Way is on the Primary Network. The project corridor along Hogan Drive, Tamoshanter Way, and 22nd Street, from Middlecoff Way to John Still Drive is a two-lane street with on-street parking. The posted speed limit ranges from 20 to 25 mph and there are existing speed lumps along the corridor.

QUICK FACTS

- Primary Network
- **2** Connections to HIN Streets
- In DAC
- **0** Shared use path connection
- **2.07 MI** Length

MULTIMODAL FEATURES:

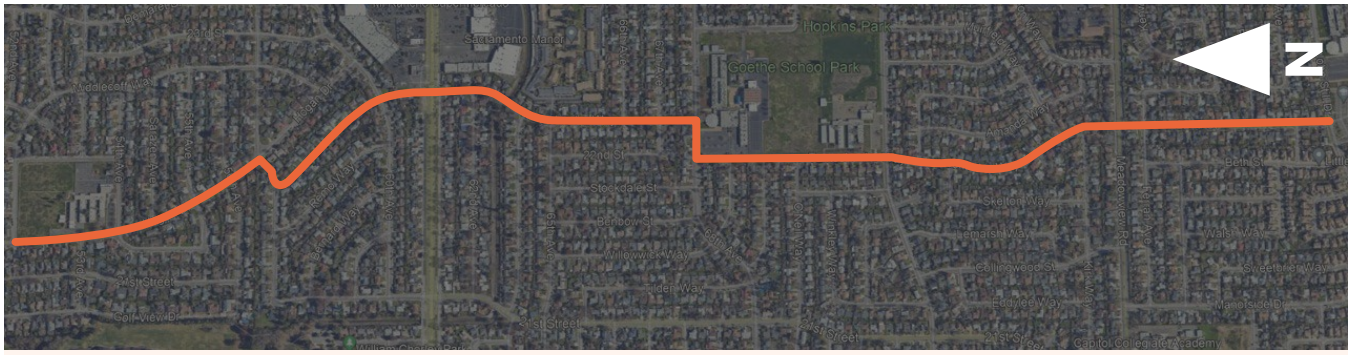
- Intersects with 68th Avenue bike lanes and Meadowview Road bike lanes.
- Shared lane markings on Hogan Drive from Middlecoff Way to 57th Avenue.
- Transit route on Florin Road and Meadowview Road.

MAJOR CORRIDORS SERVED:

- Florin Road
- 24th Street
- Meadowview Road

DESTINATIONS SERVED:

- HW Harkness Elementary School
- Florin Square Shopping Center
- Goethe School Park
- John H. Still K-8 School
- MLK Jr Library
- Steve Jones Park



CORRIDOR EXTENTS:

Middlecoff Way to John Still Drive (2.07 miles)

NEARBY DESTINATIONS:

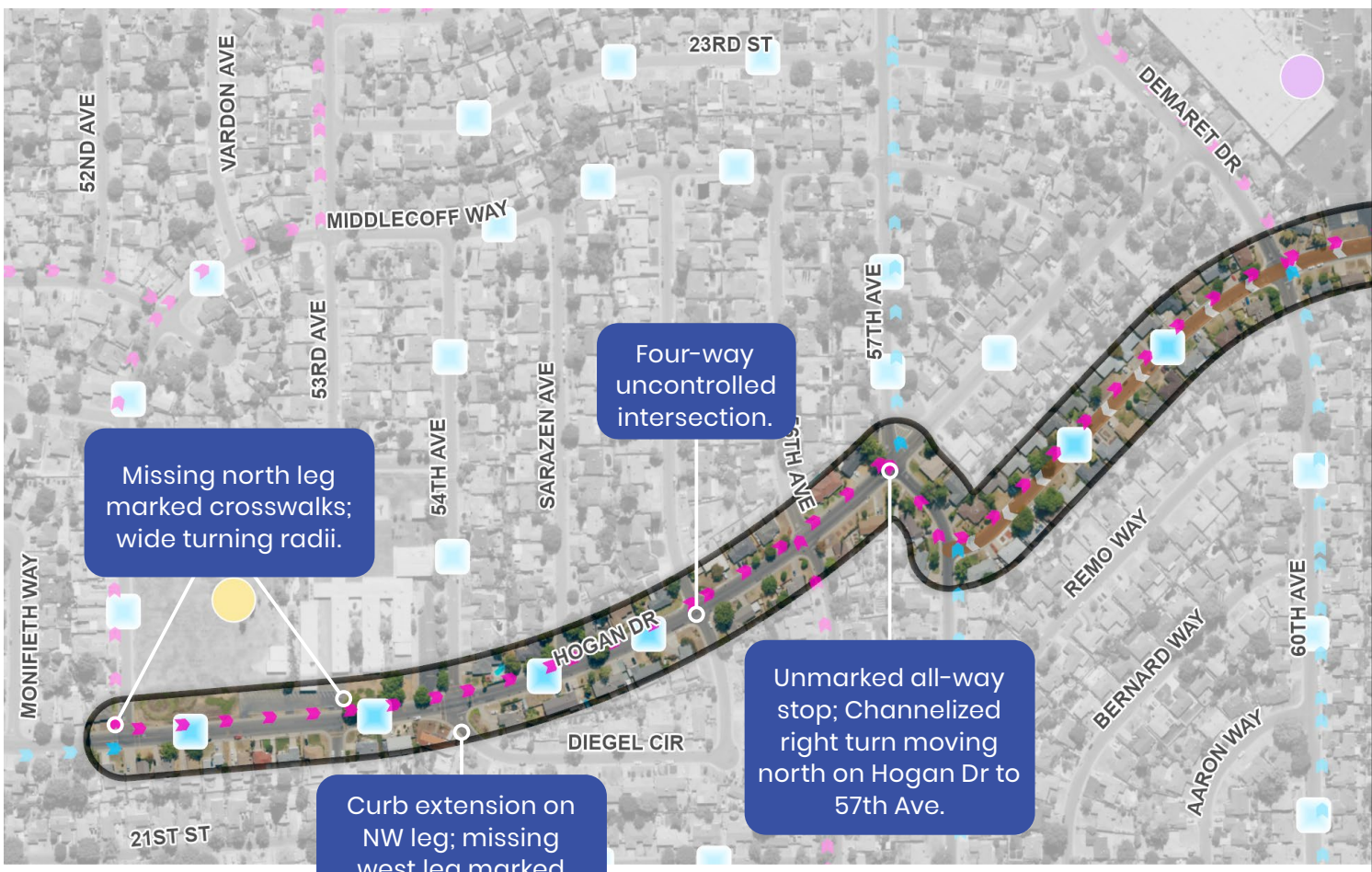
- HW Harkness Elementary School
- Florin Square Shopping Center
- Goethe School Park
- John H. Still K-8 School
- MLK Jr Library
- Steve Jones Park

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
LOCATION-SPECIFIC RECOMMENDATIONS	
Missing marked crosswalk on all-way stop-controlled intersection of Middlecoff Way and Hogan Drive, near HW Harkness Elementary School.	Add raised intersection and marked crossing on north leg.
Wide intersection turning radii at Diegel Circle and Hogan Drive.	Increase curb extension on northwest leg and add marked crossing on west leg.
Wide turning radii at Hogan Drive and Sarazen Avenue.	Add curb extensions.
Four-way intersection with no stop control or marked crossings.	Add stop signs on 55th Avenue and add marked crosswalks.
Missing marked crossings across stop controlled 56th Avenue (Primary Network) at Hogan Drive.	Add marked crosswalks on east and west legs of intersection.
Complex intersection with no marked crossings at Hogan Drive and 57th Avenue (Secondary Network).	Close slip lane from Hogan Drive to 57th Avenue.
Lack of traffic calming treatments create uncomfortable conditions for people biking and walking.	Add traffic diverter on 57th Avenue between Hogan Drive and Tamoshanter Way.
Wide turning radii, no stop control, and no marked crossings at 57th Avenue (Secondary Network) and Tamoshanter Way (Primary Network, HIN corridor).	Add curb extensions and intersection stop control with marked crosswalks.
Missing marked crossings at all-way stop at Tamoshanter Way and Demaret Drive (Primary Network) near Florin Square Shopping Center.	Add raised intersection and marked crosswalks on all intersection legs.
Vehicle speeding on Tamoshanter Way south of Florin Road.	Add speed lump south of Florin Road to complement existing speed lump.
Wide intersection turning radii at Tamoshanter Way and 65th Avenue (Primary Network) and no marked crossings at all-way stop-controlled intersection.	Add curb extensions and add marked crosswalks to all intersection legs.
Wide intersection turning radii at Tamoshanter Way and 66th Avenue (Primary Network).	Add curb extensions and add marked crosswalk across 66th Avenue.
Wide intersection turning radii at Tamoshanter Way and 68th Avenue (Primary Network) and no marked crossings at all-way stop-controlled intersection (east Tamoshanter Way).	Add curb extensions and add marked crosswalks to all intersection legs.
Bicycle connection on 68th Avenue to Tamoshanter Way.	Add hardened centerline on 68th Avenue to slow turning vehicles on to Tamoshanter Way.
Wide intersection turning radii at Tamoshanter Way and 68th Avenue (Primary Network) and uncontrolled crossing (west Tamoshanter Way).	Add curb extensions to improve visibility for people biking and walking.
Speeding on Tamoshanter Way from 68th Avenue to O'Neil Way.	Add chicanes.
Wide turning radii on Tamoshanter Way at Willowick Way and uncontrolled marked crossing, near Success Academy.	Add curb extensions.
Wide turning radii on Tamoshanter Way at O'Neil Way and uncontrolled marked crossing, near Success Academy.	Add curb extensions.

Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.

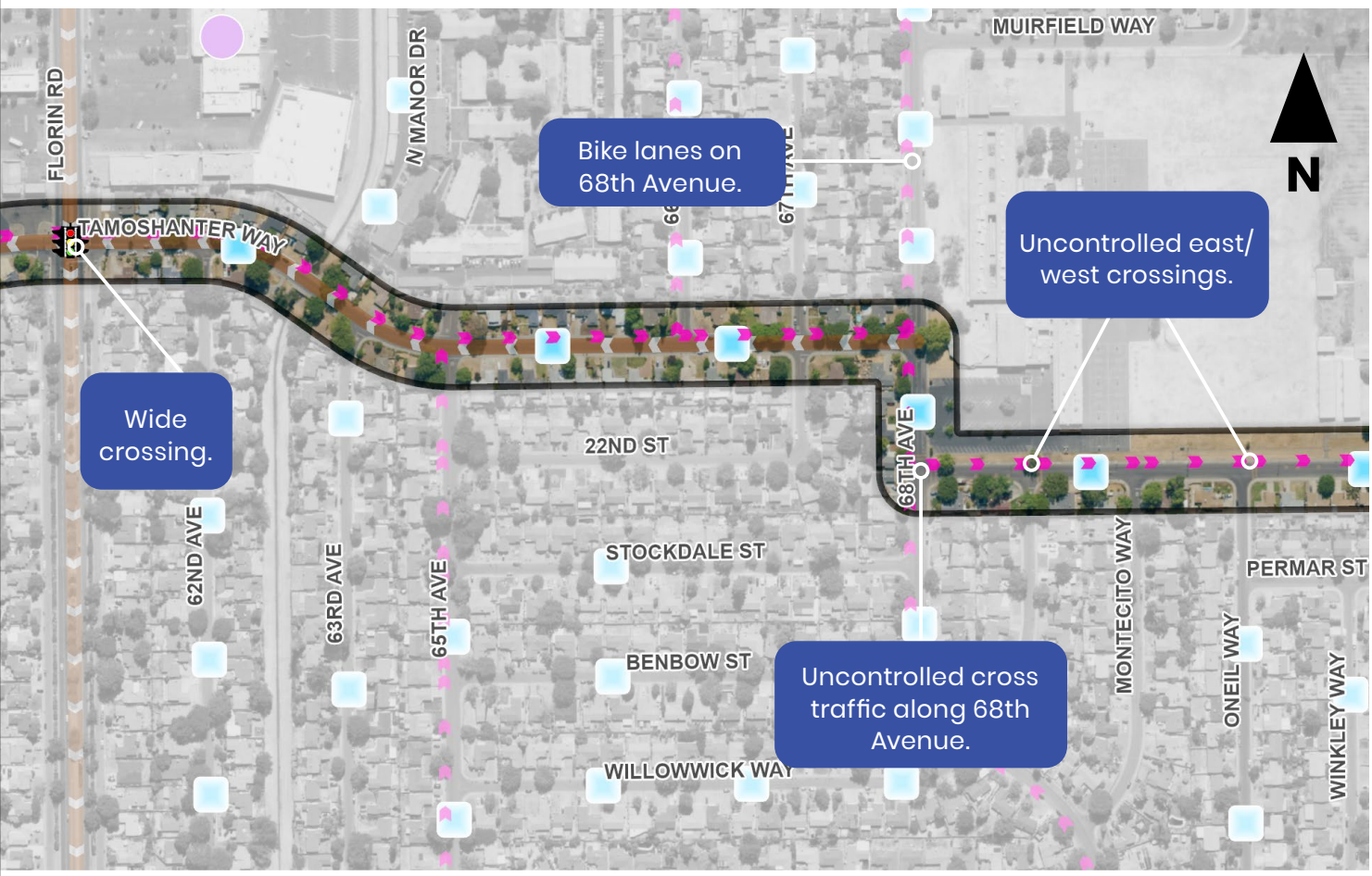
3 TAMOSHANTER WAY



OTHER:

- Severe pedestrian and bicycle crash history along Florin Road.

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

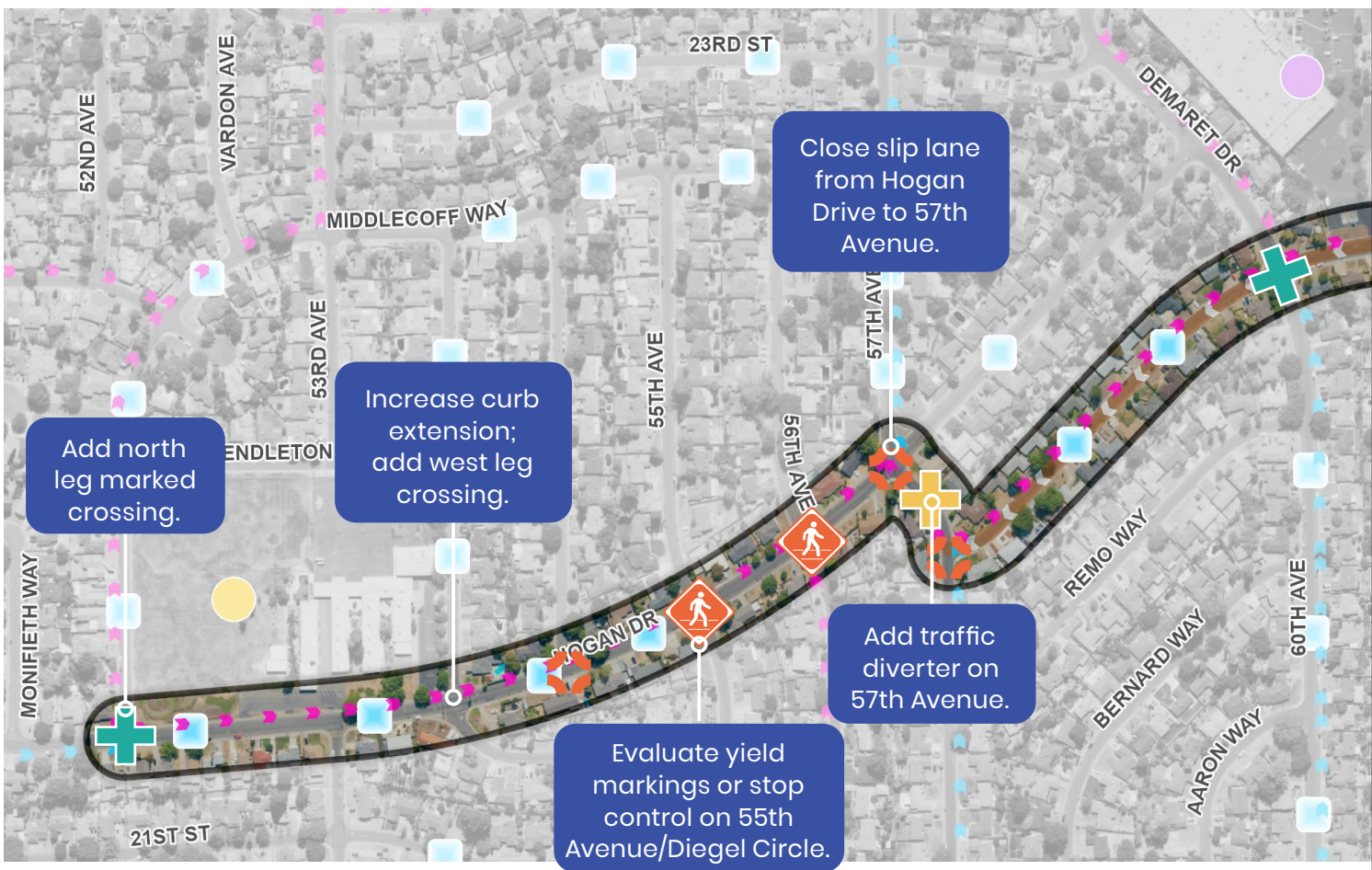
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

3 TAMOSHANTER WAY



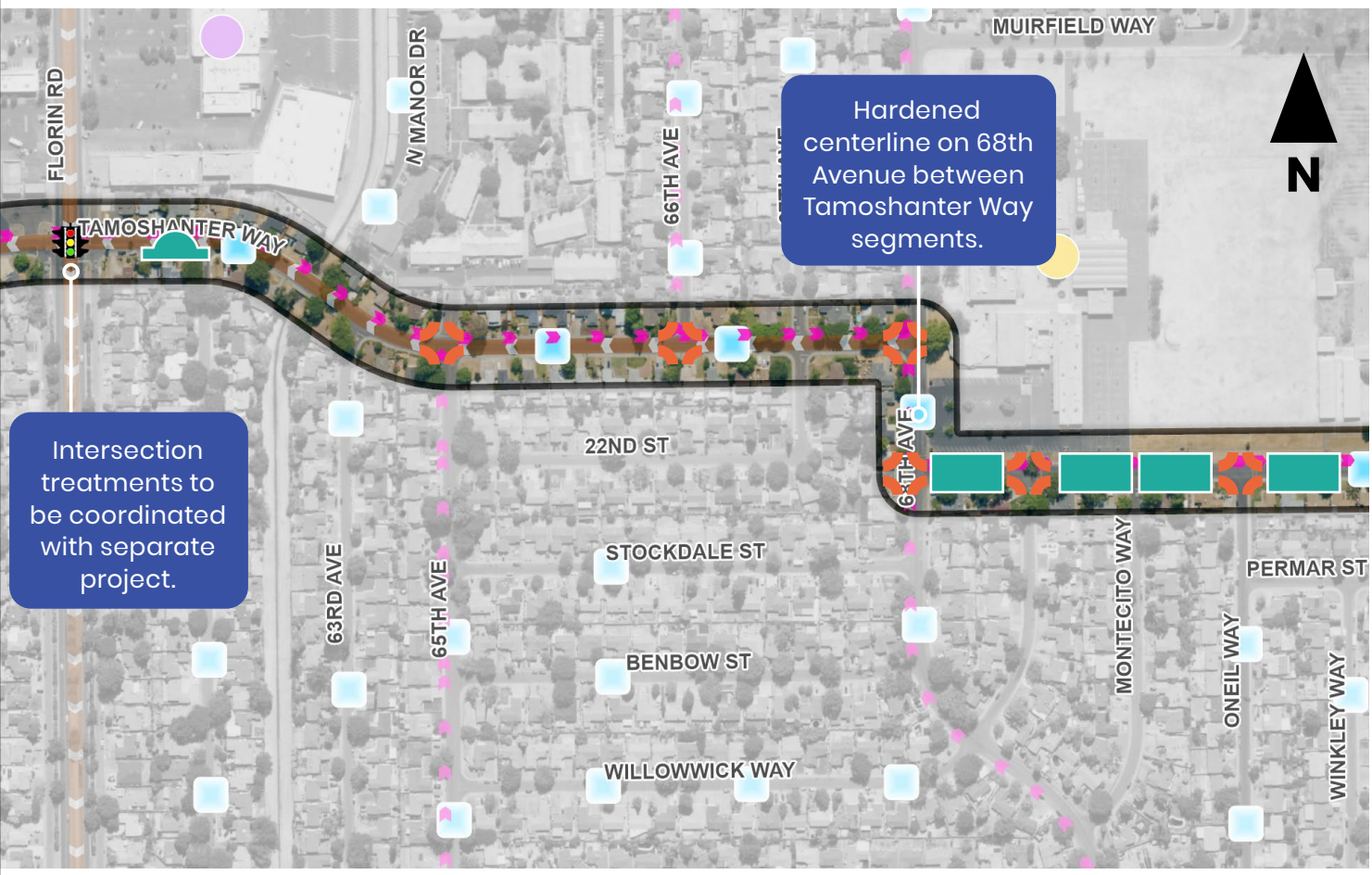
RECOMMENDED TREATMENTS:

- Curb extension
- Marked crosswalk
- Raised intersection
- Chicane
- Speed lump
- Traffic Diverter

ADDITIONAL TREATMENTS:

- All crosswalks should be evaluated for enhanced crossing treatments

Recommendations



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

4 N PARK DR

N Park Drive is on the Primary Network. N Park Drive from E Commerce Way to Natomas Boulevard is a two-lane street with turn lanes at intersections. On-street parking is provided along portions of the corridor nearby Natomas Middle School and a small segment from Bessemer Court to Northborough Drive. N Park Drive has existing bike lanes. The posted speed limit ranges from 25 to 30 mph. There are existing speed lumps and constructed/striped median lanes near the middle school.

QUICK FACTS

- Primary Network
- **0** Connections to HIN Streets
- Not In DAC
- **4** Shared use path connection
- **1.44 MI** Length

MULTIMODAL FEATURES:

- Shared use path connections to Wild Rose Park and North Natomas Regional Park.
- Transit route along the N Park Drive corridor and along E Commerce Way, Kokomo Drive, Brookmere Way, Northborough Drive, and Natomas Boulevard.
- Existing bike lanes – gap in northern bike lane form Broadwater Drive to Kankakee Drive.
- N Park Drive Bicycle LTS: 4.
- N Park Drive Pedestrian Comfort Level 2.

MAJOR CORRIDORS SERVED:

- E Commerce Way
- Natomas Boulevard

DESTINATIONS SERVED:

- Natomas Middle School
- H. Allen Hight Elementary School
- Wild Rose Park
- Heron School
- North Natomas Regional Park

CORRIDOR EXTENTS:

E Commerce Way to Natomas Blvd (1.44 miles)

NEARBY DESTINATIONS:

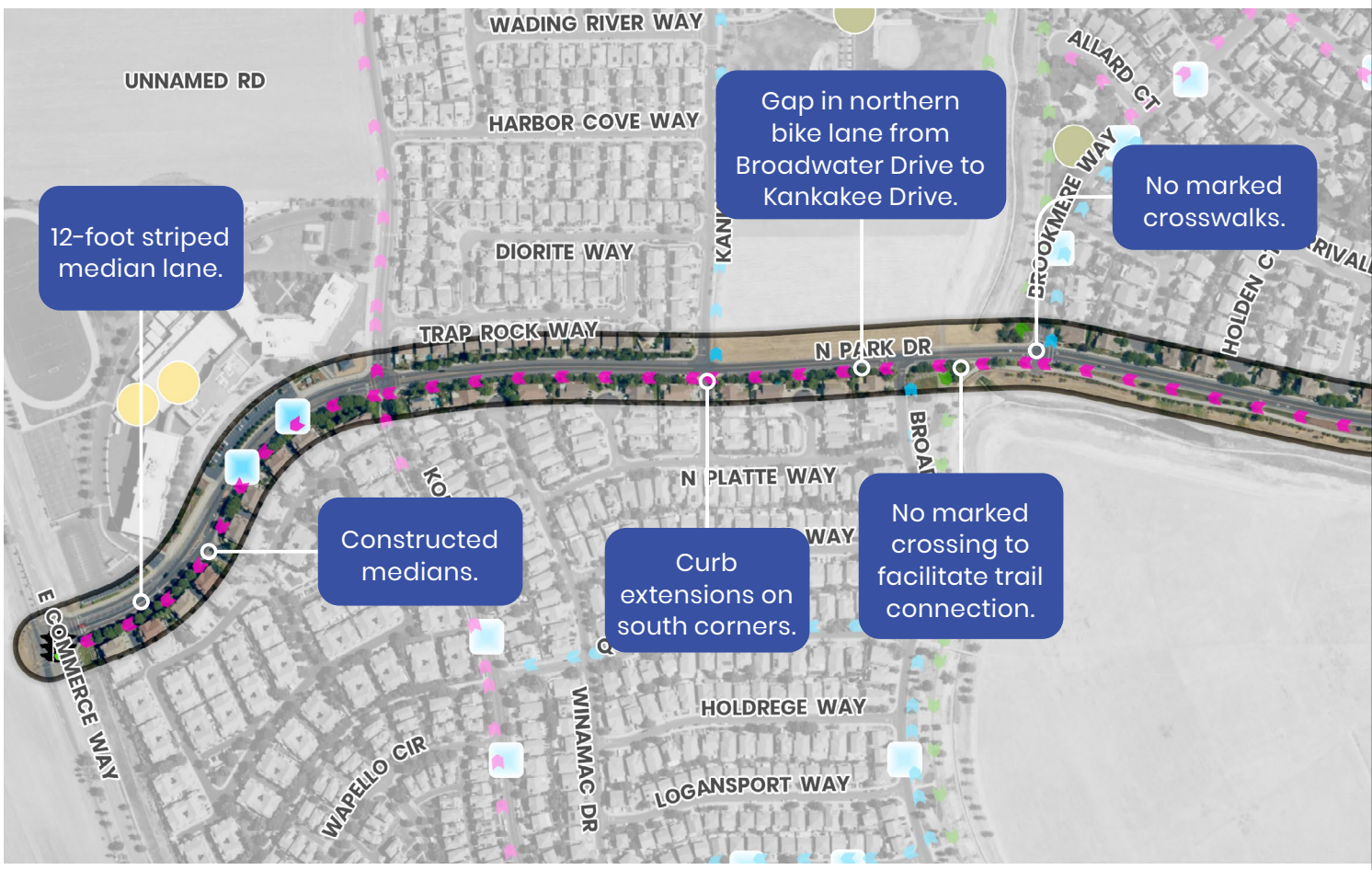
- Natomas Middle School
- H. Allen Hight Elementary School
- Wild Rose Park
- Heron School
- North Natomas Regional Park

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
CORRIDOR-WIDE RECOMMENDATIONS	
Limited pedestrian visibility.	Evaluate lighting at all crossings.
Limited shade.	Evaluate presence of street trees.
Lack of existing traffic calming to help slow vehicle speeds.	Place speed lumps approximately every 500 ft along N Park Drive.
Ranked bicycle LTS 4.	Stripe buffered bike lanes along N Park Drive.
LOCATION-SPECIFIC RECOMMENDATIONS	
High traffic crossing at Kokomo Drive nearby school.	Add raised intersection and high visibility marked crosswalks .
Four-way intersection with no stop control or marked crossings at N Park Drive and Kankakee Drive.	Add curb extensions to the north side of the intersection and add hardened centerline on N Park Drive.
Missing marked crossings at Broadwater Drive to facilitate trail connections.	Realign trails to Broadwater Drive with enhanced crossing; include bike ramps to the street.
Missing marked crossings at Brookmere Way to facilitate trail connections.	Add raised intersection and connect trail crossing between Brookmere Way and Broadwater Drive.
Lack of traffic calming to slow vehicle speeds at crossings.	Reconstruct existing midblock crossing at North Natomas Regional Park Trail to be a raised crosswalk and include curb extensions.
Missing marked crosswalks at Northborough Drive.	Add raised intersection.
Lack of traffic calming to slow vehicle speeds at crossings.	Add raised intersections at Fredericksburg Way and Banfield Drive.
Lack of connection between on-street bike facilities and shared use paths.	Transition on-street bikes west of Natomas Boulevard to shared use path/sidewalk with bike ramps.

Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.

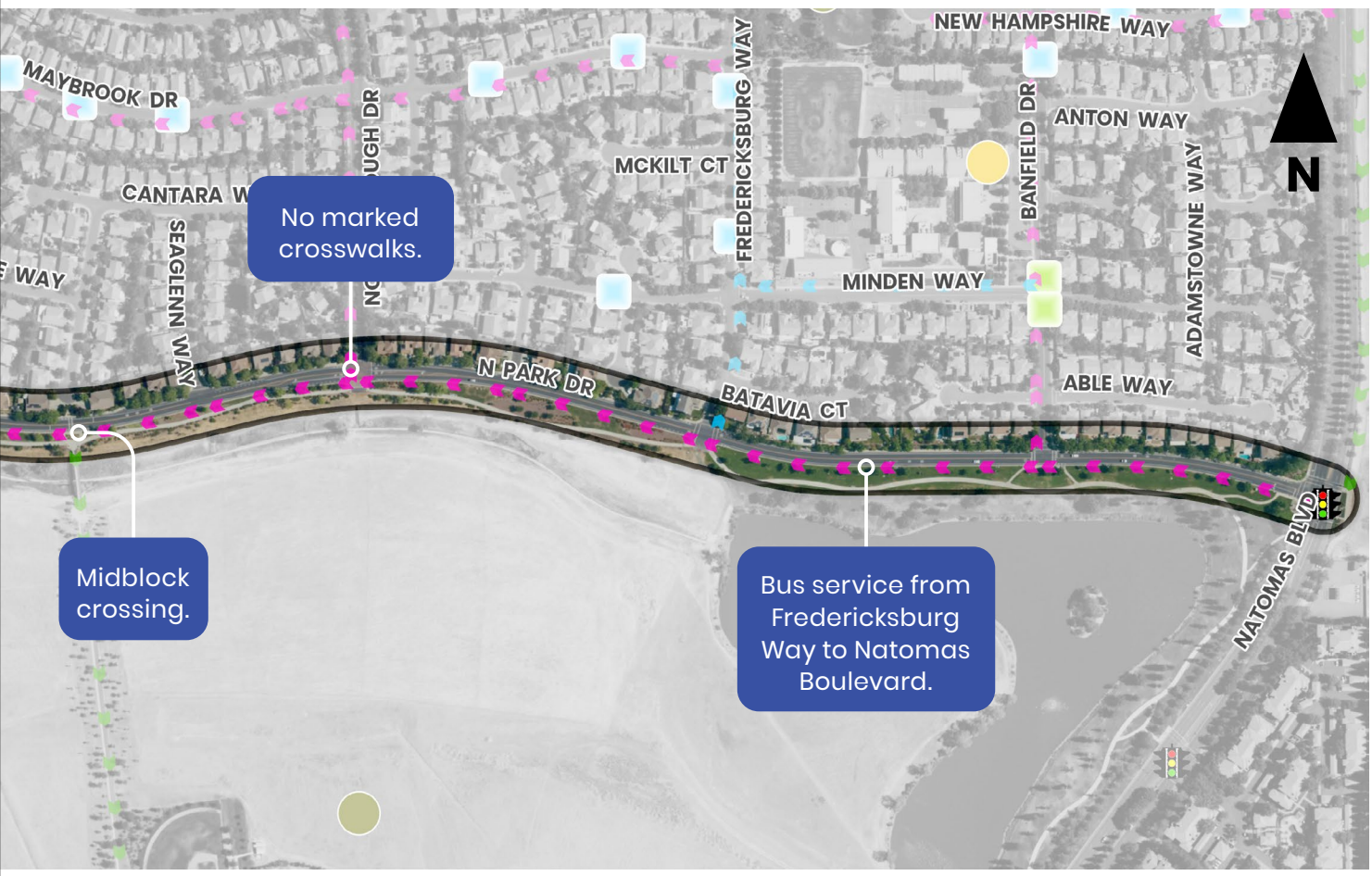
4 N PARK DR



OTHER:

- Bike lanes along N Park Drive.
- Traffic calming lacks along corridor to help slow vehicle speeds.
- N Park Drive is ranked a bicycle LTS 4 and pedestrian comfort level 2.
- Inconsistent crosswalk markings.
- Lack of corridor traffic calming treatments.

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

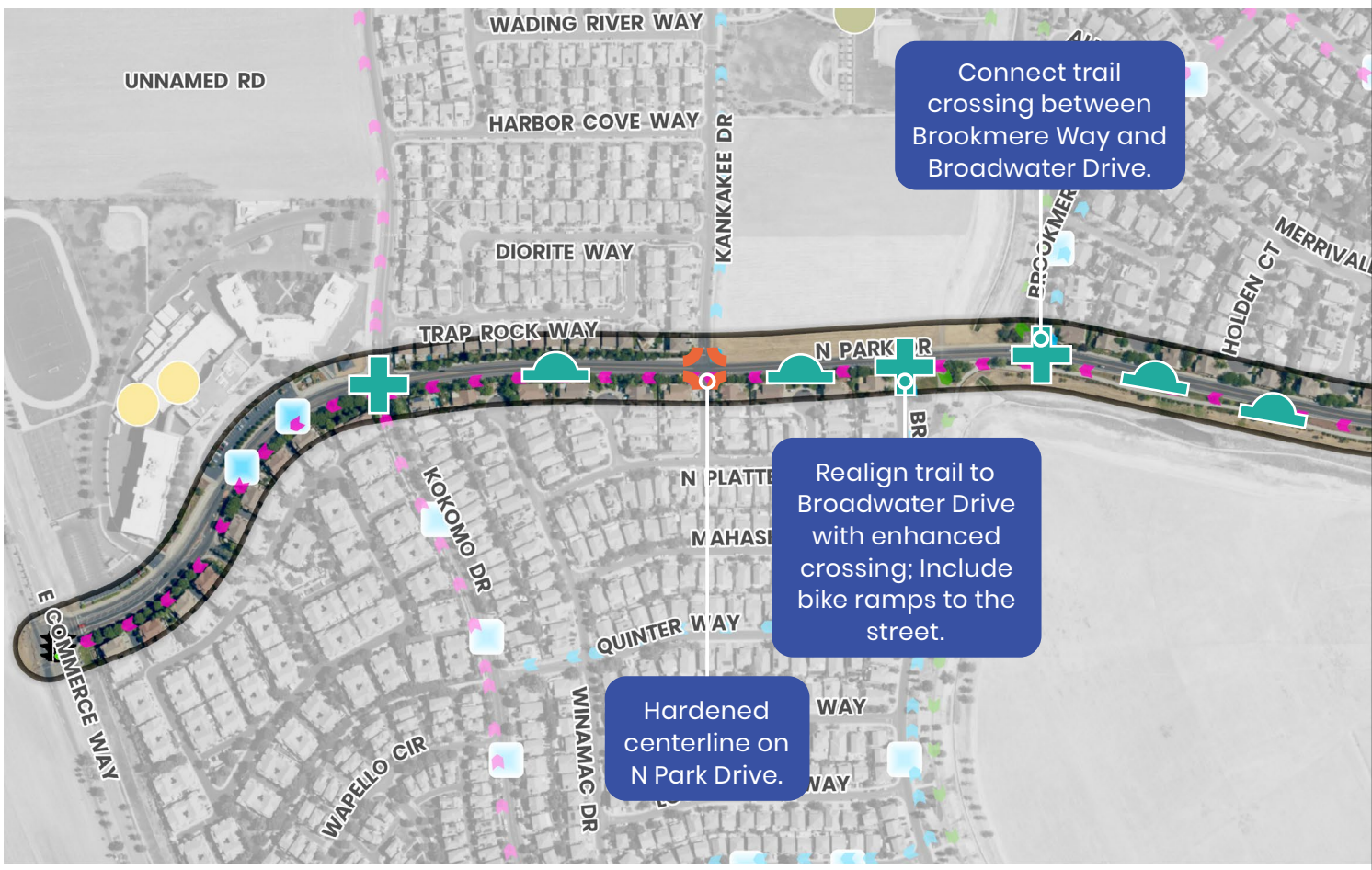
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

4 N PARK DR

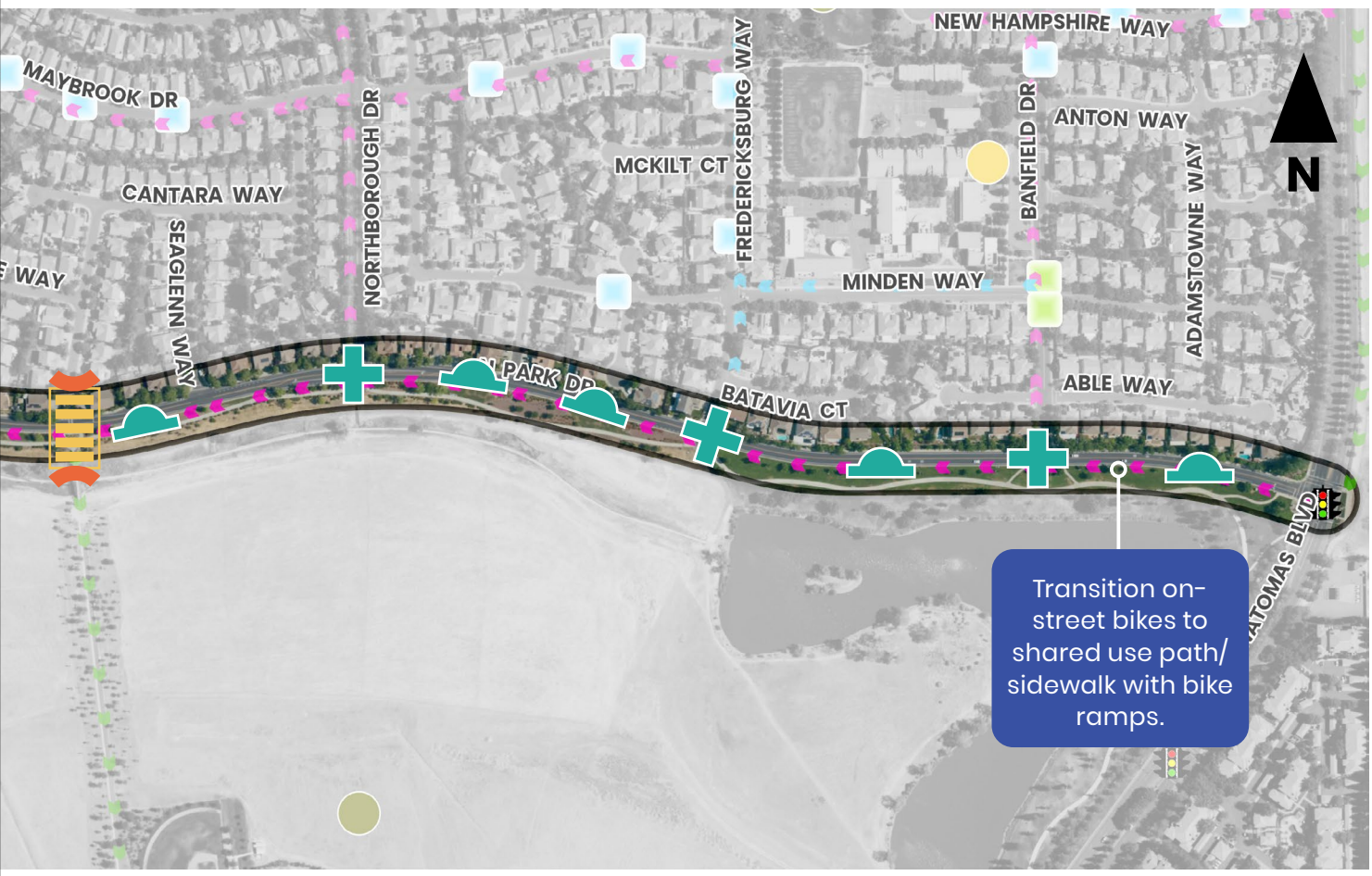


RECOMMENDED TREATMENTS:

- Curb extension
- Raised crosswalk
- Raised intersection
- Speed lump

ADDITIONAL TREATMENTS:

- Evaluate lighting at all crossings.
- Evaluate presence of street trees.
- Speed lumps spaced .approximately every 500' along N Park Drive.
- Stripe buffered bike lanes along N Park Drive.



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

5 W RIVER DR

W River Drive is on the Primary Network. A portion of this corridor on Shorebird Drive is on the Secondary Network. The project corridor along Shorebird Drive, W River Drive, and N Cove Dr, from Swainson Way to Lavender Jade Avenue is a two-lane street with on-street parking. The posted speed limit ranges from 25 to 30 mph and there are existing speed lumps along the corridor.

QUICK FACTS

- Primary and Secondary Network
- **0** Connections to HIN Streets
- Not In DAC
- **3** Shared use path connection
- **1.38 MI** Length

MULTIMODAL FEATURES:

- Existing bike lanes on W River Drive. to Orchard Lane as well as on North Cove Drive.
- W River Dr Bicycle LTS: 3.
- W River Dr Pedestrian Comfort Level: 2.

MAJOR CORRIDORS SERVED:

- Garden Highway
- W El Camino Avenue

DESTINATIONS SERVED:

- Shorebird Park
- Two Rivers Elementary School
- Leroy Greene Academy
- Orchard Park

CORRIDOR EXTENTS:

Swainson Way to Lavender Jade Ave (1.38 miles)

NEARBY DESTINATIONS:

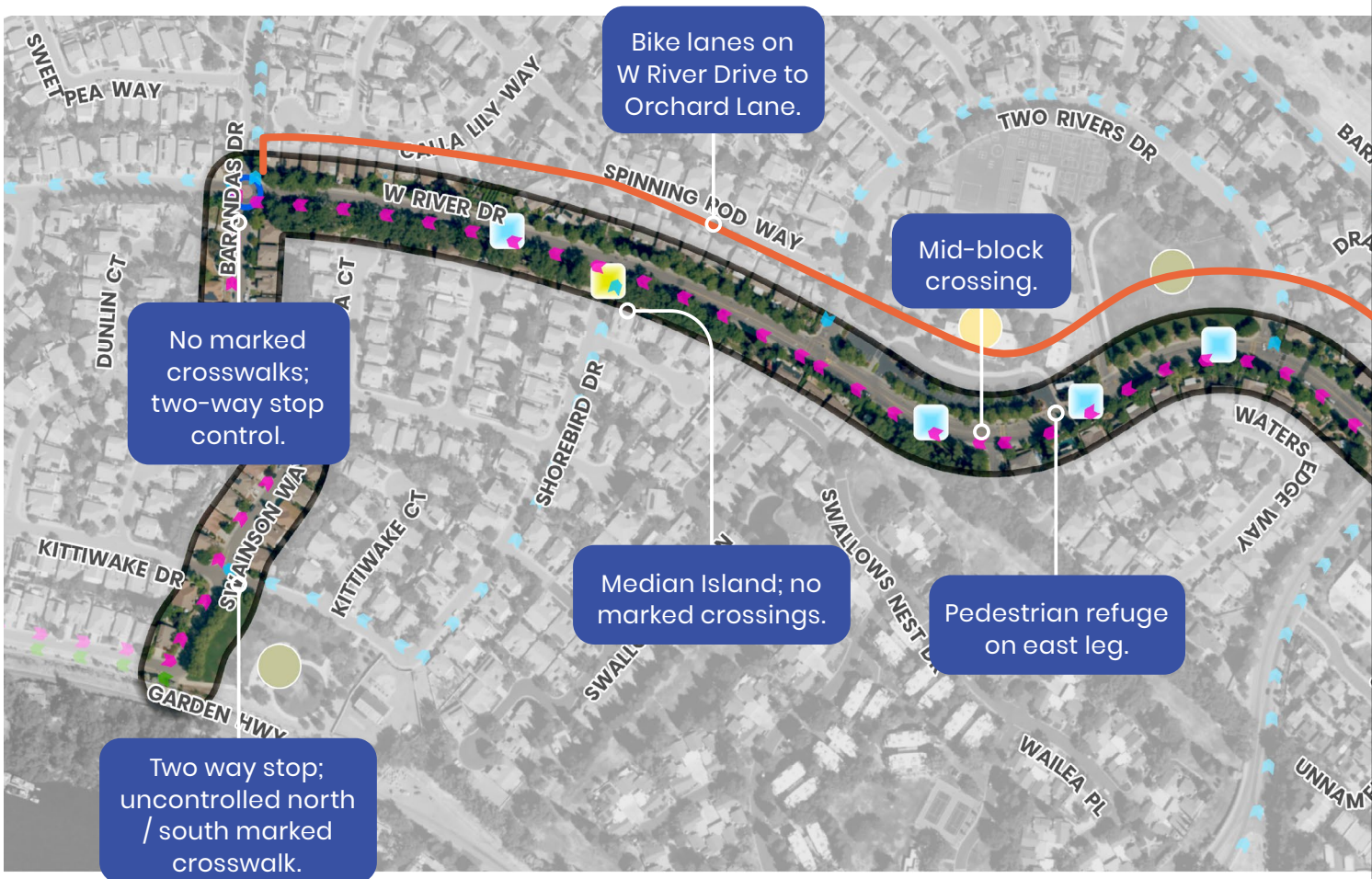
- Shorebird Park
- Two Rivers Elementary School
- Leroy Greene Academy
- Orchard Park

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
LOCATION-SPECIFIC RECOMMENDATIONS	
Limited lighting near Shorebird Park.	Evaluate lighting at the park.
Uncontrolled north/south marked crosswalk near Shorebird Park.	Add raised intersection at Kittiwake Drive and Swainson Way.
Missing bike connections on Shorebird Drive.	Provide shared lane markings.
Limited marked crosswalks across Shorebird Drive.	Add marked crosswalks at Shearwater Court and at W River Drive.
No marked crosswalks and wide street.	At the intersection of Shorebird Drive and W River Drive, expand the existing median island to provide pedestrian refuge.
Lack of traffic calming.	Add speed lumps on Swainson Way, Shearwater Drive, Barandas Drive, and Nautica Court.
Missing marked crossing .	Add marked crosswalk at Shearwater Drive and Swainson Way.
No marked crosswalks at two-way stop control intersection of Barandas Drive and W River Drive.	Replace existing traffic circle with mini roundabout.
High traffic crossing at 2 Rivers Drive nearby school.	Add raised intersection and high visibility marked crosswalks.
Ranked bicycle LTS 3.	Remove left turn lane and medians and add buffered bike lanes on W River Drive.
Concern of speeding and pedestrian comfort near school.	Raise existing midblock crossing near Discovery Shores Way.
Lack of connection between on-street bike facilities and sidewalk/paths.	Add shared lane markings and ramps for bikes to transition to sidewalk/path at the roundabout at Orchard Lane. Remove parking on the east /south side of W River Dr between Orchard lane and El Camino Avenue and add bike lanes.
Lack of traffic calming to slow vehicle speeds outside of school zone.	Add speed lumps on W River Drive between Orchard Lane and Unity Pointe Avenue.
Lack of traffic calming to slow vehicle speeds at crossings.	Add raised crossing and curb extensions to connect park and trail on W River Dr south of Bergamo Way .
Inconsistent crosswalk striping and traffic calming nearby trail approach.	Add raised intersection at N Cove Drive and Endsley Avenue. Add raised intersection at Mossy Creek Street and Lavender Jade Avenue.
Lack of connection between on-street bike facilities and trails.	Add shared lane markings from North Cove Drive to trail entrance at Lavendar Jade Avenue. Add raised crosswalk and curb extensions at connection to trail.

Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.

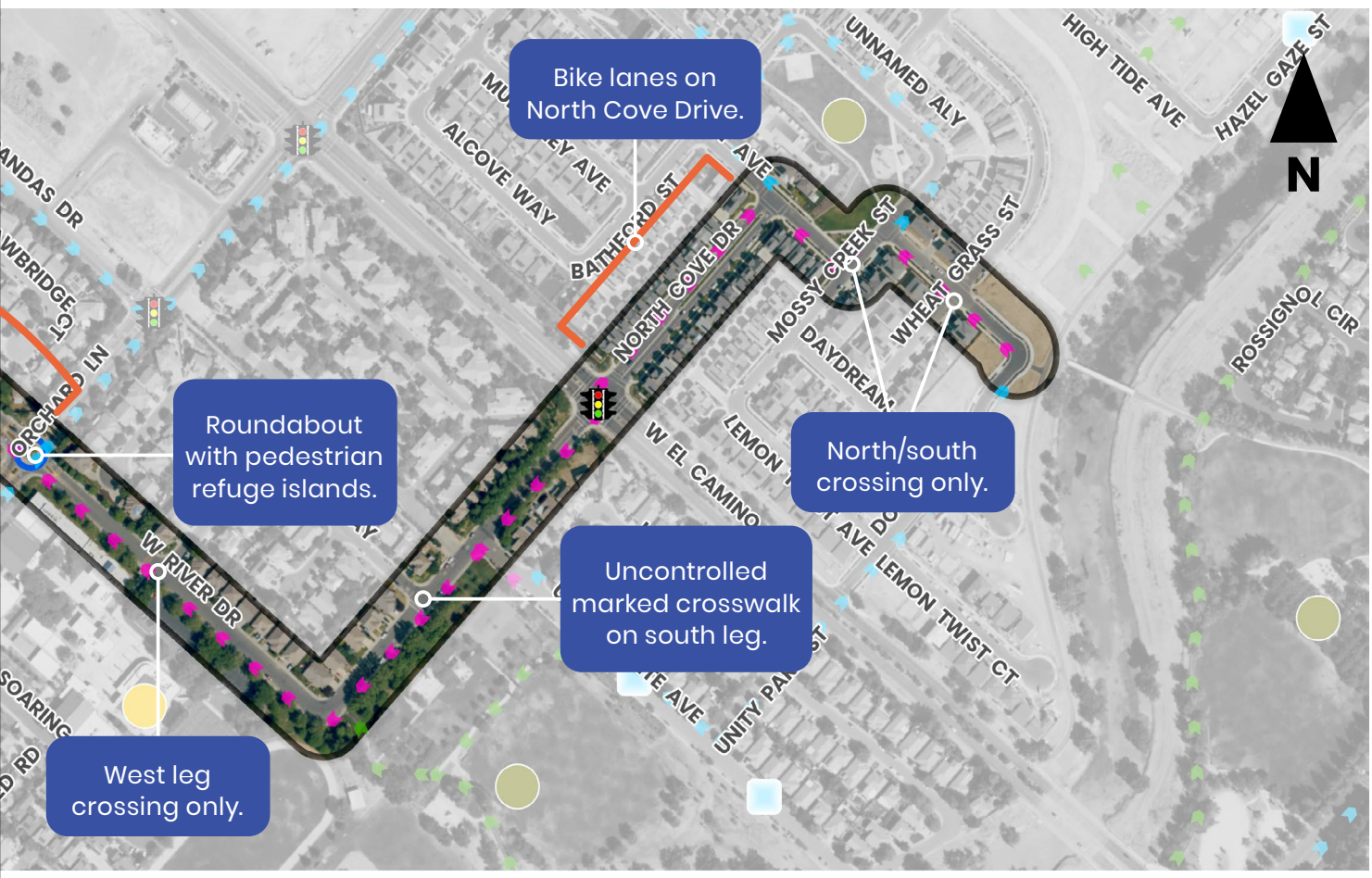
5 W RIVER DR



OTHER:

- W River Dr is ranked as bicycle LTS 3 and pedestrian comfort level 2.
- Limited marked crosswalks across Shorebird Drive.
- Inconsistent crosswalk striping.

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

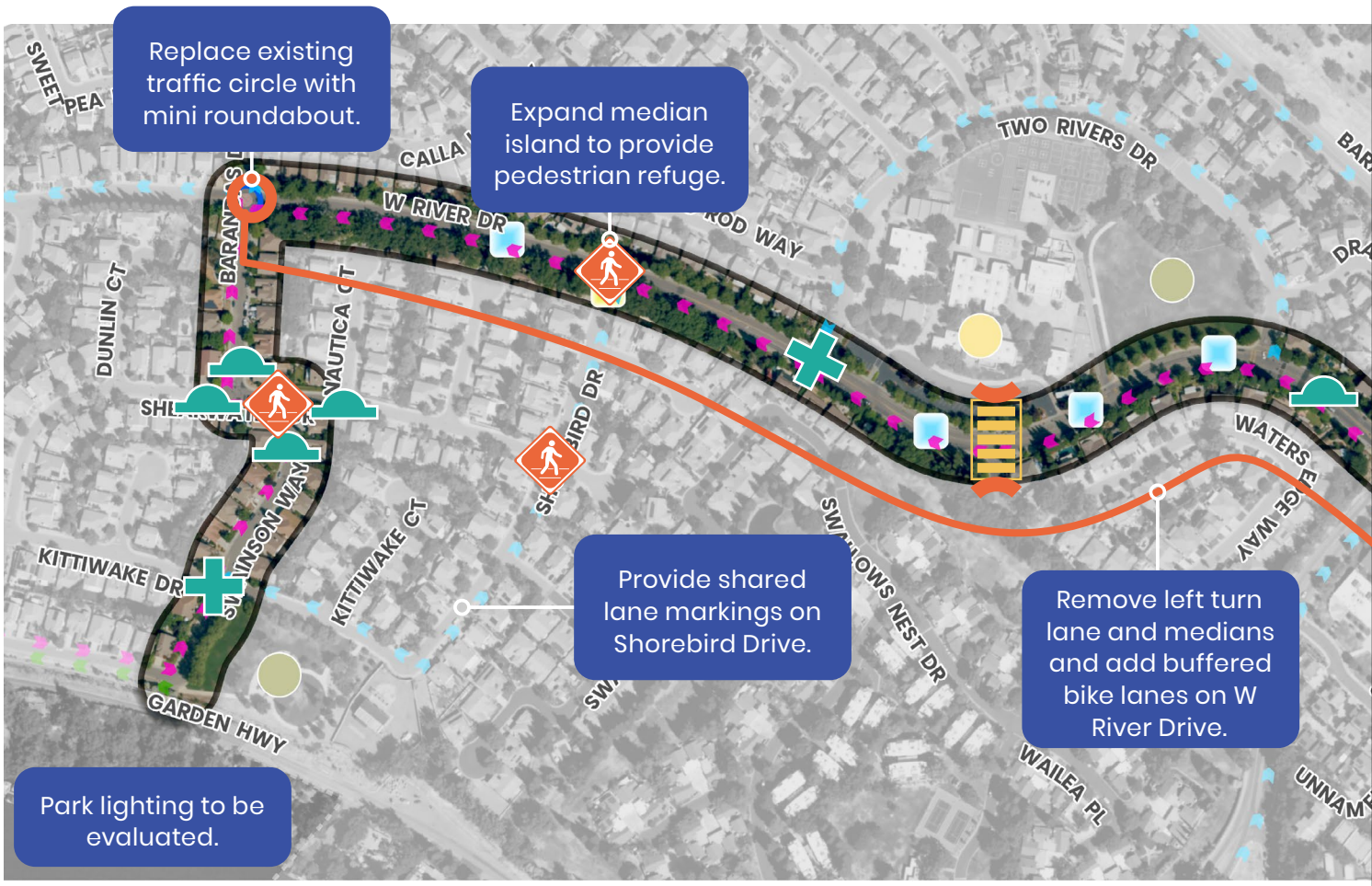
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

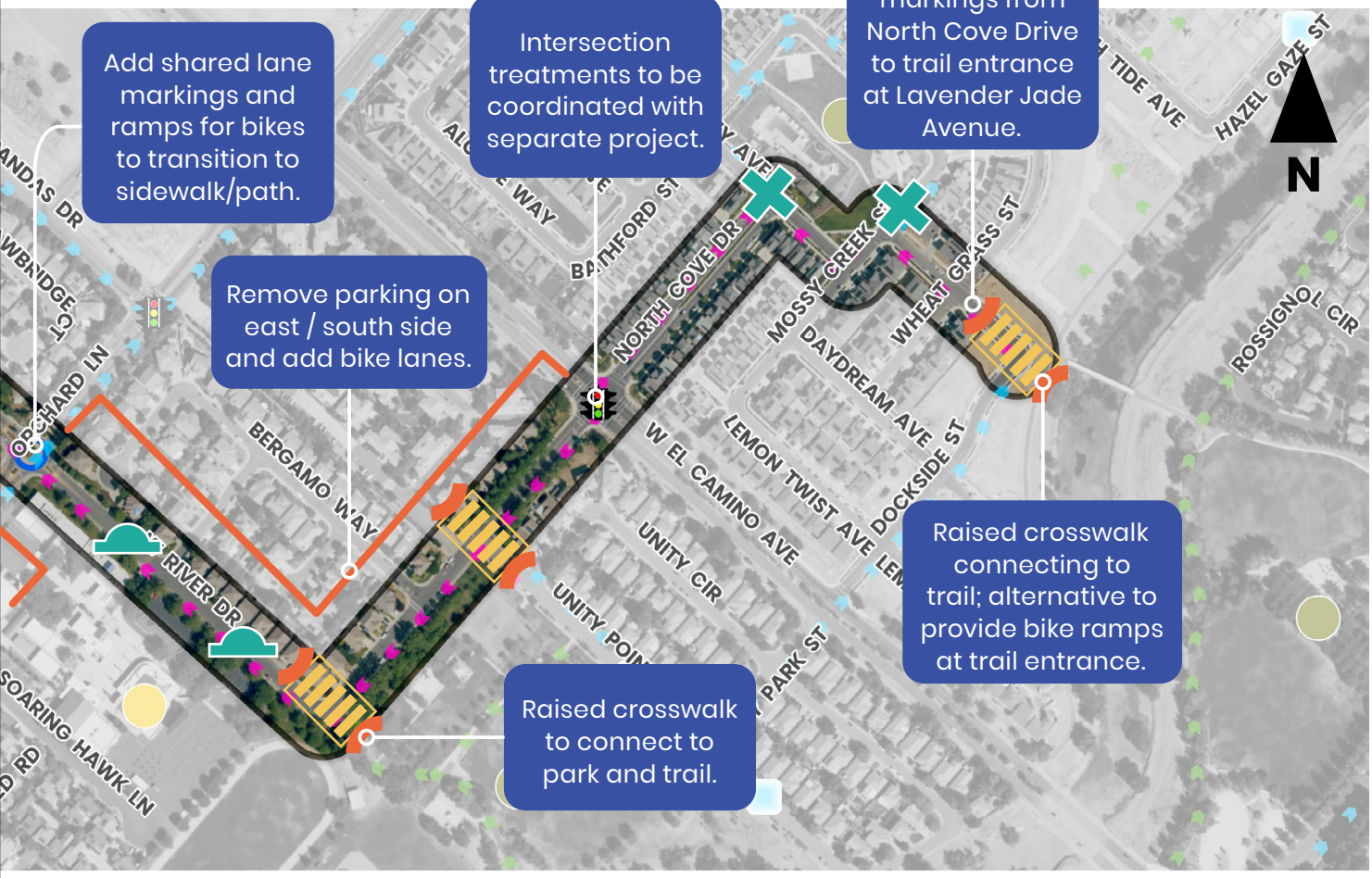
5 W RIVER DR



RECOMMENDED TREATMENTS:

- Curb extension
- Marked crosswalk
- Raised intersection
- Raised crosswalk
- Speed lump
- Mini roundabout

Recommendations



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

6 LAS PALMAS AVE / SONOMA AVE

Las Palmas Avenue, Acacia Avenue, Branch Street and Sonoma Avenue are on the Primary Network while Altos Avenue is on the Secondary Network. The project corridor from Norwood Avenue to Del Paso Boulevard is a two-way street with on-street parking. The posted speed limit is 25 mph and there are existing speed lumps along the corridor.

QUICK FACTS

- Primary and Secondary Network
- **4** Connections to HIN Streets
- In DAC
- **1** Shared use path connection
- **1.82 MI** Length

MULTIMODAL FEATURES:

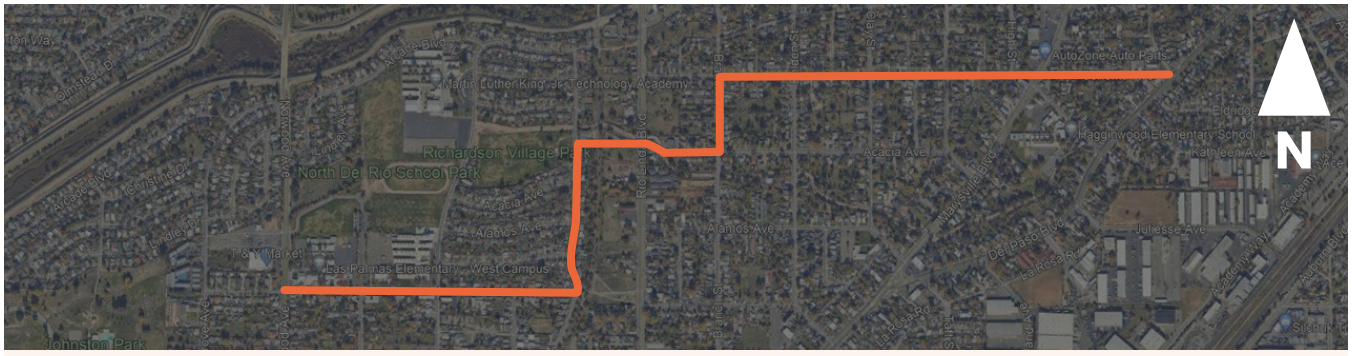
- Connection to Sacramento Northern Bike Trail.
- Transit route along Norwood Avenue and Rio Linda Boulevard.
- Existing north side bike lane on Acacia Avenue from Altos Avenue to Rio Linda Boulevard.
- Connection to bike lanes on Del Paso Boulevard.
- 1 fatal pedestrian crash at Norwood Avenue and Las Palmas Avenue.
- 1 bicycle serious injury crash on Acacia Avenue between Altos Avenue and Rio Linda Boulevard.
- 1 bicycle serious injury crash and 1 fatal pedestrian crash at Sonoma Avenue and Del Paso Boulevard.

MAJOR CORRIDORS SERVED:

- Norwood Avenue
- Rio Linda Boulevard
- Arcade Boulevard
- Marysville Boulevard
- Del Paso Boulevard

DESTINATIONS SERVED:

- Las Palmas Elementary
- Richardson Village Park
- Hagginwood Elementary School
- North Del Rio School Park



CORRIDOR EXTENTS:

Norwood Ave to Del Paso Blvd (1.82 miles)

NEARBY DESTINATIONS:

- Las Palmas Elementary
- Richardson Village Park
- Hagginwood Elementary School
- North Del Rio School Park

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
LOCATION-SPECIFIC RECOMMENDATIONS	
Connection to HIN segment.	Suggest curb extensions and median refuge islands at Norwood Avenue and Las Palmas Avenue. Suggest eliminating slip lane on Acacia Avenue and installing curb extensions and bike boxes on Acacia Avenue approaches at Rio Linda Boulevard.
High traffic crossings nearby school.	Add raised intersection and high visibility marked crosswalks at Forrest Street and Altos Avenue Add mini traffic circle at Fairfield Street.
Wide cross section near school.	Narrow cross section in from of Las Lamas Elementary using flex posts on north side or in median in the short term. Long term recommendation to construct wider sidewalks.
High traffic volumes along Altos Avenue.	Install traffic diverter on Altos Avenue allowing access for people walking and biking.
Limited traffic calming along Altos Avenue.	Add to the existing chicane on Altos Avenue.
Missing crosswalks at Altos Avenue and Acacia Avenue providing access to Richardson Village Park.	Add raised intersection.
Lack of traffic calming nearby trails creating uncomfortable conditions for people walking and biking.	Add median refuge to create pinch point at trail crossing at Sacramento Northern Bike Trail.
Lack of biking connection to trails.	Evaluate potential to install eastbound bike lane on Acacia Avenue between Altos Avenue and Rio Linda Boulevard.
Wide turning radii.	Add mini roundabout at Acacia Avenue and Branch Street and strip crosswalks on all legs.

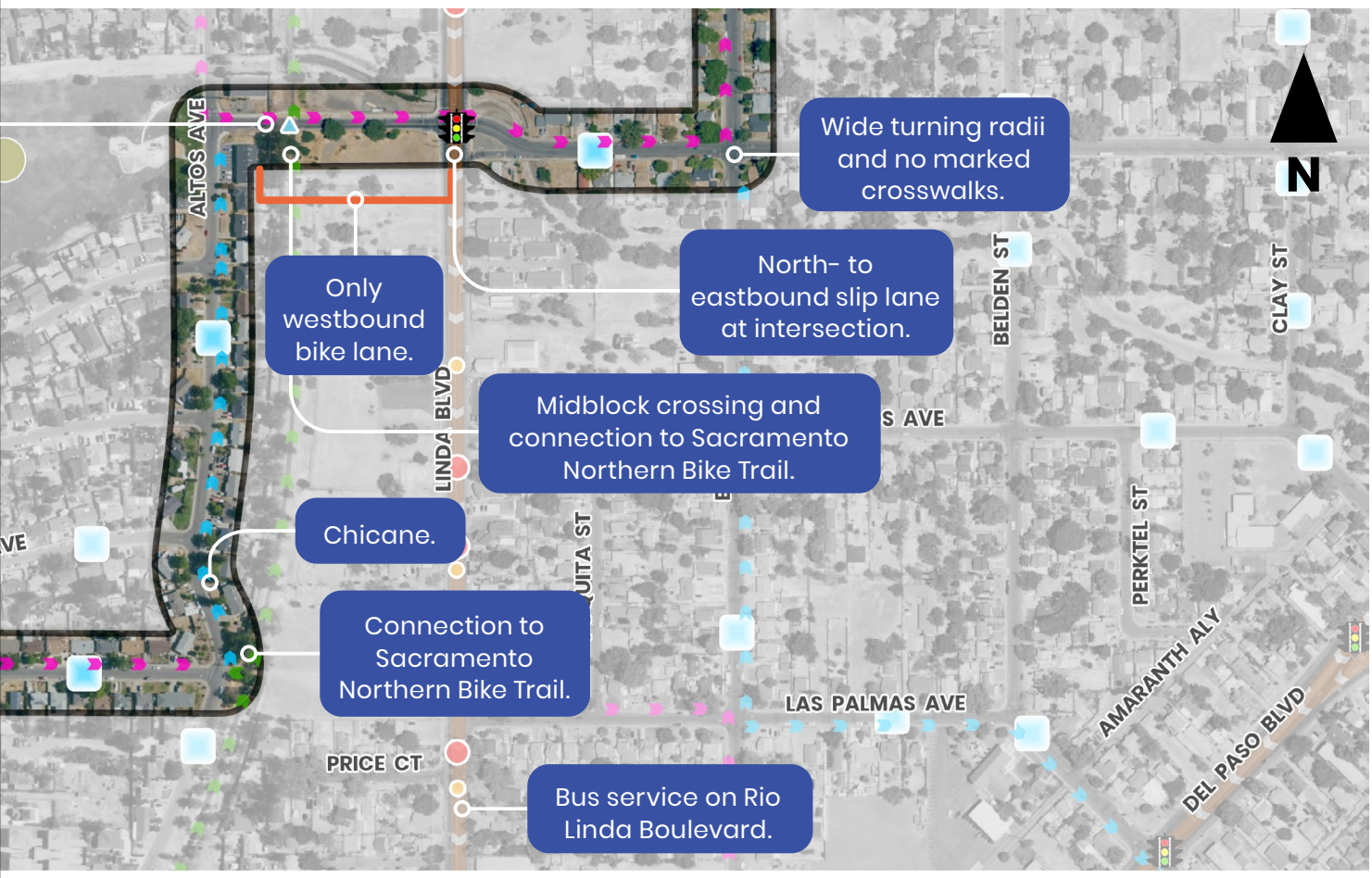
Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.

6 LAS PALMAS AVE / SONOMA AVE

OTHER:

- Fatal pedestrian crash history at Norwood Ave and Las Palmas Ave.
- Inconsistent crosswalk striping.

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

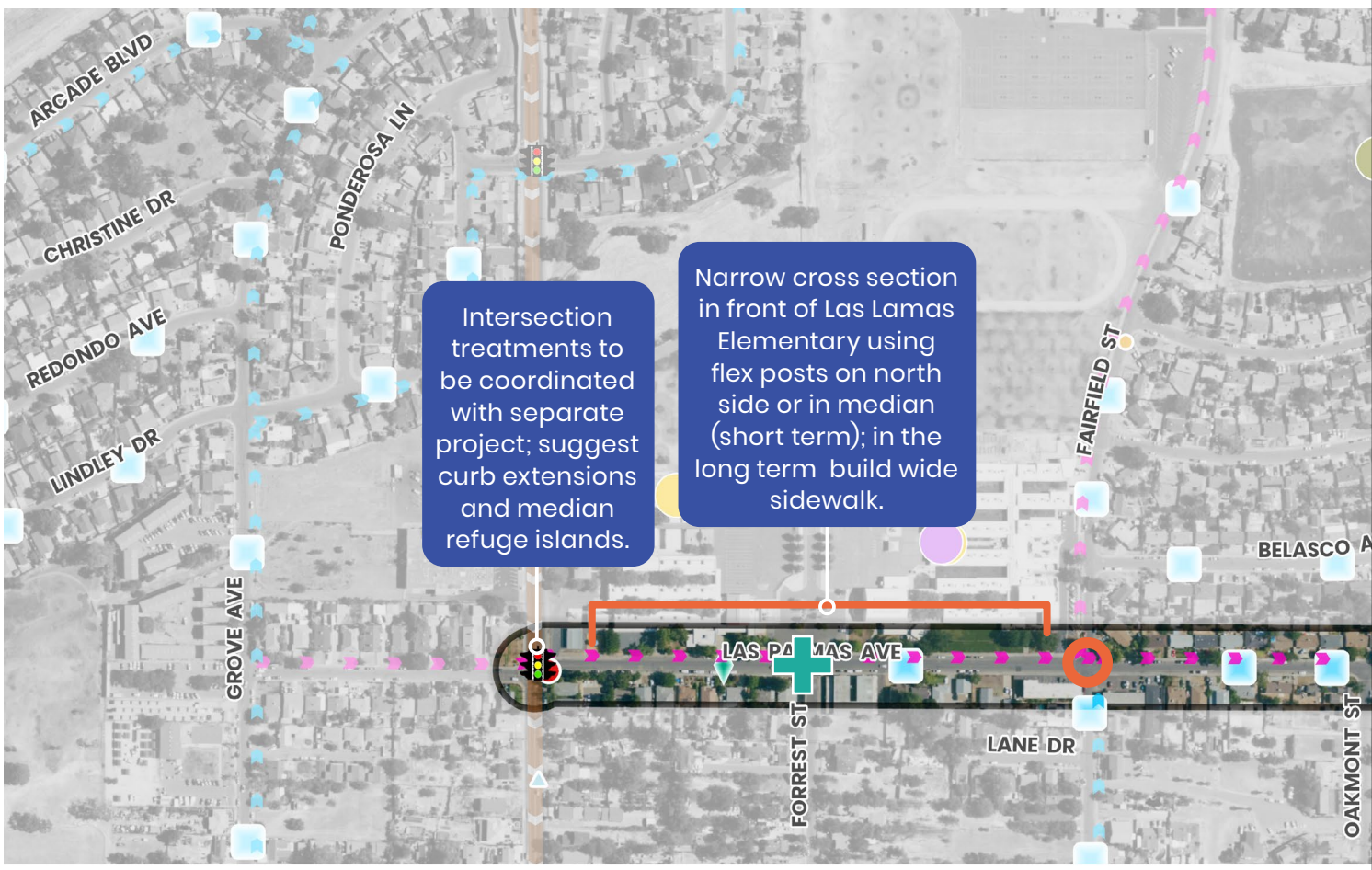
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

6 LAS PALMAS AVE / SONOMA AVE



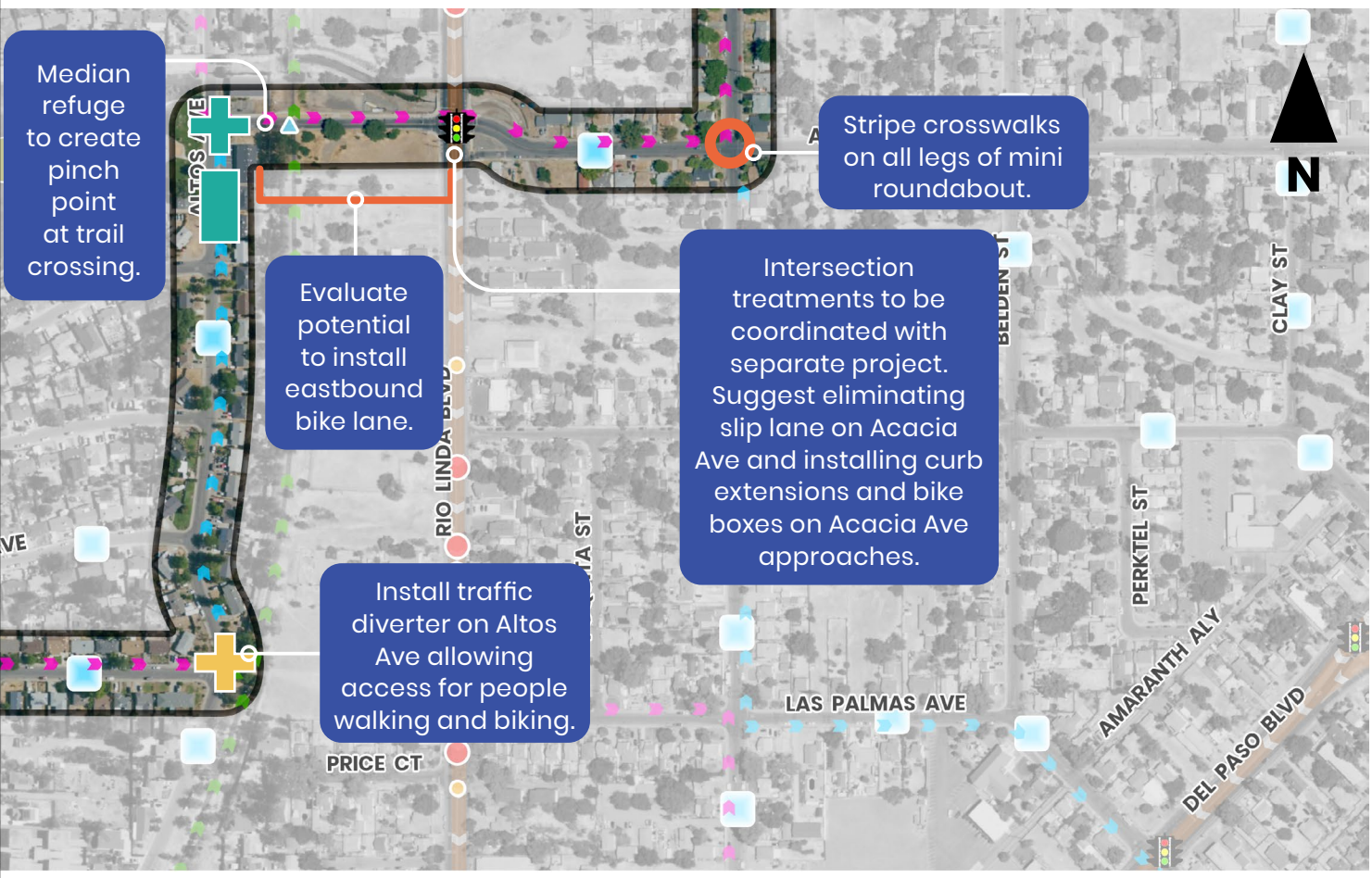
RECOMMENDED TREATMENTS:

- Raised intersection
- Chicane
- Mini roundabout
- Traffic Diverter

ADDITIONAL TREATMENTS:

- Remove parking on north side of Las Palmas Avenue from Forrest Street to Fairfield Street to extend sidewalk

Recommendations



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

7 REDDING AVE / BRADFORD DR / 75TH ST

Redding Avenue, 21st Street, Bradford Drive, Wilkinson Street, and 33rd Avenue are on the Primary Network while 71st Street and Logan Street are on the Secondary Network. The project corridor from 65th Street to Power Inn Road is a two-way street with on-street parking. The posted speed limit ranges from 25 to 35 mph, however, requires transitions along 40 to 45 mph streets. There are existing speed lumps and existing bike lanes along portions of the corridor.

QUICK FACTS

- Primary and Secondary Network
- **6** Connections to HIN Streets
- In DAC
- **1** Shared use path connection
- **4.54 MI** Length

MULTIMODAL FEATURES:

- Connection to Mae Fong Park.
- Connection to Gold Line Light Rail.
- Transit routes along 65th Street, Redding Avenue, 21st Avenue, Bradford Drive, Wilkinson Street, Logan Street, Elder Creek Road, and 75th Street.
- 21st Street Bicycle LTS: 4.
- Existing bike lanes on both sides of Redding Avenue north of San Joaquin Street to Folsom Boulevard.
- Existing bike lanes on the southbound bike lane from San Joaquin Street to 14th Avenue.
- Existing bike lanes on 14th Avenue east of 71st Street.
- Existing bike lanes on Lemon Hill Avenue.
- 2 fatal pedestrian crashes on Lemon Hill Avenue.
- 1 fatal pedestrian crash at 65th Street and Q Street.

MAJOR CORRIDORS SERVED:

- 65th Street
- Folsom Boulevard
- 14th Avenue
- Fruitridge Road
- Elder Creek Road
- Power Inn Road

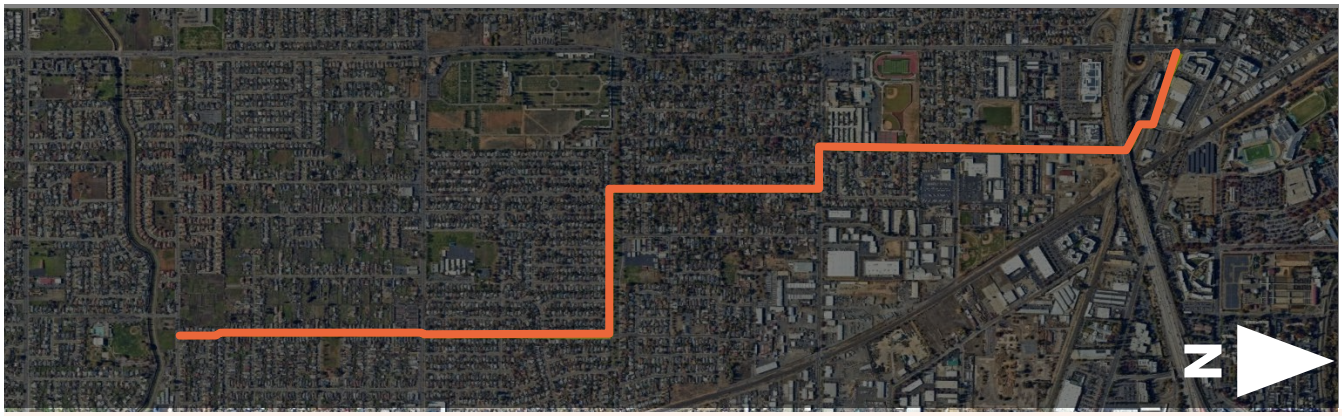
DESTINATIONS SERVED:

- Danny Nunn Park
- Camelia Elementary School
- George Sim Community Center
- Max Baer Park
- Hiram W. Johnson High School
- Mae Fong Park

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
LOCATION-SPECIFIC RECOMMENDATIONS	
Threatening intersection at Q Street and 65th Street.	Add pedestrian refuge across Q Street and create full bike box.
Q Street has limited curbs and angled parking on south sides with no existing sidewalks.	Formalize parking and add bike lanes to connect to light rail.
High traffic volumes.	Add traffic diverter on Redding Avenue north of El Dorado Freeway.
Lack of traffic calming nearby trails creating uncomfortable conditions for people walking and biking.	Add raised crosswalks at trail entrances at Mae Fong Park.
Wide intersections.	Add curb extensions at Q Street and 69th Street Add curb extensions at Redding Avenue and 4th Avenue.
High traffic crossings nearby school.	Add raised intersection at Redding Avenue and San Joaquin Street. Increase the size of the median to provide pedestrian refuge. Add marked crossings. Add raised intersection at Redding Avenue and 14th Avenue.

Recommendations are for demonstration purposes and should not be considered approved or final. Each recommendation is subject to further engineering and design studies to determine feasibility and consistency with City policies.



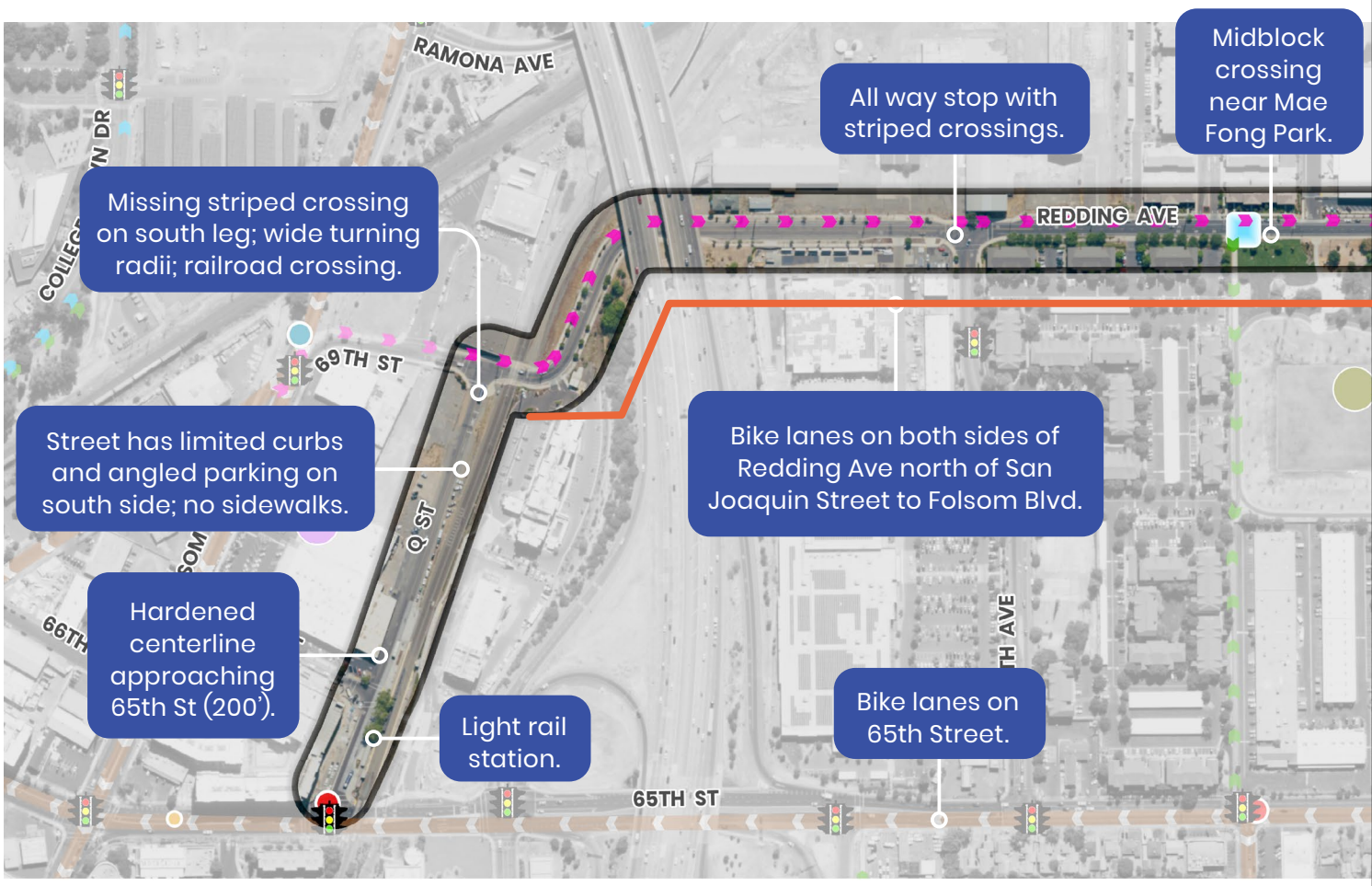
CORRIDOR EXTENTS:

Lemon Hill Ave to 65th St (3.18 miles)

NEARBY DESTINATIONS:

- Danny Nunn Park
- Camelia Elementary School
- George Sim Community Center
- Max Baer Park
- Hiram W. Johnson High School
- Mae Fong Park

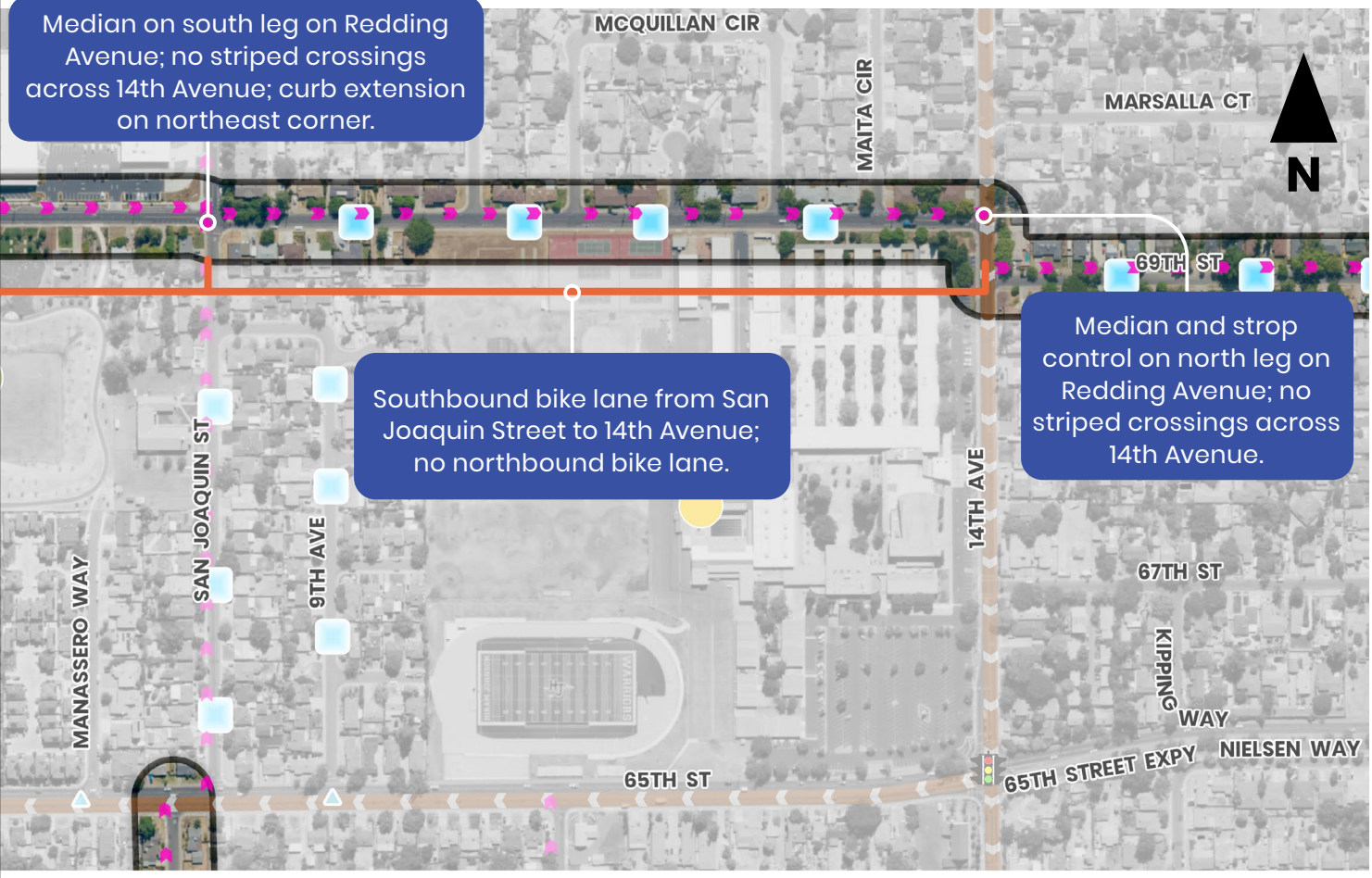
7 REDDING AVE / BRADFORD DR / 75TH ST



OTHER:

- No striped crossings across Redding Avenue, north of Maita Circle.

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

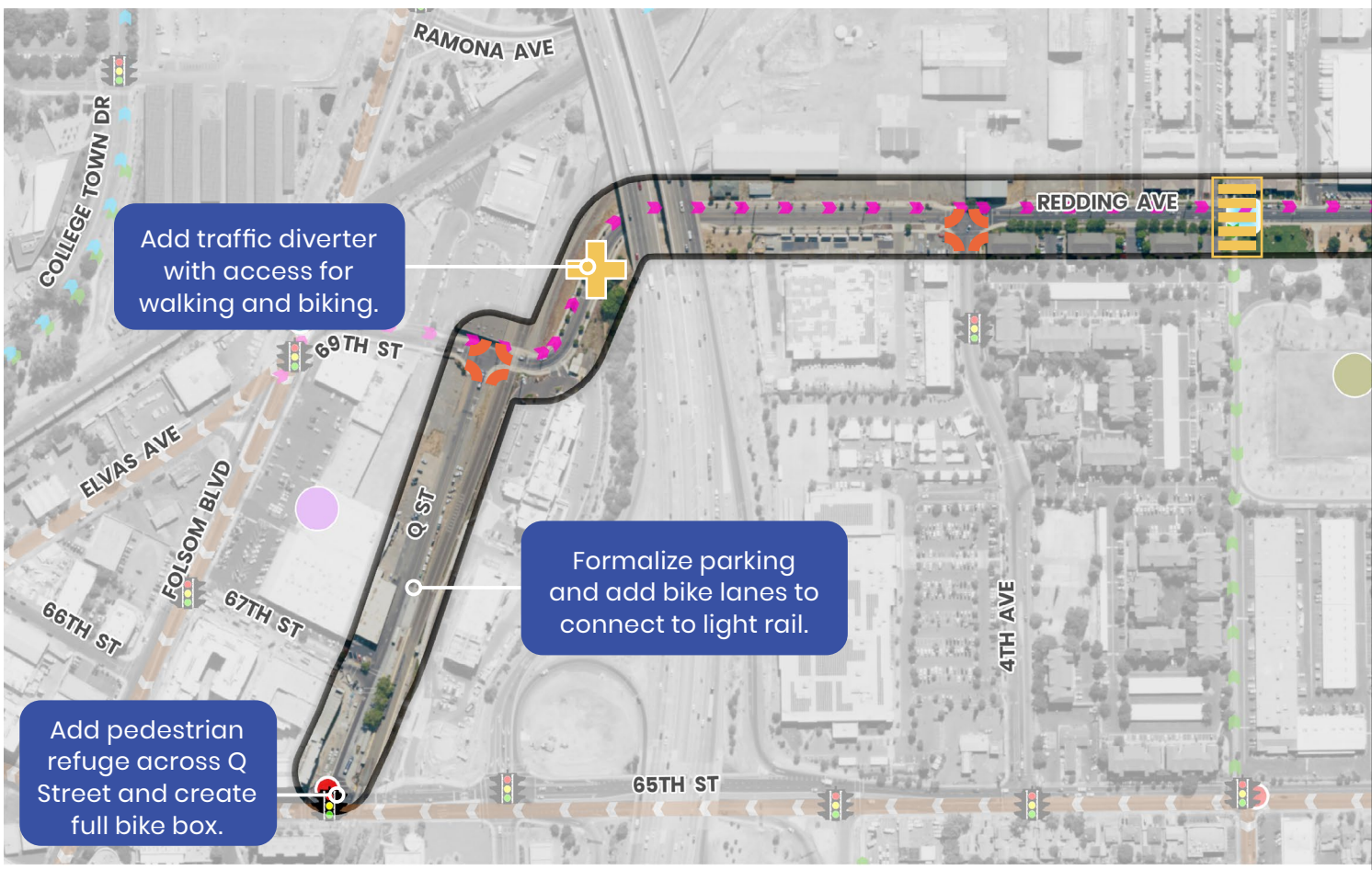
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

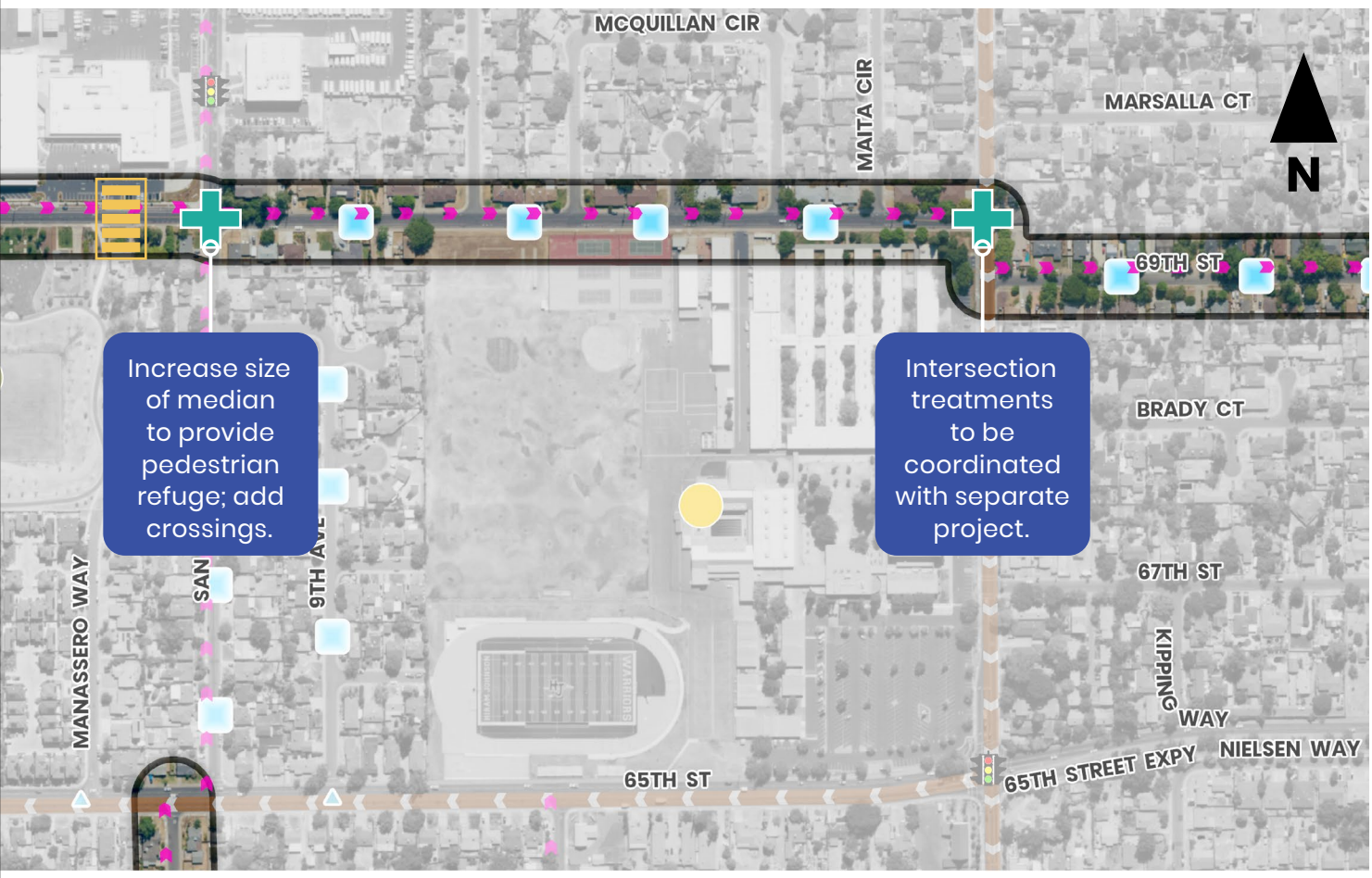
- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

7 REDDING AVE / BRADFORD DR / 75TH ST



RECOMMENDED TREATMENTS:

- Curb extension
- Raised crosswalk
- Raised intersection
- Traffic Diverter



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

8 WENTWORTH AVE / IRVIN WAY / 26TH AVE

Wentworth Avenue, Irvin Way, and 26th Avenue are on the Primary Network, while Harte Way in on the Secondary Network. The project corridor from Normandy Lane to Franklin Boulevard is a two-lane street with on-street parking. The posted speed limit ranges between 25 to 30 mph, however, requires transitions along 24th Street which is posted to be 40 mph. There are existing speed lumps along the corridor and a railroad crossing.

QUICK FACTS

- Primary and Secondary Network
- **2** Connections to HIN Streets
- In DAC
- **1** Shared use path connection
- **2.1 MI** Length

MULTIMODAL FEATURES:

- Connection to shared used path along Del Rio Road.
- Transit routes along Freeport Boulevard.
- Connection to Blue Line Light Rail.

MAJOR CORRIDORS SERVED:

- Freeport Boulevard
- 24th Street
- Fruitridge Road
- Franklin Boulevard

DESTINATIONS SERVED:

- Leonardo Da Vinci K-8 School
- Hollywood Park Elementary
- Fruitridge SacRT Station

CORRIDOR EXTENTS:

Normandy Lane to Franklin Boulevard

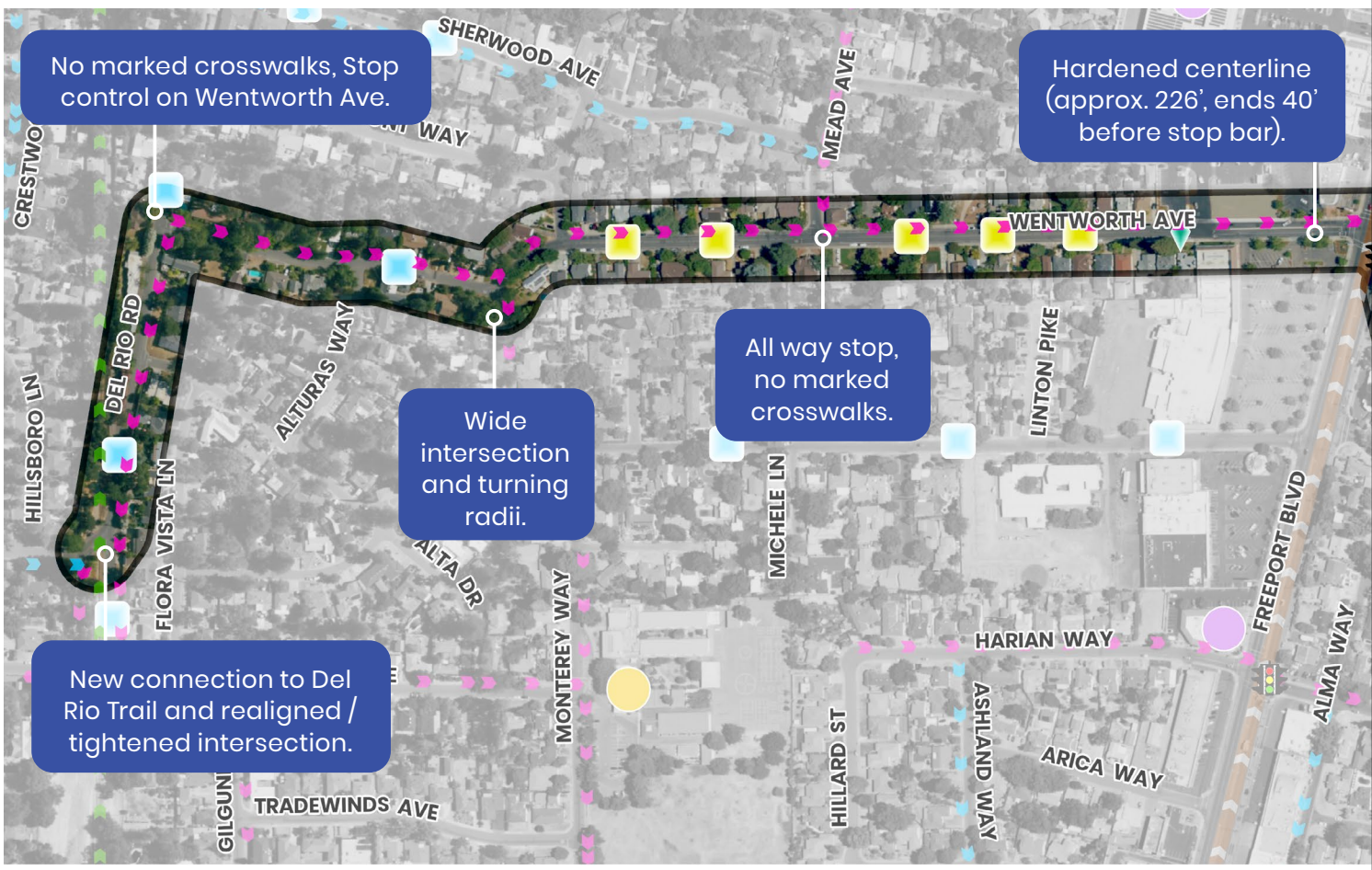
NEARBY DESTINATIONS:

- Leonardo Da Vinci K-8 School
- Hollywood Park Elementary
- Fruitridge SacRT station

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
CORRIDOR-WIDE RECOMMENDATIONS	
Gaps in the sidewalk network.	Evaluate adding a sidewalk on one side on Del Rio Road and Wentworth Avenue from Del Rio Road to Monterey Way.
LOCATION-SPECIFIC RECOMMENDATIONS	
Lack of existing traffic calming to slow vehicle speeds.	Add speed lumps along Del Rio Road, Wentworth Avenue, and Stacia Way approaching the corridor.
Wide intersection and turning radii with unmarked crossings.	Add curb extensions at Monterey Way and Mead Avenue with Mead Avenue including addition of marked crosswalks.
Wide lanes.	Add striped buffer between parking and driving lane to narrow driving lane.
Lack of marked crosswalks at uncontrolled intersections.	Add RRFB at Del Rio Road and Wentworth Avenue. Mark new crosswalk at 23rd Street and Irwin Way. Raise existing marked crosswalk and add curb extensions at Hooke Way and Irvin Way.
Existing hardened centerline on Wentworth Avenue approaching Freeport Boulevard ends 40' before stop bar.	Extend hardened centerline to crosswalk and add bike boxes on Wentworth Avenue and Stacia Way.
Offset intersections are wide allowing vehicles to speed and are uncomfortable to cross for people walking and biking.	Install northbound traffic diverter on Shielah Way and raised crosswalk across Shielah Way.
High traffic crossings nearby school.	Add raised intersection at Shielah Way and Joaquin Way. Add raised intersection at Carmen Way and Irvin Way. Raise existing midblock crosswalk and add RRFB.

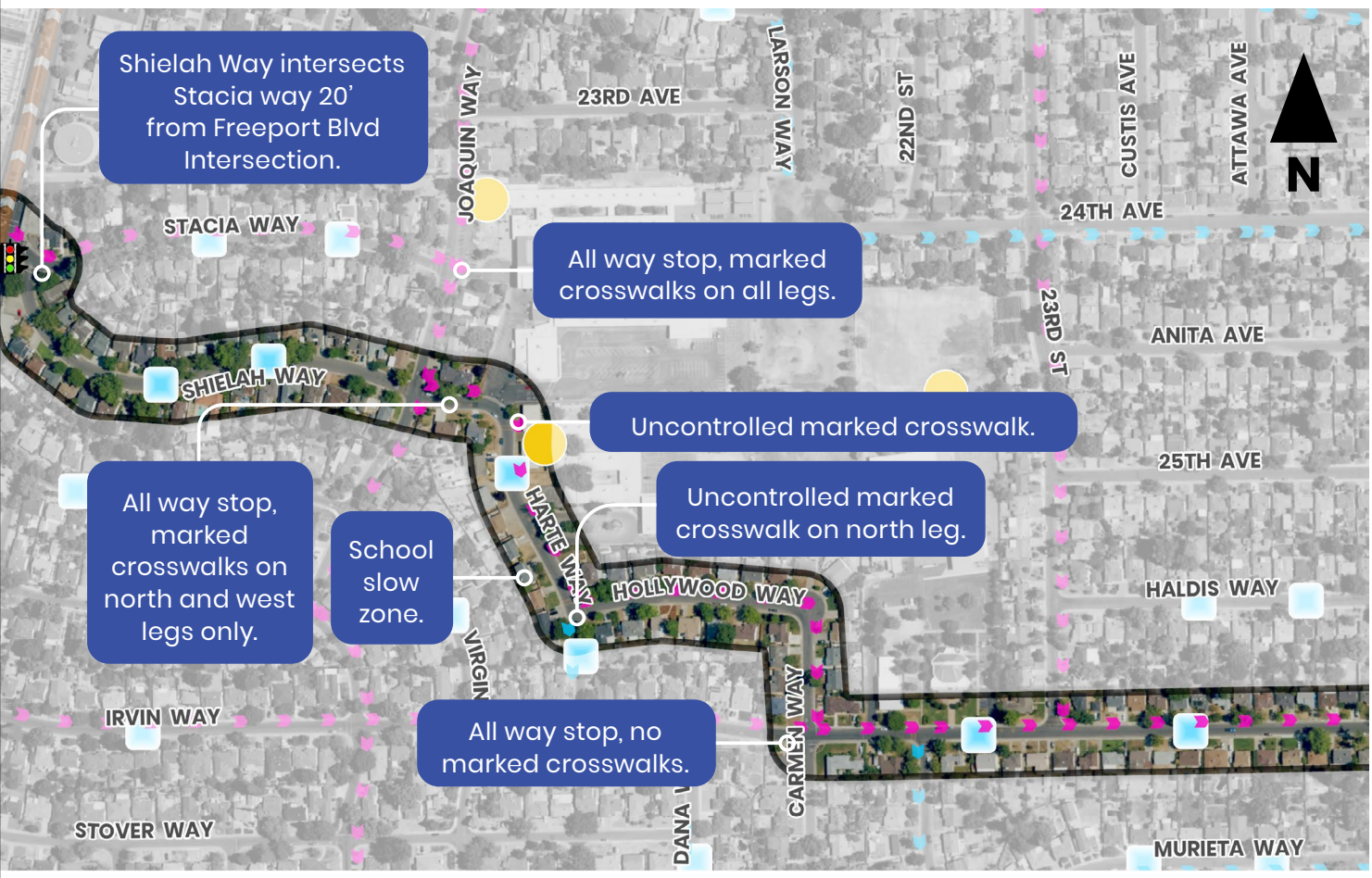
8 WENTWORTH AVE / IRVIN WAY / 26TH AVE



OTHER:

- No sidewalks on Del Rio Road or Wentworth Avenue from Del Rio Road to Monterey Way.
- Sidewalks, sharrows, and on-street parking on Wentworth Avenue east of Monterey Way.
- Garbage cans and on-street parking occupy curbside along Shielah Way.

Existing Conditions



STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

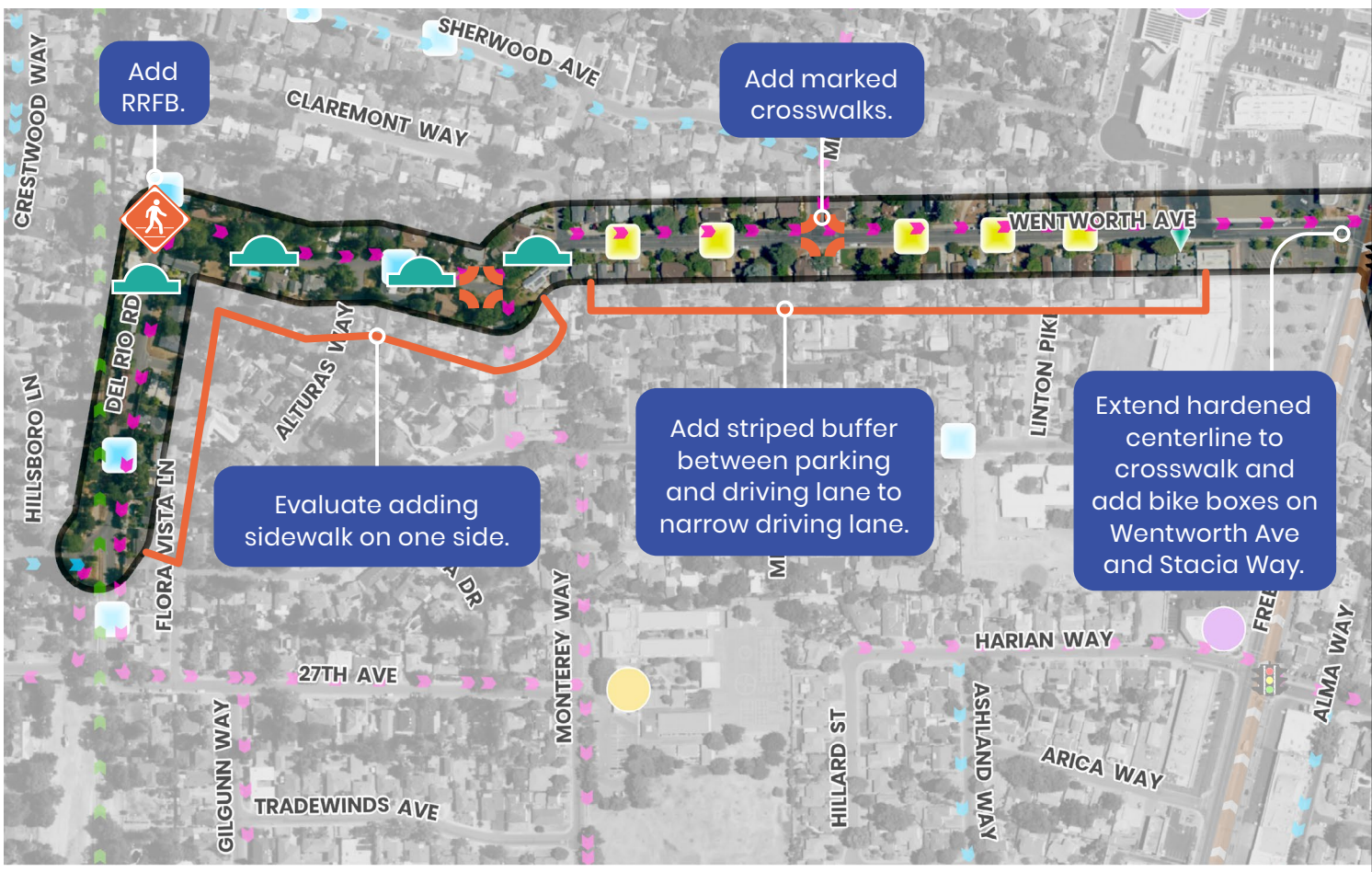
CRASH HISTORY:

- Bicycle Serious Injury
- Pedestrian Serious Injury
- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

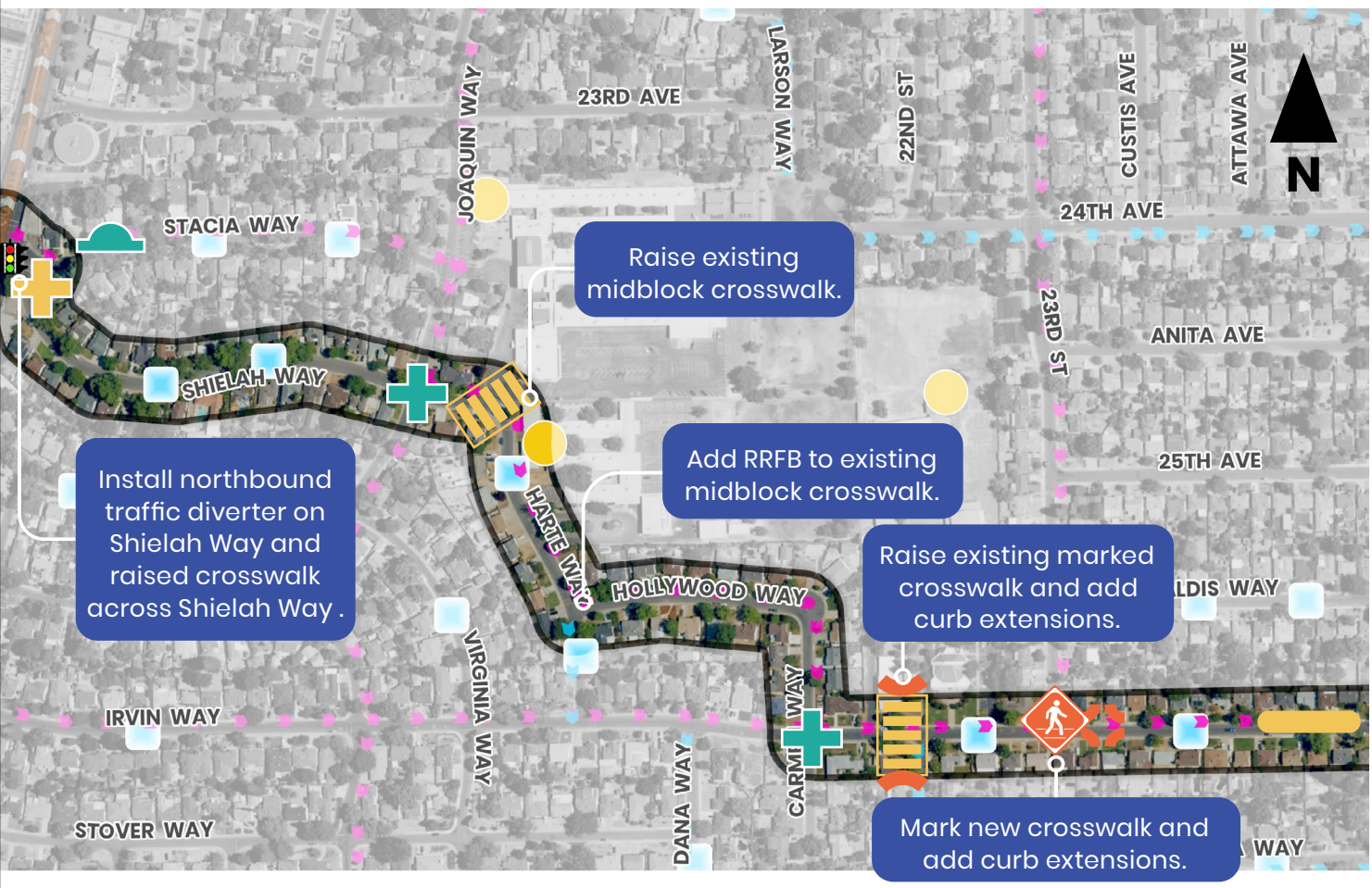
8 WENTWORTH AVE / IRVIN WAY / 26TH AVE



RECOMMENDED TREATMENTS:

- Curb extension
- Marked crosswalk
- Traffic Diverter
- Raised intersection
- Raised crosswalk
- Speed lump
- Median island

Recommendations



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DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

9 PEBBLEWOOD DR / POTOMAC AVE

Pebblewood Drive is on both Primary and Secondary Networks. Potomac Avenue is on the Primary Network. The project corridor from Azevedo Drive to Natoma Street is a two-way street with on-street parking. The posted speed limit is 25 mph and there are existing speed lumps along the corridor.

QUICK FACTS

- Primary and Secondary Network
- **2** Connections to HIN Streets
- In DAC
- **3** Shared use path connection
- **2.26 MI** Length

MULTIMODAL FEATURES:

- Transit route and bike lanes on Azevedo Drive.
- Bike sharrows on Pebblewood Drive.
- Bike lanes on Truxel Road.
- Desire line to Niños Parkway.
- 1 fatal bicycle crash at Pebblewood Drive and Truxel Road.

MAJOR CORRIDORS SERVED:

- San Juan Road
- W El Camino Avenue
- Truxel Road
- Northgate Boulevard

DESTINATIONS SERVED:

- Jefferson School
- Bannon Creek Park and Parkway
- South Natomas Community Center
- Niños Parkway
- John Straunch Park and Elementary School
- E Levee Road Trail

CORRIDOR EXTENTS:

Azevedo Drive to Natoma Street

NEARBY DESTINATIONS:

- Jefferson School
- Bannon Creek Park and Parkway
- South Natomas Community Center
- Ninos Parkway
- John Straunch Park and Elementary School
- E Levee Road trail

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
CORRIDOR-WIDE RECOMMENDATIONS	
Observed speeding.	Add speed lumps along Pebblewood Drive and add additional to support the existing ones along Potomac Avenue.
LOCATION-SPECIFIC RECOMMENDATIONS	
Missing connection to Niños Parkway.	Add bike and pedestrian connection to Niños Parkway.
Observed speeding near school zone.	Add raised intersection at Potomac Avenue at Northstead Drive.
Wide turning radii and no marked crossings.	Add curb extensions at Pebblewood Drive and Mendel Way. Add curb extensions at Pebblewood Drive and Bridgeford Drive. Add curb extensions at Regatta Drive and Northstead Drive, approaching the corridor. Add curb extensions and marked crosswalks on all legs at Potomac and Northview Drive.
Wide cross section may encourage faster driving.	Stripe bike lanes and maintain on street parking on both sides on Potomac Avenue from Northstead Drive to Northgate Boulevard.
Missing bike and pedestrian connection to E Levee Road.	Add bike and pedestrian connection to E Levee Road. Add traffic diverter that allows bike access.
Missing supporting bike facilities.	Consider bike boxes and curb extension on side street approaches at the intersection of Potomac Avenue and Northgate Boulevard.

9 PEBBLEWOOD DR / POTOMAC AVE

OTHER:

- 44' + curb to curb width on Potomac Avenue (west of Northgate Boulevard) and Northstead Drive.

Existing Conditions

STREET CHARACTERISTICS:

- Primary Network
- Secondary Network
- Shared Use Path
- Signalized Intersection
- High Injury Network

EXISTING TRAFFIC CALMING:

- Speed Lump
- Diverter
- Pedestrian Refuge
- Chicane
- Curb Extension
- Median Island
- Raised Crosswalk
- Traffic Circle

CRASH HISTORY:

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- Pedestrian Death
- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

9 PEBBLEWOOD DR / POTOMAC AVE

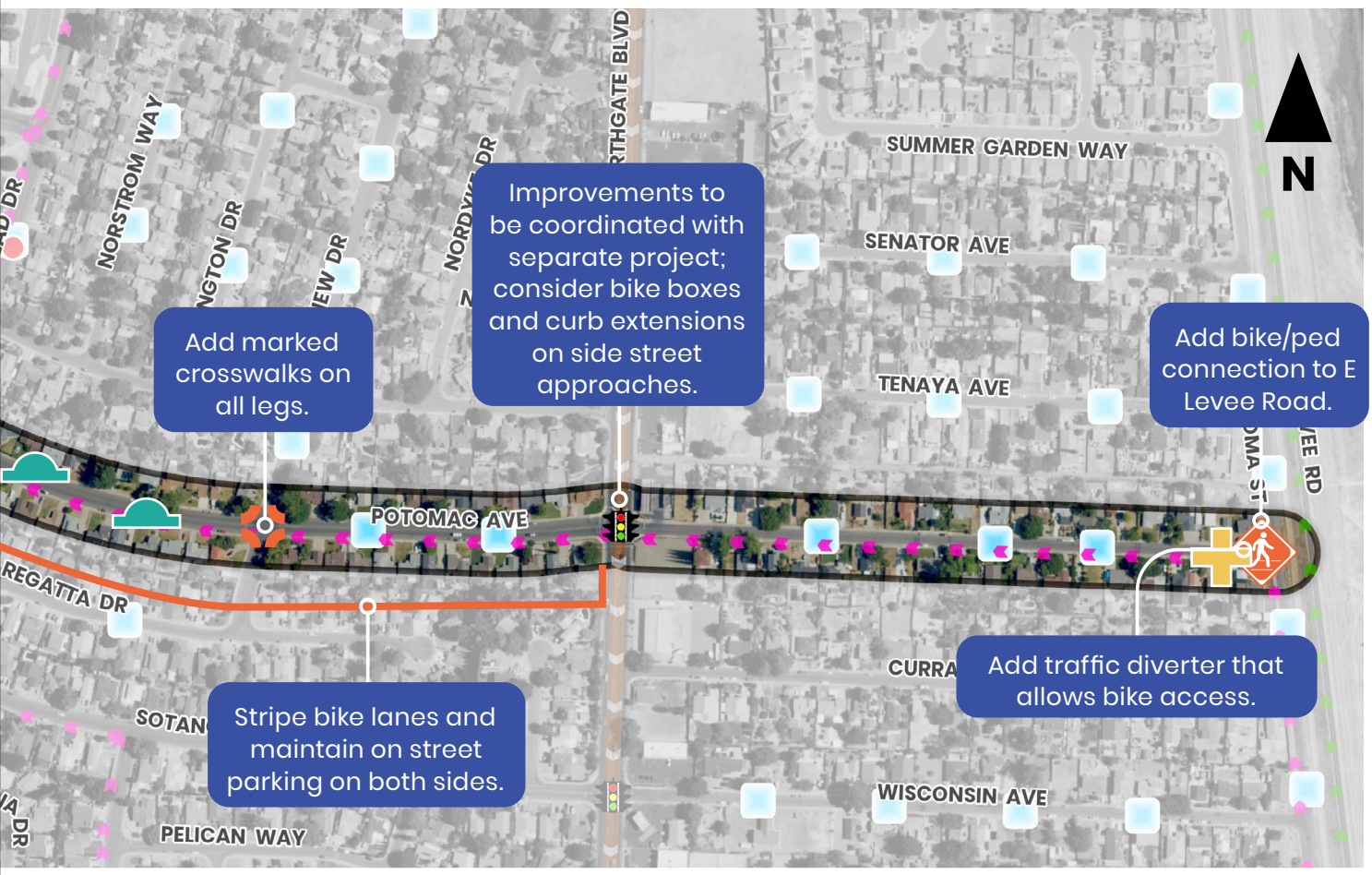
RECOMMENDED TREATMENTS:

- Curb extension
- Marked crosswalk
- Raised intersection
- Traffic Diverter
- Speed lump

ADDITIONAL TREATMENTS:

- Reduce turning radii and add marked crosswalks across side streets along Pebblewood Dr.

Recommendations



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CRASH HISTORY:

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- Bicycle Death

DESTINATIONS:

- K-12 School
- Civic / Recreation
- Essential Needs
- College / University

10 EHRHARDT AVE / CARLIN AVE

Ehrhardt Avenue and Carlin Avenue are on the Primary Network. The extents of the project corridor include Ehrhardt Avenue from Franklin Boulevard to Center Parkway, Carlin Avenue from Ehrhardt Avenue to Jacinto Avenue, and Jacinto Avenue from Carlin Avenue to Wingina Court. Ehrhardt Avenue and Carlin Avenue are two-lane streets with on-street parking and posted speeds of 30 and 25 mph, respectively. They include existing speed lumps and bike sharrows. Jacinto Avenue is a two-lane street with a center turn lane and a posted speed of 35 mph with on-street parking, speed lumps, and bike lanes.

QUICK FACTS

Primary Network

3
Connections to HIN Streets

Not In DAC

1
Shared use path connection

2.27 MI
Length

MULTIMODAL FEATURES:

- Existing bike lane on the south side and sharrow on the north side of Ehrhardt Avenue from Franklin Boulevard to Eddington Way.
- Existing bike boxes at the intersection of Ehrhardt Avenue and Franklin Boulevard to facilitate turns.
- Existing Protected bike lanes on Franklin Boulevard.
- Existing sharrows on Carlin Avenue.
- Existing bike lanes on Calvine Road and Jacinto Avenue.
- Nearby blue line light rail.
- 1 bicycle serious injury crash at the intersection of Ehrhardt Avenue and Franklin Boulevard.

MAJOR CORRIDORS SERVED:

- Consumnes River Boulevard
- Franklin Boulevard
- Center Parkway
- Calvine Road

DESTINATIONS SERVED:

- Hollywood Park Elementary
- Valley High School
- Consumnes River College and park
- John Reith Elementary School
- North Laguna Creek Wildlife Area

Crash data source: Transportation Injury Mapping System (TIMS), 2016-2020

ISSUE	COUNTERMEASURE
CORRIDOR-WIDE RECOMMENDATIONS	
Lack of traffic calming to help slow vehicle speeds.	Add median islands along Carlin Avenue narrowing lanes.
Lack of ADA ramps along Carlin Avenue.	Add pedestrian ramps and crosswalks across streets.
LOCATION-SPECIFIC RECOMMENDATIONS	
Unmarked crosswalk facilitating north/south movement at Ehrhardt Avenue and Carline Avenue.	Add raised intersection.
Unsignalized midblock crossings near school zone on Carlin Avenue.	Add raised intersections at Subblefield Way and Langtree Way.
Long crossings and wide turning radii at Carlin Avenue and Calvine Road.	Add curb extensions.
Wide turning radii and unmarked crossing at Carlin Avenue and Culpepper Drive.	Add curb extensions.
Unmarked crosswalks and missing connection to shared use path.	Add mini roundabout at Carlin Avenue and Jacinto Avenue with bike and pedestrian crossing and RRFBs to shared use path.

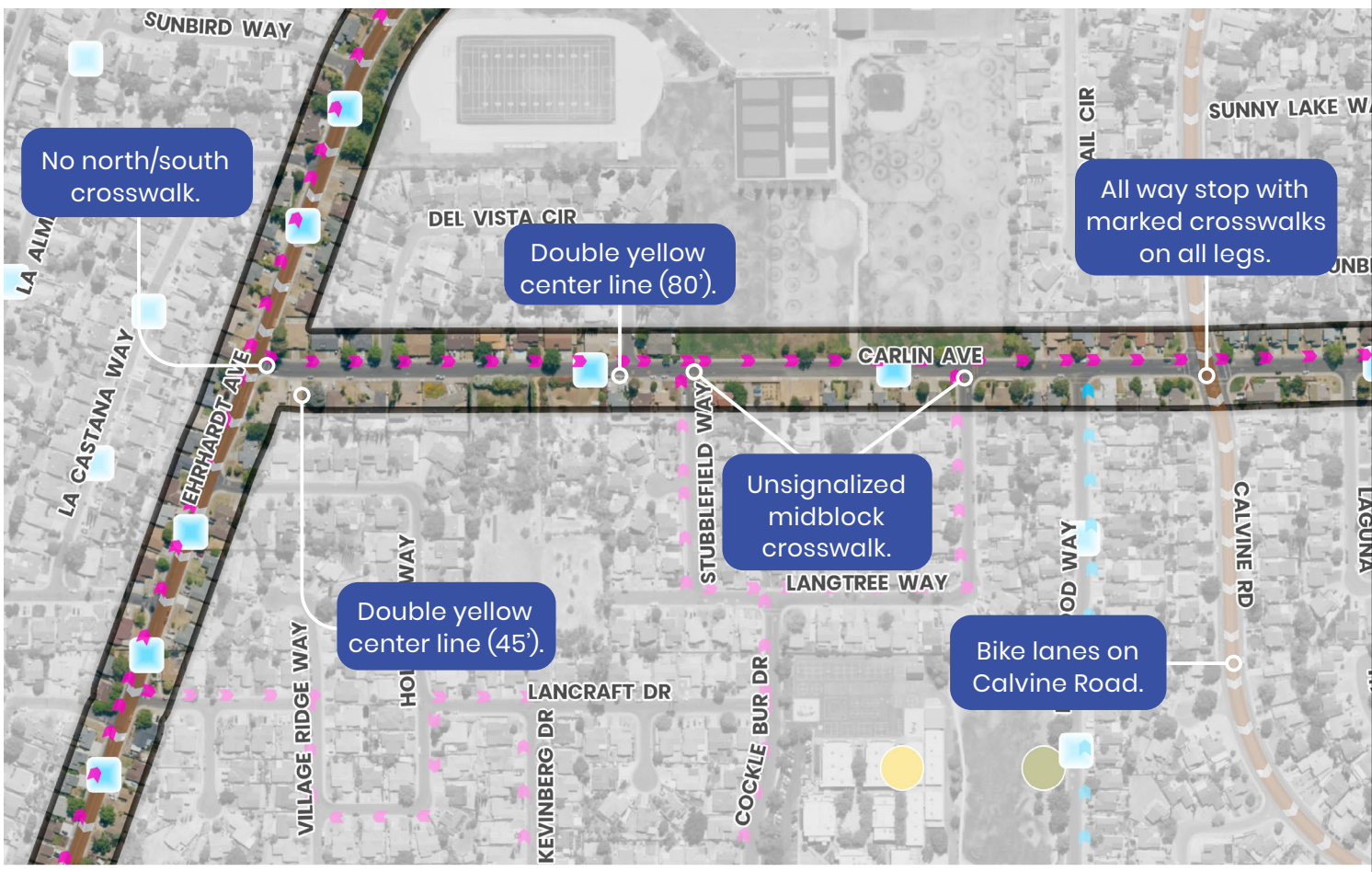
CORRIDOR EXTENTS:

- Ehrhardt Avenue from Franklin Boulevard to Center Parkway and
- Carlin Avenue from Ehrhardt Avenue to Jacinto Avenue and
- Jacinto Avenue from Carlin Avenue to Wingina Court

NEARBY DESTINATIONS:

- Hollywood Park Elementary
- Valley High School
- Consumnes River College and park
- John Reith Elementary School
- North Laguna Creek Wildlife Area

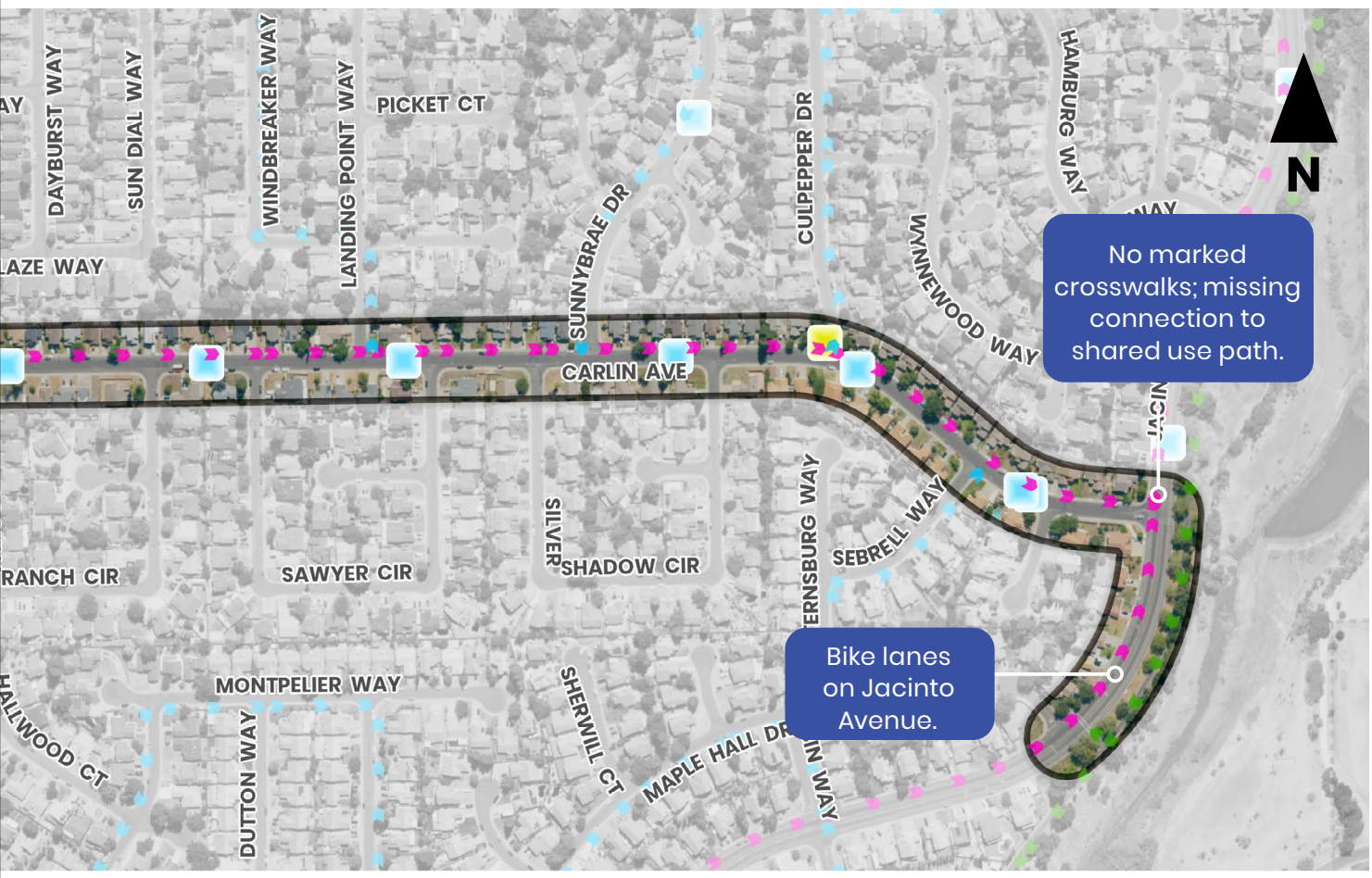
10 EHRHARDT AVE / CARLIN AVE



OTHER:

- Sharrows on Carlin Avenue.
- No marked crosswalks or pedestrian ramps unless otherwise noted; distances between east/west crosswalks up to ¾ mile.
- Slow School Zone from Rightwood Way to Del Vista Circle.
- No marked crosswalks across Carlin Avenue south of Calvine Road.

Existing Conditions



STREET CHARACTERISTICS:

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CRASH HISTORY:

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- College / University

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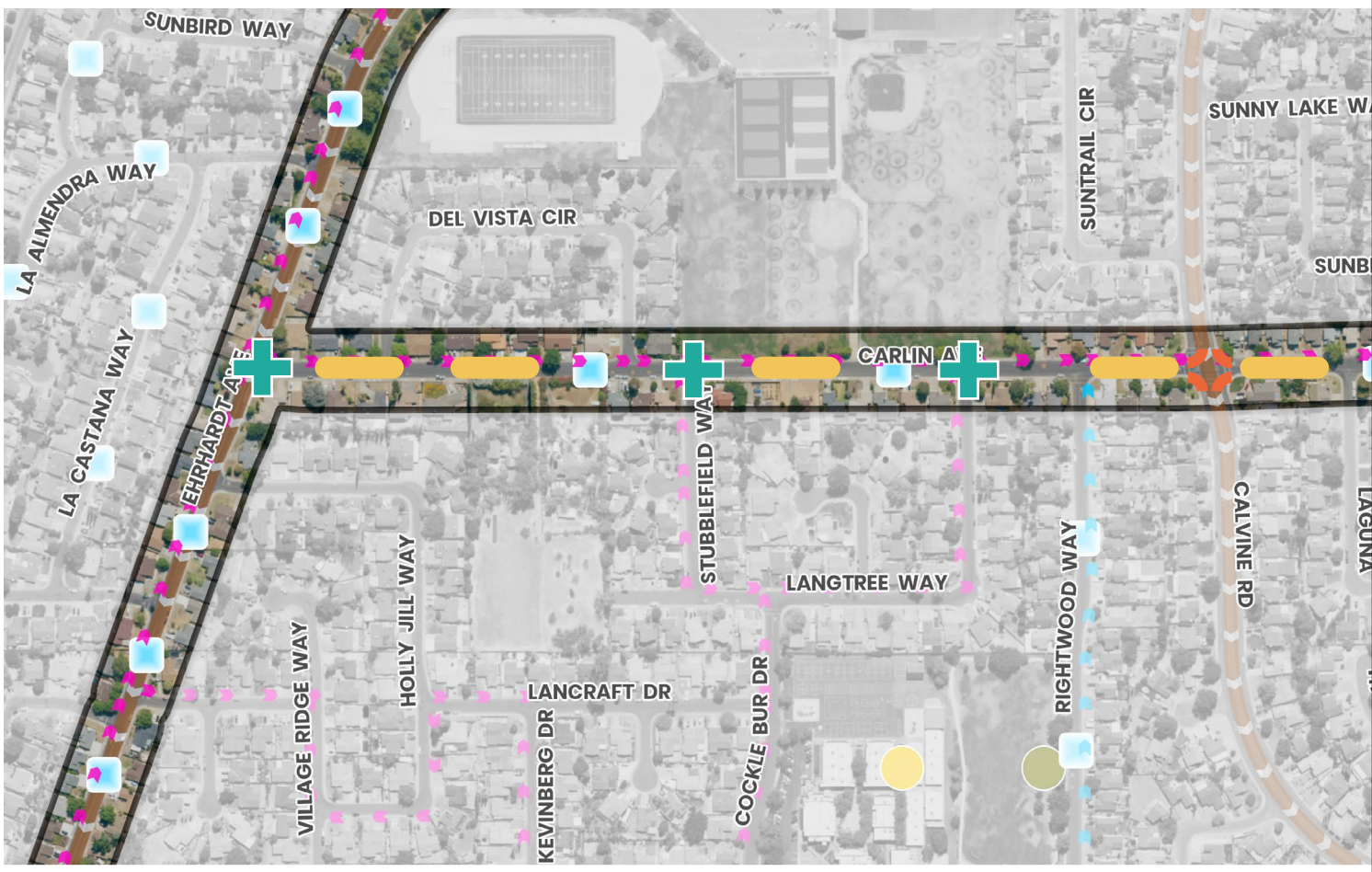


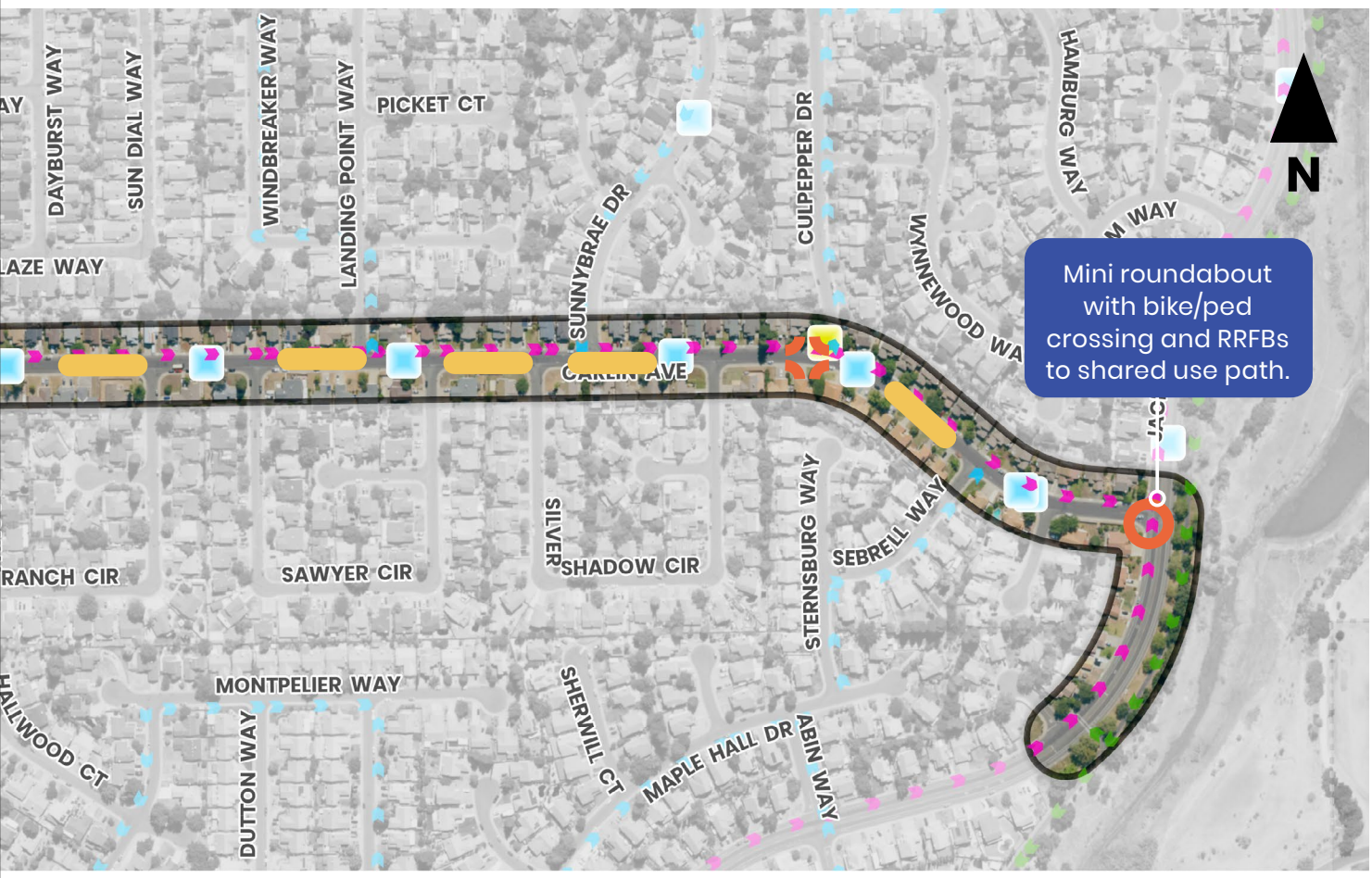
RECOMMENDED TREATMENTS:

- Curb extension
- Median island
- Raised intersection
- Mini roundabout

ADDITIONAL TREATMENTS:

- Add pedestrian ramps and crosswalks across streets along Carlin Avenue.

Recommendations



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Policy Recommendations and Implementation Guidance

In addition to the network recommendations discussed above, the Neighborhood Connections plan has identified a number of potential policies and actions which could be explored by the City to support implementation of the Neighborhood Connections network. The policy recommendations were developed based on policies that have been successful in other jurisdictions in California and the United States for similar projects. These policies would support previously adopted plans and policies adopted by the City of Sacramento. The following broad categories of strategies are considered:

- **Traffic Calming by Default** includes processes to get Neighborhood Connections treatments considered and built on City streets.
- **Design Policy Updates** includes potential elements of design policy which could be considered in addition to the traffic calming elements to be applied with or independent of any of the "Traffic Calming by Default" elements.
- **Funding and Partnerships** includes ways the City could initiate and fund projects, outside of grant opportunities and general fund efforts.
- **Building Projects Fast** includes ways to speed up construction and reduce costs.

The following table briefly summarizes the various options, what they would include, and places similar treatments have been implemented.

Table 4 – *Policy Overview and Inspiration Cities*

Traffic Calming by Default		
POLICY	**DESCRIPTION**	**INSPIRATION CITIES**
Neighborhood Connections as a Street Type	Identify a new Functional Classification or Street Typology overlay for Neighborhood Connections which prioritizes the through movement of people walking and biking. This would require an update to the General Plan. In the interim the Neighborhood Connections network may be used as an overlay similar to the Vision Zero High-Injury Network to support integration with other projects/efforts.	• Portland, OR • Phoenix, AZ • Gilbert, AZ **RESPONSIBLE DEPARTMENT** • Public Works
POLICY	**DESCRIPTION**	**INSPIRATION CITIES**
Blanket Neighborhood Connections Toolbox Approval	Blanket approval of the use of toolbox elements on Neighborhood Connections streets by City Council. Requires additional minor guidance to identify specific criteria to include or exclude each treatment.	• San Francisco, CA **RESPONSIBLE DEPARTMENT** • Public Works
Design Policy Updates* (To be applied with any or all of the "Traffic Calming by Default" options)		
POLICY	**DESCRIPTION**	**INSPIRATION CITIES**
Raised Crossings Near Schools and Parks	Develop a policy which requires consideration for raised crossings providing access to schools and parks within 1-3 blocks.	• N/A **RESPONSIBLE DEPARTMENT** • Public Works
POLICY	**DESCRIPTION**	**INSPIRATION CITIES**
Protected Crossings at Arterials	Develop a policy requiring the consideration for protected / enhanced crossings where Neighborhood Connections cross arterials consistent with the Pedestrian Crossing Guidelines.	• Portland, OR **RESPONSIBLE DEPARTMENT** • Public Works
Funding and Partnerships		
POLICY	**DESCRIPTION**	**INSPIRATION CITIES**
Integrating Neighborhood Connections into Repaving and Overlay Projects	For repaving and overlay projects, identify if the corridor is on a Neighborhood Connection. If so, consider adding relevant treatments from the Neighborhood Connections Toolbox that could be implemented. This would require identifying a subset of treatments which could be installed by the repaving/overlay team.	• San Diego, CA **RESPONSIBLE DEPARTMENT** • Public Works

Funding and Partnerships

POLICY	DESCRIPTION	INSPIRATION CITIES	RESPONSIBLE DEPARTMENT
Tying Implementation to Other Projects	For every corridor project or neighborhood plan, identify Neighborhood Connections which tie into it to expand the reach of the corridor projects to nearby residents and destinations. Include recommendations from the Toolbox on those streets. This approach can help support stronger grant funding applications.	• Redding, CA	• Public Works
Online Neighborhood Connections Map	Create a public-facing online map of streets eligible to be Neighborhood Connections. This would support slow streets implementation per California Vehicle Code §21101.	• San Francisco, CA	• Public Works
Require Neighborhood Connections in Development Approvals	Implement a policy requiring developers to build Neighborhood Connections treatments in proximity to new developments on the Neighborhood Connections network. Amend Street Design Standards to define typical applications and treatments for considerations as part of development reviews/approvals.	• San Francisco, CA • Los Angeles, CA	• Public Works

Building Projects Fast

POLICY	DESCRIPTION	INSPIRATION CITIES	RESPONSIBLE DEPARTMENT
Implement Field Engineering	Implement an approach and establish guidance for certain treatments to allow for limited design to be conducted, instead having engineers address final tweaks in the field.	• Austin, TX	• Public Works
Develop a Quick Build Toolbox	Identify a set of pre-approved tools and standard details for quick build treatments to allow quick build projects to be implemented faster and save on design costs.	• Orlando, FL	• Public Works

Funding and Ways to Get the Network Built

Building the Neighborhood Connections Network will require grant funding and leveraging other funding sources including developer impact fees, and formula-based funding methods. Typical funding sources at the local, state, and federal level are summarized below:

LOCAL AND REGIONAL

Sacramento Transportation Authority (STA) Measure A

This half-cent sales tax imposed in Sacramento County, administered by STA, is distributed to the City of Sacramento, other incorporated cities, and unincorporated Sacramento County to fund specific transportation maintenance and projects. This includes: Traffic Safety, Bicycle/Pedestrian Safety, and Maintenance funds.

Transportation Development Act (TDA) Article 3

TDA is administered locally by the Sacramento Area Council of Governments (SACOG). This act allocated federal funding toward transit and transportation projects, including bicycle and pedestrian facilities. 2% of the funding is designated for bicycle and pedestrian projects under the TDA Local Transportation Fund (LTF).

Maintenance and Rehabilitation

Future resurfacing, maintenance, and construction projects are one method of providing pedestrian improvements and traffic calming. Integrating Neighborhood Connections as an overlay during the development of these projects is critical to supporting implementation through these efforts.

Development Impact Fees and Approval Requirements

The City of Sacramento funds and/or requires the construction of roadway and associated improvements needed to accommodate traffic generated by new development in the city of Sacramento as part of the approval of development projects. Integrating and establishing a nexus for fees or approval requirements to consider Neighborhood Connections traffic calming will help to implement the network over time.

SACOG Active Transportation Program

SACOG's Active Transportation Program (ATP) funds projects and programs consistent with the vision of the Blueprint and support the implementation of the region's long range plans for active transportation. El Dorado County Transportation Commission (EDCTC), Placer County Transportation Planning Agency (PCTPA), and SACOG invest infrastructure and programmatic projects that increase and attract active transportation users and provide facilities for walking, rolling, and biking in urban, suburban, and rural areas of the region.

SACOG Carbon Reduction Program

As part of the Infrastructure Investment and Jobs Act (IIJA)/Bipartisan Infrastructure Law (BIL), the USDOT established the Carbon Reduction Program to reduce transportation-related carbon emissions from on-road highway sources. Regional funds in this program seek to position the region to better compete for zero emission vehicle (ZEV) implementation grants, advance implementation of the regional trail network, and strategically implement programs that will reduce carbon emission including sustainable mobility options and alternatives to driving alone.

SACOG Engage, Empower, Implement (EEI)

The EEI funding program establishes and funds community-based outreach and engagement projects throughout the SACOG region. Community-based organizations (CBOs) and jurisdictions will partner to plan and implement projects int their local communities with assistance from the EEI process, technical resources, and tools. EEI will use community-led planning and design principles to identify communities' priorities and develop projects that meet their needs to develop community-drive and equitable projects ready for federal, state, and local funding opportunities.

SACOG Green Means Go

Green Means Go allocates state funding to projects that create more infill housing, increase mobility, and reduce vehicle emissions. Funding will be directed to locally-nominated Green Zones, areas that cities and counties have identified for infill development in their local plan that are within a center, corridor, or established community as identified in SACOG's Metropolitan Transportation Plan/Sustainable Communities Strategy. One of the three program areas includes accelerating travel options including increasing transit, bicycle and walking trips through programs, infrastructure improvements, and new mobility options.

SACOG Mode Shift

The Mode Shift program aims to further racial equity through projects and programs that directly reach and engage low-income, disabled, and/or communities of color to address their community's transportation needs. The Mode Shift program award grants for small non-infrastructure programs, events, quick-build projects, tactical urbanism, or projects to reduce single occupancy vehicle trips and miles by encouraging biking, walking, riding transit, carpooling, vanpooling, and teleworking as options for reducing car trips.

STATE AND FEDERAL

California Active Transportation Program

California's Active Transportation Program (ATP) funds infrastructure and programmatic projects that support walking and bicycling, reducing greenhouse gas emissions, and improving public health. Competitive application cycles occur every one to two years. Eligible applications include infrastructure projects, education and encouragement non-infrastructure projects, and planning projects.

Active Transportation Infrastructure Investment Program (ATIIP)

ATIIP is a competitive grant program created by the BIL to construct projects to provide safe and connected active transportation facilities in active transportation networks or active transportation spines. ATIIP project help improve safety, efficiency, and reliability of active transportation networks and communities; improve access to transit; and help protect the environment and improve the quality of life in disadvantaged communities.

California Affordable Housing and Sustainable Communities (AHSC)

AHSC provides funding for affordable housing developments and transportation infrastructure. This may include sidewalks, bikeways, transportation-related amenities, and other programs that encourage residents to walk, bike, and use public transit. Competitive application cycles occur on an annual basis.

Highway Safety Improvement Program (HSIP)

HSIP focuses on infrastructure treatments with known crash reduction factors, such as countermeasures at locations with documented collision and safety issues. Projects must be identified on the basis of crash experience, crash potential, crash rate, or other data-supported means.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

RAISE funds major infrastructure projects, especially with road, bridge, transit, or intermodal components consistent with national objectives. Previously known as Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER), it offers grants starting at $5 million.

Safe Streets & Roads for All (SS4A)

The BIL established the SS4A program to fund planning, demonstration activities, and projects to prevent roadway deaths and serious injuries. It provides funding for community-led projects to support safer people, roads, and vehicles; appropriate vehicle speeds; and improved post-crash care.

Reconnecting Communities

The Reconnecting Communities Pilot grant program focuses on improving access to daily needs and fostering equitable development and restoration. This grant program includes capital funding for reconnecting-focused projects and small projects focused on reducing environmental harm and improving access in disadvantaged communities, as well as community planning grants.

Appendix A

Existing Conditions Technical Memorandum

Sacramento
Neighborhood Connections Plan

Existing Conditions Analysis Technical Memorandum

December 2023

KITTELSON & ASSOCIATES

City of SACRAMENTO
Department of Public Works

Table of Contents

Contents

Appendix

Chapter 1: Introduction

Study Background & Purpose

The City of Sacramento has been working to redesign its streets to better connect the people who work, live, and travel here to the destinations they want to go and people they want to see. While the City has undertaken a number of transformative projects like the Central City Mobility project to build over 60 blocks of parking protected bikeways, the Covid-19 Pandemic showed us that Sacramentans want more – more active transportation options, more connectivity, increased safety, and more equitable and healthy access.

In response to the Pandemic, the City implemented Slow & Active Streets from December 2020 through July 2021. The Slow & Active Streets pilot prioritized walking and biking on those residential streets nominated by residents and meeting certain technical requirements. The pilot projects utilized low cost, simple tools such as signs and cones to divert pass-through traffic and reduce vehicle speeds. The feedback gathered from residents and street users was generally positive, with a majority of survey respondents reporting traffic slowed down and many reporting they walked, biked, ran, and scooted more than before the pilot. Even after the pilot ended, Sacramentans continue to request traffic calming on neighborhood streets.[1]

The City's dedication to safety, as outlined in Vision Zero and the Active Transportation Plan, has set the stage for the exciting development of the Streets for People Plan. In recognition of the need for low-stress connections to everyday neighborhood destinations, the City of Sacramento is working to identify a network of Neighborhood Connections that feel safe and comfortable. Streets for People therefore includes two types of active transportation routes:

- The Citywide **Active Transportation Network** serves longer distance trips on major corridors to major destinations. These are generally regional or inter-community connections.
- **Neighborhood Connections** are generally local streets which include enhancements to slow traffic and support walking, biking, and rolling for people of all ages and abilities and which provide convenient connections to neighborhood destinations without utilizing major roads.

This report identifies the existing conditions in the City in relation to Neighborhood Connections. Unless otherwise noted, all reference sources are listed in Appendix A.

Study Area

The Study Area for Neighborhood Connections includes every street in the City that is not a freeway. While Arterials and Collectors are included in the analysis, the study focus is on local streets. While higher speed and heavier trafficked routes may include city-wide connections via the Active Transportation network, many people may still not be comfortable traveling along them. Neighborhood Connections provide an attractive alternative everyone can enjoy, while also addressing traffic calming needs and access to destinations. The Neighborhood Connections study area can be seen in **Figure 1** on the next page.

Report Organization

This report includes the following sections:

1. Background & Introduction: Introduces the study area and intent of the plan.

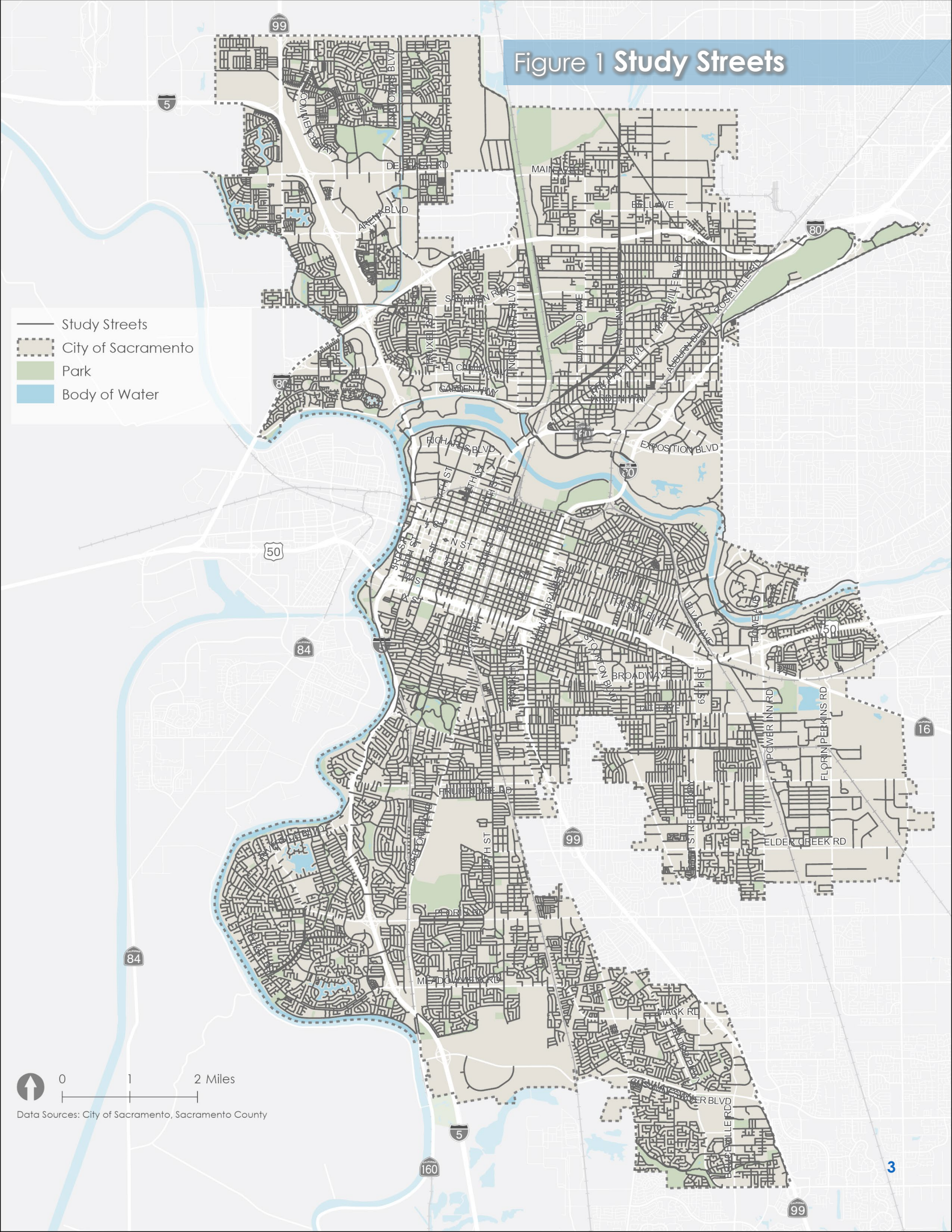
2. Planning Context: Describes the current and past planning efforts related to neighborhood connections.

3. Learning from Our Peers: Summarizes the efforts of peer cities in implementing similar networks.

4. Sacramento Today: Reports the multimodal, demographic, and land use characteristics in Sacramento which may be relevant to the development of Neighborhood Connections.

5. Summary and Key Findings: Identifies preliminary issues, needs, and opportunities based on the analysis presented in this report.

Figure 1 Study Streets



Chapter 2: Planning Context

The City of Sacramento has a variety of existing plans that address local street connections, low-stress routes, and pedestrian connections, all of which are pivotal components for establishing the Neighborhood Connections network. Themes among the recommendations in the adopted plans include safety and access for people who walk, bike, and roll. Recently implemented and active projects completed by the City and other partners include:

Walk Audit Projects

The City and partners such as Civic Thread and the County, have conducted walk audits with parents, students, community partners, and school staff to identify infrastructure improvements with the goals of improving safety for people walking and people biking, as well as enabling more people to choose active methods of travel.

- Woodbine Park Walk Audit (2021)
- Freeport Boulevard Walk Audit (2020)
- Elder Creek Elementary Walk Audit (2020)
- North Sacramento Walk Audit (2019)
- Oak Ridge Elementary Walk Audit (2019)
- Will C. Wood Middle School Walk Audit (2019)
- Fruitridge Walk Audit (2019)
- Peter Burnett Elementary Walk Audit (2018)

The most common recommendations by these plans were buffering existing bike lanes; adding and widening sidewalks; restriping crosswalks; and adding curb extensions. Several recommendations also focused on improving crossing conditions for people walking through leading pedestrian intervals, reduced crossing distances, pedestrian-scale lighting and high visibility crossings, pedestrian refuge islands, pedestrian hybrid beacons, rectangular rapid-flashing beacons (RRFBs), and increased pedestrian crossing time. Other recommendations included traffic calming, road diets, trail crossings and connections, wayfinding, upgraded signage/stop controls/pedestrian signals, and upgraded transit facilities through provision of ADA compliant facilities, benches, shade, and trash receptacles.

Citywide Plans

Walking and Biking Plans

The existing Bicycle and Pedestrian Master Plans identify planned networks of infrastructure for people biking and walking. These plans have been reviewed to provide context for the Sacramento Streets for People Plan.

- Bicycle Master Plan (2016 – amended 2018)
- Pedestrian Master Plan (2006)

The Pedestrian Master Plan echoes a lot of the recommendations identified in the walk audit reports: adequate crossing times, minimized crossing distances, roadway width reduction, pedestrian refuge islands, and countdown signals. The Bicycle Master Plan also includes a recommendation for hundreds of miles of on- and off-street bikeways and amenities like parking and wayfinding. Equity is a key focus for prioritization in all plans.

Vision Zero

In January 2017 the City adopted a goal to work collaboratively in a data-informed effort to eliminate traffic fatalities and serious injuries by 2027. Vision Zero Plans include:

- Vision Zero Sacramento Action Plan (2018)
- Vision Zero Top 5 Corridors (2020)
- Vision Zero School Safety Study (2021)

The three documents complement each other. The Action Plan lays out goals and policies to achieve zero traffic fatalities and serious injuries by 2027 and provides an extensive list of recommendations to reach this goal. The Corridor and Safety Study reports make more location-specific recommendations along five one-mile corridor segments and around 20 local schools, including adding new signals and increased signage, reducing vehicles speeds to 15 mph, refreshed pavement markings and edge line striping, slowed green waves, and advanced dilemma zone detection.

Guidance Documents

The City has adopted roadway guidelines and procedures that recommendations must adhere to, including:

- **Criteria and Guidance for Creative Crosswalks (2021):** Outlines criteria for artistic crosswalks in the city.
- **Pedestrian Crossing Guidelines – Treatment Applications Guide (2021):** Offers design and implementation guidance for selecting pedestrian crossing treatments for new or existing crosswalks.
- **City of Sacramento Complete Streets Policy (2019):** Promotes inclusive transportation network planning.
- **Design and Procedures Manual Section 15: Street Design Standards (2009):** Aims to ensure safer and efficient movement of people driving, biking, and walking while considering future maintenance costs.
- **City of Sacramento Speed Lump Program Guidelines (2014):** Advances traffic safety, neighborhood livability, and uniformity in the installation of speed lumps within the city.

Neighborhood and Corridor Plans

The City as well as partners such as Civic Thread, Walk Sacramento, and Neighborhood Associations, have adopted safety and mobility plans that address the needs of all users. Recommendations include:

Plan	Active Transportation Related Improvements Included
Pocket Greenhaven Transportation Plan (2023)	Stop markings and advanced yield. Buffered bike lanes and conflict markings. High-visibility crosswalks and pedestrian signal improvements such as countdowns, extended clearance, and leading intervals. Curb extensions and refuge islands. Speed feedback signs. Hardened lane lines. Roundabouts/traffic circles. Speed lumps.
Northgate Boulevard Transportation Plan (2023)	Sidewalk improvements: lighting, obstruction removal, widening, shade, and direct paths. Bikeway improvements: improved connections to destinations, separated bikeways, continuous bikeways through intersections, and secured bike parking at destinations. Includes transit, crosswalk, and driving improvements.
Freeport Boulevard Transportation Plan (2023)	Wider and unobstructed sidewalks. New and enhanced crosswalks, including refuge islands and reduced crossing distances. Buffered bike facilities.
Reconnecting the Franklin District (2022)	Low stress bike routes. Safer crossings and safe routes to school. Improved signage. New connecting route.
Stockton Boulevard Corridor Plan (2021)	Concept drawings for crossings, bike facilities pedestrian-scale lighting, medians, landscaping, and signals intended to address safety and crossing needs.
Sacramento Center for Innovation (2013; amended 2018)	Redevelopment for the Sacramento Center for Innovation study area incorporating the Ramona Avenue Extension project, the Folsom Boulevard Improvements project, the 14th Avenue Extension and Improvements project, the San Joaquin Street Extension project, and the 65th Street Transportation Plan.
Oak Park Active Travel Study (2017)	Traffic calming. Discouraging parking on sidewalks. Explore feasibility of Broadway road diet. Planting street trees. Curb bulb outs. Roundabouts/traffic circles. Reconfiguring streets to be perpendicular. Rectangular rapid flashing beacons. Pedestrian scrambles. Leading pedestrian intervals.
South Area Community Plan (2015)	Green streets. Transit-oriented neighborhoods. Public gathering places. Coordinate transit stations with retail and residential land use.
Southeast Sacramento Bicycle and Pedestrian Access Study (2008)	New streets and additional on- and off-street bicycle facilities. Sidewalk connections to schools. Pedestrian crossing and intersection improvements.
Swanston Station Transit Village Specific Plan (2007)	New open spaces. Improved transit stations. Pedestrian and bike overpasses. Lower parking standards and requirements to support transit-oriented development.
Midtown Neighborhood Preservation Transportation Plan (1999)	Roundabouts/traffic circles. Half-street closures. Exploring truck route designation on C Street. *This plan has been implemented and the City continues to monitor the results.*

Chapter 3: Learning From Our Peers

Introduction

Reviewing the actions taken by other peer cities can help inform the process of implementing slow streets in Sacramento. The study team reviewed six US cities and five international cities in detail to identify successes, challenges, and lessons learned. These highlights can be applied to Sacramento for a more efficient design and implementation process.

Peer City Selection

Peer cities were identified based on several factors, including population size and density, existing and planned slow streets and neighborhood route networks, urban context and layout, and available plan documentation. The following US and international cities were selected based on the criteria in **Figure 2**:

United States Cities
- Boston, Massachusetts
- Minneapolis, Minnesota
- Portland, Oregon
- Oakland, California
- Denver, Colorado
- Austin, Texas

International Cities
- Paris, France
- Utrecht, Netherlands
- Greater Melbourne, Australia
- Barcelona, Spain
- Bogota, Colombia

Please see Appendix B and Appendix C for a detailed review of domestic and international peer agencies.

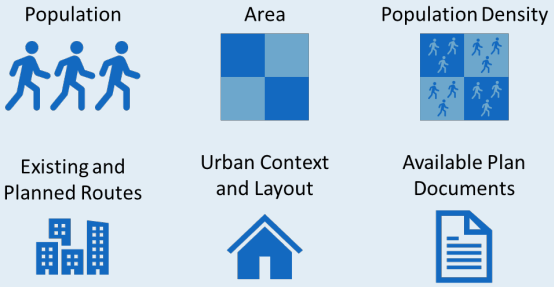


Figure 2: Peer City Selection Criteria

Peer City Efforts & Accomplishments

United States

Boston, Massachusetts
- Implemented traffic-calming infrastructure and 20-mph speeds in 15 neighborhoods.
- Reduced default speed limit from 30 to 25 mph.
- Plans to install 500 speed humps annually.
- Used gamification to reduce aggressive driving.
- Neighborways give priority to people walking and biking.

Minneapolis, Minnesota
- Reduced residential speeds to 20 mph and placed signs along the city limits to alert drivers.
- The annual five-phase Traffic Calming Program accepts request forms from the public.
- Developed a Traffic Calming Toolbox to guide traffic calming feature implementation.

Portland, Oregon
- Created a neighborhood greenway network with more than 100 miles of 15-mph streets.
- The Slow Streets Program converts qualified low-traffic streets and greenways into slow streets with restricted through traffic.
- 76% of the 2,100 miles of Portland streets have a 20-mph speed limit.

Oakland, California
- Focused on enforcing 15-mph speeds and connecting residents to "essential places."
- Found that residents value traffic safety more than creating space for physical activity.
- Using NACTO to set target speeds and volumes.
- Traffic Safety Requests Program works to deliver quick-build, low-cost safety improvements.

Denver, Colorado
- Using narrowed streets and greenspace landscaping to implement Open Streets and Shared Streets to combat a history of vehicle-based infrastructure.
- Planning to build thousands of miles of dedicated active and public transportation facilities.

Austin, Texas
- Using a Shared Streets program to address missing sidewalks.
- The Speed Management Program implements speed limit changes and traffic calming treatments on residential and commercial streets across the city.
- Traffic calming toolkit categorizes devices by device type and road/traffic characteristics.

International

Utrecht, Netherlands

- 100% of residents can reach all primary destinations within 15 minutes via a safe bike route; now aiming to be a 10-minute city.
- Modal filters prevent through-traffic and geometric features keep speeds low (20 mph).
- Home to the world's largest bicycle parking facility.

Paris, France

- Individual city sectors are allocated equal parts of the City budget to adjust street space use and create green spaces.
- Focused on multifunctionality of spaces.
- Removing on-street parking and building new bicycle parking spaces.

Greater Melbourne, Australia

- Aiming for residents to be able to meet their needs through 20-minute round trips on foot.
- Pilot study report highlights key opportunities to address transportation.
- Focused on increasing density and incorporating green infrastructure.

Barcelona, Spain

- "Superblocks" (clusters of nine city blocks) have increased the number of bicycling and walking trips and decreased vehicle trips.
- Adding 503 more superblocks, expanding the bike network, creating pedestrian-only streets, and adding 40+ miles of bus lanes.
- Focused on user comfort through shade, street furniture, and public art.

Bogota, Colombia

- Aims to be a 30-minute city by walking or bicycling.
- Currently constructing its first subway line with indoor bicycle parking facilities at 12 of the 16 stations.
- Applying changes to specific areas for easy comparison to control areas to evaluate impact.

Lessons for Sacramento

Planning, Design, and Implementation

Planning and Design

- A detailed, organized traffic calming toolbox can speed up the design process.
- Basing network development in data and ground truthing the analysis with lived experiences of community members may result in more usage.
- Calls for applications from the community can help build support.
- Consider land use and destinations when identifying routes and developing solutions.

Implementation

- Quick-build features with temporary materials can result in valuable feedback from city residents.
- Significant signage should be used to alert residents of speed limit reductions.

Check in on Changes

- Have a strategy for monitoring progress: timelines, quantitative goals, and control areas can help with this.
- Monitor implementation and adjust projects or the program as needed.
- Use a data-informed approach, considering both data and user experience, to monitor road user safety.

Give a Role to the Residents

- Allowing requests from the public helps to highlight community needs.
- Providing an interactive map of eligible streets provides transparency and helps community members understand where improvements may be feasible.
- Gamification is an interactive way to raise public awareness of and decrease aggressive driving habits.

Chapter 4: Sacramento Today

The People of Sacramento

Understanding mobility and land use trends and challenges happening today lays the foundation for the City of Sacramento of tomorrow. This section provides an overview of existing socioeconomics, land use patterns, and economic characteristics and trends that sets a baseline for evaluating the City's transportation system.

Sacramento at a Glance

According to the US Census Bureau American Communities Survey (2021 5-Year ACS), Sacramento has just over half a million residents.

- **Total Population (2021):** 518,605
- **People of Color:** 68.9%
- **Total Housing Units:** 194,004

Trends and Changing

According to the 2021 5-Year ACS and 2010 5-Year ACS:

- **We are getting a tad older.** In 2010, the median age was 33.1, in 2021 the median age increased to 35.2. In 2021, half (50%) of the population was under 35 years of age.
- **We are getting more educated.** In 2010, 19% of Sacramento residents 25 years or older had a bachelor's degree or higher. In 2021, 24% of residents have attained a bachelor's degree or higher.
- **We are getting wealthier.** In 2010, the median household income was $62,464 (adjusted to 2021 dollars) and increased 14% to $71,074 in 2021. Along with this, we have more access to vehicles; the percentage of Sacramentans with access to a vehicle increased from 90% to 92% over the same period.
- **We are getting more diverse.** In 2010, the percentage of racial and ethnic minorities in the City was around 64%. In 2021, that percentage increased to just under 69%.

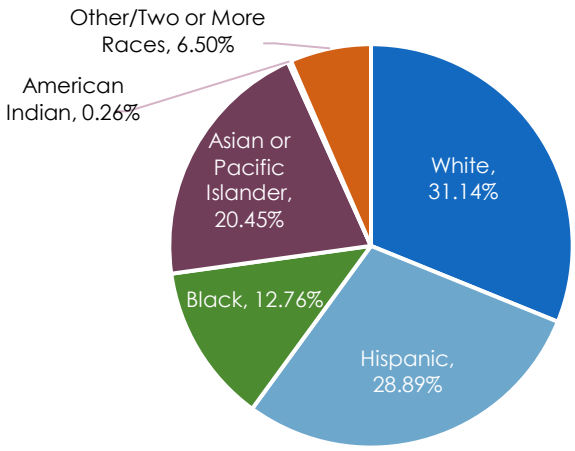


Figure 3: Sacramento Population by Race (2021)

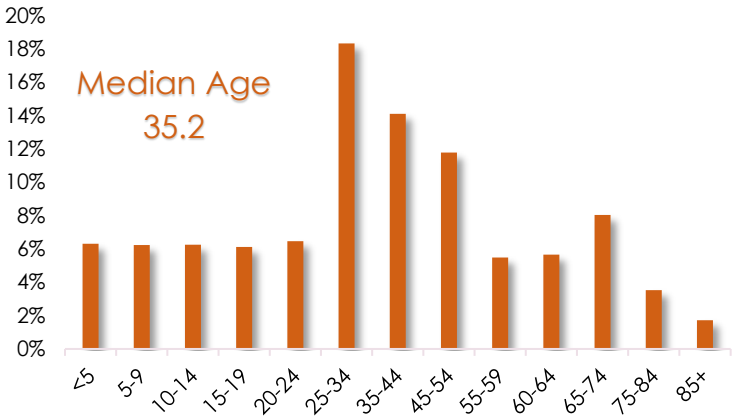


Figure 5: Sacramento Population by Age (2021)

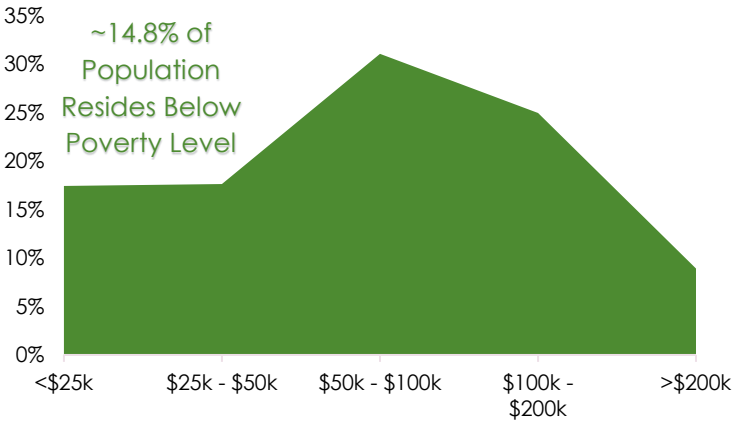


Figure 4: Household Income in Sacramento (2021)

Our Social Needs

Often, transportation and land use decisions place unfair burdens on disadvantaged communities. Conducting an analysis of historically underserved populations helps identify locations with high concentrations of people or groups who may not be physically or financially capable of owning or driving a vehicle and rely on walking, riding bicycle, and transit to meet their daily travel needs. **Table 1** compares select socioeconomic conditions.

Table 1: Sacramento Socioeconomic Conditions

	City of Sacramento	County of Sacramento	California Statewide
Age 65 and Older	13.3%	14.1%	14.4%
Minority Population	**68.9%**	51.1%	60.3%
Population with a Disability	11.8%	11.8%	10.6%
Population below the Poverty Level	**14.8%**	13.3%	12.3%
People with Limited English Proficiency	6.4%	6.2%	8.5%
Households with no Vehicles	**8.1%**	6.3%	6.9%

Source: US Census 2021 American Community Survey 5-Year Estimates.

Figure 6, **Figure 7**, and **Figure 8** show where people with disabilities, people over 65, and people without access to a vehicle live, and **Figure 9** shows a consolidated scoring of disadvantaged populations who face challenges related to transportation, employment, housing, health, socioeconomic conditions, and pollution, among others. Two sources were utilized to identify disadvantaged populations:

- **CalEnviroScreen** is operated by the California Office of Environmental Heath Hazard Assessment. The top 25 percentile of Census Tracts are considered the most disadvantaged and are shown in the figure.
- **Climate and Economic Justice Screening Tool (CEJST)** is operated by the federal government as part of the Justice40 program. According to CJEST, 46.5% of Sacramentans live in disadvantaged communities.

The following conclusions can be drawn:

People with Disabilities may require specialized services to get around, like longer time to cross an intersection, and may be less likely to own a vehicle. Areas with highest concentrations of people with disabilities include **South Sacramento, Fruitridge/Broadway, and Midtown**.

People over 65 may also walk slower and require more time to cross intersections. They may also be less likely to own a vehicle or travel during traditional commute times, creating different roadway needs at different times of day. The areas with the highest concentrations of people over 65 include **Pocket-Greenhaven, South Sacramento, and East Sacramento**.

People Without Access to a Vehicle are likely to walk, bike, and ride transit and may benefit from investments improving walking and biking. Areas with the highest concentrations of people without access to a vehicle include **Downtown, Midtown, and Oak Park**.

Disadvantaged Populations are also likely to walk, bike, and ride transit and have traditionally faced transportation inequities. Areas with higher concentrations of disadvantaged populations may be eligible for funding opportunities to address transportation inequities. The areas with the highest concentrations of disadvantaged populations include **North Sacramento, Fruitridge/Broadway, and South Sacramento**.

Housing & Transportation (H&T) Affordability & Location Efficiency

The H&T Affordability Index[2] identifies the combined cost of housing and transportation as a percentage of income and sets a target of no more than 55% of income be spent on these costs. H&T costs make up about 46% of income in Sacramento, and neighborhoods with the largest H&T burden include Pocket-Greenhaven, Land Park, North Natomas, and East Sacramento. Central City and South Natomas have the lowest burden (**Figure 10**).

H+T defines a location efficient neighborhood as one that is compact, close to jobs and services, with a variety of transportation choices. According to the analysis, only 6% of Sacramento is deemed a location efficient neighborhood. Central City offers a variety of commercial and mixed-use land uses making it the most location efficient neighborhood. Compared to other U.S. neighborhoods, however, Sacramento is characterized as having a high access to a variety of jobs, good access to public transportation, and compact neighborhoods.

Figure 6: People with Disabilities

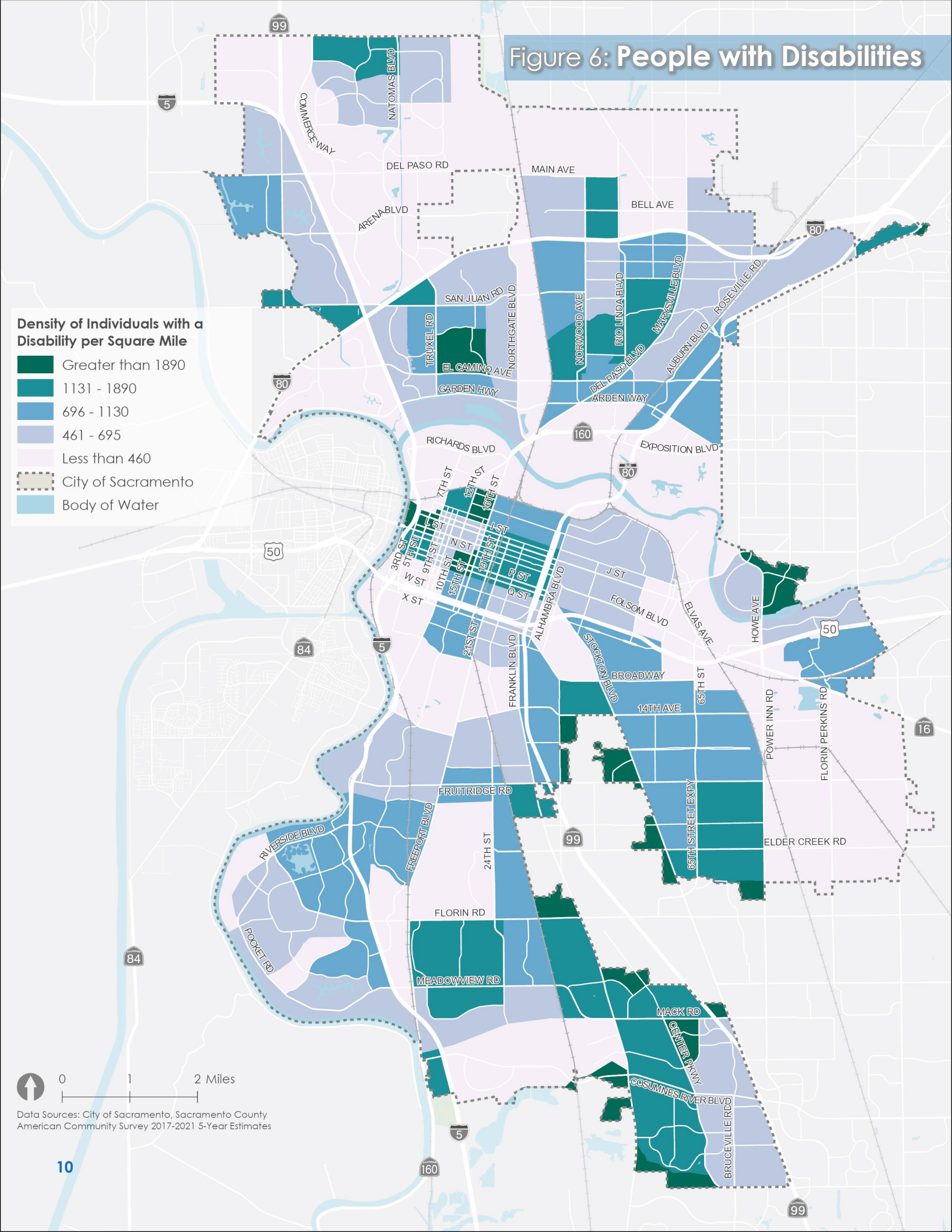


Figure 7: People Over 65

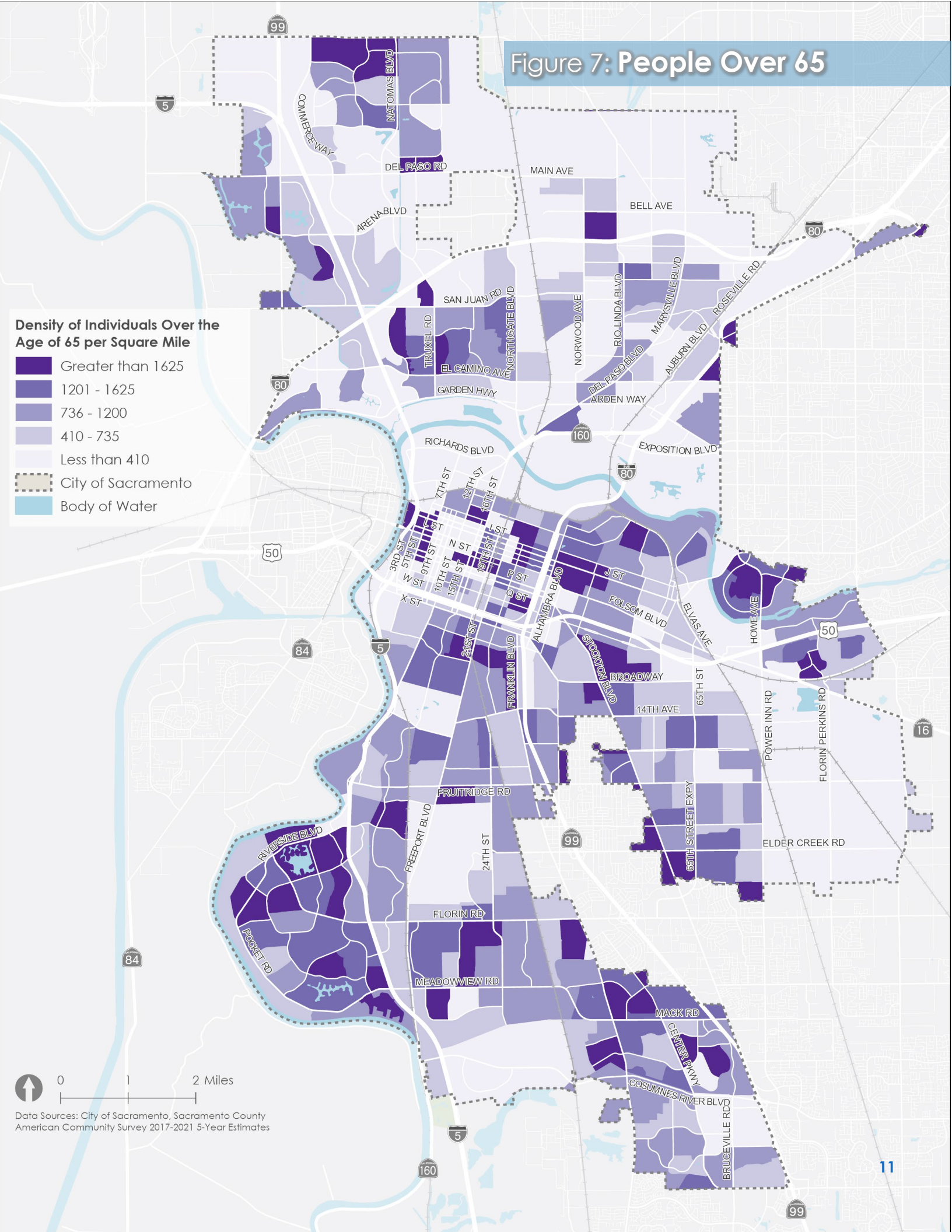


Figure 8: Households with No Vehicles

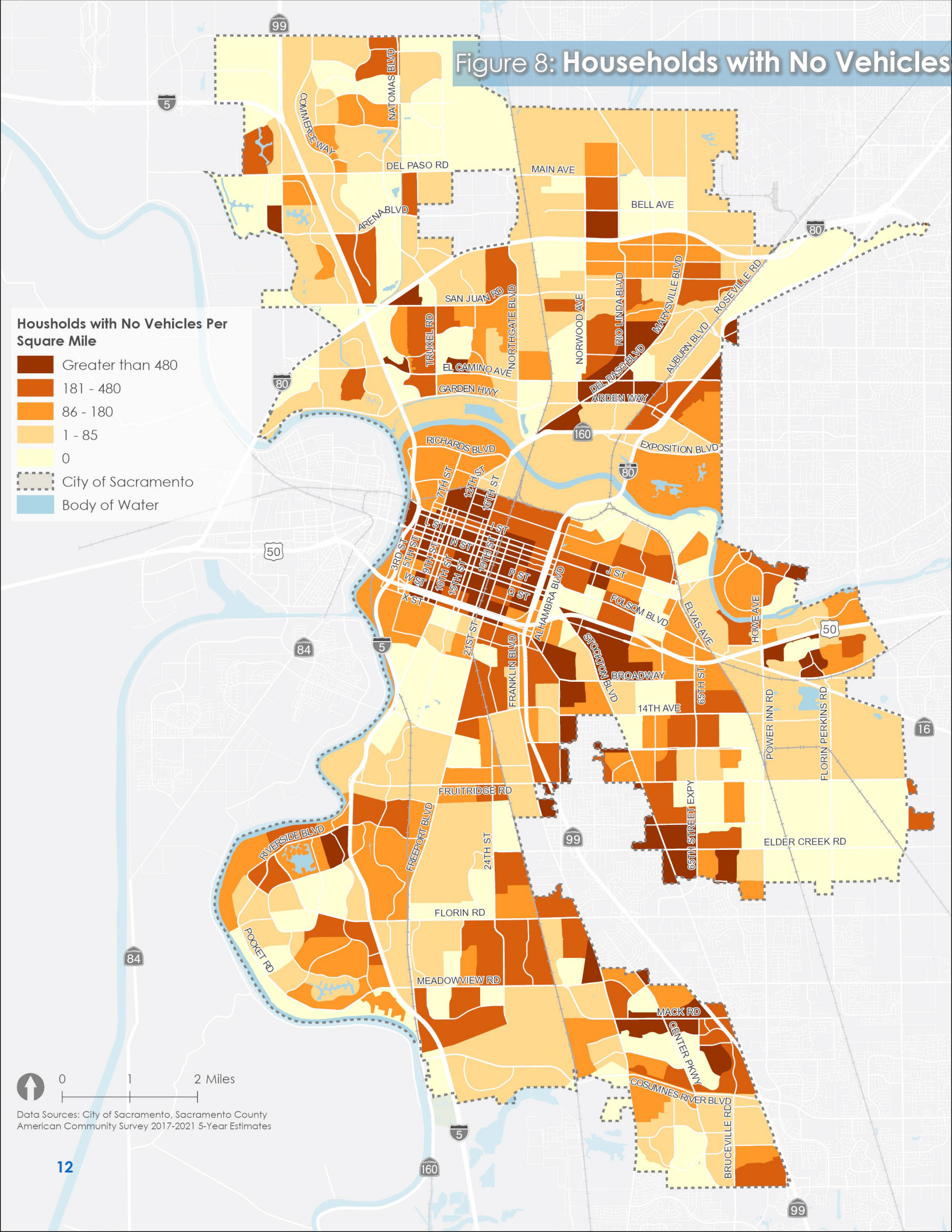


Figure 9: Disadvantaged Communities

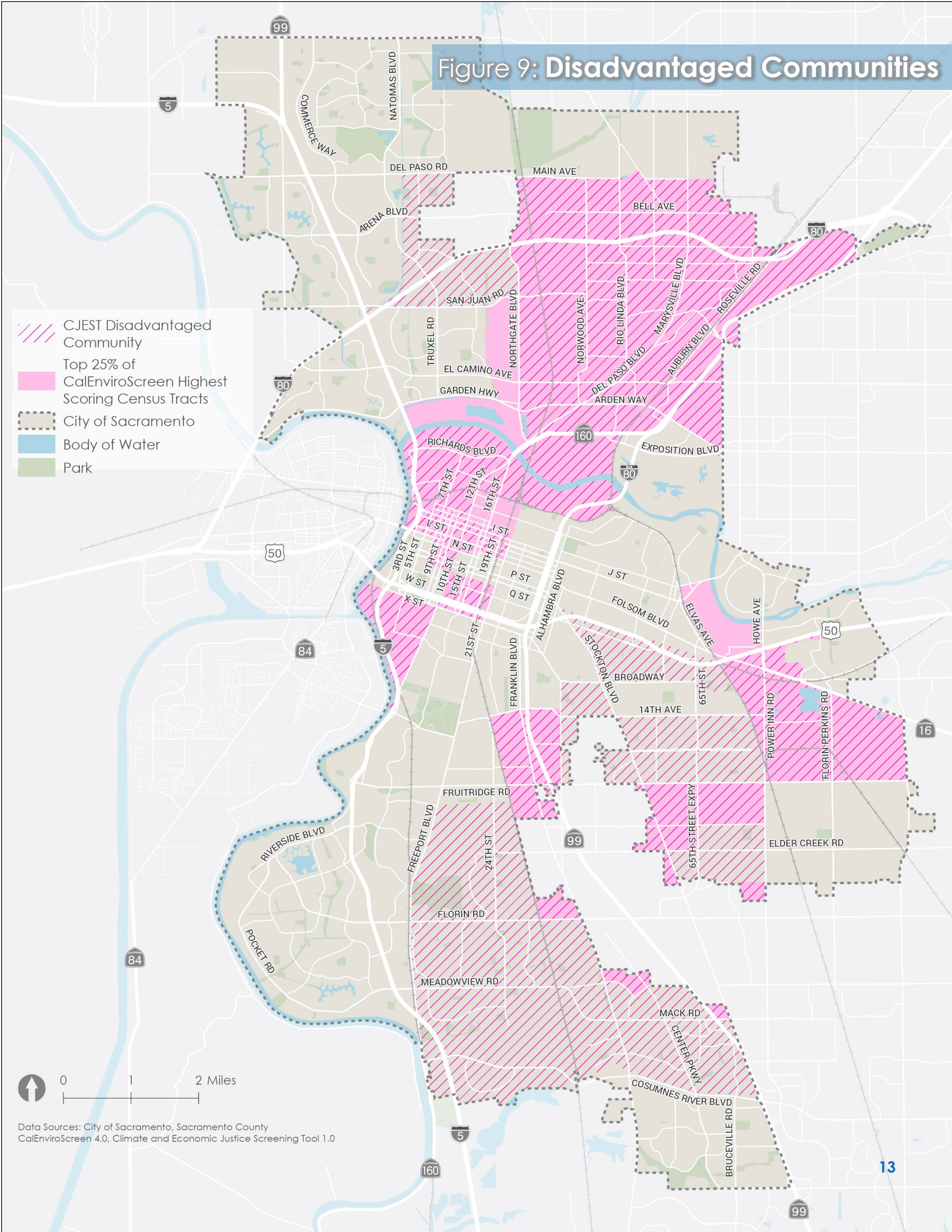
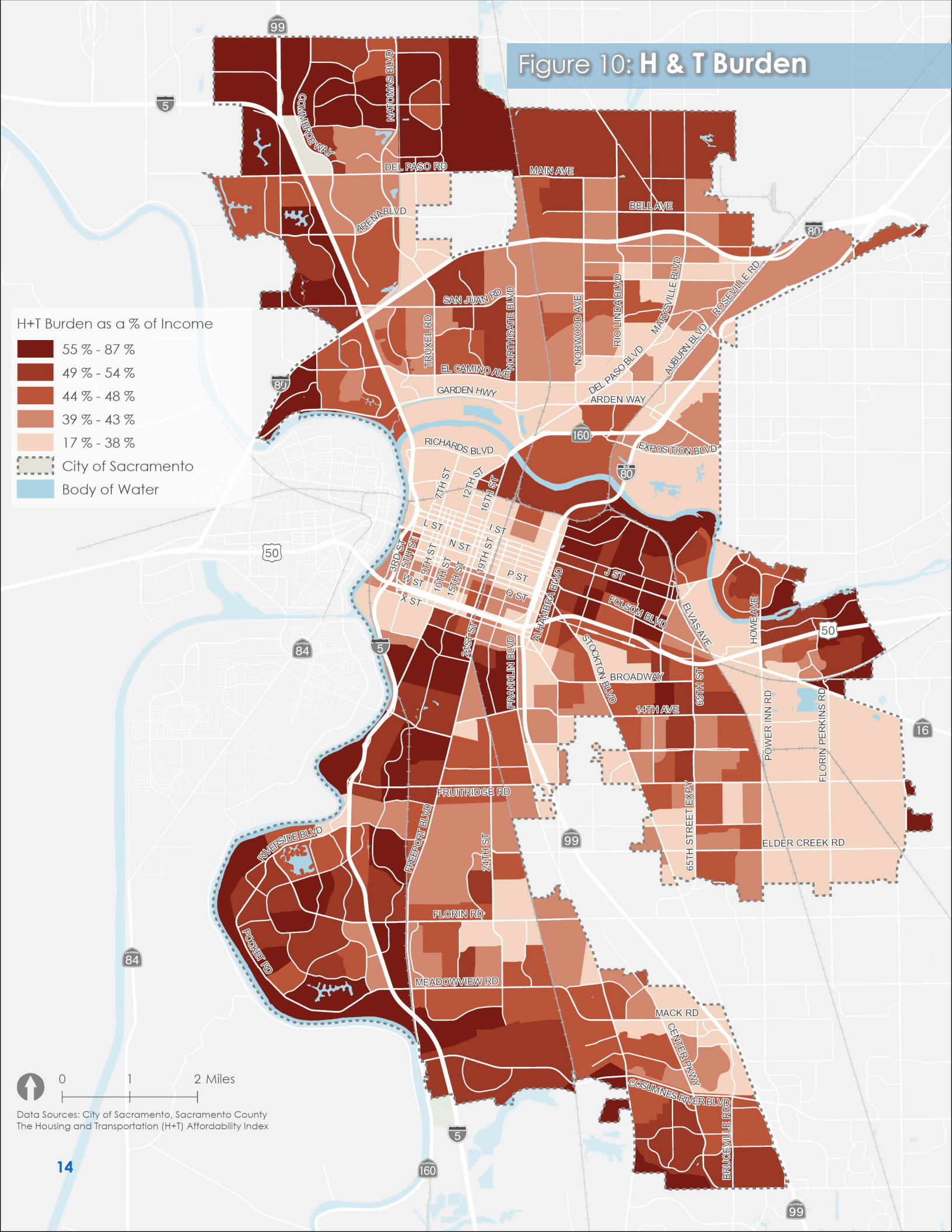


Figure 10: H & T Burden



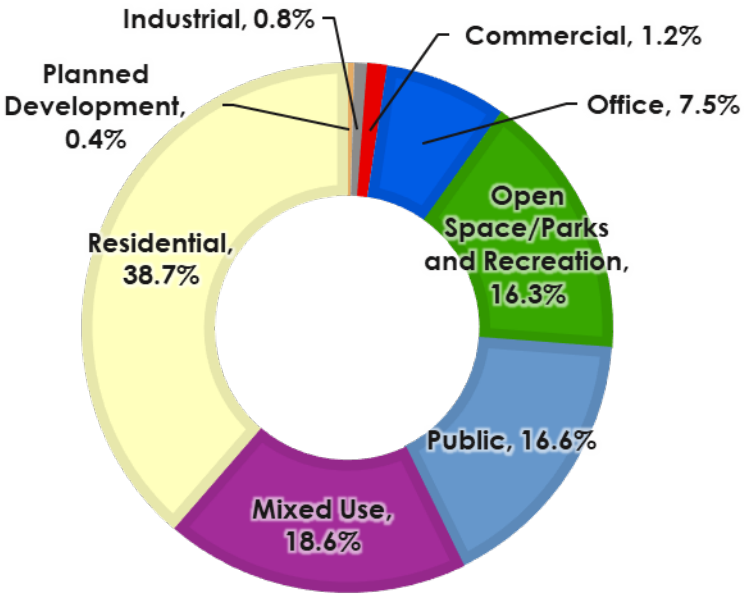
Lay of the Land

Having a strong understanding of the land use context and development patterns is imperative to creating a transportation network that complements surrounding character and facilitates movement. Just as land use influences the transportation network, the transportation network influences land use. For example, a local roadway in a residential neighborhood serves a very different purpose than a major roadway that connects the freeway to an industrial park.

Land Use in Sacramento

Land use data, based on General Plan land use types, was mapped in **Figure 11** to understand development patterns along corridors. Generally, areas with a high mix of land uses generate many trips by people walking and biking since various destinations are located close to one another.[3]

The City of Sacramento is predominantly made up of residential uses with about 39% of the land dedicated to this use. Low density residential makes up about 18% of the residential use, while medium and high-density residential uses make up 20%. Non-residential uses include commercial, office, industrial, public, and planned development. Mixed-use areas are scattered throughout the city integrating housing with other uses on the same site. The American River Parkway makes up a large portion of the open space in the city, while Stone Lakes National Wildlife Refuge contributes to the most park acreage in the county.

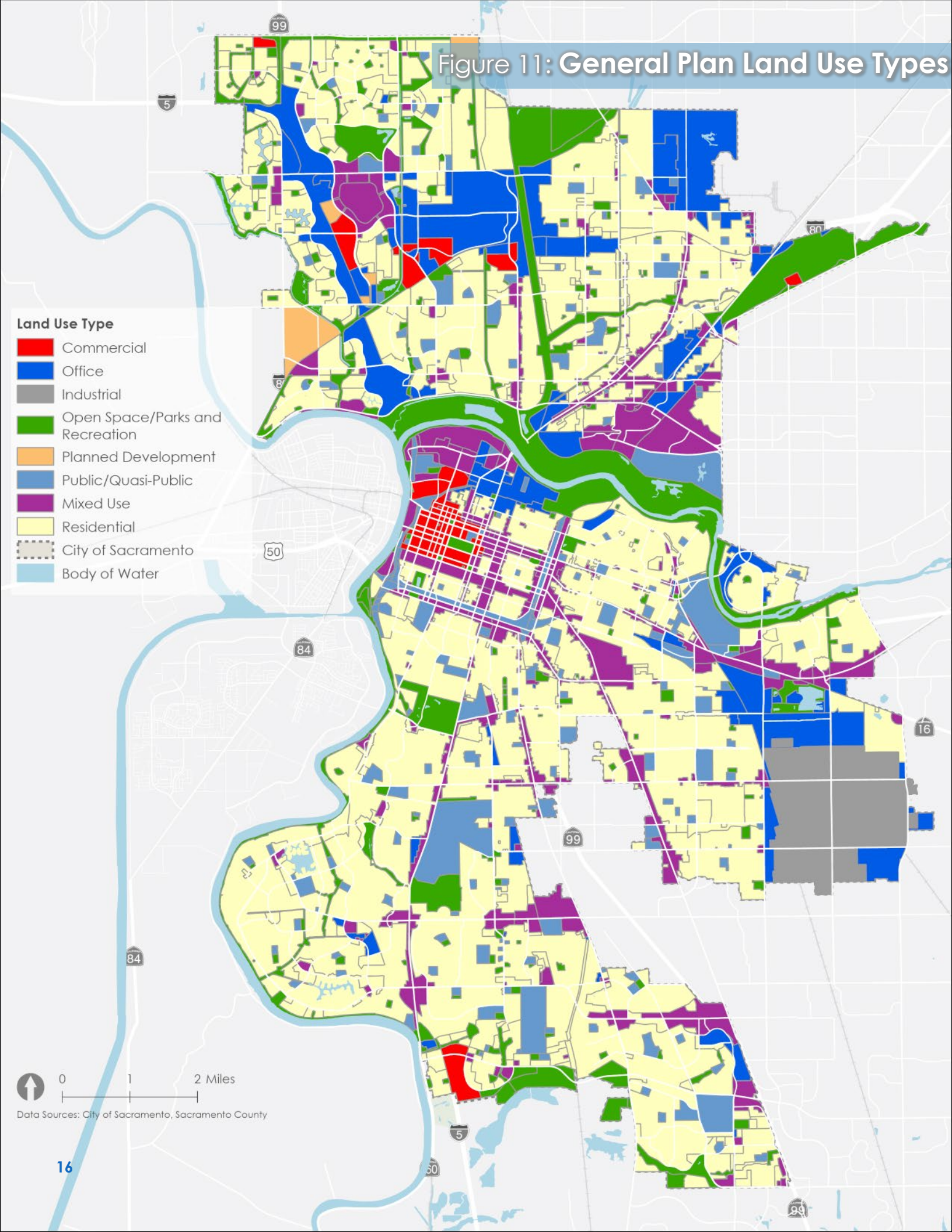


Major Redevelopment Areas

There are several areas in Sacramento undergoing significant development and change. As new development continues, there is opportunity to develop completely new streets with new treatments connecting people to destinations. Example redevelopment areas include:

- **Curtis Park Railyards:** Curtis Park is a 72-acre infill development site that includes single family homes, condos, apartments, and 259,000 square feet of retail. It is located near Sacramento City College and is close to the major freeways and downtown Sacramento.
- **Delta Shores:** This is an 800-acre master planned development in the southern portion of the city. It will incorporate 1.3 million square feet of retail, 250,000 square feet of hotel and commercial uses, and 5,200 residences. Along with this project is an interchange improvement to expand and improve access to the site as it is adjacent to I-5.
- **Sacramento Riverfront:** There is a lot of potential for future development along the waterfront. Specific Plans along the river include the River District Specific Plan, Railyards Specific Plan, Central City Specific Plan, Docks Area Draft Specific Plan, and the West Broadway Specific Plan.
- **Natomas:** The Natomas community is located near two major freeways, the airport, and downtown. The community includes residential, office park, and retail development. Future employment, residential growth, and mixed-use development is planned as there is more than 1,000 acres of undeveloped land in the area.
- **River District:** The River District is located at the confluence of the Sacramento and American Rivers. It has been established as a distribution and wholesale center but is planned to incorporate mixed uses and reestablish itself with employment, entertainment, and housing. There are plans to incorporate 2,350 housing units, 150,000 square feet of retail and restaurant, and more than 800,000 square feet of office space.

Figure 11: General Plan Land Use Types



Existing Character of Selected Neighborhoods

A cross section of representative neighborhoods were selected and evaluated to understand the general development and street network patterns across the city. A focus was placed on capturing a diverse cross-section of mixing or separation of land uses, street network connectivity, and local street elements.

Natomas

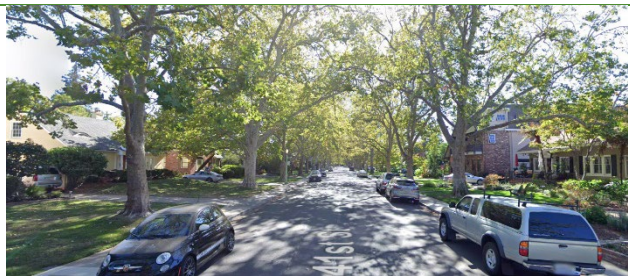
- Generally low-density, single family, new construction residential neighborhoods.
- Segregated land uses with large, big box shopping centers with large parking lots providing most daily needs. K-12 schools and parks are dispersed throughout, and there are industrial business parks located in the southeastern area.
- Cul-de-sacs and local roads connect residential areas to higher volume collectors and arterials, leading to regional destinations.

Northgate / South Natomas

- Generally low-density residential neighborhoods separated from other areas by freeways and rivers.
- Most shopping is located in big-box stores with large parking lots along major roads or along Northgate Boulevard. Schools and parks are located adjacent to residential areas but accessed via collector roads.
- The street network is a "broken grid" pattern, with some streets looping back on themselves and others providing through connections.

East Sacramento

- Established single family homes along wide, shaded local streets.
- Neighborhood-serving parks, shopping, grocery stores, schools, and a hospital are scattered through the neighborhood and generally front local streets providing walk up access with limited parking.
- The street network is generally a grid pattern, with local streets providing connections to collectors and arterials.



Oak Park

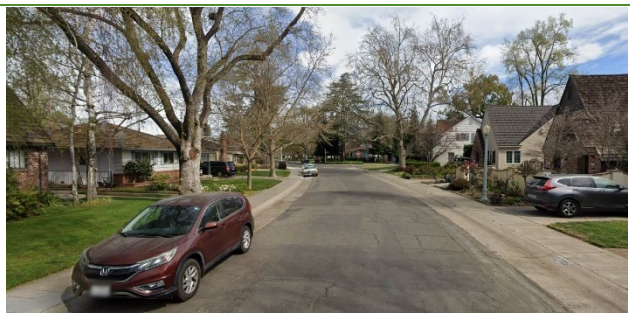
- Established, cottage style, single family homes along narrow local streets.
- Neighborhood-serving parks, shopping, grocery stores, and schools are scattered through the neighborhood and generally front local streets providing walk up access with limited parking. The UC Davis Health Campus is also woven into the fabric of the community.
- The street network is generally a grid pattern, with local streets providing connections to collectors and arterials.

North Sacramento

- Established single family homes along a street network of many cul-de-sacs.
- The western portion of the neighborhood includes industrial uses. A small commercial center is located in the southern portion of the neighborhood.

Land Park

- Established single family homes on large lots, large parks, and shaded streets on a curvilinear gridded street network.
- Regional destinations including William Land Regional Park, the Sacramento Zoo, and Sacramento City College are woven into the fabric of the community.
- Schools and street facing, neighborhood serving retail are located within the community. Big box stores, with significant parking can also be found along Freeport Blvd.

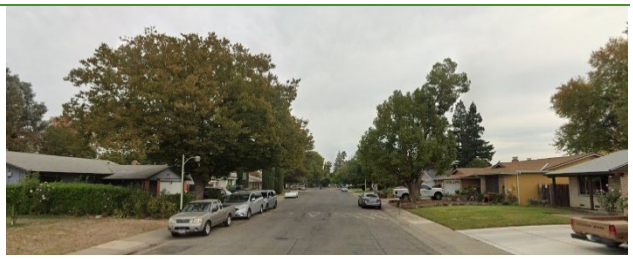


Pocket-Greenhaven

- Established single family homes and scattered multi-family buildings along a street network with wide local streets and many cul-de-sacs and private streets which load traffic onto arterials and collectors.
- While schools may be accessed via local streets, most daily retail and other needs are located in shopping centers with ample parking along collectors or arterials.
- A trail network connects many homes to destinations, supplementing the street network.

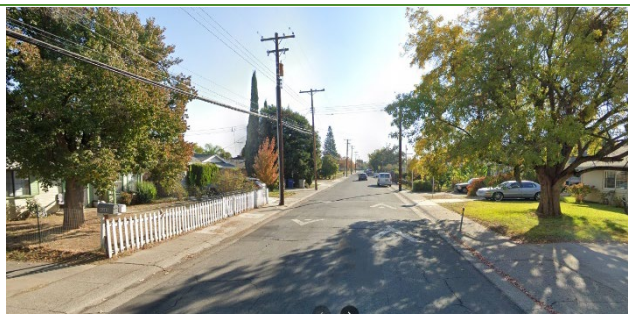
South Sacramento

- A series of neighborhoods with established single-family homes which front local streets.
- Most daily retail and other needs are provided in shopping centers with ample parking. These daily needs, including schools, are often located along collectors or arterials.
- The street network generally follows a grid or curvilinear grid pattern, with local streets providing connectivity to collectors and arterials.



Fruitridge/Broadway

- Low-density single-family homes interspersed with undeveloped land. The eastern portion of the neighborhood includes industrial uses.
- The street network includes both gridded streets and cul de sacs with a super grid of arterials running through it.
- Most daily needs are accessed via collectors or arterials, and most shopping and dining opportunities are located in shopping centers with ample parking.



Central City (Midtown & Downtown)

- Midtown is generally characterized by mixed-use, low- to mid-rise development along walkable urban streets designed in a grid pattern. The development pattern densifies and intensifies approaching Downtown.
- Almost all daily needs can be accessed via walking or biking, with most buildings oriented towards the street and parking, bike facilities, and other amenities provided on the street.

Neighborhood Destinations

Neighborhood Connections are a chance to connect people to the destinations they want to go every day via low stress connections. Understanding where these destinations are is one key element in developing a network that feels safe, convenient, and accessible for Sacramentans. While it is important to provide access for all people to meet the City's resilience goals, it is also important to meet equity goals by providing access to schools, jobs, healthy food, and opportunity for people who might not have access to a vehicle. **Figure 12** and **Figure 13** illustrates the local destinations people might want to get to every day, including:

- **Essential Needs:** Essential needs include shopping centers, health facilities, and grocery stores.
  - *Shopping centers* include both major shopping centers like malls, as well as destinations like grocery stores people need to get to every day. There are 41 major shopping centers that are scattered throughout the city including Sacramento's Downtown Commons, Arden Fair Mall, and Old Sacramento Waterfront. Shopping centers include major national retailers as well as smaller, locally owned stores.
  - *Heath Care Facilities* include destinations like senior centers and medical clinics, dentist offices, and other destinations people may need to access regularly. There are 4 senior centers, 7 surgery centers, and other small clinics spread throughout the city.
- **K-12 Schools** include all public and private kindergarten through 12-th grade schools within the City. Schools represent major destination students and families may want to access via neighborhood connections. There are 156 K-12 schools and 6 school districts in Sacramento.
- **Major Institutions:** Major institutions include the 6 major hospitals in the City, government buildings such as the State Capitol, and colleges and universities. While people visiting these destinations may choose to walk or bike, these locations often have many employees who walk or bike to work.
- **Social and Civic Needs:** Social and civic needs are distributed throughout the city and consist of a variety of museums, arts and entertainment centers, community centers, religious buildings, parks and recreation opportunities, libraries, and civic uses such as the post office. Some notable destinations include the Tower Theatre, Crocker Art Museum, the Sacramento YMCA, and a variety of other art galleries, theaters, and comedy clubs to enjoy. Additionally, recreation destinations include places for people to get outdoors; places that people want to walk and bike to by default. 16% of Sacramento is dedicated to open space/parks and recreation, and there are a multitude of parks scattered throughout the city that serve many neighborhoods with playgrounds, tennis courts, jogging paths, and views of the city skyline. The Sacramento River is also a highlight in the city for outdoor activities with miles of paved bike trails, boat launches, rafting, and even swimming.

Figure 12: Neighborhood Destination Types

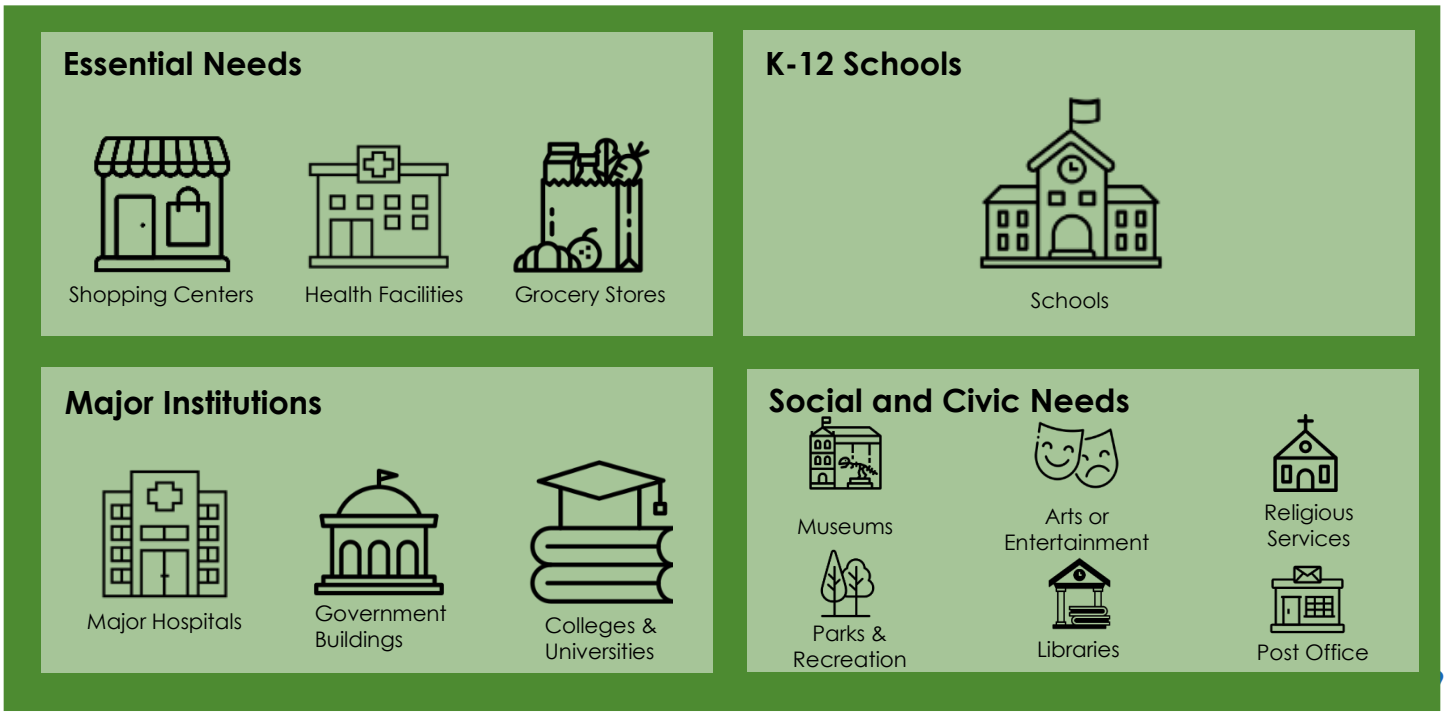
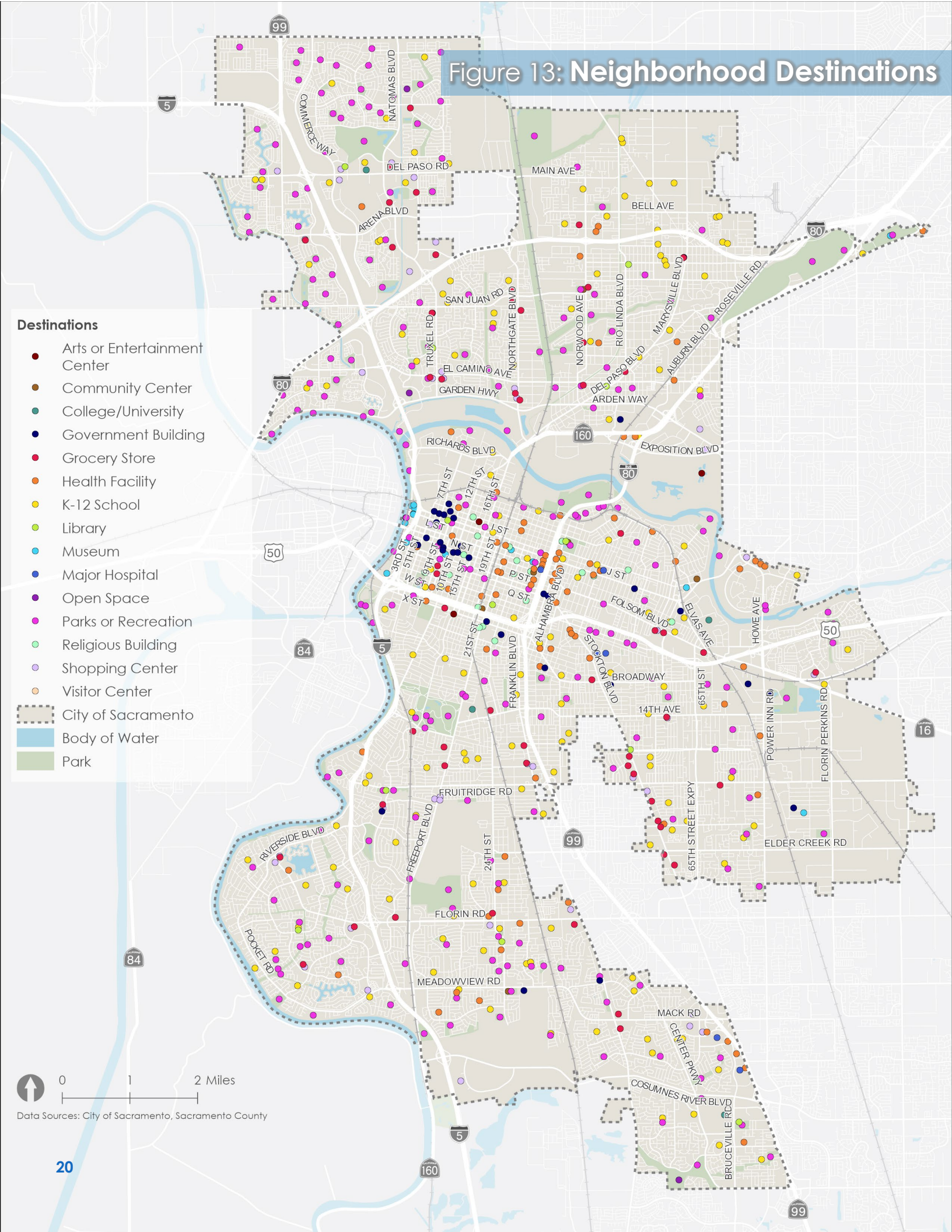


Figure 13: Neighborhood Destinations



How We Get Around

From scooter-share, bike-share, and e-bikes to light rail and the planned high-capacity SacRT bus corridors and transportation network companies (TNCs) like Uber and Lyft, we have more choices than ever for how we want to travel within and through our communities. Understanding **where people want to go** and **how they choose to get there** – regardless if that's by walking, biking, driving, or taking transit – will help us define a future transportation network that enables safer, efficient, and comfortable travel in Sacramento.

This analysis reports average weekday and weekend days to gain an understanding of how we move around. The analysis uses data from Replica, a software that incorporates anonymized data from a variety of sources like the US Census Bureau, mobile location data, land use, economic activity, and others to create a simulation of an area to model how people get around, where they are going, and when they travel.

Where We Want to Go

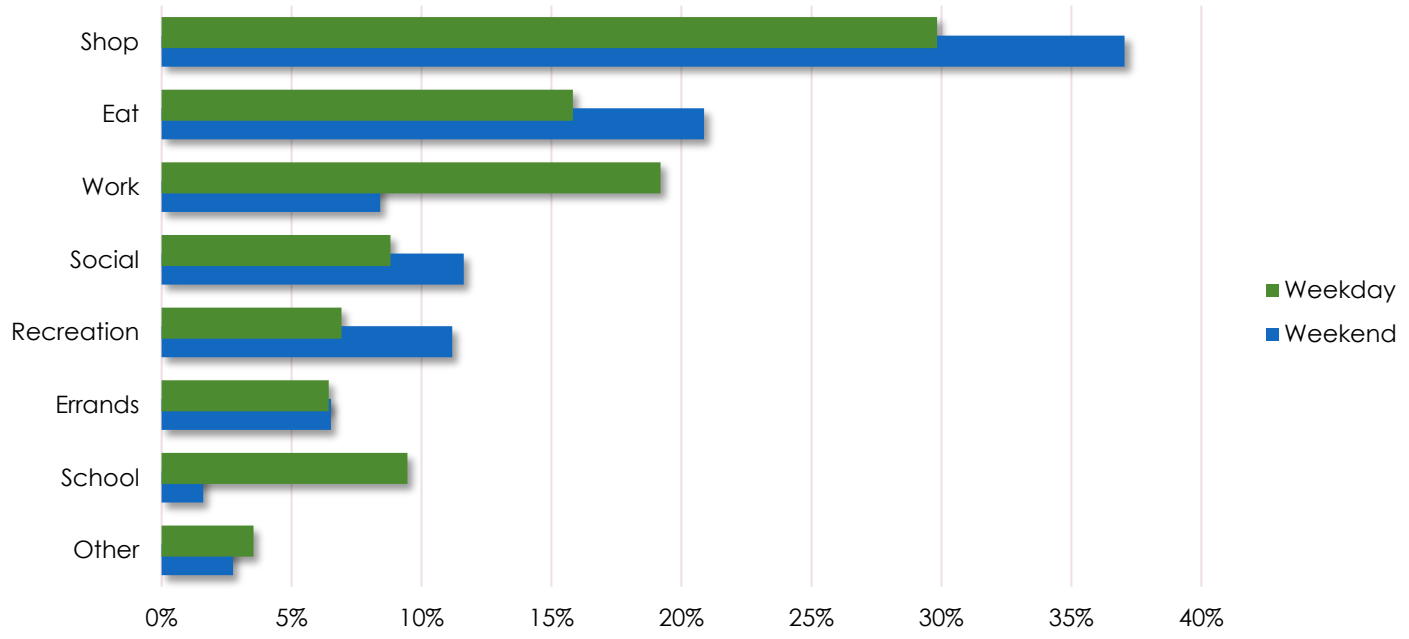
We travel for many reasons every day such as going to the doctor or getting exercise on the American River Parkway. This analysis identified several trips that we might take:

- **Getting to Work**: all trips that end at a person's workplace (including commute trips and things like a trip back from lunch).
- **Getting to School**: all trips to a person's school or college.
- **Traveling for Daily Needs**: all social trips and trips to destinations where people shop, dine, and run errands.
- **Getting Outside**: all trips to recreational destinations like parks and trailheads (this does not include trips without a destination, like walking the dog or jogging).

As shown in **Figure 14** more than half the trips we take are to do the things that make up our quality of life like shop, eat, socialize, and run errands. However, we travel differently on weekdays and weekends.

- Nearly a third of all weekday trips are work or school related.
- While trips for shopping, eating, and socializing always make up most of our trips, we tend to do these things more on weekends than on weekdays.

Figure 14 Typical Trip Purpose (Destination)



How We Get There

We choose to travel in different ways depending on the type of trip, the day of the week, and how far away the destination is (**Table 2** and **Table 3**). Replica data shows that while we mostly choose to drive, walking is the second most common way we choose to travel.

Getting to School:

- Most students are driven to school, but nearly 1 in 4 students walk or bike to school.
- Getting to school is the most common trip destination for people biking on weekdays.
- Weekday school trips are generally shorter and closer to home than other types of trips.
- Weekend students typically drive and go to school further away.
- Although students are provided with free access to bus and light rail services, public transportation usage is low.

Traveling for Daily Needs:

- We generally choose to travel in the same ways, go similar distances, and spend a similar amount of time on weekends and weekdays.
- 1 in 9 trips to meet daily needs are done by walking on the weekends and 1 and 8 trips on the weekdays.

Getting Outside:

- We tend to drive to get outside whether it is a weekend or weekday.
- 1 in 8 trips to get outside are done by walking or biking on the weekdays and 1 in 12 trips on the weekends.

Making Short Trips

- Destinations are on average no more than a 13-mile trip and we generally choose to drive for those trips. However, when we travel 5 miles or less, we choose to walk or bike almost one quarter of the time.

Getting to Work:

- We mostly choose to drive to work, and our travel patterns are similar on weekdays and weekends

Table 2 How We Get to Destinations on Weekdays

Weekday							
	Drive	Transit	Bike	Walk	Other	Average Travel Distance	Average Travel Time
Getting to Work	91.5%	1%	1%	5.5%	<1%	13 mi	25 min
Getting to School	76%	<1%	4.5%	19%	<1%	5 mi	16 min
Travel for Daily Needs	83%	<1%	1.5%	13%	2%	9 mi	19 min
Getting Outside	85%	<1%	2%	11%	2%	10 mi	21 min

Table 3 How We Get to Destinations on Weekends

Weekend							
	Drive	Transit	Bike	Walk	Other	Average Travel Distance	Average Travel Time
Getting to Work	91.5%	1%	1.5%	5.5%	<1%	11 mi	22 min
Getting to School	90%	<1%	1.5%	7%	<1%	9 mi	20 min
Travel for Daily Needs	86%	<1%	1%	11%	2%	9 mi	19 min
Getting Outside	89%	<1%	1%	7%	2%	11 mi	21 min

Where are We Going for Short Trips and How are We Getting There?

When we travel shorter distances our travel patterns look different - from the routes we take to get to our destinations to the way we choose to get to those destinations. As discussed earlier, the shortest average trip distance (5 miles) had the highest occurrence of people walking and biking. For Neighborhood Connections, understanding where even shorter trips, those 2 miles or less (a 15 minute bike ride), are occurring can help identify where people might be most likely to bike.

Figure 15 shows the areas with the highest volumes of destinations for short trips as well as the top routes we are taking to make these trips.

Areas that are popular destinations for short trips are often near:

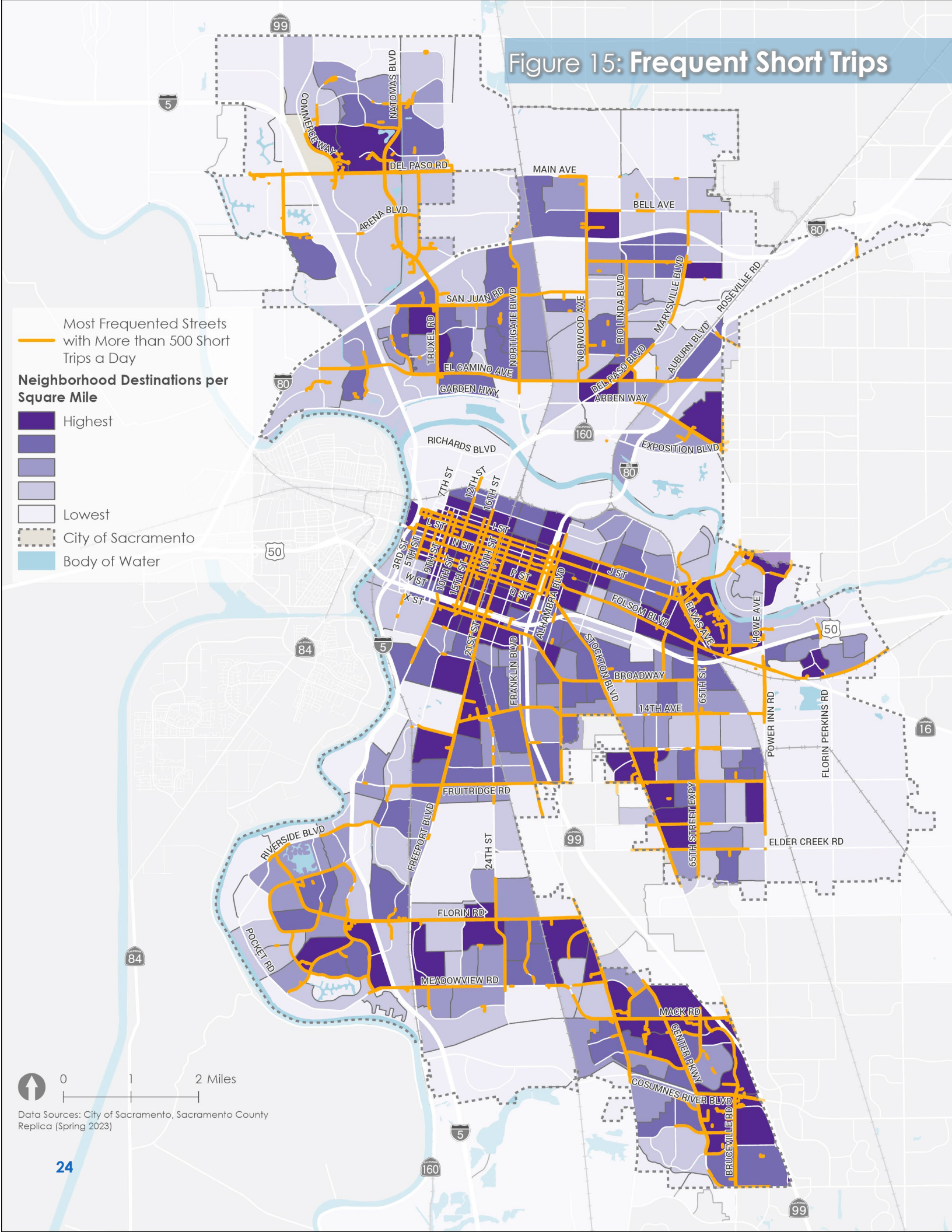
- Downtown and Midtown
- Schools and universities
- Open space
- Commercial/retail areas
- Kaiser Permanente and Methodist Hospital of Sacramento

There are some streets which stand out as preferred north-south or east-west connectors, including:

- J Street
- 21st Street
- Stockton Boulevard
- Folsom Boulevard
- Florin Road
- El Camino Avenue
- Truxel Road
- Fruitridge Rd

Short trips are often a product of mixed land uses, as can be seen in Downtown and Midtown, or of the destination, like schools or parks. However, many of the roads Sacramentans use the most for short trips, listed above, are arterials or collectors. While these roads often see high volumes of travel and are intended to serve longer distance, regional trips, this data indicates they are often also serving shorter, local trips. In this case, developing Neighborhood Connections that feel safe and comfortable may not only provide Sacramentans with better places to walk or bike, but may also shift shorter distance, local trips off of arterials and collectors.

Figure 15: Frequent Short Trips



Data Sources: City of Sacramento, Sacramento County Replica (Spring 2023)

The Street Network

Functional Classification

Functional classification is a hierarchy of roadway classes based on their role in providing access to adjacent properties and facilitating vehicle speeds and volumes. Generally, arterials are the highest speed and volume roads but have limited property access, and locals are lower speed and volume with a high degree of access. Functional classification can impact the number of lanes and posted speeds when designing a road. **Figure 16** shows the functional classification of streets in Sacramento and **Table 4** shows the lane miles per street type. Neighborhood Connections are most likely to be implemented on local streets.

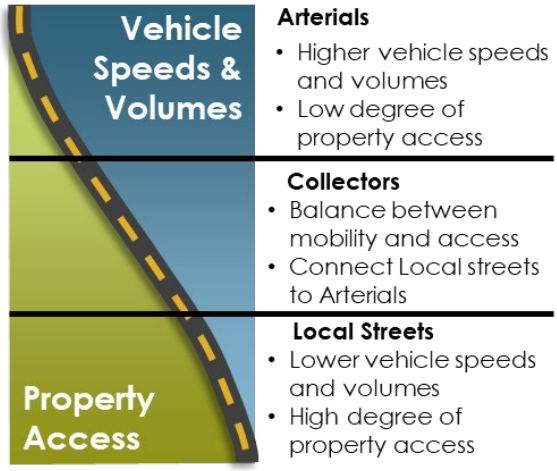


Table 4: Citywide Functional Classification Lane Miles

Classification	Study Network Mileage
Arterial	182.13
Major Collector	58.98
Minor Collector	91.80
Local	1,183.72
Total	**1,843.50**

Intersection Control

Traffic control devices help manage the movement of people and goods in an efficient manner. Traffic control devices found in Sacramento today generally include:

Traffic Signals control the flow of vehicles on the roadway network. Improving traffic signal timing can increase mobility and reduce overall congestion. Traffic signals are generally implemented on arterials and on some collectors.

Rectangular Rapid Flashing Beacon (RRFB) are devices that users can manually activate flashing lights to increase driver awareness of people crossing at unsignalized intersections or midblock crosswalks.

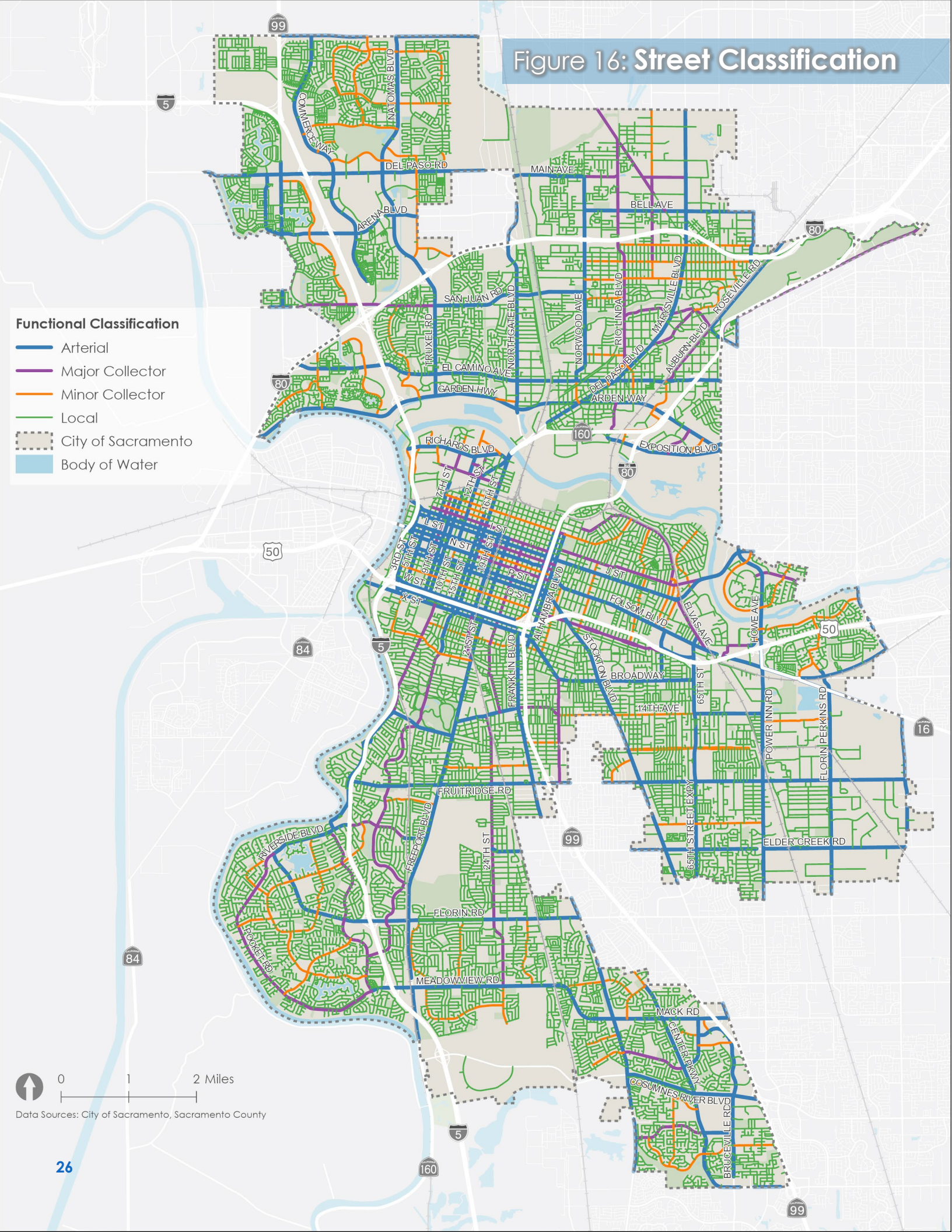
Traffic Signs include STOP or YIELD signs to alert drivers to come to a complete stop or yield at intersections.

Roundabouts and Traffic Circles are circular intersections in which traffic flows in one direction around a central island. Traffic circles can improve safety, promote lower speeds, and reduce conflict points. Traffic circles are located on local streets.

Pedestrian Signals create a more predicable crossing environment and give adequate warning to people attempting to cross a roadway.

Pedestrian Hybrid Beacons (HAWK) are used to improve non-motorized crossings of major streets. They may also be used at mid-block crossing locations.

Figure 16: Street Classification



Data Sources: City of Sacramento, Sacramento County

Traffic Calming Devices

Sacramento has been working to calm traffic along neighborhood streets for years. With the speed lump program, the implementation of the traffic calming in West Midtown, and the new neighborhoods in Natomas designing roundabouts and other features, Sacramento has a substantial amount of traffic calmed streets, however, these streets do not form a complete network of slow streets and there are some areas with less traffic calming. The streets with traffic calming can be seen in **Figure 17** and existing devices are listed below.

Chicanes create a curvy pathway in an otherwise straight road and encourage vehicles to slow.

Curb Extensions, also known as bulb-outs or neckdowns, extend the sidewalk or curb line out into the travel or parking lane, which reduces the effective street width.

Diverters require drivers to turn left or right, rather than driving through an intersection, while allowing people walking and biking to travel through the intersection.

Median Islands provide a protected space placed in the center of the street to facilitate pedestrian and bicycle crossings.

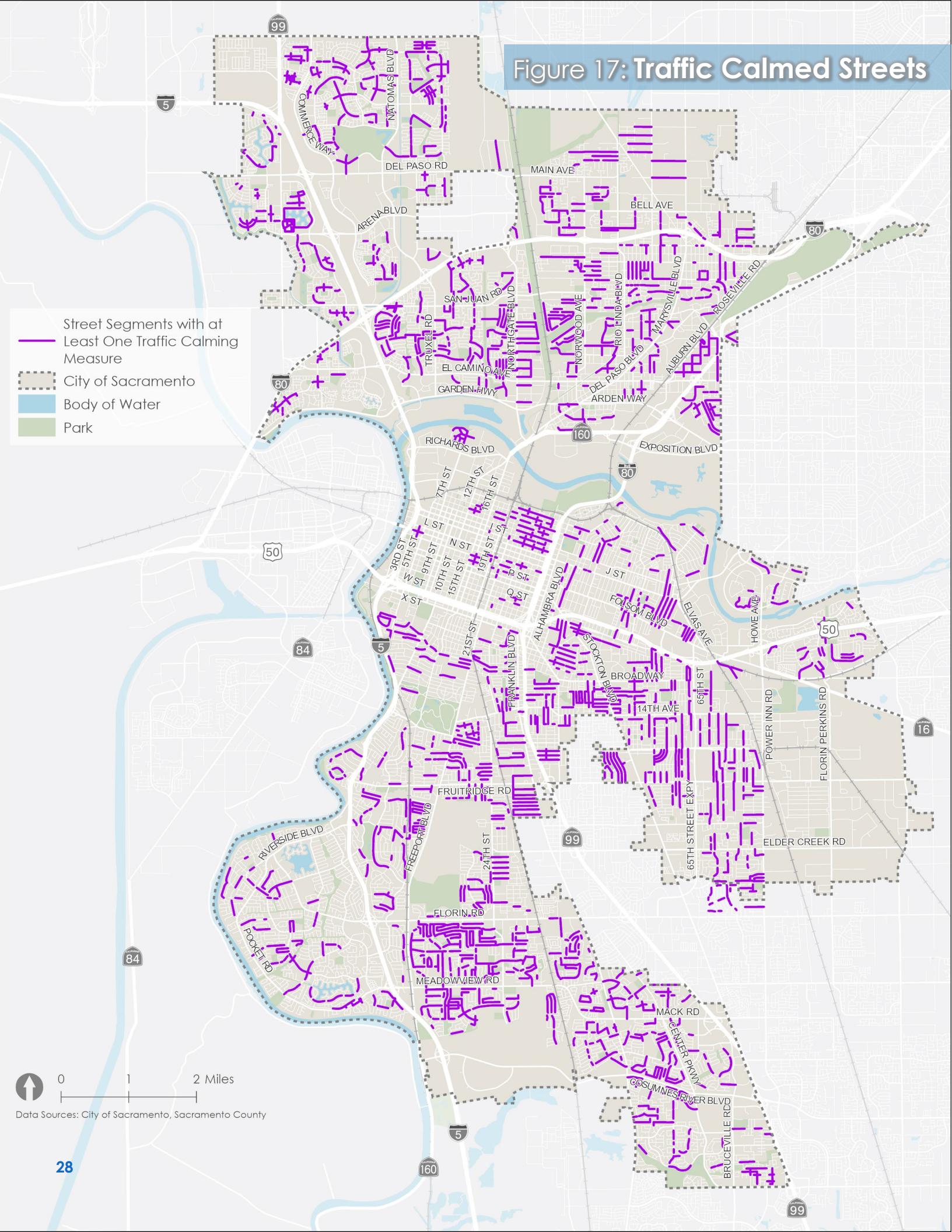
Pedestrian Refuge Islands provide a protected space for people walking to cross half the roadway and wait for vehicles to pass to cross the remainder.

Raised Crosswalks elevate the crosswalk to sidewalk level, providing a level path for people using the crosswalk, encouraging vehicles to slow, and increasing visibility for both drivers and people in the crosswalk.

Undulations, speed humps, and speed tables are elevated mounds in the roadway intended to slow traffic.

Roundabouts/Traffic Circles are a type of intersection where traffic is permitted to flow in one direction around a center island. Traffic approaching the roundabout yields to traffic already within the intersection.

Figure 17: Traffic Calmed Streets



Data Sources: City of Sacramento, Sacramento County

Walking Today

Sacramento is a diverse city that is both building up in its urban neighborhoods and building out in its newer areas. Mixed use infill development increases opportunities for people to walk and bike as the distances between their destinations decrease. New suburban development offers opportunities for new infrastructure to provide comfortable connections. As Sacramento develops, the demand for transportation options is increasing.

To address these changing needs and desires, it is important to understand what makes a place feel safe and comfortable for walking. People walking are:

- Sensitive to detours that increase the time or distance to their destination;
- More comfortable when routes provide shade, water, and places to rest; and
- In need of walkways with accessible and comfortable designs for people who use mobility devices and people with hearing and visual impairments.

Sidewalks are generally present on most streets in Sacramento. However, infrastructure is missing on one or both sides of the road in the north- and southeastern reaches of the City, where land uses are characterized by rural homes and industrial uses. Additionally, some local streets in residential areas are lacking sidewalks.

Where Are People Walking?

As shown in **Figure 18**, people choose to walk the most often for trips in the City Center (Downtown and Midtown). This area of the city has a denser street network and a mix of destinations people can go to work, live, and play. While people walk frequently throughout the City, other areas with the highest frequency of walking trips include areas near parks and schools, CSU Sacramento, Folsom Boulevard, and J Street.

Crossing The Street

One of the most significant barriers to walking is how frequently and comfortably someone can cross the street to get to their destination. Having frequent crossings and pedestrian access points can significantly decrease the distance needed to walk to a destination. In Downtown, crossings are frequent even across major roads. Outside of Downtown, there are fewer opportunities to cross. Additionally, the type of crossing can have a major impact on mobility for people walking. For example, signalized intersections generally provide a dedicated time and space for people walking to cross. However, most intersections are not signalized. The following types of crossing treatments exist in Sacramento at unsignalized intersections:

Full Crossings have marked crosswalks on all legs of the intersection.

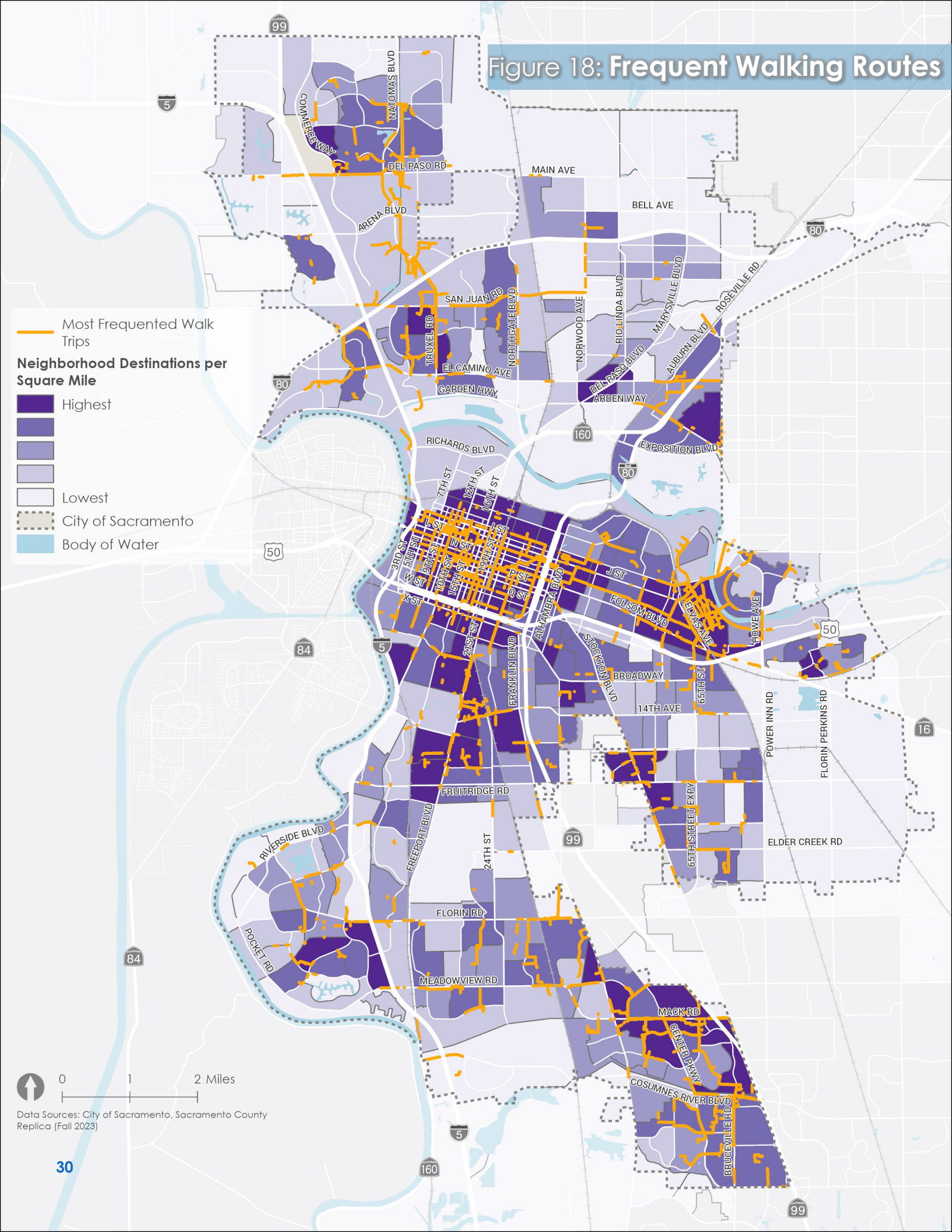
Half Crossings have marked crosswalks on at least one leg of each street.

Partial Crossings have a marked crosswalk that crosses one street.

Midblock Crossings facilitate crossing to places people want to cross where no stop signs or traffic signals regulate the crossing.

Rectangular Rapid-Flashing Beacons are user-actuated yellow flashing lights to improve safety at uncontrolled, marked crosswalks. They are used to alters drivers to yield where people walking have the right-of-way crossing a road.

Figure 18: Frequent Walking Routes



Data Sources: City of Sacramento, Sacramento County Replica (Fall 2023)

Walking Comfort

In order to understand comfort people walking on a given roadway, a pedestrian comfort metric was developed. A variety of factors are known to influence comfort for walking, such as the speed and volume of traffic, presence of a sidewalk, available shade, and design of the road. As illustrated below, the pedestrian comfort metric ranges from low-stress streets suitable for children (Level 1) to high-stress streets only suitable for experienced riders (Level 4). This analysis includes surface streets and shared use paths, but freeways are not analyzed as walking and biking is prohibited.

Comfort Scoring

The criteria shown in **Table 5** were used to determine the pedestrian comfort scores shown in **Figure 19** for each street in Sacramento. A sidewalk was considered shaded if a tree canopy was present that provided 50% coverage of any given segment.

Table 5: Pedestrian Comfort Criteria for Streets in Sacramento

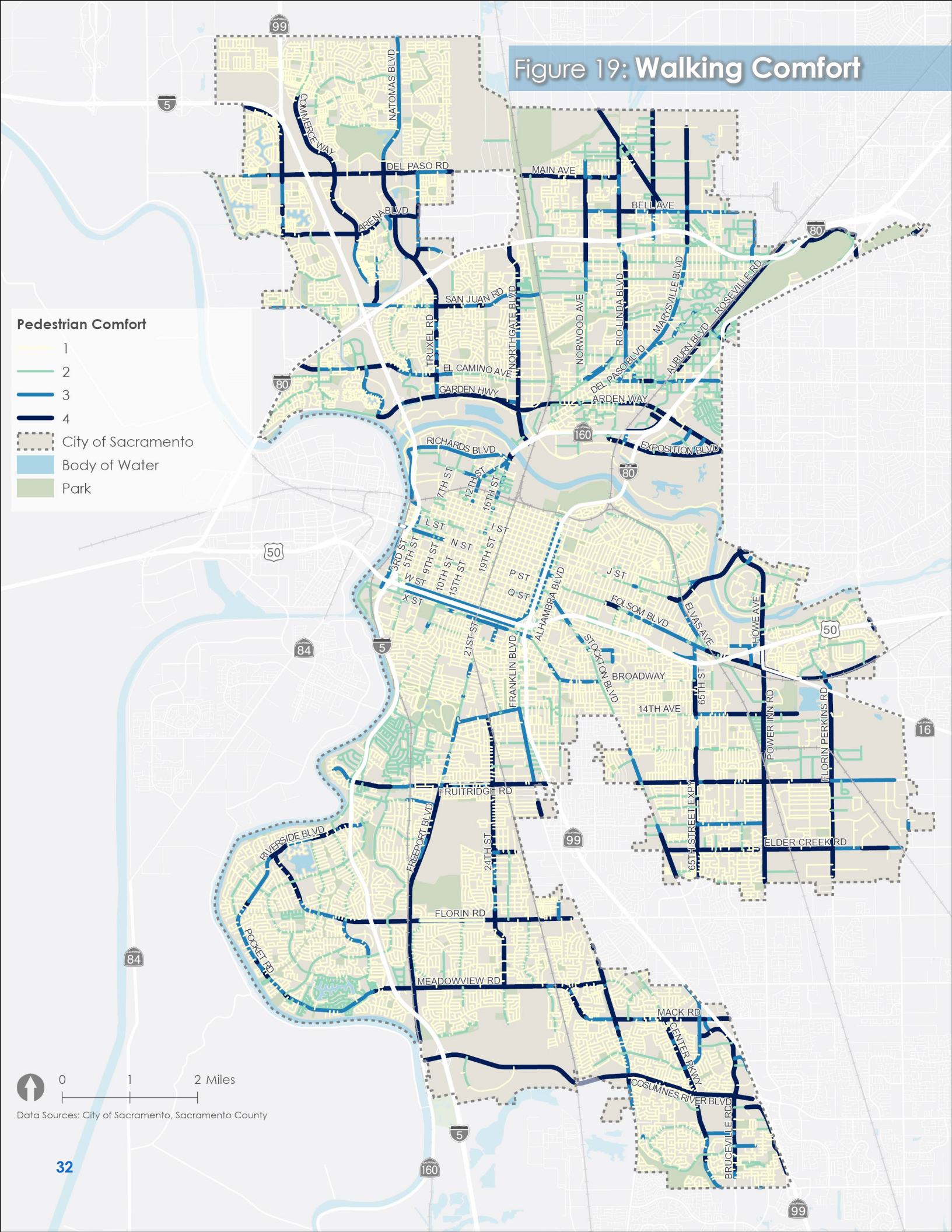
Posted Speed Limit	Number of Lanes	No Sidewalk	Sidewalk	Shaded Sidewalk*	Shared Use Path
25 MPH or Lower	2 Lanes	2	1	1	1
	3 Lanes	4	2	1	1
	4+ Lanes	4	3	2	1
30-35 MPH	2 - 3 Lanes	3	2	1	1
	4-5 Lanes	4	3	2	1
	6+ Lanes	4	4	3	3
40 MPH or Greater	2 - 3 Lanes	4	3	2	1
	4-5 Lanes	4	4	3	2
	6+ Lanes	4	4	4	3

**For the purposes of this analysis, a shaded sidewalk is one in which the estimated tree canopy provides coverage over at least 50% of the street as measured in linear feet. The City's street tree layer was utilized to identify tree locations, and an average 20' canopy (10' in each direction from tree trunk center point) was assumed per tree.*

Pedestrian Comfort Level

1 2 3 4

Figure 19: Walking Comfort



Walking Assessment

Sacramento has a mostly complete network of sidewalks along its roadways. While sidewalks are one key element in determining comfort for people walking, they do not tell the whole story. In order to evaluate access to destinations via walking, a walkability assessment was conducted which identifies the presence of sidewalks as well as crossing, destination locations, and other elements. Access to key destinations as discussed in the **Where We Want to Go** section and shown in **Figure 12** and **Figure 13** were evaluated. Steps to assess walkability include:

- Determine key destinations (see **Figure 13**).
- Define the low stress network and crossings and identify barriers for people walking. The analysis assumes people of all ages and abilities will walk along low stress streets and cross at low stress intersections, but that not all people will utilize higher stress streets or intersections. The network and barriers were determined as follows:
  - **Low Stress Network:** includes streets and paths scoring 1 or 2 for pedestrian comfort.
  - **Low Stress Crossings:** all intersections of streets scoring 1 or 2 on the comfort scale, signalized intersections, and signalized mid-block crossings were considered comfortable to cross.
  - **Street Barriers:** high stress streets for walking, or those scoring 3 or 4. These streets are displayed or analyzed as part of the network.
  - **Crossing Barriers:** Any intersection with at least one street scoring 3 or 4 without a signalized crossing was considered a barrier and removed from the analysis.
- Walksheds (the area people can comfortably walk from a given destination) were created utilizing GIS for a person walking 4 ft per second on a 15-minute trip—just under 0.70 miles.
- Using Census Block data, population estimates were calculated to estimate how many residents reside within each walk shed.

The results of the analysis can be seen the following figures as follows:

- **Figure 20: Walk Access to At Least One Neighborhood Destination**
- **Figure 21: Walk Access to Essential Needs**
- **Figure 22: Walk Access to K-12 Schools**
- **Figure 23: Walk Access to Major Institutions**
- **Figure 24: Walk Access to Civic and Social Needs**

As shown in **Table 6**, 76% of residents can reach at least one neighborhood destination of any type by walking. This is indicative that Sacramento has a fairly complete walking network with sidewalks adjacent to most roads. However, not all types of destinations are as accessible. Significantly fewer residents have access to Essential Needs (44%) and Major Institutions (9%). People walking or rolling are generally comfortable traveling shorter distances than other modes. Since most Major Institutions are clustered within Downtown or adjacent neighborhoods, this means that only those who live in the immediate vicinity of destinations can access them. While Essential Needs are scattered throughout Sacramento, low residential development and suburban land uses further from the City's core increases the distance people must walk. Still, more than half of Sacramentans have access to at least one school and nearly 67% of residents have access to social or civic needs (mostly parks or recreational facilities). Schools, parks, and other civic destinations are distributed throughout the City even in less dense neighborhoods. While most people in Sacramento are able to get to some destinations while walking, there are still significant barriers that walkers face.

Table 6: Residents Walking Access via the Low Stress Network (by Census Block)

Low Stress Network Access	% of Residents with Access
Access to At Least One Neighborhood Destination of Any Type	76%
Access to Essential Needs	44%
Access to K-12 Schools	57%
Access to Major Institutions	9%
Access to Social and Civic Needs	64%

Figure 20: **Walk Access to At Least One Neighborhood Destination**

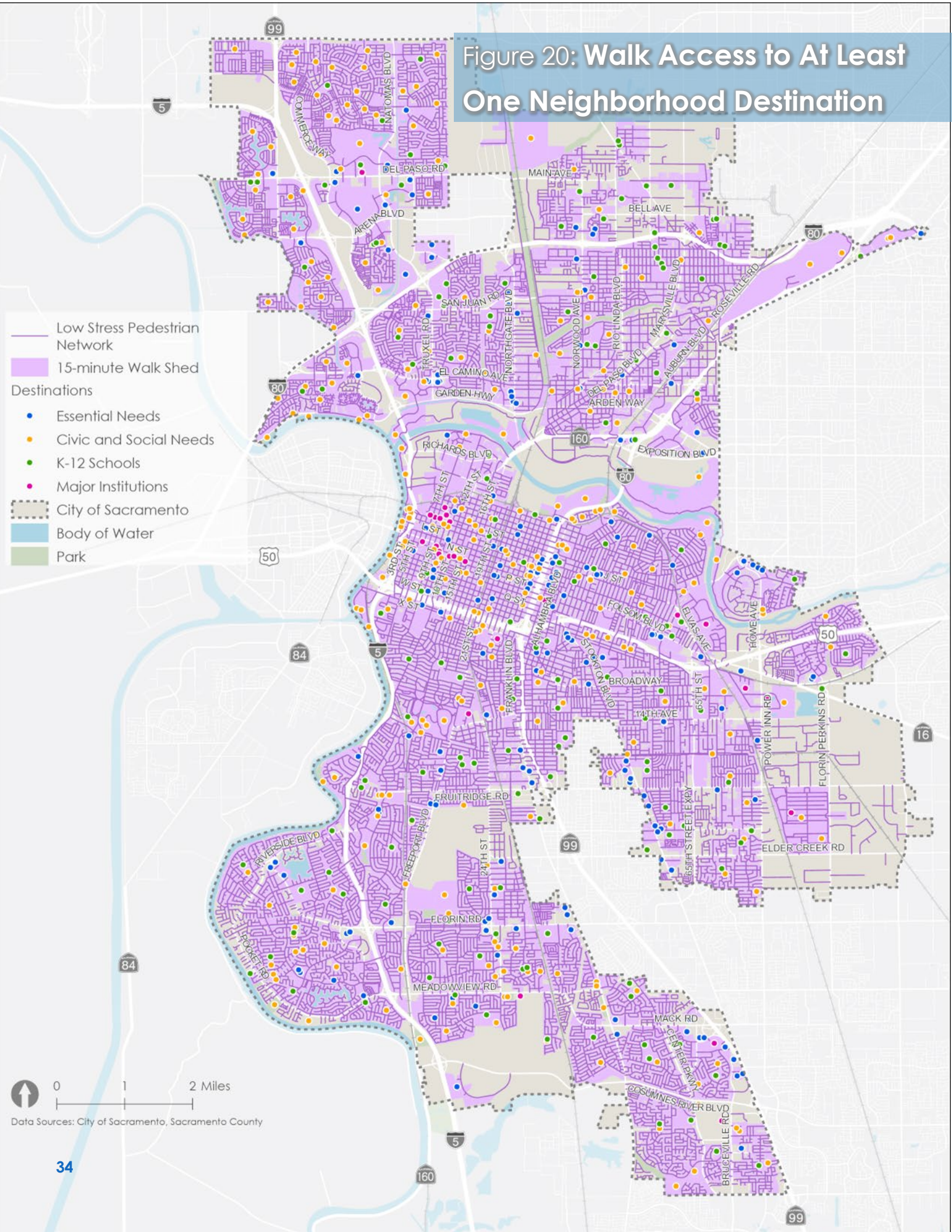


Figure 21: Walk Access to Essential Needs

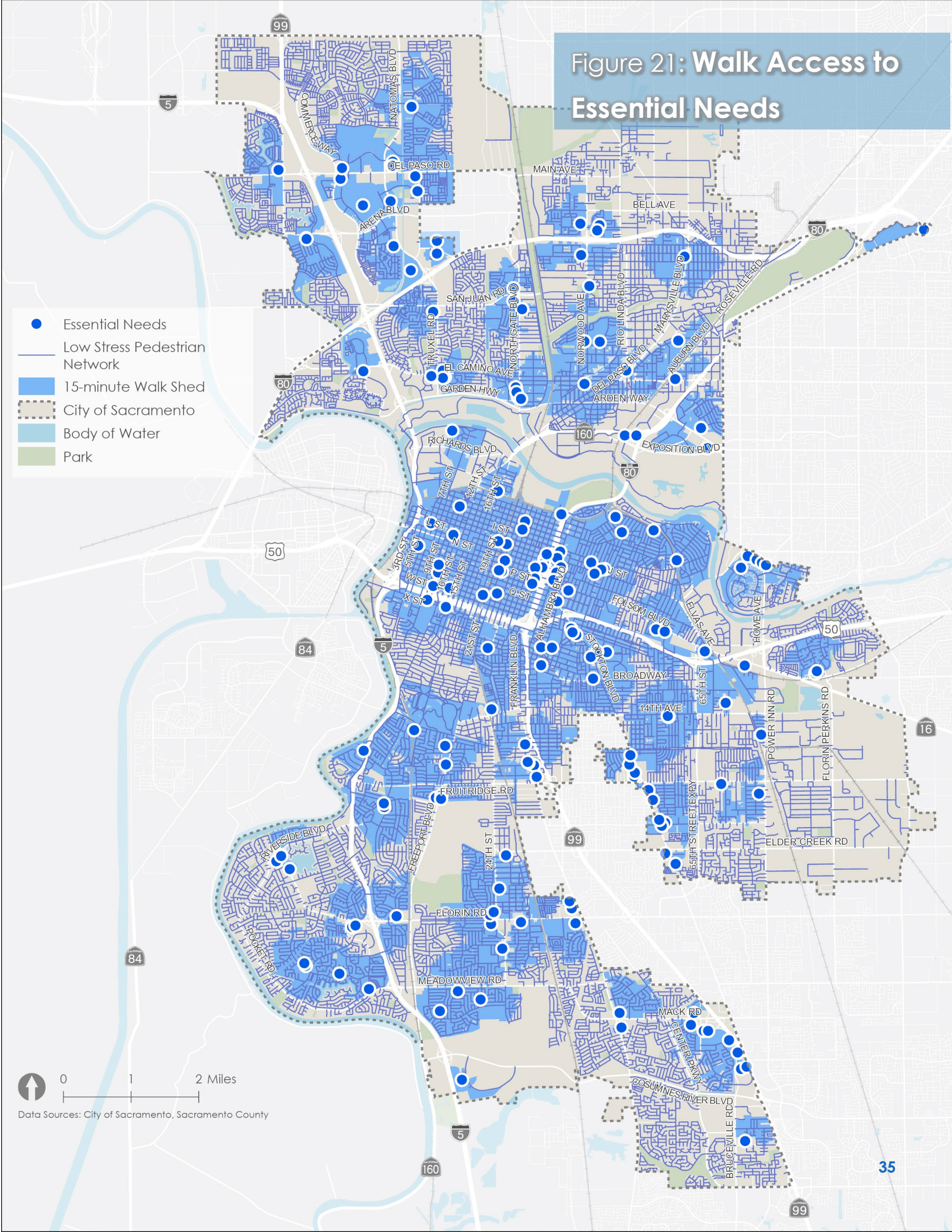


Figure 22: Walk Access to K-12 Schools

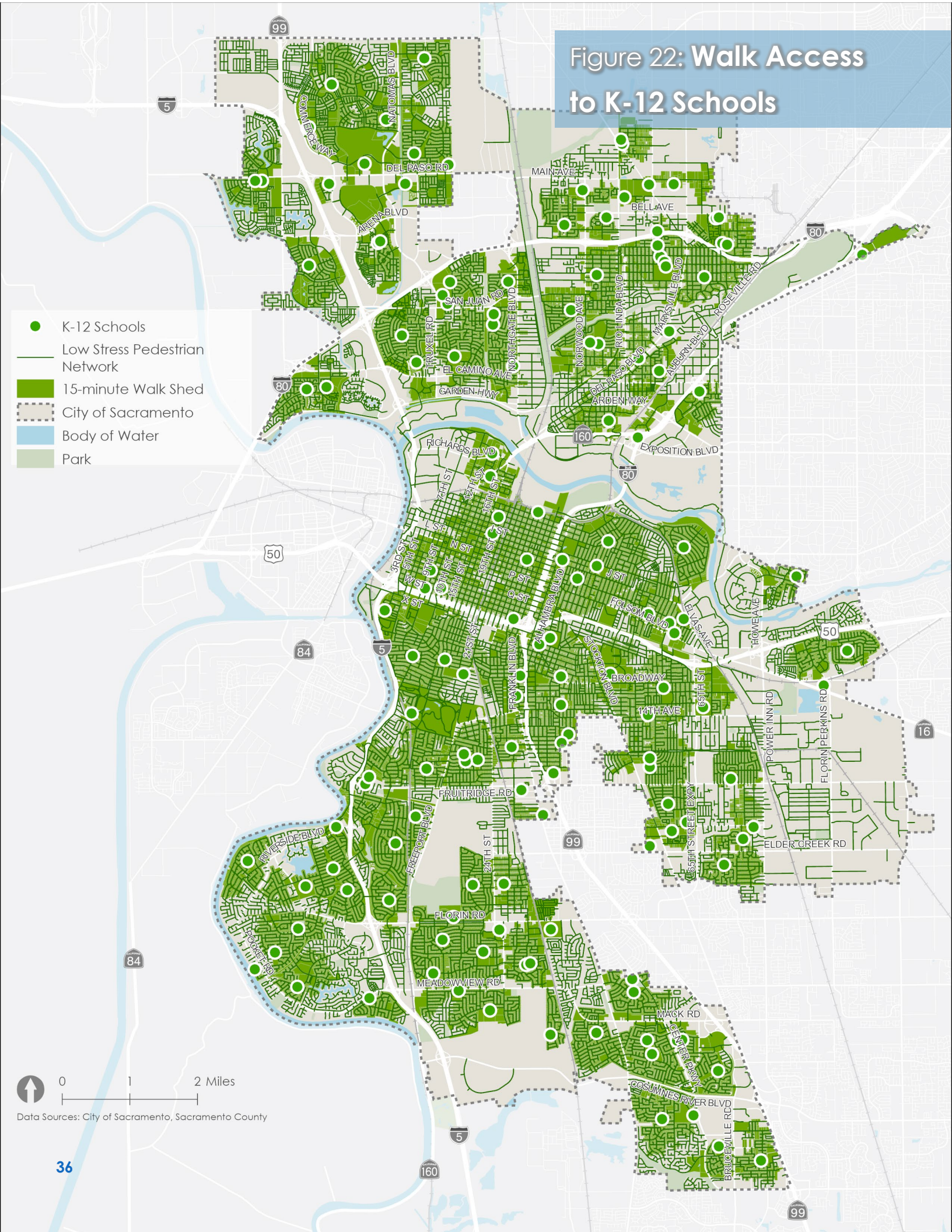


Figure 23: **Walk Access to Major Institutions**

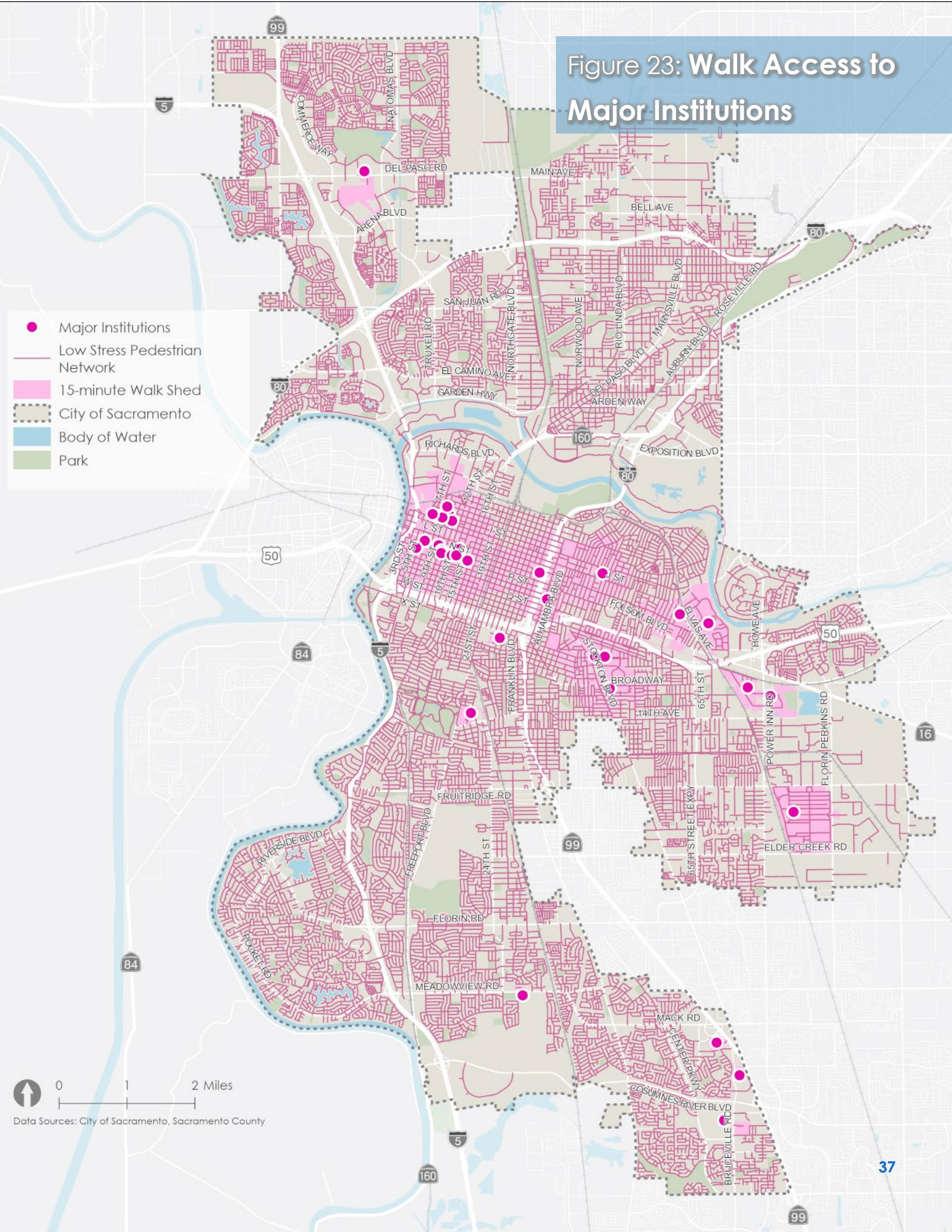
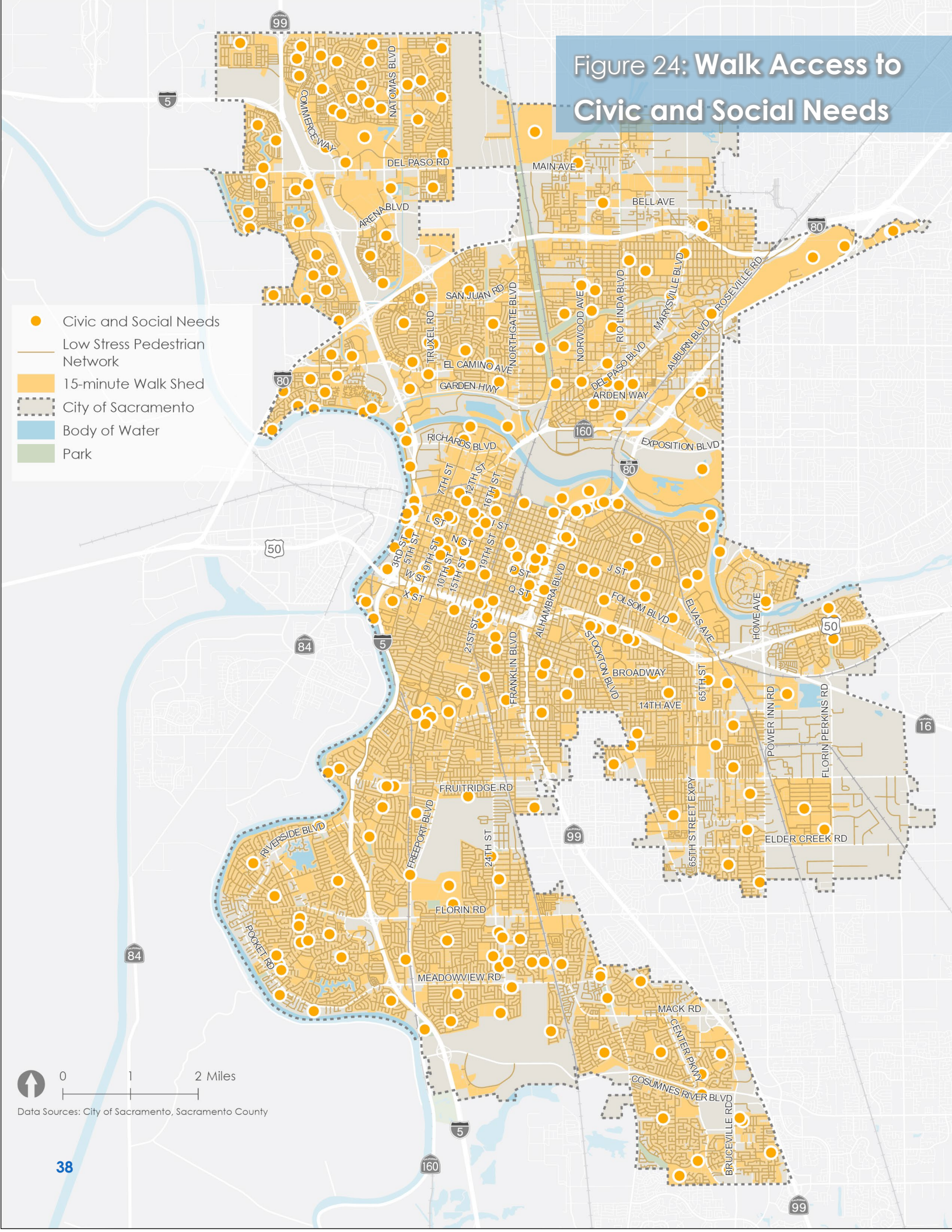


Figure 24: Walk Access to Civic and Social Needs



Observations

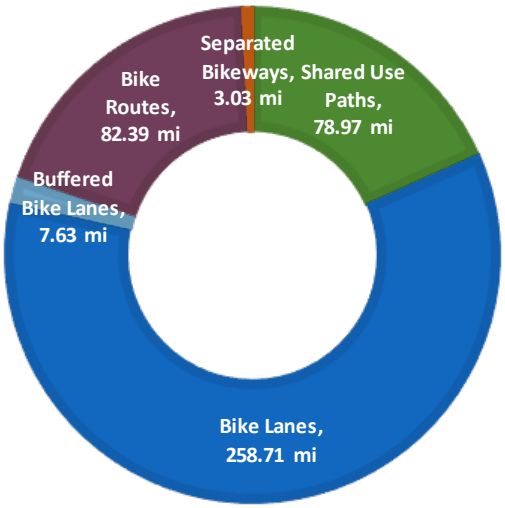
- **Proximity and Directness is Critical to Access.** Downtown, Midtown, and East Sacramento have significant access K-12 Schools, Essential Needs, Civic and Social Needs, as well as Major Institutions. In part this is due to both the density of the destinations themselves as well as the density of the low-stress network that allows residents to navigate the most direct path to these destinations. As destinations become more spread out and the walking network becomes less direct, as they do in Sacramento's newer neighborhoods, walking access becomes lesser. The further from the core of Sacramento, the less dense and less accessible destinations become to walking.
- **Not Everyone is an "Average Walker."** The analysis utilized a standard walking speed of four feet per second, as defined by FHWA. While this standard reflects the average person walking, not everyone is the "average walker". Those who are 65 or older and those who use a mobility device walk at slower speeds[1] and walking or rolling itself may be more of a challenge to these groups. Therefore, walking access for these groups may be more limited.
- **Places to Cross Barriers (Highways, Rivers, Railroads, and High Stress Roads) are Limited.** Highways, rivers, and high stress roads all create barriers to people walking. Additionally, there are few comfortable places where people can comfortably cross these barriers. The infrequency of these crossings leads to increases in the distance people must walk to get to their destination, this rendering some destinations less accessible. There are limited crossings across the American River, which bisects northern and southern Sacramento. While Business 80 has several crossings into and out of Downtown from surrounding neighborhoods there few low stress pedestrian crossings across Interstate 5 north or south of Sacramento, no low stress crossings across Interstate 80 within City limits, and limited crossings over State Routes 99, 50, and 160.

[1] FHWA Course on Bicycle and Pedestrian Transportation, Lesson 15: Pedestrian Accommodations at Intersections (2013).

Biking Today

A complete, connected bike network that feels safe and comfortable for people of all ages and abilities is critical to make biking a viable transportation option for travel in Sacramento. Expanding and enhancing the bicycle network throughout the city can help reduce congestion as people can choose to bike rather than drive.

Figure 25: Mileage of Bike Facilities by Type



Bike Facilities in Sacramento

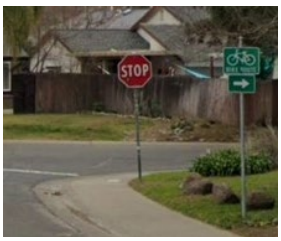
The following are examples of bike facilities currently provided in Sacramento. **Figure 25** shows the lane miles of each facility type in Sacramento today and **Figure 26** maps bike facilities by type.

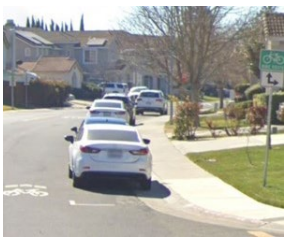
Shared Use Paths (Class 1) are paved trails, physically separated from motorized traffic and designed for use by nonmotorized modes of transportation. These facilities are generally considered comfortable for all users. Shared use paths run along the Sacramento River and American River, as well as in other northern neighborhoods.

Bike Lanes (Class 2) are striped lanes with pavement markings and signs that designate an exclusive lane for bicycle use only. Bike lanes are dispersed throughout the city. Bike lanes are most appropriate on lower speed and volume streets; those on multi-lane streets or those with higher vehicle speeds and volumes may not be comfortable for most users.

Buffered Bike Lanes (Class 2) are bike lanes with a striped buffer between the bikeway and vehicle traffic and / or adjacent parking lane. The buffers can improve user comfort.

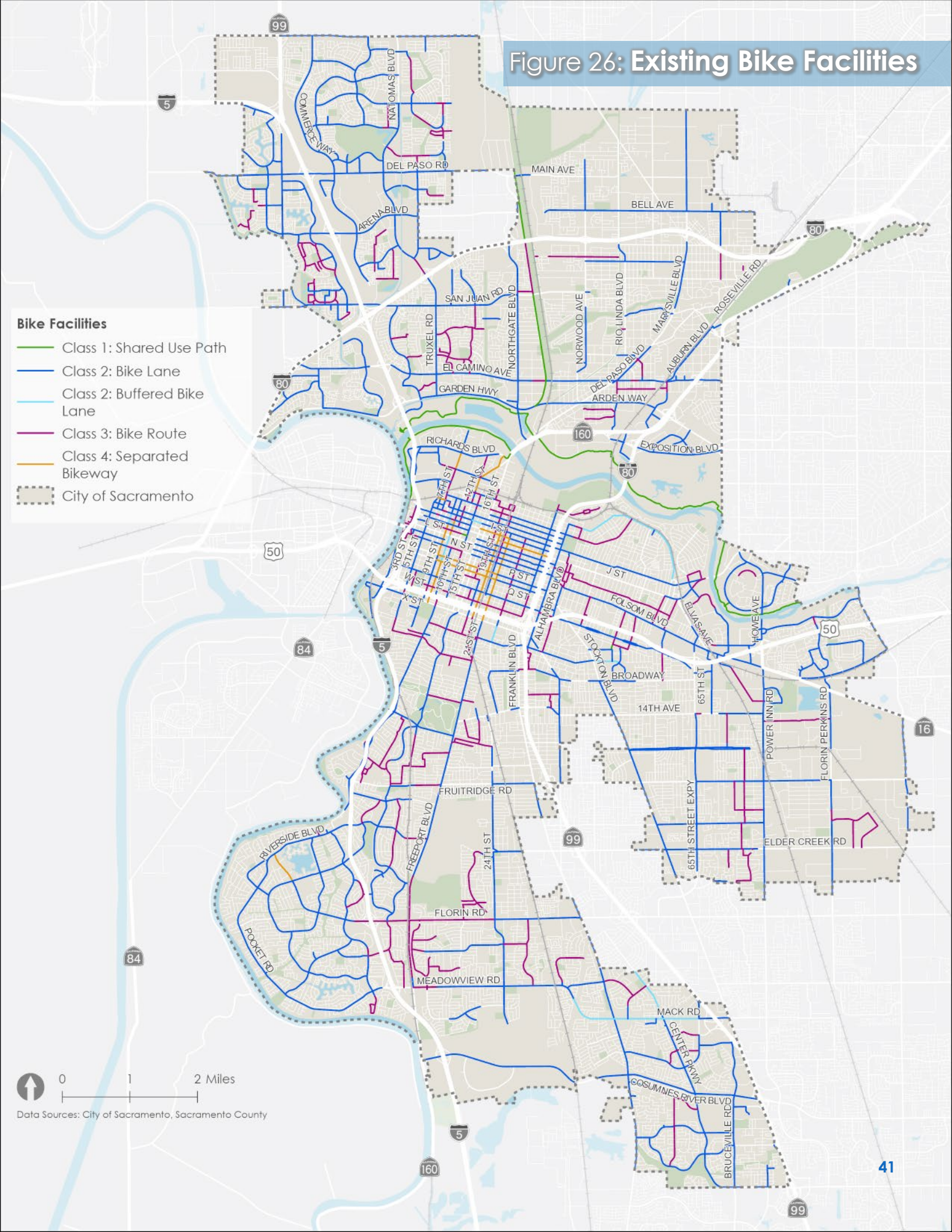
Bike Routes (Class 3) are signed and/or marked streets where drivers share the travel lane with people biking. Bike routes may include additional traffic calming elements to improve user comfort. Bike routes on higher speed and volume roads are generally not considered comfortable for most users.





Separated Bikeways (Class 4) are exclusive spaces for bicycle use that are physically separated from other modes of traffic. Separated bikeways can designed for one direction of traffic or bi-directional. Some forms of separation include flex posts, curbs, planters, or other forms of separation. Separated bikeways may be designed at street level or elevated to sidewalk level. These types of bikeways are generally considered comfortable for most users.

Figure 26: Existing Bike Facilities



Existing and Funded Bike Projects

The City of Sacramento is implementing a number of projects to improve biking and complete streets, including:

- **Central City Mobility Project:** This project is part of the Central City Specific Plan which aims to improve connections in the urban center for walking, biking, and transit use. This project includes over 60 blocks of parking protected bikeways. 5th Street will also be converted from a one-way to a two-way street between Broadway and H Street with the addition of bike lanes in both directions.
- **Bell Avenue Complete Streets Rehabilitation Project:** Bell Avenue between Bollenbacher Avenue and Astoria Street completed improvements including new traffic signals, new bike lanes, new street lighting, and new sidewalks.
- **Broadway Complete Streets:** A two-mile corridor along Broadway between 3rd Street and 29th Street is currently in construction to have a road diet, new buffered bike lanes, new marked pedestrian crossings and refuge islands, and multi-modal improvements at intersections.
- **Del Rio Trail Project:** The Del Rio Trail includes a 4.8-mile inner-city trail that connects people biking and walking to local schools, parks, and retail centers.
- **Franklin Boulevard Complete Street Project:** Construction is targeted for 2024 to provide a friendly environment for people walking, biking, driving, and using transit. Improvements will be made to the roadway and streetscape along Franklin Boulevard between Sutterville Road/12th Avenue and 38th Avenue.
- **Garcia Bend Trail:** Part of the Sacramento River Parkway Project is to complete a levee top trail through Pocket-Greenhaven neighborhood. The project will include ADA-compliant paved trails and ramps and connections between Pocket-Greenhaven Canal Parkway and Sacramento River Parkway Project.
- **I Street Bridge Replacement:** Construction of a new bridge is planned for 2024-2027. The bridge will serve people walking, biking, driving, and using transit.
- **Meadowview Road Streetscape:** Complete in 2021, the City improved conditions for driving, biking, and walking on Meadowview Road and 24th Street. Improvements included the addition of bike lanes, construction of wider sidewalks, and implementation of public art.
- **North 12th Complete Street Project:** Construction began in Spring 2021 and involves the transformation of the North 12th Street Corridor from Richards Boulevard to H Street into a Complete Street including a Class IV separated bikeway.
- **South Sacramento Parkway Trail West Project:** Construction of a new 12-foot-wide Class I Bicycle Facility adjacent to I-5 will connect Freeport Shores Bike Trail to the North Delta Shores Bike Trail.
- **Two Rivers Trail – Phase II:** Trail construction is planned for Summer 2023 that will provide a 2.4 miles long multi-use path between Sutter's Landing Park and H Street, by Sacramento State. The trail will serve residents of River Park and East Sacramento as a comfortable and convenient way to travel into downtown Sacramento.

Bicycle Comfort

While some people may be comfortable riding a bike in any type of environment, neighborhood connections are focused on creating places to bike which are comfortable for anyone, regardless of their age, skills, or ability. To evaluate how comfortable it is to bike on Sacramento's streets, an analysis of Bicycle Level of Traffic Stress (LTS) was completed. LTS is a method of quantifying the perceived sense of comfort for a person biking along a given roadway. As with walking, a variety of factors are known to influence comfort for biking, such as the speed and volume of traffic, presence and type of bicycle facility, and the design of the road.[4,5]

LTS Scoring

The criteria shown in **Table 7** were used to determine the LTS scores shown in **Figure 27** for each street and bike facility in Sacramento considering that roadways without designated bike infrastructure are analyzed as "Mixed Traffic."

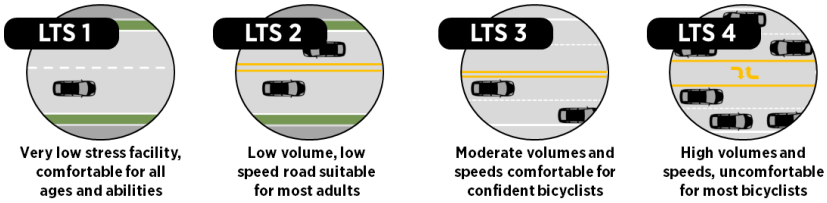


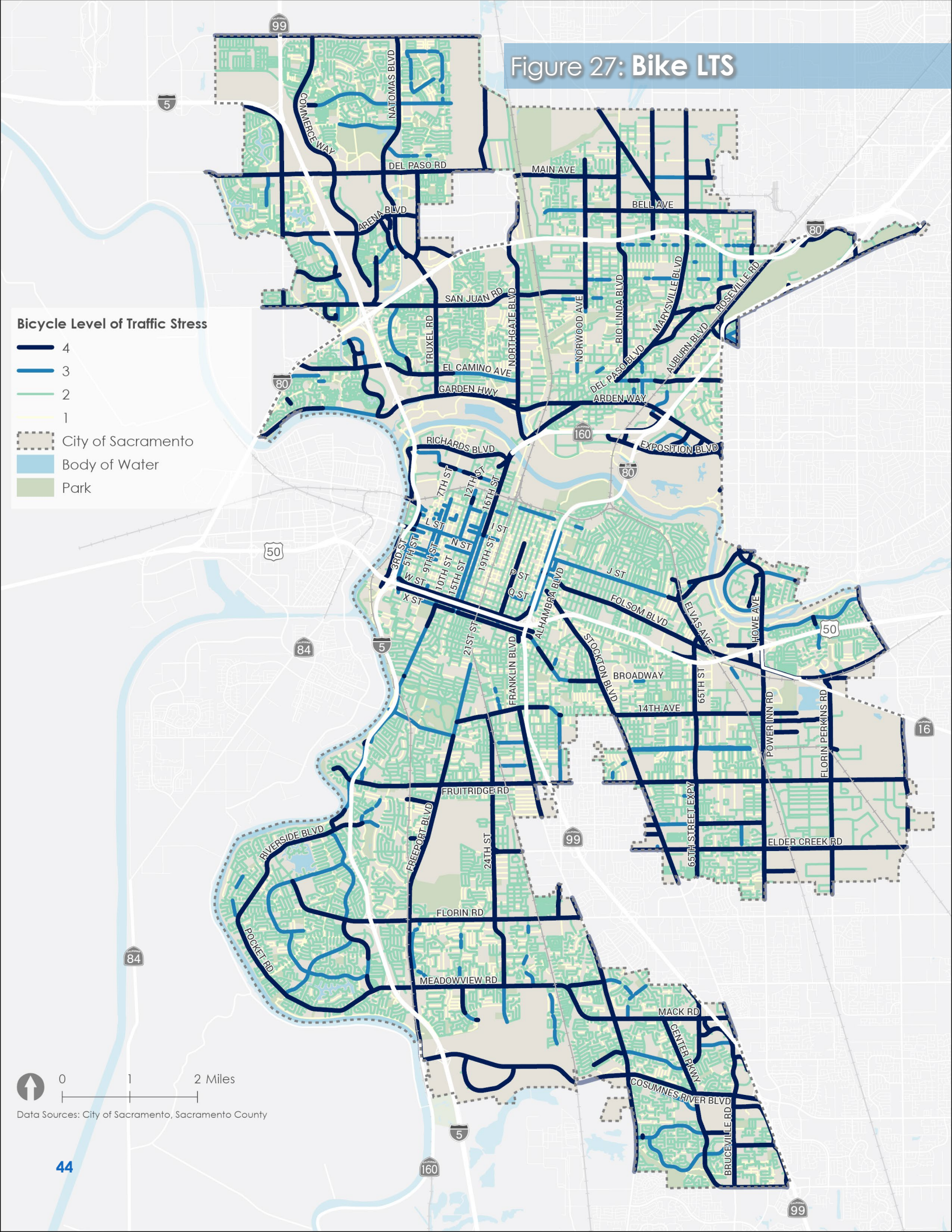
Table 7: Level of Traffic Stress Criteria for Streets in Sacramento

Posted Speed Limit	Number of Lanes	Mixed Traffic / Bike Routes	Bicycle Boulevards	Striped Bike Lane	Buffered Bike Lane	Protected Bikeway	Shared Use Path
25 MPH or Lower	2 Lanes	LTS 2	LTS 1	LTS 1	LTS 1	LTS 1	LTS 1
	3 Lanes	LTS 3	LTS 2	LTS 1	LTS 1	LTS 1	LTS 1
	4+ Lanes	LTS 4	LTS 4	LTS 1	LTS 1	LTS 1	LTS 1
30 MPH	2 Lanes	LTS 3	LTS 2	LTS 1	LTS 1	LTS 1	LTS 1
	3 Lanes	LTS 4	LTS 4	LTS 1	LTS 1	LTS 1	LTS 1
	4-5 Lanes	LTS 4	LTS 4	LTS 3	LTS 2	LTS 1	LTS 1
	6+ Lanes	LTS 4	LTS 4	LTS 4	LTS 3	LTS 2	LTS 1
35 MPH	2 - 3 Lanes	LTS 4	LTS 4	LTS 4	LTS 2	LTS 1	LTS 1
	4-5 Lanes	LTS 4	LTS 4	LTS 4	LTS 3	LTS 1	LTS 1
	6+ Lanes	LTS 4	LTS 4	LTS 4	LTS 4	LTS 3	LTS 1
40 MPH or Greater	2 - 3 Lanes	LTS 4	LTS 4	LTS 4	LTS 4	LTS 2	LTS 1
	4-5 Lanes	LTS 4	LTS 4	LTS 4	LTS 4	LTS 2	LTS 1
	6+ Lanes	LTS 4	LTS 4	LTS 4	LTS 4	LTS 3	LTS 1

LTS 1 LTS 2 LTS 3 LTS 4

*For the purposes of this analysis, bicycle boulevards are defined as mixed traffic streets with at least one traffic calming device present.

Figure 27: **Bike LTS**



Biking Conditions

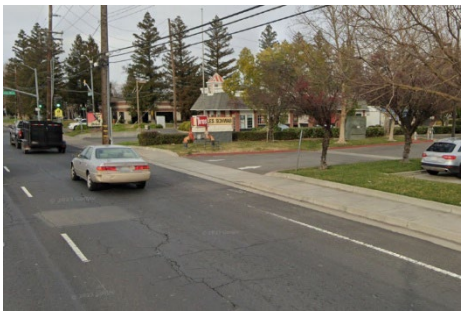
LTS helps measure biking stress, but there are many other conditions which may impact a person's level of comfort when biking. For example, observed speeds of people driving on the roadway, conditions of the infrastructure, the number of driveways that interrupt the bike path, and width or type of separation from vehicles can also impact user comfort. These factors may deter people from biking or using existing biking infrastructure when provided. This analysis includes surface streets and shared use paths, but freeways are not analyzed as walking and biking is prohibited.

Bike Lanes

Bike lanes make up a large portion of the bike infrastructure in Sacramento, but many of these bike lanes are on multi-lane and multi-lane roadways with higher speeds. Some bike lanes are combined with parking or are very narrow next to parking and do not provide enough space for the person biking to fully fit in the lane. These uncomfortable routes may push people riding to find alternative, circuitous routes or deter people from biking all together. In some cases, high stress bike lanes may result in some people riding on sidewalks or in the opposite direction of traffic.

Traffic Calming and Bicycle Routes

Low stress local and residential streets make up a large part of the existing bike network. This can pose a major challenge, as previously mentioned, as observed speeds – even on residential roads – may be higher than the posted speed limit. Traffic calming elements can help slow speeds and make it more comfortable to bike in mixed traffic. See **Figure 17** for locations of existing traffic calming.



Intersections

Intersections are also uniquely challenging for people biking. Several bike lanes terminate before reaching the intersection, or do not pick up on the other side of the intersection, forcing people biking to jostle for space with cars potentially traveling high speeds and over multiple lanes as seen. Often where a bike lane is provided through an intersection, right turn pockets for cars conflict with the bike lane, requiring people biking to negotiate space with traffic regardless. Finally, with some exceptions, there is no dedicated method for people riding to turn left or right through intersections often requiring riders to exit any dedicated biking infrastructure into traffic.

Sacramento has implemented intersection improvements to enhance biking comfort, including:

Protected Intersections physically separate bicycles from motor vehicles through the intersection providing people biking with a sense of safety and comfort for all ages and abilities. Bicycle signal heads may also be provided.

Bike Boxes A designated area in the front of the traffic lane at a signalized intersection to provide people biking a designated space to wait ahead of traffic during the red light.

Conflict Striping includes intersection crossing markings to indicate a clear path through an intersection for people biking and alert drivers to the presence of people biking.

Where are People Biking?

Strava and Replica data are used to identify biking trends in the City. For biking, Strava is advertised to recreational, and sports riders and the data collected is from a self-selecting pool of typically whiter, wealthier, and more athletic individuals. Replica utilizes a variety of sources to create a simulation of an area to model where people are going. Since Strava is self-reporting and Replica is a model that predicts travel patterns, both are useful tools to understand where people bike.

Strava Data

Figure 28 shows where people who use Strava are biking. Some conclusions from this data indicate higher levels of biking occur at:

- Shared use paths including Sacramento River Bike Trail and Jedediah Smith Memorial Trail/American River Bike Trail.
- On bike lanes within Downtown and Midtown.
- Along major collectors and minor collectors in Pocket-Greenhaven.
- On local roads in East Sacramento.

Replica Data

Replica data is mapped in **Figure 29** showing the frequency of biking trips overlaid compared to concentrations of neighborhood destinations. Comparing Strava and Replica, bike trips follow similar patterns with concentrations in Downtown and Midtown, along arterials that lead to neighborhoods, and along shared use paths that follow along the rivers. As there are a lot of people biking within the Central City, it also has the densest bike destinations per square mile. This is in part because of the grid street network and the commercial opportunities that the central business district provides. The further away from the Central City, the less dense bike destinations become, which follow similar patterns to the frequency of bike trips that occur in and throughout those neighborhoods.

Figure 28: **Strava Bike Heat Map**

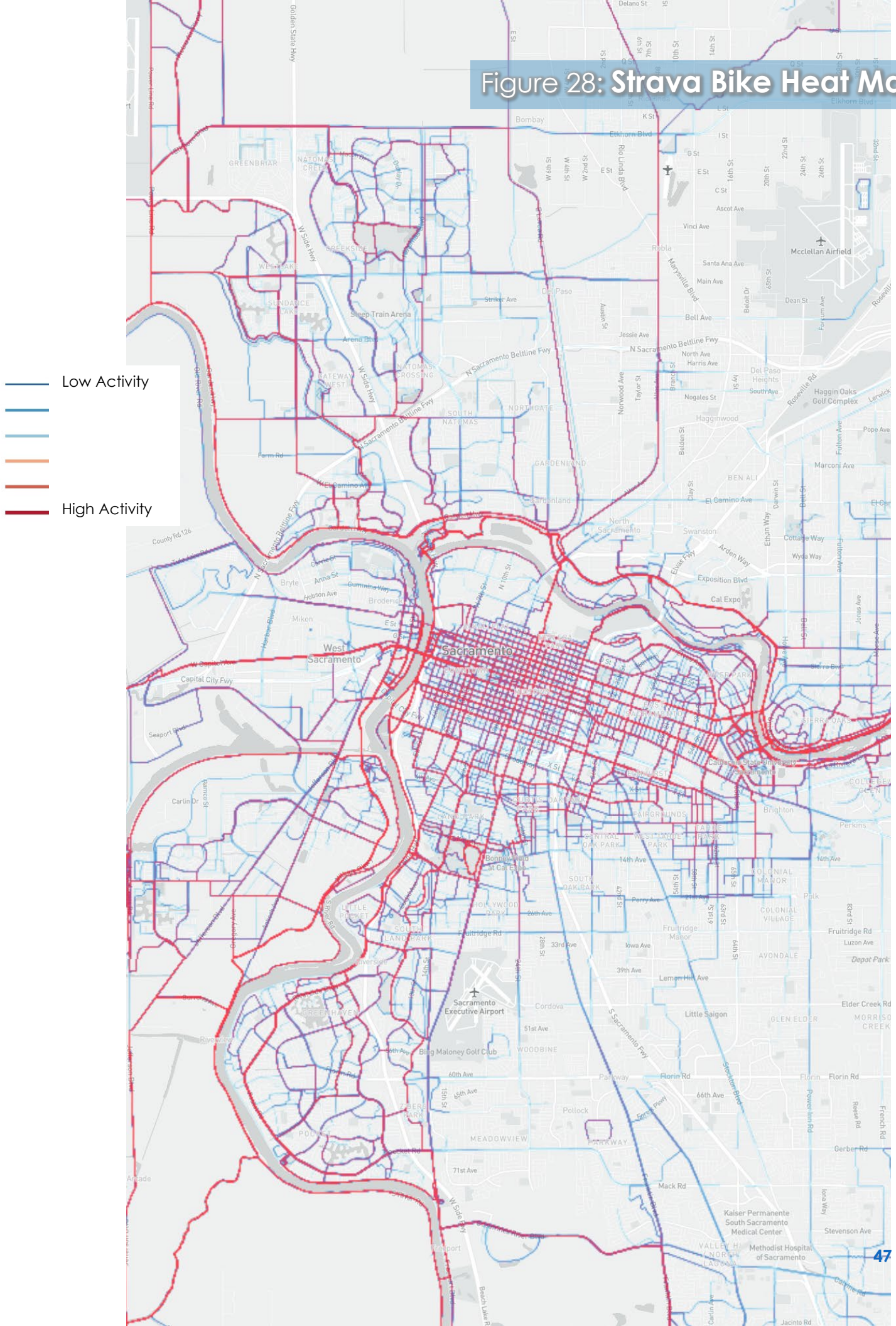
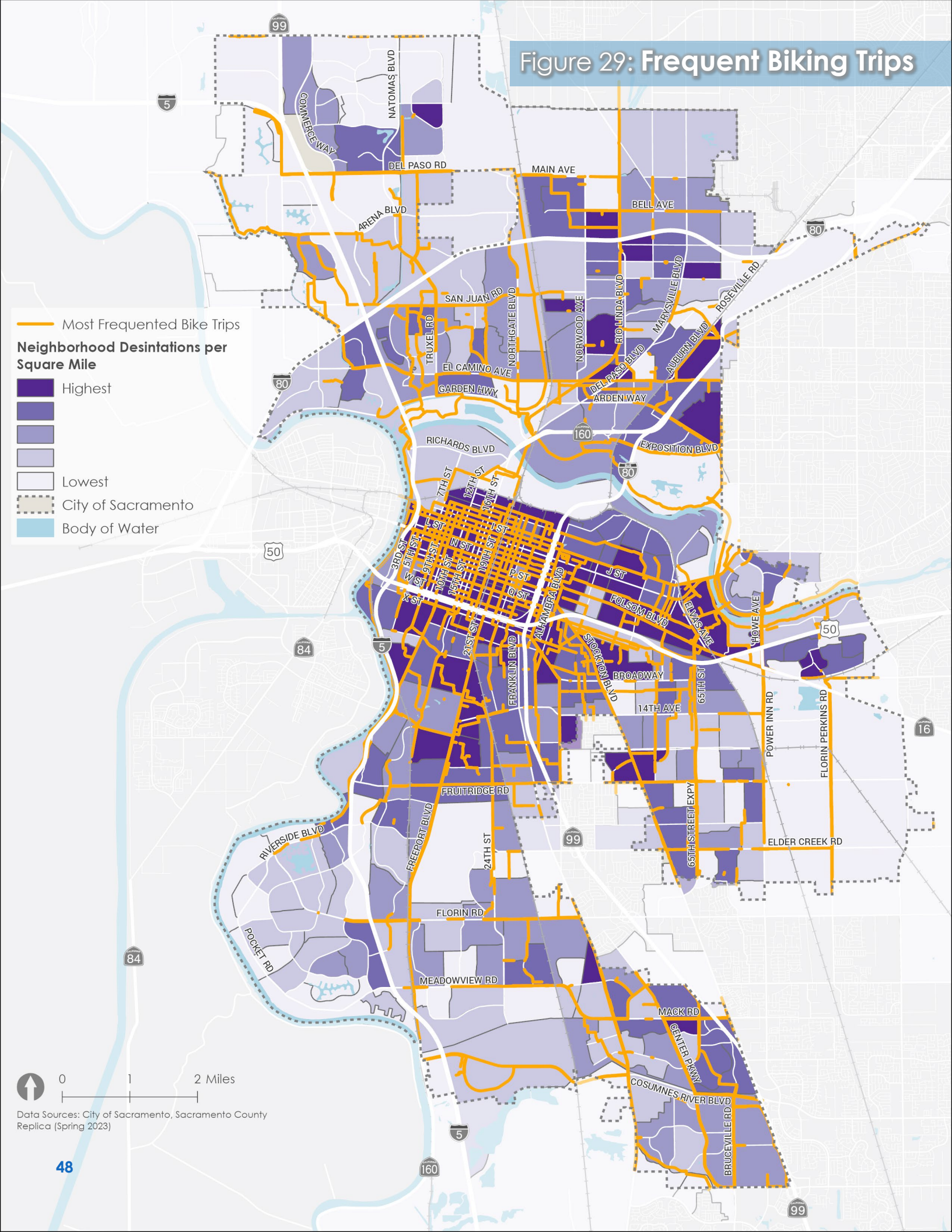


Figure 29: **Frequent Biking Trips**



Data Sources: City of Sacramento, Sacramento County Replica (Spring 2023)

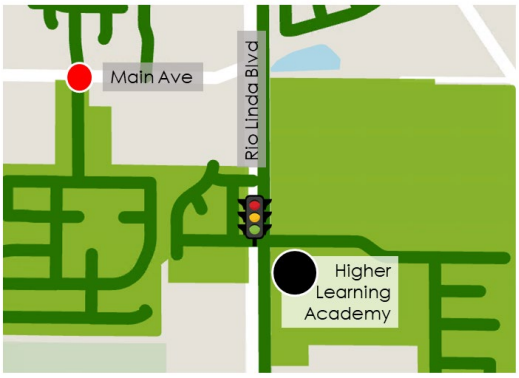
Biking Assessment

People biking experience the roadway differently than drivers and may be dissuaded from riding or walking entirely if the infrastructure does not feel safe. Bike LTS was used to establish a "Low Stress Network" where people biking would feel comfortable using to access destinations and develop biking sheds. Steps in the biking assessment include:

- Determine key destinations (see **Figure 13**).
- Define the low stress network and crossings and identify barriers for people biking. The analysis assumes people of all ages and abilities will bike along low stress streets and cross at low stress intersections, but that not all people will utilize higher stress streets or intersections. The network and barriers were determined as follows:
  - **Low Stress Network:** includes streets and paths with a bike LTS of 1 or 2.
  - **Low Stress Crossings:** all intersections of streets with a bike LTS of 1 or 2, signalized intersections, and signalized mid-block crossings were considered comfortable to cross.
  - **Street Barriers:** high stress streets for biking (LTS 3 or 4). These streets are not displayed or analyzed as part of the network.
  - **Crossing Barriers:** Any intersection with at least one street with a bike LTS of 3 or 4 without a signalized crossing was considered a barrier and removed from the analysis.
- Bikesheds (the area people can comfortably bike from a given destination) were created utilizing GIS for a typical bike rider that travels 8 MPH, or up to 2 miles, on a 15-minute trip. People riding electric bikes and athletic riders may be capable of higher average speeds can likely access more destinations than the typical rider; however, using the typical rider allows the sheds to reflect a greater portion of the biking population. Using Census Block data, population estimates were calculated to estimate how many residents reside within each bikeshed.

Figure 30 shows an illustrative example of the analysis of a 15-minute bike shed for the typical rider. Notably, the Low Stress Network is not continuous enough to provide typical riders access to the K-12 schools in the area. Higher Learning Academy has a barrier along Main Avenue as it is a 40MPH road with unsignalized intersections. This segregates the northern portion of the neighborhood from accessing the school.

Figure 30: 15-Minute Bike Shed Network



The results of the analysis can be seen the following figures as follows:

- **Figure 31: Bike Access to At Least One Neighborhood Destination**
- **Figure 32: Bike Access to Essential Needs**
- **Figure 33: Bike Access to K-12 Schools**
- **Figure 34: Bike Access to Major Institutions**
- **Figure 35: Bike Access to Civic and Social Needs**

Table 8 shows that 66% of residents can access at least one of the neighborhood destinations evaluated using the Low Stress Network. Just over half of residents can bike to a nearby school and essential needs by bike, but suburban neighborhoods have less access to these needs than the urban core. Most of the major institutions are clustered in Downtown and adjacent neighborhoods, making it so only 17% of people are able to access them. Finally, just over half of residents can reach social and civic needs including parks or recreation.

Table 8: Residents Biking Access via the Low Stress Network (by Census Block)

Low Stress Network Access	% of Residents with Access
Access to At Least One Neighborhood Destination of Any Type	66%
Access to Essential Needs	47%
Access to K-12 Schools	54%
Access to Major Institutions	17%
Access to Social and Civic Needs	54%

Figure 31: Bike Access to At Least One Neighborhood Destination

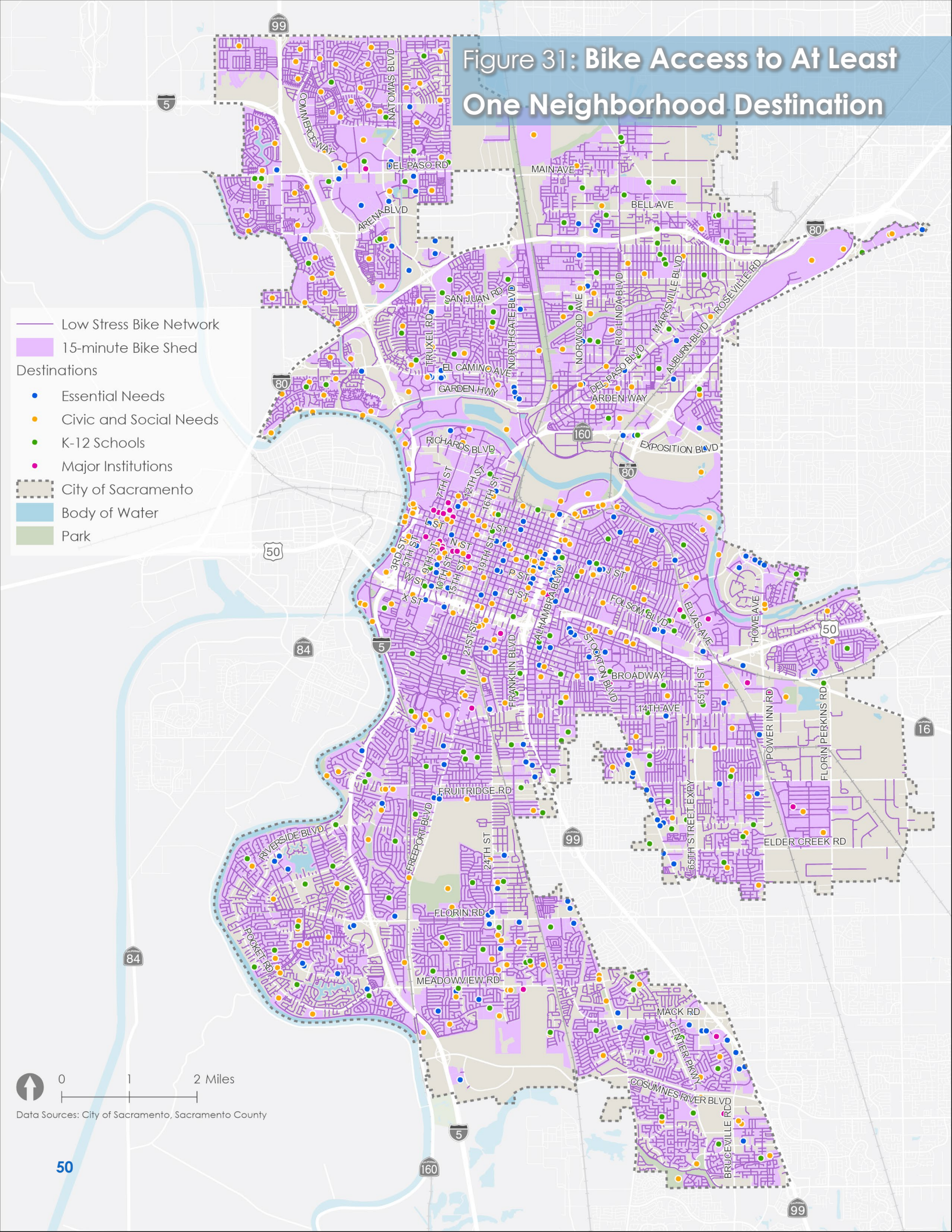


Figure 32: Bike Access to Essential Needs

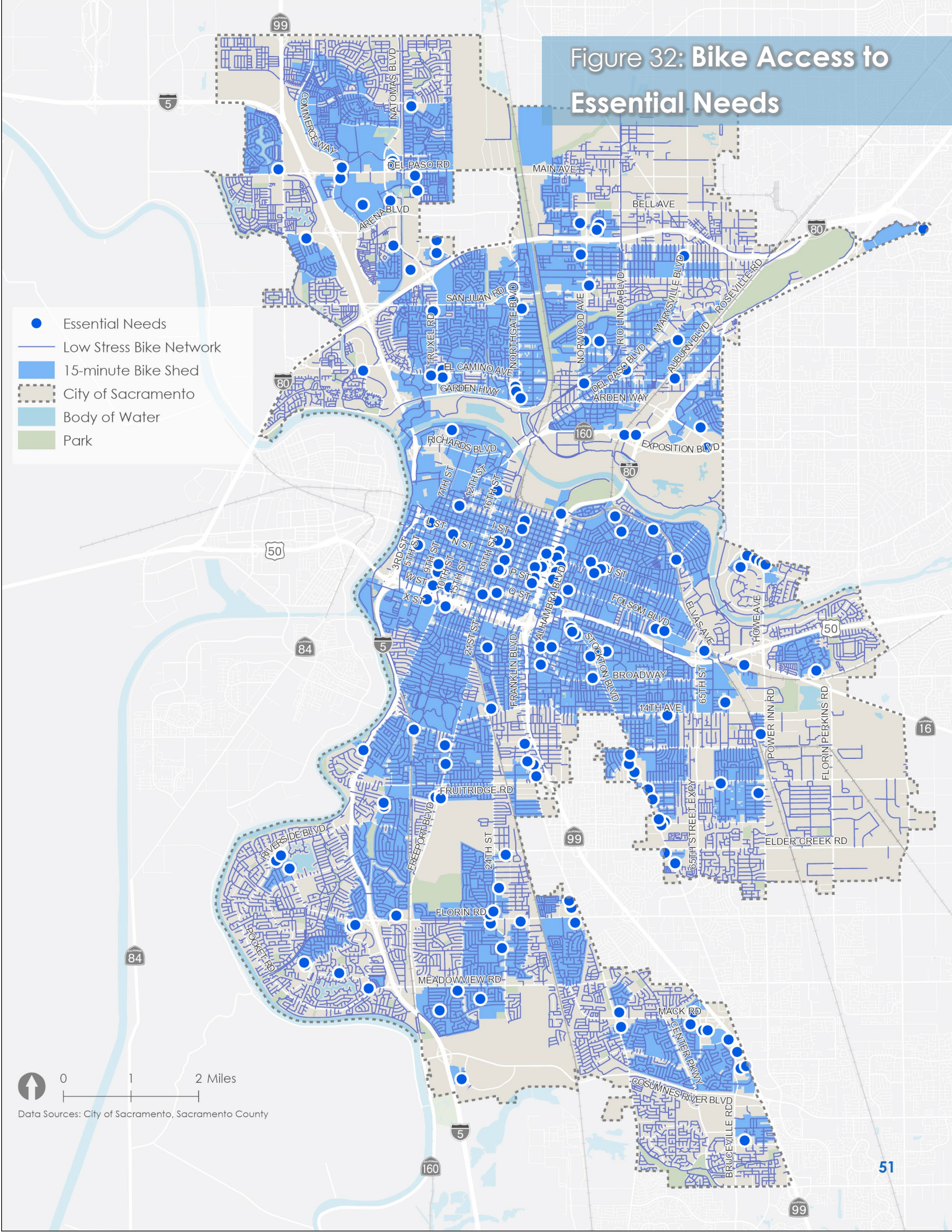


Figure 33: Bike Access to K-12 Schools

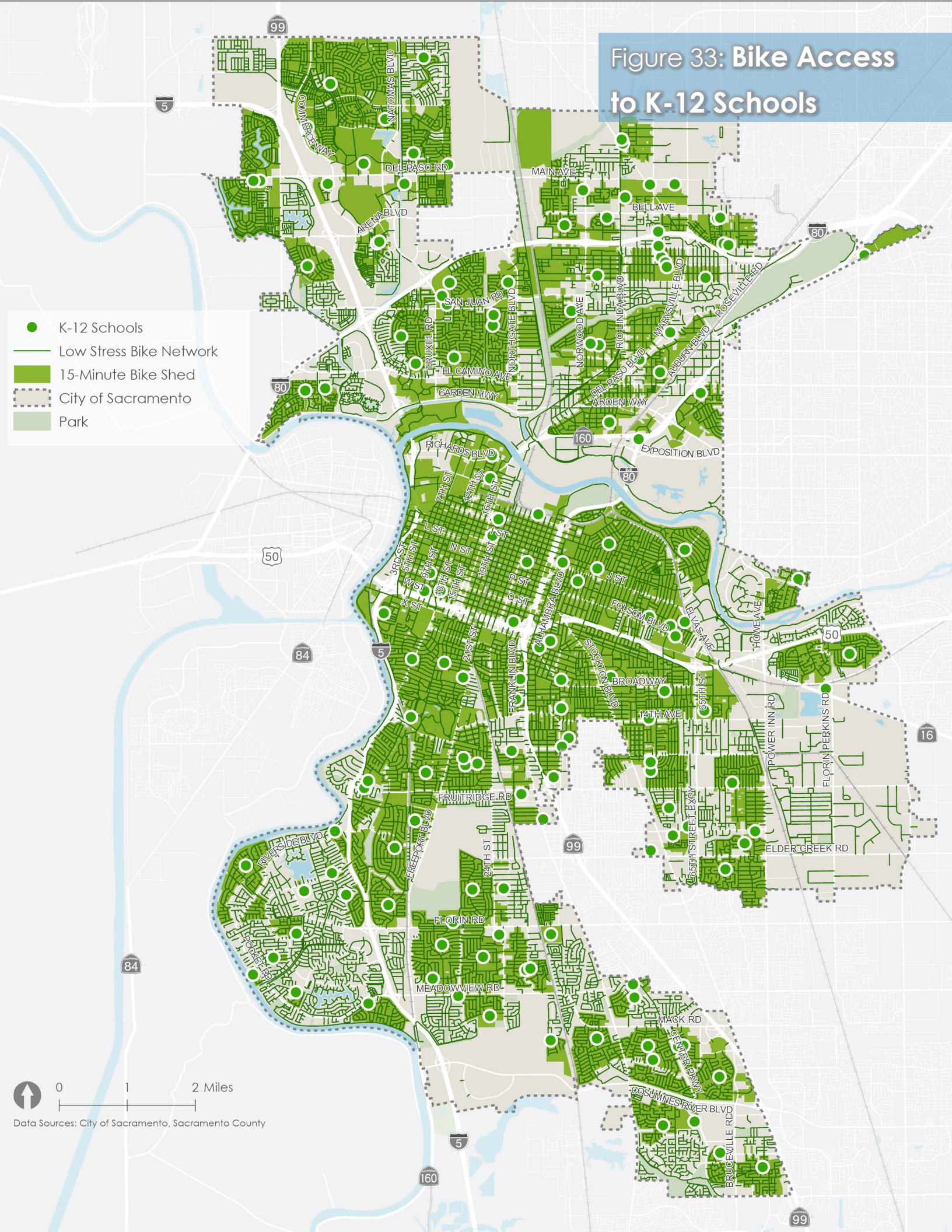


Figure 34: Bike Access to Major Institutions

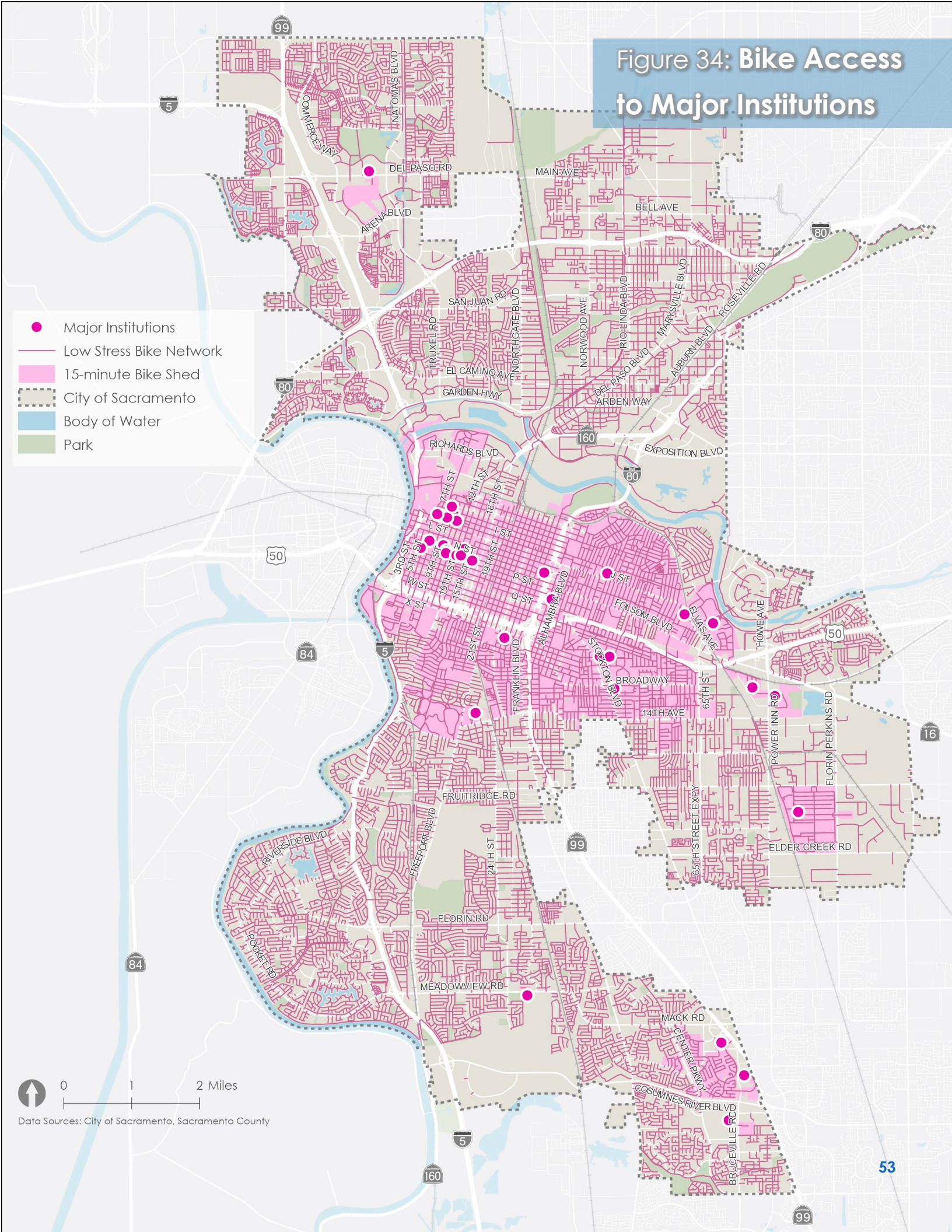
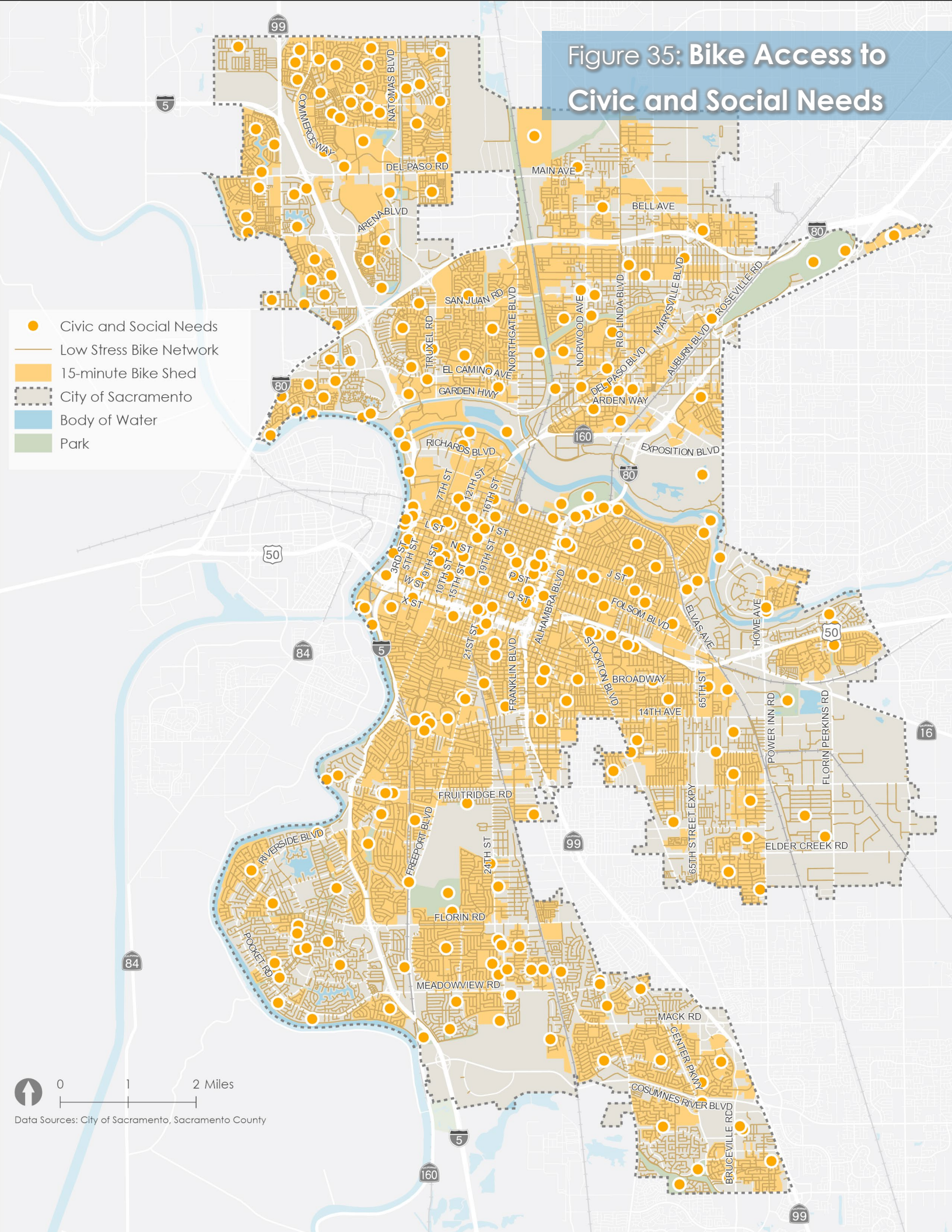


Figure 35: Bike Access to Civic and Social Needs



Observations

- **North-South Connections Across Rivers are Limited.** There are few connections across the American River making access to each bridge critical for people walking and biking between north and south Sacramento. While the Sacramento Northern Bikeway provides a connection to Pipe's Bridge across the American River trail, there are limited signalized intersections across 16th Street making accessing the 18th Street or C Street entrance either a circuitous journey, or one people biking may choose not to take.
- **Freeways Limit Crossings.** Freeways act as significant barriers to people walking and biking and require bridges over and/or under roads for multimodal connectivity. Not all roadways that cross over freeways feel safe and comfortable for people riding, limiting the amount of locations to cross even further. There is higher density of low stress roads to cross Business 80 in and out of Downtown compared with suburban developments further from the core. I-5 north and south of Downtown and I-80 in particular, has very few low stress crossings available to people biking.
- **Suburban Residents are Most Disconnected from Daily Needs, Schools, and Major Institutions.** Many essential needs, schools, and major institutions that are located in suburban communities are located along high stress corridors. Access is limited due in part to the location of the entrances and exits of destinations being placed along these high stress roads, effectively cutting them off from the entire neighborhood. If an entrance is available along a low stress side road, the destination then only becomes available to those who live on the same side of the road as the destination itself. Some examples include:
  - In the Pocket neighborhood, the Grocery Outlet only has access on high stress roadways preventing residents from being able to comfortably bike there even though it is within a bikeable distance for most.
  - A notable inaccessible destination is the State Office of Civil Defense, located in the South Area.
  - John F Kennedy High School only has access points on Gloria Drive and Florin Road which are high stress roads making it in accessible to residents even though it is surrounded by a residential neighborhood.
- **Posted Speeds do not Match Roadway Context.** Many roadways, such as Woodbine Avenue, C Street, or Pocket Road, are two lane roads along residential or urban contexts that are posted 30 MPH yet may be narrow, or have traffic calming (such as speed bumps), or have curves. These features encourage drivers to travel at lower speeds than the posted speed. These roadways with a lower posted speed may be appropriate for mixed traffic. However, they may show up as high stress roads in this analysis due to the posted speeds. Therefore, the actual user experience may differ from this analysis in select instances.

Micromobility Today

Scooters and E-bikes comprise the micromobility, or "shared-rideables", system in the City of Sacramento. To prioritize pedestrian safety as per the California Vehicle Code (CVC)[6], motorized scooters are not allowed for use on the sidewalks, and bicycles on sidewalks must yield to people walking, including providing an audible warning if passing a person walking. Ride Report keeps an updated dashboard totaling average vehicles (scooters and E-bikes), total trips, total distance, average trip speed, and micromobility volumes.

Sacramento saw heavy micromobility usage prior to the COVID-19 pandemic. While usage levels have not reached pre-pandemic volumes, usage is constant, with annual trip peaks in the spring and summer months. Over the last year, more than 455,000 trips were made, totaling over 558,000 miles traveled.

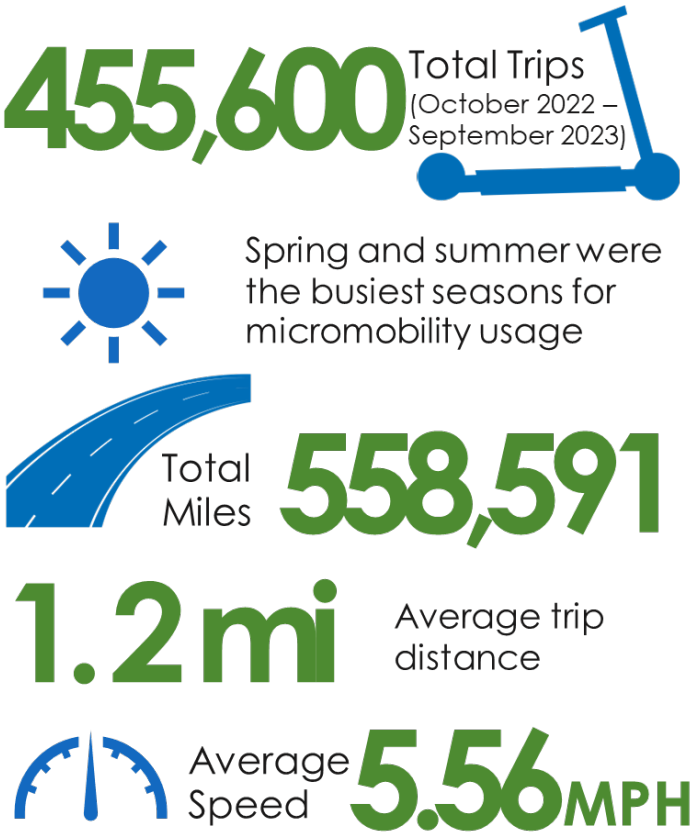
K Street is a high-volume area for ridership. From January 2019 to June 2023, several segments (stretch of roadway along one block) of K Street yielded 4% to 7% of all trips (over 100,000 trips per segment, sometimes over 200,000). Capitol Mall was another location with high rider volumes.

Rules & Regulations

The City of Sacramento and State of California have adopted the following regulations related to micromobility:

- Scooters are not permitted to use sidewalks; they must operate in the street or in bike lanes (per CVC).
- Micromobility devices shall not block sidewalks or curb ramps and should be parked at drop zones of bike racks (per City regulation).
- People may ride bikes on sidewalks, but must yield to people walking (per CVC).

These regulations are relevant to Neighborhood Connections. People often choose to ride on sidewalks because the street does not feel safe, whether or not there is infrastructure on it. Providing well designed, signed, and traffic calmed neighborhood connections can help people feel safer when following the rules of the road.



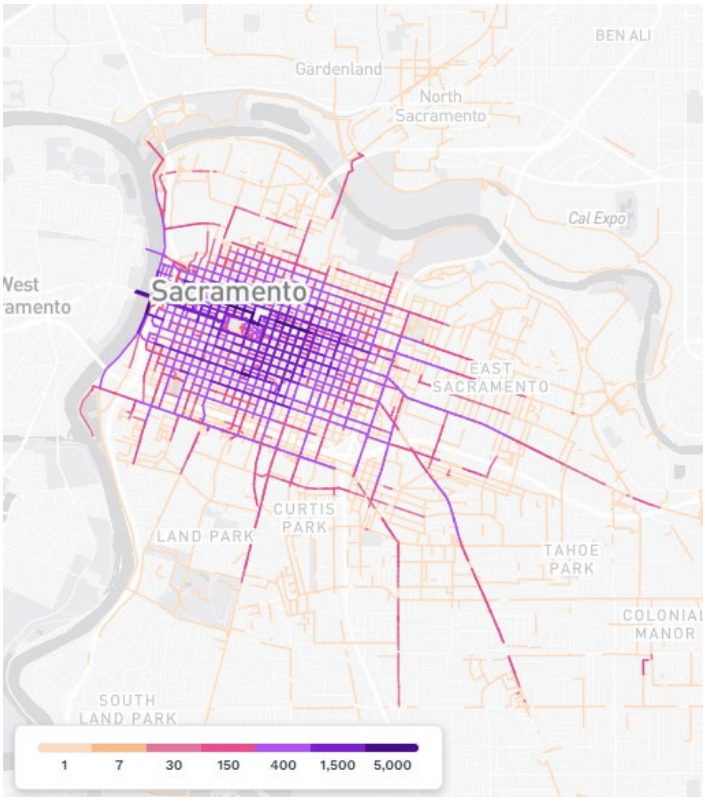


Figure 36. Micromobility volumes April – June 2023

Transit in Sacramento

Transit services in Sacramento are provided by Sacramento Regional Transit. Amtrak also serves Sacramento and provides regional connectivity. Transit routes provide important access and connectivity to key destinations and regional access to employment, education, shopping, and services. Therefore, transit stops are daily destinations for many people in Sacramento. Since most people walk, bike, or roll to reach transit stops, understanding where they are located is an important element in the development of the Neighborhood Connections.

Transit Today

The following types of transit services are available in Sacramento:

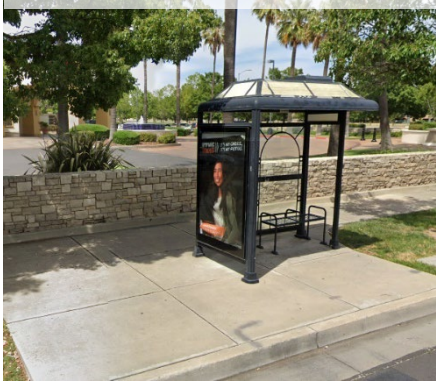
- **Fixed Bus Route Services** includes 58 routes throughout the city, providing riders connections to their homes, work, school, and other key destinations. These routes operate every day from 5 a.m. to 11 p.m. every 12 to 60 minutes, depending on the route.
- **Light Rail Service** includes 3 lines: Gold, Green, and Blue and spans almost 43 miles, 52 stations, and 97 vehicles. Service runs from 4 a.m. to midnight on weekdays (10:30 PM on weekends) and runs every 15 minutes during the day and every 30 minutes for the early morning and later evening trips. The Green Line train only operates on the weekday, while the Blue and Gold Line trains operate on the weekends until 10:30 p.m.
- **SmaRT Ride Microtransit Service** is an on-demand services where riders can use a smartphone app to request a ride that will pick up and drop off passengers within one of the eight service areas.
- **The Neighborhood Ride** is a community bus service of smaller shuttles running within communities. These shuttles operate along fixed routes but are able to deviate off their fixed routes up to ¾ mile to pick up and drop off seniors and passengers with disabilities. Routes are operated by SacRT's Community Bus Service division and serve residents and employers. These services include the North Natomas Jibe Express, Rancho CardoVan, and The Neighborhood Ride.
- **SacRT Go Paratransit Services** offer door-to-door service and are provided for people with disabilities who may be otherwise unable to use the fixed route systems including the local bus and light rail services.

Routes and high ridership stops can be seen in **Figure 37**, along with the light rail stops. In total, there are over 1,700 bus stops in Sacramento with varying amenities including shelters, trash cans, lighting, seating, and / or others. The areas with the highest utilization include:

- J Street, L Street, 9th Street, and 10th Street in Central City
- 29th and 30th Street in Midtown
- Florin Road in Pocket-Greenhaven and South Sacramento
- Broadway in Land Park and Oak Park
- Stockton Boulevard in Fruitridge/Broadway
- Several other key intersections throughout the City

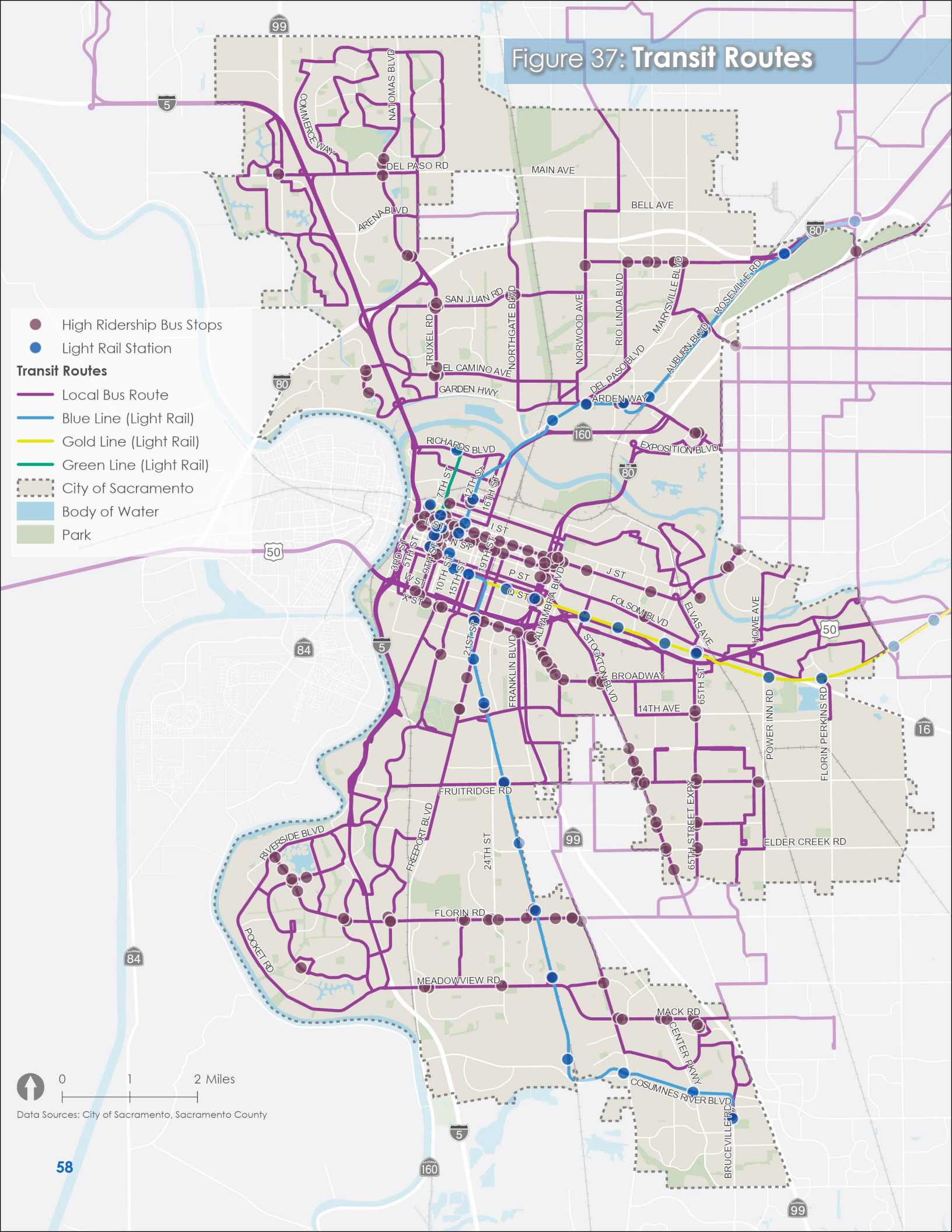
Light rail amenities in Midtown

Bus shelter in Natomas



Bus lane only in Pocket-Greenhaven

Figure 37: Transit Routes



Data Sources: City of Sacramento, Sacramento County

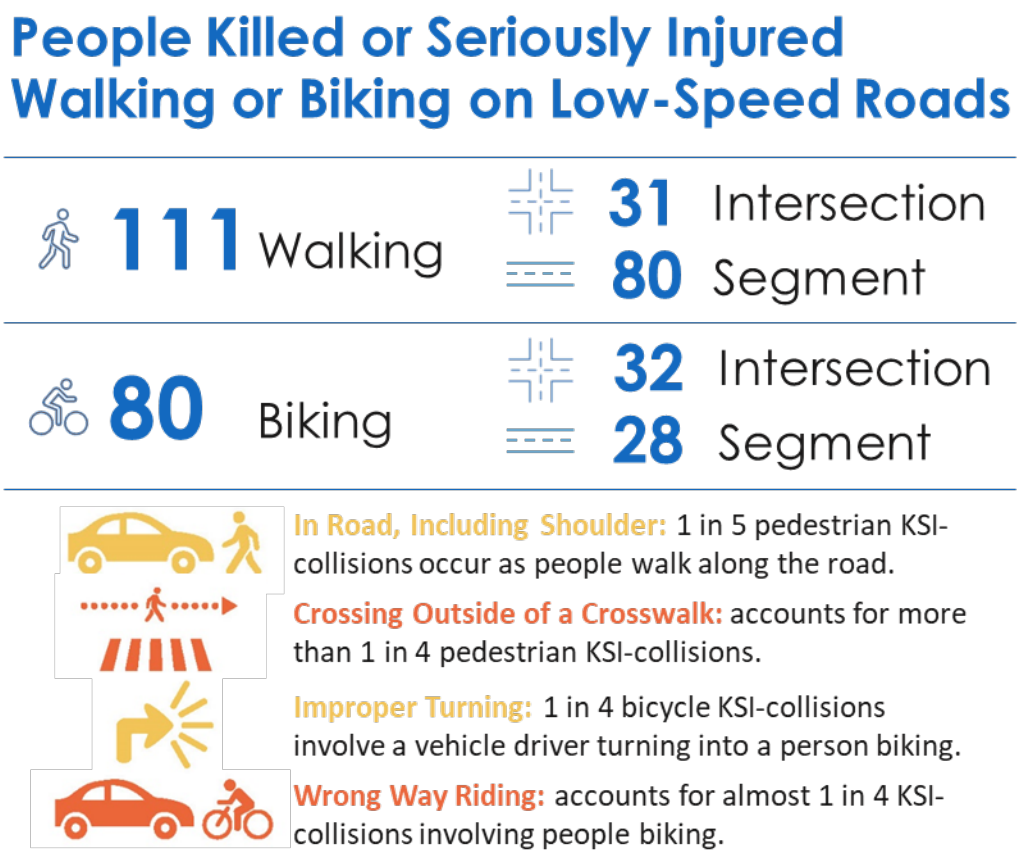
Where are Crashes Occurring?

Safety is a top concern for anyone who walks, bikes, rides transit, and drives. The City of Sacramento continues to work to make its streets safer for all users through its Vision Zero efforts. The City has identified a High Injury Network, which identifies the corridors with the highest level of fatal and serious injury crashes for people walking, biking, and driving. The High Injury network generally includes major arterials throughout the City as well as many streets in Downtown and Midtown.

In addition to the Vision Zero efforts, the Streets for People plan has identified the top 10 collision intersections for people walking and biking in Sacramento. These sites are often located at the intersections of two high injury network segments. For more information on the analysis performed, please see the Streets for People Existing Conditions Report.

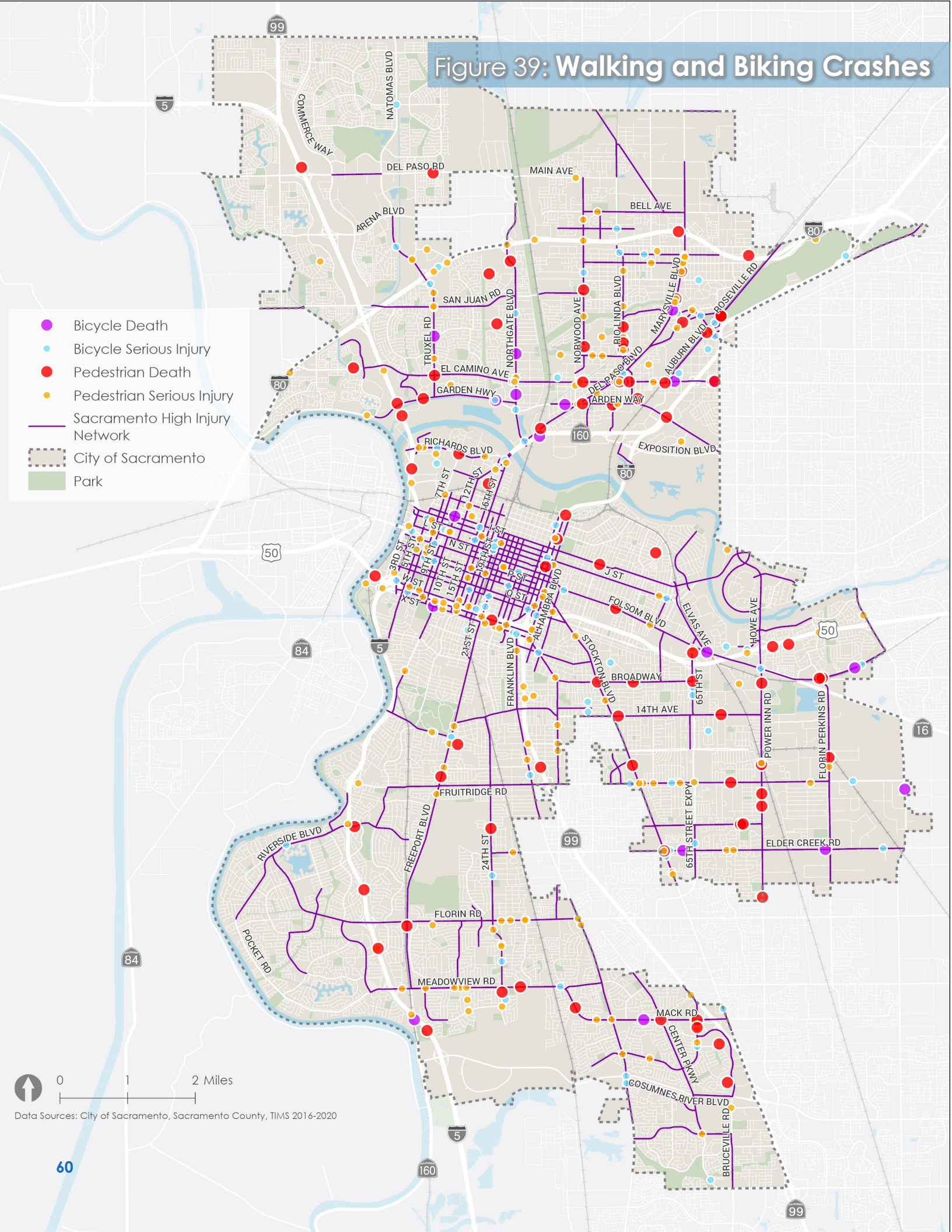
Some relevant key conclusions were drawn for streets posted with low (20-30 MPH) speeds which may be relevant in the planning for neighborhood connections according to the California Transportation Injury Monitoring System (TIMS) data from 2016 through 2020, in Sacramento. **Figure 38** shows the key findings from the Streets for People analysis of crashes on low speeds roads involving people walking or biking who were killed or seriously injured (KSI) in the crash.

Figure 38: Key Facts: Low Speed Roads



As can be seen in **Figure 39**, most of the severe crashes involving people walking and biking occurred along the High Injury Network, which generally follows arterials and collectors. There are exceptions to this statement. Most streets in Midtown and Downtown show up on the High Injury Network. Oak Park and North Sacramento also saw more frequent deaths and serious injuries on all kinds of streets, particularly those surrounding Del Paso Boulevard and Arden Way. While there are destinations on the High Injury Network, Neighborhood Connections may provide more comfortable alternative or additional routes to the destinations.

Figure 39: Walking and Biking Crashes



Data Sources: City of Sacramento, Sacramento County, TIMS 2016-2020

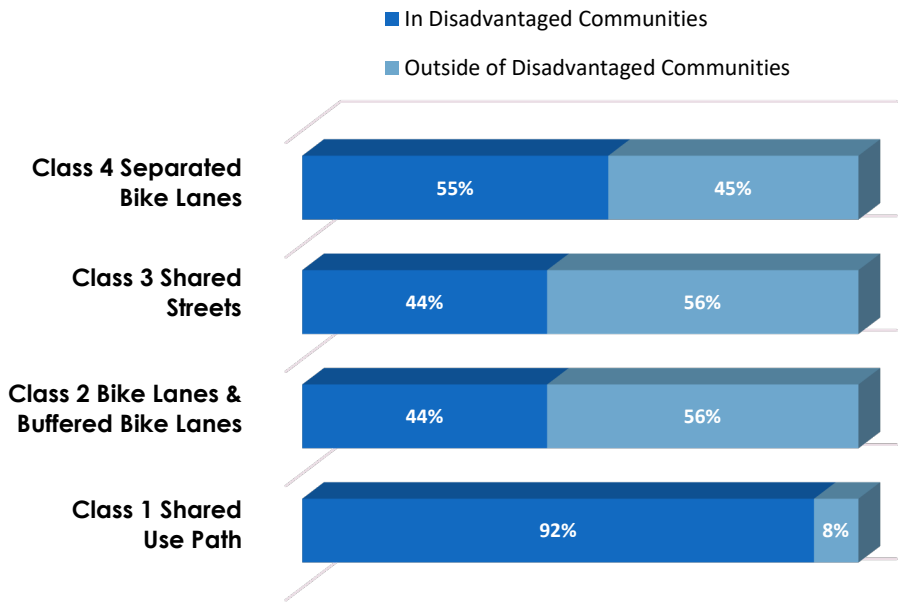
How Equitable is Our System?

Transportation equity is about more than making sure people have comfortable places to walk and bike. As discussed in **Our Social Needs**, different population groups have different needs when it comes to transportation. We also know that historically in the United States, transportation decisions have had greater negative impacts on racial and ethnic minority groups. These groups often stand to gain the most from transportation improvements today when those investments meet their unique needs.

To understand how equitable the Sacramento transportation system is today, a screening was conducted based on the previous analyses as compared to Disadvantaged Communities. For the purposes of this analysis the definition of Disadvantaged Communities can be found in the **Our Social Needs** section and mapped in **Figure 9**. The findings include:

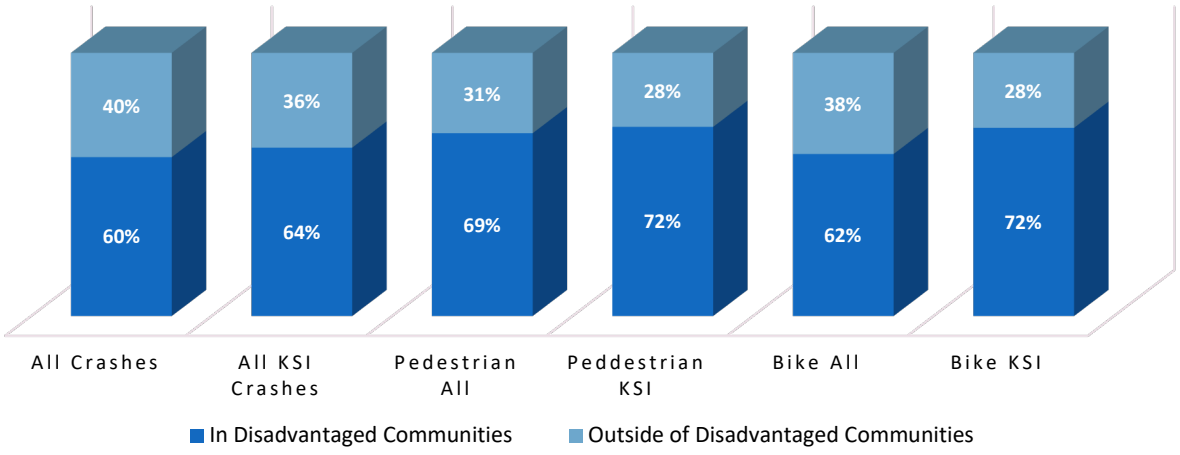
- **Comfort for People Walking:** 57% of street miles considered uncomfortable streets for walking (those scoring a 3 or 4 on the comfort scale) are in Disadvantaged Communities. Regarding comfortable streets (those scoring 1 or 2 on the comfort scale), 45% of street miles are located in Disadvantaged Communities.
- **Comfort for People Biking:** As with walking, street miles considered uncomfortable for biking (those scoring LTS 3 or 4) are slightly overrepresented in Disadvantaged Communities and comfortable streets are slightly underrepresented. 54% of LTS 3 or 4 street miles and 45% of LTS 1 or 2 street miles are located in Disadvantaged Communities.

Figure 40: Bike Facility Types in Disadvantaged Communities



- **Bike Facilities:** Approximately 45% of streets with bike facilities are located within Disadvantaged Communities. As shown in **Figure 40**, the most comfortable facilities (Class 1 and IV) are more often located in Disadvantaged Communities than in other places.
- **Traffic Calmed Streets:** Approximately 56% of traffic calmed streets are located in Disadvantaged Communities.
- **Households with No Vehicles:** Approximately 11% of households in Disadvantaged Communities do not have access to a vehicle, whereas only 7% do not have access to a vehicle citywide.
- **Crashes:** Generally, all crash types, including those involving people who are killed or seriously injured (KSI), are overrepresented in Disadvantaged Communities, as shown in **Figure 41**.

Figure 41: Crashes in Disadvantaged Communities



Chapter 5: Summary and Key Findings

The existing conditions analysis findings can be summarized into the following themes. These themes will be combined with engagement results to create a baseline for the development of Neighborhood Connections.

Findings	Considerations for Next Steps
Land Use Patterns. Existing land use patterns contribute to accessibility differences between neighborhoods. There are high concentrations of destinations in places like Midtown, Downtown, and East Sacramento. Therefore, residents of these neighborhoods have greater access to destinations; they essentially operate as 15-minute neighborhoods today. Conversely, neighborhoods like Pocket-Greenhaven, South Sacramento, and North Sacramento have sparser development patterns and comparatively less access.	〉 Consider placing a greater focus on areas where destinations are not already easily accessible. 〉 Identify opportunities for small interventions to increase access for people walking in already walkable areas.
Destination Location & Access. There are marked differences in development patterns which impact access. Some neighborhood commercial destinations, schools, and other daily needs are designed to front local streets where people can easily walk or bike to access them. On the other hand, in areas like Natomas, schools and commercial destinations are often located on major roads making them easier or more comfortable to access via driving.	〉 Identify place types based on land use and transportation characteristics which can help determine potential treatments. 〉 Identify improvements to low stress streets and potential new connections to provide access to destinations without using higher stress / less comfortable roads.
Traffic Calming. The City of Sacramento has installed a variety of traffic calming treatments throughout the City. However, residents continue to state a desire for additional traffic calming features and slow street treatments.	〉 Work with staff and community residents to understand which traffic calming treatments work best to slow traffic and increase comfort. 〉 Utilize place types / context as another input into determining appropriate traffic calming improvements.
Barriers. Freeways, railroads, and rivers create barriers for people walking and biking which are difficult to address. Because the number of available crossings of these barriers are infrequent, people walking or biking are forced to travel longer distances to get around them or use high-stress facilities. As a result, they may choose not to cross them or may instead choose to drive.	〉 Consider improvements which can make it easier for people to walk and bike to local destinations without crossing major barriers. 〉 Work with the Streets for People Team to identify priority crossings for neighborhood connections where feasible.
Safety. Crashes of all types appear to be overrepresented in Disadvantaged Communities. Additionally, the crash analysis suggests crashes often occur away from intersections. People walking and biking are often involved in crashes when crossing outside of crosswalks or biking in the wrong direction. These behaviors suggest the roadway design is not meeting the needs of users. For example, signalized crossings may not be placed frequently enough.	〉 Continue placing and emphasis on traffic calming treatments in Disadvantaged Communities. 〉 Identify crossing improvements across Collector and Arterial roads, including standards for crossing frequency so people can access their destinations without significant out of direction travel.
Transportation System Equity. While much of the Class 1 and 4 facilities (which are most comfortable to most users) have been installed in Disadvantaged Communities, there are still relatively low lane miles of these facilities overall and they do not form a complete network.	〉 Continue to place a focus on improving streets in Disadvantaged Communities, but also include similar improvements in other communities. 〉 Identify improvements to create a connected network of low stress walking and biking facilities which connect all communities, providing access to opportunity for all Sacramentans.

Appendix A

Links and Sources

Links and Sources

1) Slow & Active Streets Pilot Evaluation
2) H&T Index from CNT for Sacramento
3) Health and Land-Use Mix
4) Designing for All Ages and Abilities: Contextual Guidance for High-Comfort Bicycle Facilities
5) Mineta Low Stress Bicycling and Network Connectivity
6) California Vehicle Code (CVC)

Notes

For all analysis based on Census blocks or tracts it is noted that city boundaries do not align fully with census geographies and therefore census-based analysis may slightly overestimate census population. Even so, analysis results should accurately predict results for people living in Sacramento.

Appendix B

National Peer Cities Review

Appendix B

Sacramento Neighborhood Connections Plan

National Peer Cities Review

FINAL December 2023

City of SACRAMENTO
Department of Public Works

KITTELSON & ASSOCIATES

Contents

Introduction

Report Purpose

The City of Sacramento is working to identify projects to make it safer and more comfortable for people to walk and bike on neighborhood streets. These changes will build upon the experience gained through the Slow Streets pilots implemented in 2021, which used temporary materials such as signs and cones to slow traffic and prioritize walking and biking on several residential streets. The purpose of this peer city review was to examine how other US cities have implemented slow streets and multi-modal neighborhood routes that feel safe and comfortable to people of all ages and abilities. This review of common elements and lessons learned among all the peer cities will help inform best practices for the design and implementation of neighborhood streets in Sacramento that feel safe and comfortable.

Peer City Selection

A long list of potential cities for review was developed based on an assessment of cities throughout the Unites States which are successfully implementing slow streets. The list of cities identified as potential peer cities included seven California cities and twelve additional US cities.

- Santa Monica, CA
- San Francisco, CA
- Berkeley, CA
- Oakland, CA
- Davis, CA
- Palo Alto, CA
- San Jose, CA
- Long Beach, CA
- Portland, OR
- Seattle, WA
- Houston, TX
- Austin, TX
- Denver, CO
- Fort Collins, CO
- Tucson, AZ
- Minneapolis, MN
- Philadelphia, PA
- New York City, NY
- Boston, MA

The 19 selected potential peer cities reviewed were then scored and filtered based on six characteristics (Figure 1), and a total of six cities (Figure 2) were selected for in-depth review. The goal of this peer selection is to highlight the similarities these cities have with Sacramento, as well as the state of their current slow streets and neighborhood routes networks.

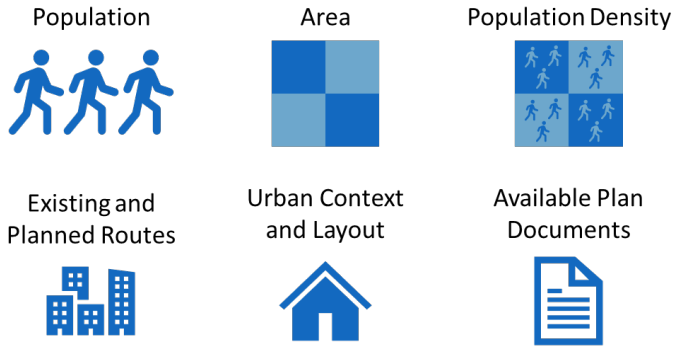


Figure 1. Peer city selection criteria

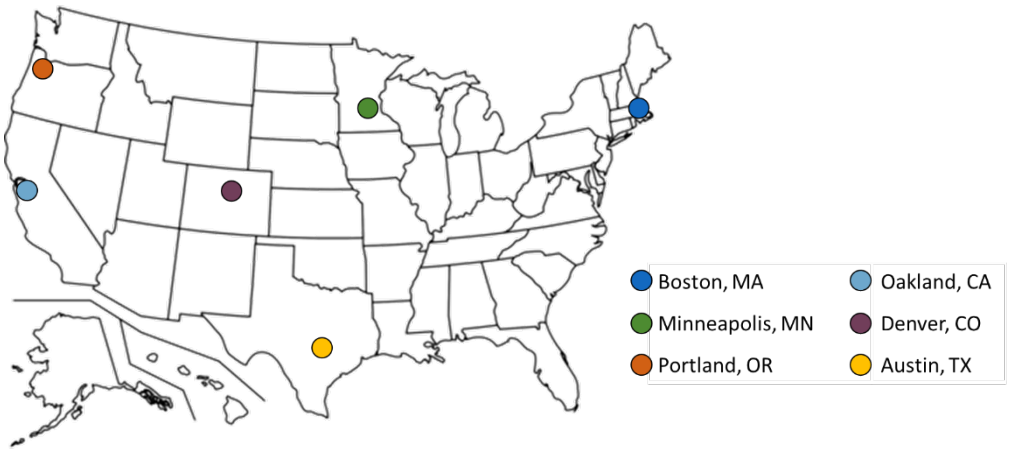


Figure 2. Final six peer cities

Peer City Review

Boston, Massachusetts

Urban Form and City Characteristics

Boston spans 48.3 square miles and is home to 649,768 residents. This gives the City a population density of approximately 13,440 people per square mile, nearly three times that of Sacramento. While Boston streets do function as a sort of grid system, it is less grid-like than a lot of other America cities.

The City is served by the Massachusetts Bay Transportation Authority public transit lines. Popular modes of land public transit through the MBTA include commuter rails, subway lines (one of the oldest in the US), and bus routes. The commuter rail has over 10 lines and over 130 active stations. The subway system is comprised of four lines, with the Red Line being the most used and serving 122,000 customers each weekday.

Figure 3. MBTA transit map.

Boston's Approach: Overview and Unique Features

Vision Zero Boston is taking a "people-first approach to transportation and community building." This complements the City's desire to achieve 15-minute city status through a variety of approaches. To achieve its goals, Boston is taking action from several angles, ranging from traditional planning, design, and implementation, to identifying high crash networks, to a more unique method of gamification, always with some key components in mind:

- Redesigned streetscapes that include space for walking, biking, and gathering.
- Accessible commercial spaces.
- Diverse housing options.
- Diverse and empowered resident populations.
- Strong social infrastructure.

Figure 4. Level of comfort by bike lane type.

The Neighborhood Slow Streets Program, though no longer active, ran successfully from 2016, when a pilot study was first conducted, to 2023. This program has developed and constructed traffic-calming projects in 15 Boston neighborhoods, with the final round of construction for the four selected neighborhoods slated for Fall of 2023. Participating neighborhoods submitted applications for traffic calming projects which were scored via a variety of categories, such as support, population under 18 and 65 or older, number of destionations, crashes, proximity to transit, and streets identified as walking and biking routes in previous plans. The selected neighborhoods received traffic calming improvements and adopted a residential speed limit of 20 mph.

Now, with the Slow Streets Program ending, Boston is separating their installation of speed humps from their intersection redesign projects to bring safety tools to neighborhoods more quickly. Their primary tool for achieving slower streets is their speed hump installation, with a plan to install up to 500 speed humps annually. The City plans to design and install speed humps on all eligible streets with spacing of approximately 150 to 350 feet, so community members no longer need to request traffic calming separately, and the City no longer hosts community engagement sessions regarding speed hump installation as they are a standard design. Boston publishes an online map which shows streets eligible for traffic calming, streets being studied, streets with planned improvements, and streets which have already received traffic calming.

Additionally, Boston's Safest Driver Competition was implemented as a pilot study in 2016 and a full-scale 12-week competition in 2019. Through a smartphone application, participants driving habits were monitored and scored, with a particular focus on five dangerous driving behaviors: speeding, rapid acceleration, harsh braking, sharp cornering, and phone use. In both 2016 and 2019, significant reductions (30% and greater) were observed in all five unsafe behavior categories.

Boston is actively implementing roadway features from their safer crossing, safer turns, and safer speeds toolkits. One example is their provision of Neighborways, which give priority to bicyclists and pedestrians in residential areas. Another example is their default speed limit reduction from 30 mph to 25 mph, which was complemented by more than doubling the number of speed feedback signs. As Boston continues to strive for their goals, they continue to aggressively implement change in their streets.

Bicycle project statistics:

- 3 recently completed projects.
- 8 bike network projects currently in progress, featuring speed humps and separated bike lanes.
- 15 projects in design for 2023.
- 9 projects in design for 2024 and onward.

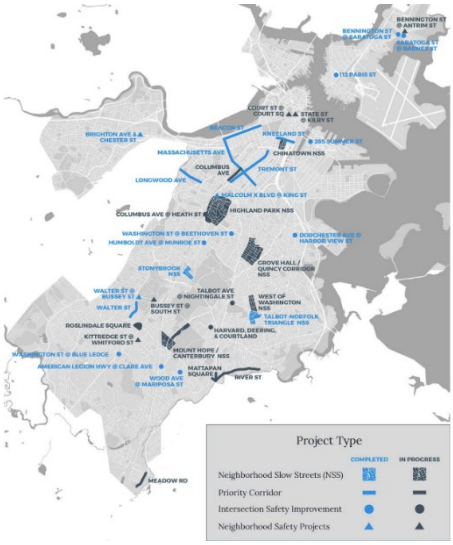


Figure 5. Completed and ongoing

Lessons Learned for Sacramento

Boston saw decreases in both pedestrian/cyclist crashes and injuries from 2016 to 2017 as well as a drop in the overall number of fatal crashes (2015: 20; 2016: 21; 2017: 14). This may indicate that Boston's actions are effective and worth replicating to some degree.

- Operating on an annual schedule for implementing traffic calming yielded regular progress and visible results.
- Inviting the community to request traffic calming features and then scoring applications based on transparent metrics helped build support from the community and equitably distribute improvements.
- Publishing an online map helps residents understand where traffic calming is feasible and where projects have been implemented or are planned in the future.
- Integrating land use to identify context appropriate traffic calming features in residential neighborhoods resulted in slower traffic, reduced crashes, and comfortable walking and biking routes on local streets.
- The City's unique use of gamification to reduce aggressive and dangerous driving habits saw participation from a few thousand residents. This can be a fun and interactive way to reach various resident groups throughout a City to get them engaged in being a part of the change.

Minneapolis, Minnesota

Urban Form and City Characteristics

Minneapolis spans 54 square miles and is home to 425,104 residents, giving it a population density of approximately 7,900 people per square mile. Based on a traditional grid system, Minneapolis' layout reflects a high degree of planning. Most of the breaks in their grid are due to bodies of water, such as the Mississippi River, and park areas. Metro Transit serves the City through bus routes, a METRO network comprised of light rail trains and bus rapid transit, and the Northstar Commuter Rail. Additionally, the Minneapolis Skyway System is a network of enclosed footbridges covering 80 blocks over 9.5 miles of Downtown Minneapolis.

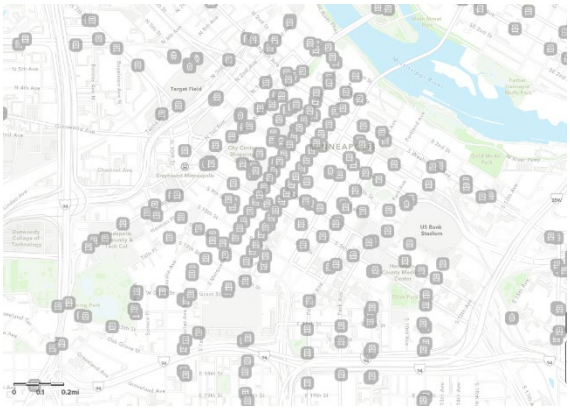


Figure 6. A portion of the City's public transit

Minneapolis's Approach: Overview and Unique Features

Minneapolis is striving for a 15-minute walkable city where 3 out of every 5 trips are taken by walking, biking, or transit by 2030 (Transportation Action Plan). The City is well on its way to achieving this goal, already sporting an unusually high bicycling trip rate, with 4.1% of residents riding their bicycle to work and 19% of all trips being made by people walking, rolling, or biking.

One way Minneapolis is focusing on bicyclist and pedestrian safety and mobility is through their Traffic Calming Program, which operates on a strict annual schedule with five basic phases:

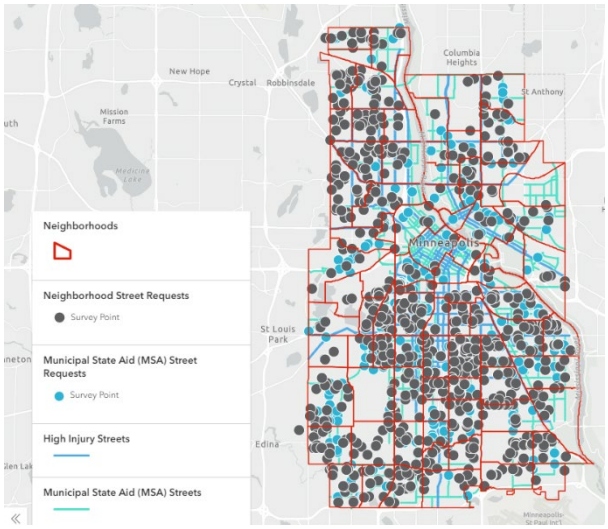


Figure 7. Traffic calming request map.

1) Traffic calming request forms are collected from the public (Figure 7). The City identifies eligible streets via an online map prior to releasing the request for projects so residents know which streets are feasible.
2) Initial screening and preliminary scoring phase using transportation- and community-based criteria such as traffic volumes, safety, equity, and destinations. Community meetings are held with top scoring communities to identify traffic safety concerns.
3) Data collection and design recommendation.
4) Final scoring and final design phase. A second round of community meetings is held to get feedback on the recommended traffic calming improvements and implementation timelines. Where more than one treatment may be appropriate, community members are invited to identify their preferred treatment.
5) Implementation. During this phase, the City turns to their 'Traffic Calming Toolbox' (Neighborhood Traffic Calming Report) and list of safety treatments (Vision Zero Action Plan) (Figure 8). Quick build treatments may be installed at this time. After installation, the City monitors the impact and either adjusts the treatment, re-installs the treatment with permanent materials, or re-evaluates the treatment.

Based on their 2023 traffic calming projects map (Figure 8) their preferred strategies for achieving slow streets are speed humps, bollards to reduce crossing distances for vulnerable road users, and traffic circles. Other initiatives taken to achieve their goal are through their Complete Streets (2021) and Vision Zero plans. The Complete Streets plan aims for city streets and sidewalks to foster "livable, walkable, bicycle-friending, green neighborhoods", with safety initiatives complemented by the Vision Zero plan. The Vision Zero plan provides a list of safety treatments, including but not limited to:

- Slow turn wedges and removing high-speed turn lanes.
- Intersection daylighting.
- Leading pedestrian and bicyclist intervals.
- Medians and pedestrian safety islands.
- Crosswalk visibility and pavement marking enhancements.
- Protected bicycle lanes and bikeway medians.
- Street lighting improvements.

The goal of these treatments is to reduce dangerous vehicle speeds. The strategy is to pilot speed control measures on busier streets and evaluate the results of implementing the speed control measures to determine the possibility of expanding their implementation at additional locations. In addition to these efforts, the City reduced residential speeds to 20 mph, using signs along the city border to alert drivers of the new limit.

Figure 8. 2023 traffic calming projects.

Lessons Learned for Sacramento

Minneapolis has a very high walking, rolling, and biking trip rate but is battling a high number of severe and fatal injury crashes. Two-thirds of these crashes can be attributed to 9% of the City's streets. Their actions are in response to this disproportionate distribution and heightened crash numbers.

- Operating on a strict annual schedule for implementing traffic calming services has served the City well.
- Using public requests as an integral part of that process has kept Minneapolis honest in effectively serving its residents where there is the highest public demand as well as the highest objective need.
- Releasing an online map of eligible streets helps residents understand where traffic calming requests may be considered.
- Integrating quick build treatments and monitoring the results allows city staff to make adjustments to treatments before permanent installation.
- Like Boston, Minneapolis has adopted a slow streets speed of 20 mph. With Boston's recent success in reducing bicycle and pedestrian crashes and injuries, this may indicate significant safety benefits associated with the 20-mph speed limit.

Portland, Oregon

Urban Form and City Characteristics

Portland spans 133.5 square miles and is home to 635,296 residents, giving it a population density just slightly less than Sacramento at approximately 4,800 people per square mile. With the Willamette River dividing the east and west sides and Burnside Street dividing the north and south, Portland residents refer to the City's six main geographical areas as "quadrants". The City operates on a traditional grid system and is serviced by TriMet, the public transportation service providing buses, the MAX Light Rail, and the WES Commuter Rail (Figure 9).

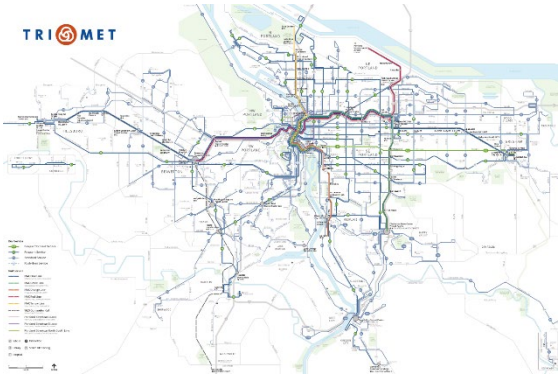


Figure 9. TriMet service map.

Portland's Approach: Overview and Unique Features

Despite having one of the lowest traffic fatality rates among the largest fifty US cities, Portland has had a steady fatality rate over the last 20 years. To combat this statistic, the City adopted Vision Zero in 2015, a unanimous decision yielding a 26-member Vision Zero task force. The focus areas of the Vision Zero plan include street design, impairment, speed, education and enforcement, and community, each of which supports other transportation endeavors, such as slow streets and 15-minute city initiatives.

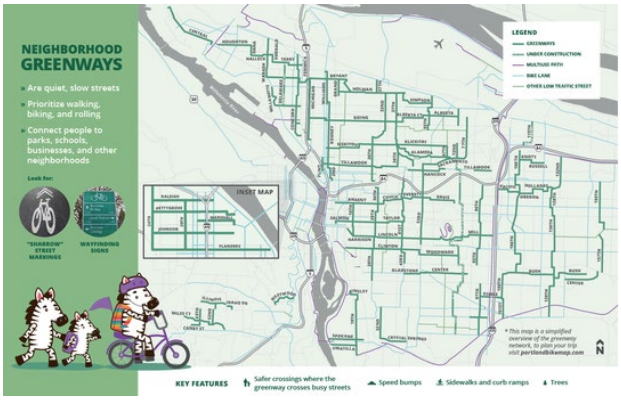


Figure 10. Neighborhood greenways map.

Portland's neighborhood greenways network (Figure 10) is one way the City is implementing change to build a safer multi-modal network. Neighborhood greenways are low-traffic and low-speed streets which aim to accommodate walkers, bikers, and rollers of all ages and abilities. Strategies to implement them include speed bumps, protected crossings, traffic diversion, wayfinding signs, and sharrow street markings. Residents living on a neighborhood greenway are able to order a free neighborhood greenway sign through the City which displays the 15 mph speed limit. Currently, Portland has over 100 miles of neighborhood greenways which connect key destinations and act as the backbone for the Safe Routes to School network. For Neighborhood Greenways, Portland has identified targets such as 20 mph as the 85th percentile speed, a goal of 1,000 average daily traffic (2,000 max), and a goal of 100 pedestrian crossing opportunities per hour where greenways cross major streets.

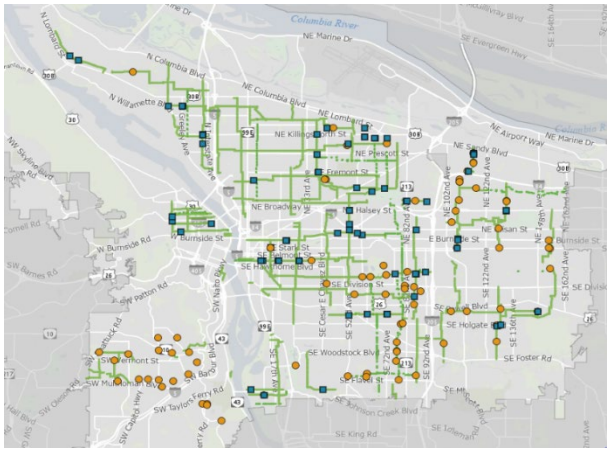


Figure 11. Permanent and temporary Slow Street installation on neighborhood greenways.

Portland's Slow Streets Program was a component of their Safe Streets Initiative, a response to the COVID-19 pandemic. In May of 2020, Portland Bureau of Transportation (PBOT) converted 100 miles of low-traffic streets and neighborhood greenways into slow streets to restrict through traffic and create space for safer walking, biking, rolling, and strolling. This quick implementation was made possible by use of temporary infrastructure, including temporary traffic barrels and signs. Slow street locations were selected by identifying locations on neighborhood greenways (quiet, slow streets that prioritize active transportation). Additionally, the locations had to meet one of the following criteria:

- Streets lacking sidewalks.
- More than 1/4 of a mile from parks or open space.
- Streets with higher traffic volumes or speeds that make it challenging to walk, bike, or roll.
- Adjacent to multifamily housing.
- Streets with demonstrated support from public health and black, indigenous, and people of color (BIPOC) focused community organizations.

This Slow Streets Program was received well among City residents, and the PBOT received over 2,000 public comments on the Slow Streets program with strong support for the installations and their impact on local streets. Now, as the City transitions from response phase to recovery phase, Portland is continuing to keep slow speeds and encourage low traffic volumes (Figure 11). This includes transitioning from temporary features to permanent concrete planters with 15-mph signage.

Through Portland's interactive Vision Zero dashboard, it's easy to see the data-driven changes that are being made throughout the City (Figure 12 and Figure 13). One of these changes is a widespread reduction in speed. Now, 76% of the 2,100 miles (does not include freeways) of streets in Portland have a 20-mph speed limit.

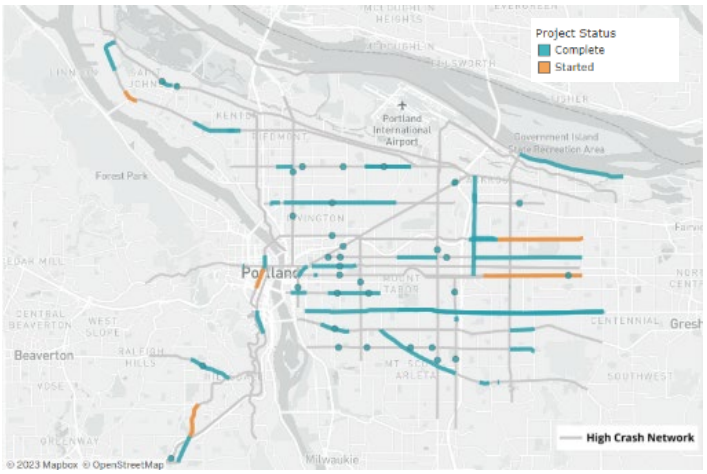


Figure 12. High crash network safety improvements.

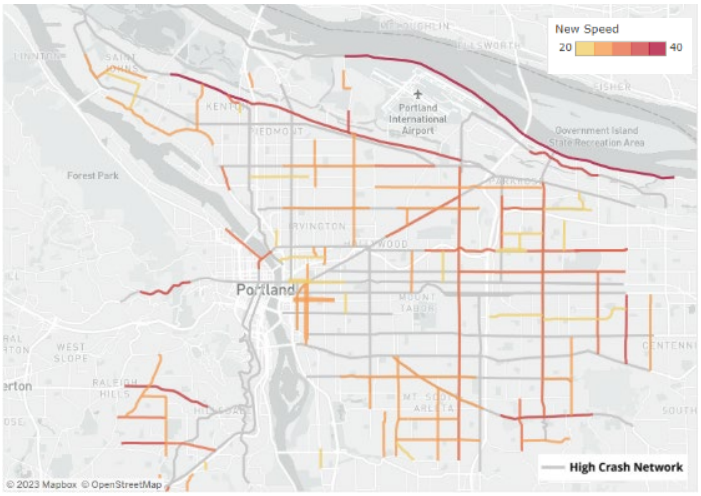


Figure 13. Speed limit reductions from 2019-2021.

Lessons Learned for Sacramento

Portland is working hard to see a decrease in the number of crash-induced injuries, as well as crash and injury rates.

- Portland capitalized on the COVID-19 pandemic to make rapid changes to their active transportation infrastructure, which was received more than well throughout the community. The key to their rapid implementation was wide use of temporary infrastructure, but this infrastructure was maintained until permanent solutions could be put in place.
- Portland's guidance regarding crossing opportunities where greenways cross major streets helps create usable connections for people walking and biking.
- The strategy behind their more permanent infrastructure has been placement of concrete planters far enough into the intersection that they slow down cross-traffic on larger streets. These planters double as signage and traffic-calming tools.

Oakland, California

Urban Form and City Characteristics

Oakland spans 56 square miles and is home to 430,531 residents. This gives it a population density of approximately 7,700 people per square mile, around 2,000 more people per square mile than Sacramento. The City's Street network generally follows a grid pattern and Oakland provides two main public transit services: the Bay Area Rapid Transit (the "BART") an all-electric train service and the AC Transit bus system (Figure 14).

Oakland's Approach: Overview and Unique Features

Like Portland, Oakland capitalized on the COVID-19 pandemic by using temporary materials to close 21 miles of streets to through traffic. While this temporary infrastructure was removed in 2022, a framework is now in development for implementing permanent Slow Streets. The Slow Streets Network (Figure 15) will complement the 70-mile neighborhood bike routes network and will be comprised of streets "designed for slowness, just as freeways are designed for speed." Oakland DOT will be using a variety of preferred design elements (Figure 16) to enforce 15-mph speeds, although lawfully enforcing this as a speed limit is not possible due to State restrictions. The goal of the Network is to connect residents to "Essential Places," or places that are essential to people's well-being, including schools, health clinics, early childhood development centers, senior centers, libraries, recreation centers, public transportation, and grocery stores.

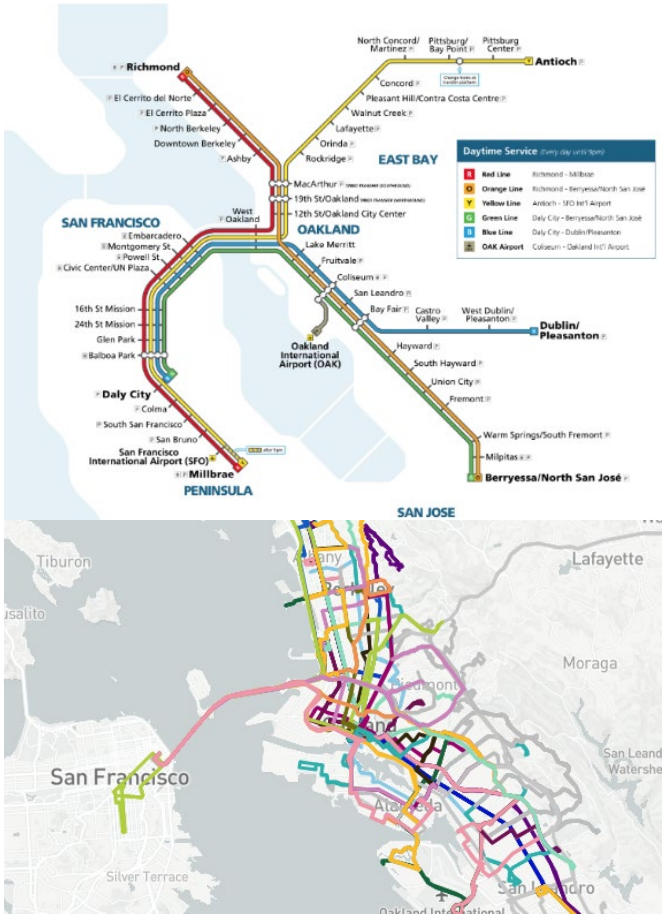


Figure 14. BART (top) and AC Transit (bottom) service maps.

To guide Network development, the City released a Slow Streets Interim Findings Report in September 2020. Some key findings were that Slow Streets:

- Created space for physical activity.
- Did not impede essential street functions.
- Received a lot of support.
- Was not meeting the needs of the essential worker population or Deep East Oakland residents.
- Residents valued traffic safety more than creating space for physical activity.

Recommendations for continuing the program beyond the pandemic included the following:

- Use neighborhood feedback to make changes to Slow Street corridors.
- Continue Slow Streets Program post-pandemic.
- Consider additional programs for pop-up Slow Streets and traffic-calming in neighborhoods.

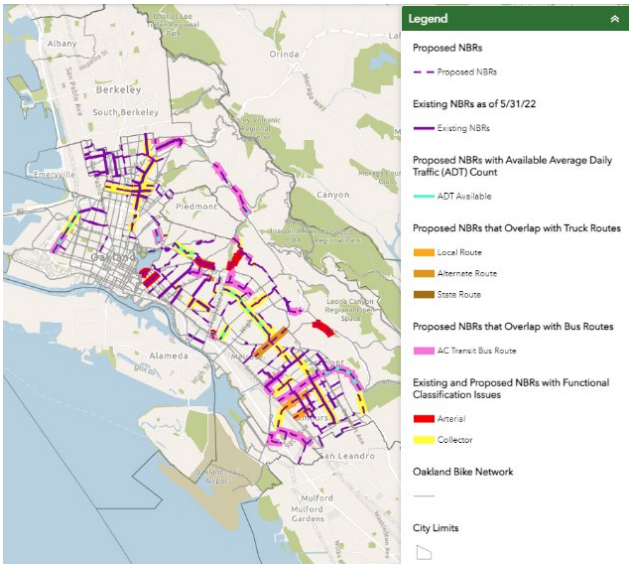


Figure 15. Proposed Slow Streets Network.

In addition to the Slow Streets Network, there is the 70-mile neighborhood bike route network. This network is comprised of local streets where bicyclists have priority but still share roadway space with vehicles. There are four actions outlined in the Bike Plan that must be implemented for a street to be a designated neighborhood bike route: improve major street crossings, reduce or prevent speeding, prevent high car volumes, and increase

pavement quality. Target traffic speeds and volumes for these routes are set by OakDOT based on guidance from the National Association of City Transportation Officials (NACTO):

- Option 1: Speeds less than or equal to 20 mph, less than or equal to 2,000 average vehicles per day, and less than 50 vehicles per hour per direction at peak hour.
- Option 2: Speeds less than or equal to 25 mph, less than or equal to 1,500 average vehicles per day, and less than 50 vehicles per hour per direction at peak hour.

Additional details on implementing bike routes in Oakland can be found in the City of Oakland Neighborhood Bike Route Implementation Guide.

Complementing both the Slow Streets Network and the bike route network is Oakland's Traffic Safety Requests Program, which works to deliver quick-build, low-cost safety improvements to streets and intersections to reduce vehicle speeds and calm driving behavior. Requests through this program are prioritized based on three equally weighted factors to stay consistent with Oakland's Safe Oakland Streets initiative: traffic crashes, neighborhood equity, and adjacent land use/activities. Requests received from schools are processed separately to ensure they receive prioritization.

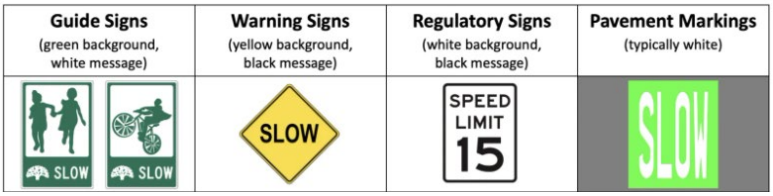


Figure 16. Design elements for Slow Streets.

Lessons Learned for Sacramento

- Allowing "Essential Places" to guide planning of a slow streets network can help ensure neighborhood routes connect critical locations, such as schools, health clinics, public transportation, and grocery stores.
- Interim assessments can help identify which populations are being underserved.
- Guidance from external organizations, such as NACTO, can be useful in creating a quantitative definition for various shared and slow street types.

Denver, Colorado

Urban Form and City Characteristics

Denver spans 153 square miles and is home to 713,252 residents, yielding a population density of approximately 4,700 people per square mile. This makes Denver slightly less dense than Sacramento. Denver's design is also unique, adhering to two separate grid patterns. Downtown Denver has a skewed, diagonal grid pattern that dates back to the 1850s, while the surrounding metropolitan area follows a typical grid pattern, with streets running north-south and east-west. When these two grid patterns meet, the result is triangular blocks and five-point intersections. Denver public transit consists of bus and rail through the Regional Transport District (Figure 17).

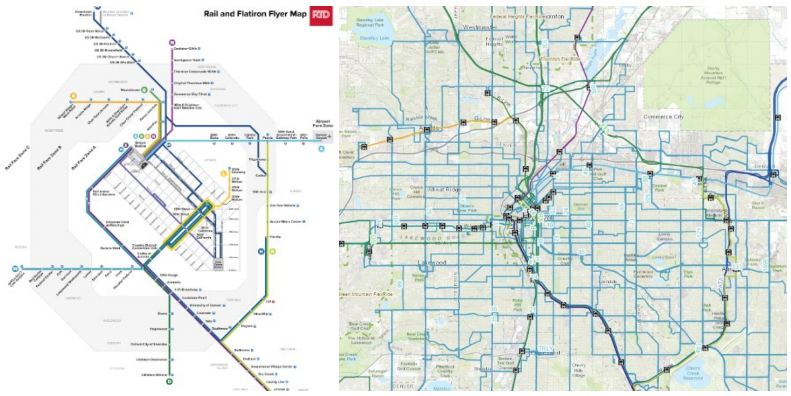


Figure 17. Denver bus (left) and rail (right) service maps.

Denver's Approach: Overview and Unique Features

While Denver admits to being a city that has "overbuilt [their] streets just for cars," they recognize this is an "unsustainable" design and are now actively working to retrofit their streets for car-free transportation. One of the ways they are doing this is through a reduced default speed limit from 25 mph to 20 mph, unless otherwise posted, applicable to local streets through residential blocks. To alert drivers to this change, old signs will be removed and 2,000 signs displaying the new speed limit will be installed over the course of the next few years.

Additionally, Denver is taking steps to continue their Shared and Open Streets Program, a program that received much positive feedback from the residents after yielding 5.5 miles of Shared Streets in residential and commercial areas and 10.2 miles of Open Streets in parks during the COVID-19 pandemic (Figure 18). Shared Streets are designed to reduce vehicle trips while Open Streets are closed to vehicle traffic. Denver plans tow types of shared streets based on land use: community shared streets in residential neighborhoods and commercial shared streets in areas with more businesses.

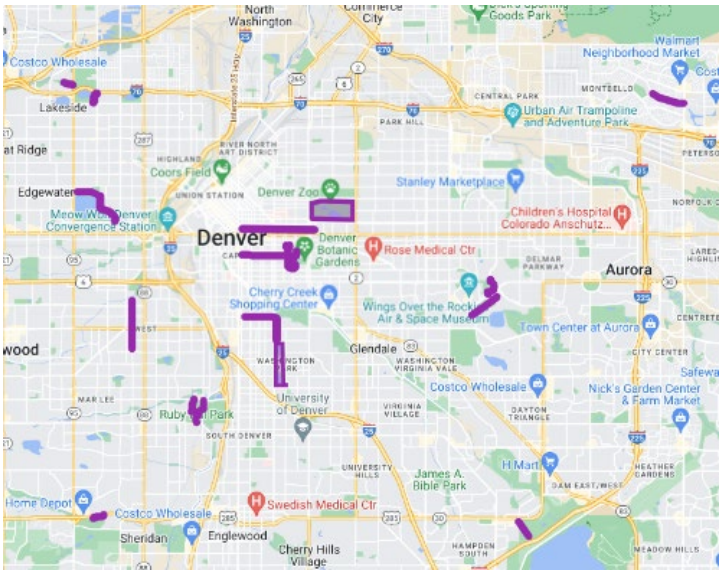


Figure 18. Shared and Open Streets.

The future elements of this project will include permanently closing three stretches of streets downtown that were pedestrian-only during the COVID-19 pandemic. An additional five neighborhood streets are being redesigned to be pedestrian-friendly by 2030. This transition will include narrowed streets and greenspace landscaping. On top of these already-identified projects, the City of Denver is accepting applications from groups of residents, businesses, and nonprofit organizations for additional street closures. Applications must include site plans and a mobility study. The City of Denver recognizes the need to pair reduced vehicle traffic with enhanced accessibility to other modes of transportation. These street closures will therefore be complemented by the installation of more than 100 miles of bus rapid transit, 400 miles of bicycle-only lanes, and 1,300 miles worth of pedestrian-friendly improvements.

Ecodesign Denver (eDEN) is a program through the University of Colorado Denver's College of Architecture and Planning. eDEN is a network of slow and open streets lined with recreational and commercial spaces (Figure 19). The final goal is to create a distributed park that can be accessed by every resident within one mile of where they live.

Figure 19. eDEN network.

Lessons Learned for Sacramento

Between 2013 and 2022, 2021 is the year that yielded the highest number of traffic-induced serious injuries in Denver. With increases in total deaths and deaths per 100,000 population since 2013, Denver is working to right their roadways. With 7% of these fatalities occurring on local streets, changes to residential roadways have the capacity to result in significant change.

- Partnering with university programs could be an effective way to involve the student population in urban changes. This may provide a unique method for getting feedback and additional helping hands on various projects.
- Street design may vary depending on land use context, recognizing commercial and residential areas may have different needs.
- Inviting applications from residents helps build support and offers and opportunity for greater engagement.
- Placing speed limit signs can be a form of traffic calming if streets are already designed as slow streets.

Austin, Texas

Urban Form and City Characteristics

Austin, home to 975,335 residents, spans 321 square miles, giving it a population density of approximately 3,000 people per square mile. This makes it a less-dense city than Sacramento, and the least-dense city of all the selected peer cities. Unlike most other US cities, Austin has an atypical street grid system, with streets at various odd angles, particularly when comparing multiple sections of the City to one another. Serving the quirky streets of Austin is the CapMetro system, comprised of bus, rapid, rail, and express routes (Figure 20).

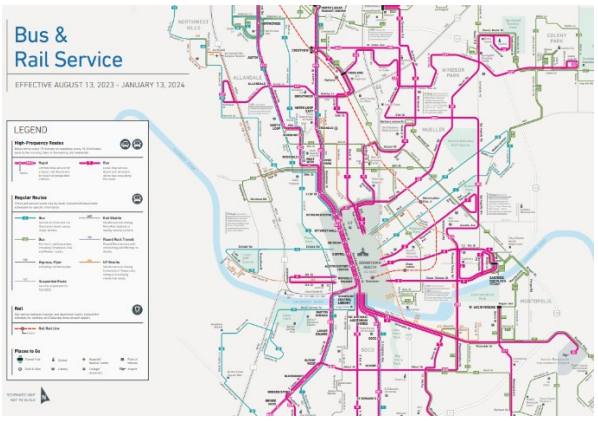


Figure 20. CapMetro system map.

Austin's Approach: Overview and Unique Features

Austin implemented their Healthy Streets Initiative in response to the COVID-19 pandemic. This initiative was aimed at allowing vulnerable road users to use low-traffic areas more comfortably. One unique approach Austin took as part of this initiative was their opening up the outside lane of multi-lane arterial streets to make protected travel space for pedestrians and bicyclists.

Shared Streets is another program being implemented in Austin. First introduced in the 2016 Sidewalk Plan, Shared Streets aims to be a solution to the large number of missing sidewalks in the City. With approximately 1,500 miles of missing sidewalks, it would take almost 100 years to install sidewalks along all Austin streets with the current rate of funding available. In their pilot, as part of the ATX Walk Bike Roll plan, Shared Streets identified residential streets without sidewalks in areas with expected high walk and low vehicle rates. Temporary materials were then used to make the streets safer and more accessible for pedestrians. Similar to this endeavor is the Sidewalk Program (Figure 21), funded by bonds, quarter-cent, fee-in-lieu, grants, and other sources, to install sidewalks in Austin. This effort is largely driven by the Americans with Disabilities Act. Another group of Austin projects are the Pedestrian Crossing projects to install and enhance existing crossing infrastructure. Locations in high-traffic areas near key transit points are prioritized.

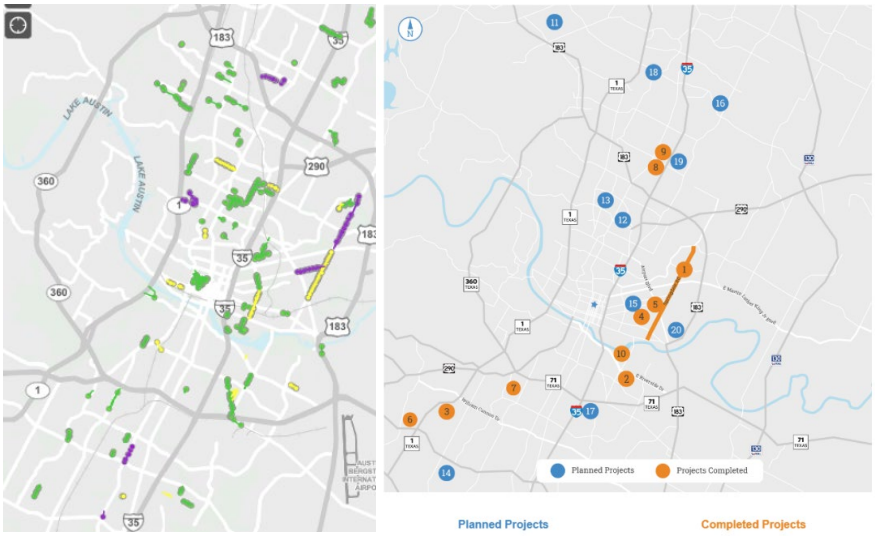


Figure 21. Sidewalk Program (left) and Pedestrian Crossing (right) projects.

Austin is no stranger to safety improvement programs, as they continue to develop plans and see results through a variety of solution-specific organizations. Just as the City has programs dedicated to sidewalk and pedestrian crossing improvements, so do they have a Speed Management Program. This program uses speed reduction strategies, in the form of speed limit changes and traffic calming treatments, to buttress Austin's Vision Zero goal. Streets are selected for participation in this program based on three factors: crash history, characteristics of streets and surrounding neighborhoods, and speed data. This analysis method has been applied to all residential ("Level 1") streets in Austin, and an interactive speed limit changes map is available online. Preferred traffic calming treatments by the City of Austin can be viewed in their traffic calming toolkit (Figure 22), which divides devices into three levels:

Traffic Calming Device Table

	Roadway Characteristics	Speed Limit Compatibility	Vehicle Volumes	Considerations
Type I Devices Horizontal Deflection	Typically installed on roadways over 36' wide	30 - 35 mph	Typically under 10,000 vehicles a day	Horizontal deflection devices may require removal of parking opportunities. Devices such as curb extensions must take into consideration existing drainage.
Type II Devices Vertical Deflection	Typically installed on roadways under 36' where existing design speed of 30 mph may want to be reduced	25 - 30 mph	Typically no more than 6,000 vehicles a day	Vehicles may park adjacent to devices. Devices are designed such that drainage is not impacted. Not recommended for steep grades.
Type III Devices Speed Monitoring & Awareness Tools	Any	Any	Any	Informational and driver feedback signage is self-enforcing.

Figure 22. Austin's traffic calming toolkit device levels.

- Type 1 – horizontal deflection devices.
- Type 2 – vertical deflection devices.
- Type 3 – speed monitoring and awareness tools.

Moving forward, Austin has a plethora of new projects on their horizon. Recently, the Austin City Council voted to appropriate a $22.9 million grant from USDOT for its Safe Streets for All program which will be used to implement safety improvements across more than 60 locations in the City. While the locations have not yet been chosen, the funding is expected to cover a breadth of improvement:

- Major intersection safety projects at 5 to 7 locations.
- Up to 10 pedestrian hybrid beacons.
- Low-cost, systemic safety treatments such as high-visibility crosswalk markings, street lighting, and traffic signal improvements at dozens of locations throughout the city.
- A safety education campaign primarily focused on roundabouts and video analytics for safety analysis and evaluation.

As Austin continues to plan, design, and implement change, they keep a close eye on the state of road safety in their City. Their interactive Vision Zero dashboard uniquely provides updated (last update: September 7, 2023) crash and injury data.

More recently, in Fall 2023, Austin released a call for projects for slow streets throughout the City. Residents can find out if their street is eligible based on a published online map. Like Boston and Minneapolis, Austin will score the applications based on set criteria and implement projects.

Lessons Learned for Sacramento

Looking at data from January through August of 2023, April through August yielded less serious injury crashes than the average number of serious injury crashes in that same period over the last five years. Unfortunately, this is not the case for fatal crashes which have only yielded numbers less than the five-year average for April, July, and August. This is motivating for Austin to implement change-yielding infrastructure.

- Austin has an organized method for assigning traffic calming devices to project areas. Their method considers roadway characteristics, speed limit compatibility, vehicle volumes, and additional considerations. This has the potential to make design and implementation a much quicker process following the identification of streets in need of change.
- Austin has identified distribution of funding through their USDOT grant, setting goals for the types and number of projects they would like to implement. Specific goal setting like this will help keep the City honest in following through on safety demands and resident needs.
- Inviting community members to apply for projects and publishing evaluation criteria and eligible streets makes way for additional engagement and building support.

Summary of Findings

The six peer cities reviewed all have common features and uniquely different elements when it comes to their strategies for implementing slow streets in their neighborhoods. The result of this is significant insight into how the City of Sacramento can successfully apply a slow streets framework to the existing routes and networks. Below is a summary of the common elements and differences in approach among the six cities. This summary functions as a list of recommendations for the City of Sacramento.

Common Elements

Planning & Design

Street Selection and Prioritization. Several peer cities have a developed process for selecting candidate roads to become slow/shared/open streets. Selection criteria often consider public requests, crash history, traffic volume, and location. Having a process like this can be an efficient method for allocating funds when there is significant work to be done.

Toolboxes. Three of the six peer cities have a developed toolbox or toolkit that encompasses all the elements and features they consider for traffic calming and safer speeds projects. Having a detailed, organized toolbox can make decision-making easier and quicker, expediting the design process.

Resident Feedback and Requests. The peer cities are consistent about seeking public feedback as they city undergoes change. Many of the programs run by the cities allow residents to submit requests for implementation of various build features. Additionally, some of the cities wrote interim reports for programs where they summarized public feedback on project progress and used feedback to identify need gaps. Collecting public feedback is integral to ensuring the transportation network is used as anticipated.

Implementation

Quick-Build. Multiple peer cities have focused on using temporary materials to implement quick-build features to reduce vehicle speeds and volumes. This implements change more quickly and provides time for public feedback before permanent infrastructure is implemented.

Speed Reduction and Traffic Calming. All six peer cities have implemented speed limit reductions, either to the residential or the default speed limit. Additionally, all six peer cities have already implemented traffic calming features. Speed bumps are one of the most popular features among the peer cities.

Safer Crossings. Many of the peer cities have taken to improving pedestrian crossing conditions. This includes creating shorter crossing distances, providing protected crossings, and increasing crosswalk visibility.

Policy

Quantify Goals. Having set goals for implementing slow streets infrastructure can help monitor progress and plan for future years.

Monitor Road User Safety. Many of the peer cities provide Vision Zero and/or data-driven dashboards that monitor the safety of the City's road users. It is critical to monitor crash and injury data as changes are implemented to ensure the desired outcome.

Programs

All six of the peer cities have one or multiple programs geared towards some aspect of achieving multimodal and comfortable transportation networks. Below is a summary of the programs that appeared in this peer city review. A lot of these programs started out as pilot programs to combat the COVID-19 pandemic and provide residents with healthy ways to move around the city. Now, a significant number of these programs are still ongoing due to positive feedback from residents.

- Slow streets
- Open streets
- Shared streets
- Speed management
- Sidewalk
- Traffic calming
- Traffic safety requests

Unique Differences

Gamification. Boston used a gamification approach to reduce aggressive driving habits through their Boston's Safest Driver Competition. This competition was popular amongst groups of friends and produced decreases in all five aggressive driving behaviors.

University Support. The University of Colorado Denver's College of Architecture and Planning is implementing Ecodesign Denver, which aims to create a distributed park that can be accessed by every resident within one mile of where they live.

Annual Programs. Two of the peer cities operate one of their programs on an annual schedule. This means the beginning of each year brings a fresh planning phase, followed by design and implementation. Operating on a strict annual schedule can help ensure annual progress and will help refine the plan-design-implemented process over time.

Roadway Reallocation. During the COVID-19 pandemic, Austin reallocated the outside lane of low-traffic multi-lane arterial streets to be protected travel space for pedestrians and bicyclists. This made it possible to improve vulnerable road user access without significantly impeding vehicle traffic.

Appendix C

International Peer Cities Review

MOBYCON

REPORT

PLAN • DESIGN • LEARN

In response to:
City of Sacramento

Date:
December 11, 2023

FINAL - International Best Practice Review
15 Minute Cities & Safer Neighborhood Streets

Colofon

PLAN • DESIGN • LEARN

1. INTRODUCTION

1.1 Report Purpose

The City of Sacramento is working to identify projects to make it safer and more comfortable for people to walk and bike. These changes will build upon the experience gained through the Slow Streets pilots implemented in 2021, which used temporary materials such as signs and cones to slow traffic and prioritize walking and biking on several residential streets.

The City of Sacramento's Neighborhood Connections Plan will combine elements of a Slow Streets initiative and a 15-minute city plan. Compared to a Slow Streets initiative, the plan envisages a more permanent implementation, with more durable and aesthetically pleasing materials. Compared to a 15-minute city plan, the plan includes a lesser focus on land use, with a more specific focus on neighborhood streets.

The purpose of this report is to examine international examples of 15-Minute City or 15-Minute Neighborhood plans and implementation to identify best practices and common elements between plans, with the objective of producing lessons learned for the creation of implementing safer neighborhood streets in Sacramento.

1.2 The 15-minute Neighborhood Concept

The concept of 15-minute neighborhoods or 15-minute cities, refers to the general theory of building cities such that the residents' frequent destination types are available within 15 minutes travel time of their homes by walking or biking. *The 15-minute neighborhoods concept does not aim eliminate driving as an option. Rather, it aims to implement transportation treatments to make travel safer and more comfortable for every mode so people have options to choose how they want to get where they are going, whether it is driving, walking, biking, or riding transit.* Enabling residents to conveniently walk, bike, and/or use public transit for their daily activities has numerous benefits, such as:

- Reducing transportation costs for residents by reducing the need for or providing alternatives to driving.
- Improving physical and mental health for residents by reducing stress caused by fast motor traffic and facilitating physical activities such as walking and biking.
- Reducing long-term traffic congestion by shifting some trips from private motor vehicles to modes such as public transit, walking, and biking.
- Improving traffic safety by reducing motor traffic speeds and volumes in areas where people live.
- Reducing the environmental impacts of transportation (local air pollution, greenhouse gas emissions) by shifting trips to zero-emission modes such as walking or biking, or low-emission modes such as micromobility (e-bikes, e-scooters, etc) or public transit.

Historically, most cities were 15-minute cities, but as part of mass-motorization following the Second World War cities became geographically larger and lower density, and the walking and biking networks were often fragmented by major roadways. There is now a renewed interest in building cities where all basic services are available within a short walk or bike ride of home.

The term *15-minute cities* was coined in 2015 by Carlos Moreno, a Colombian-French professor. Moreno became an advisor for Paris Mayor Anne Hidalgo, who incorporated the concept into her political platform for her re-election campaign and subsequently into City of Paris planning efforts in 2020. Around this time, the concept gained popularity in Paris as well as several other cities as a way to improve accessibility and health in neighborhoods despite the restrictions associated with the COVID-19 pandemic. The concept of 15-minute cities has since been adopted in many other cities in countries such as the United States, Canada, Australia, and the Netherlands, with varying levels of similarity to the original concept described by Moreno.

Moreno identifies six essential functions to sustain a decent urban life [1]:

- Living
- Working
- Commerce
- Healthcare
- Education
- Entertainment

In a 15-minute city, neighborhoods would be equipped with sufficient facilities that residents have the option of accessing all of the essential functions within 15 minutes of their homes. Part of that process involves planning land uses to distribute the essential functions to resolve "deserts" where one or more functions are not available nearby. The other portion of the process is to improve the pedestrian and biking networks to expand the distance that residents can travel while remaining on infrastrcuture that feels safe and comfortable.

The concept is not simply a matter of minimizing the travel time between residential land uses and daily destinations, but also a vision for a more livable city.

The travel time target included in plans varies from one city to another, with some cities choosing 10 or 20 minutes rather than 15. The modes which are considered when evaluating the travel time also vary. Walking is always considered, but depending on the city, biking or public transit may not be. To account for these variances, the term "x-minute city" is used to describe the wider set of plans inspired by the 15-minute city concept.

[1] *Moreno et al. (2021) Introducing the "15-minute city": Sustainability, Resilience and Place Identify in Post-Pandemic Cities.* Smart Cities 4, 93-111

2. PEER AGENCY REVIEW

To provide context and inspiration for measures and methods which could be included as part of Sacramento's efforts, five international cities with 15-minute city or similar plans were examined.

2.1 Peer Agency Selection

The level of government implementing the 15-minute plan varies from one city to another. In most cases, the plan is led by the municipal government, but in some cases such as Melbourne, the plan is led by a regional government.

The following cities were considered for inclusion in the peer review, of which five were selected for further study.

City	Municipality		Urban Area	Selected
	Population	Density	Population	
Sacramento, USA	*520k*	*5,200 p/mi²*	*2.4 million*	
Melbourne, AU	150k	10,300 p/mi²	5.0 million	**Yes**
Utrecht, NL	370k	9,600 p/mi²	0.6 million	**Yes**
Ottawa, CA	1,020k	900 p/mi²	1.5 million	*No*
Guadalajara, MX	1,390k	23,800 p/mi²	5.3 million	*No*
Barcelona, ES	1,620k	41,500 p/mi²	5.5 million	**Yes**
Montréal, CA	1,760k	10,600 p/mi²	4.3 million	*No*
Paris, FR	2,100k	51,600 p/mi²	13.0 million	**Yes**
Bogota, CO	8,030k	68,800 p/mi²	12.8 million	**Yes**

The five cities to be further investigated were selected based on:

- The city's similarity to Sacramento
- The plan's similarity to Sacramento's scope
- The availability of resources describing and/or evaluating the plan

The City of Melbourne was selected as it has a similar land use context to Sacramento. Although planning is done at a regional scale, which includes a much greater population, the city limits include urban, suburban, and rural lands. The region's 20-minute Neighbourhood Plan focuses on neighborhoods as opposed to the city as a whole and has already seen the implementation of pilot projects that can provide valuable lessons for Sacramento.

The City of Utrecht is the only city on the list which has already achieved the objective of becoming a 15-minute city based on biking, public transit, and walking. It has now set the target of becoming a 10-minute city. It is selected as an example of top-down planning, with a prominent focus on transportation network designs.

Although the City of Barcelona has a much larger population and is significantly denser than Sacramento, the superblocks approach is a unique strategy that is renowned for its innovation and success. Pilot projects have been implemented that focus on quality of life and provide evidence of the plan's application in the real world.

The City of Paris was the first city to include the 15-minute cities terminology as part of a municipal plan, and it has been working with Carlos Moreno, the inventor of the term. Although the city is significantly denser than Sacramento, it was selected due to its influential nature within the realm of 15-minute city plans.

The City of Bogotá has completely different geography to Sacramento, being a major metropolis in a developing nation. However, the methodology used to improve the quality of life in the city – including extensive changes to neighborhood streetscapes – is very similar to the approach envisioned for Sacramento. The implementation of neighborhood changes has increasingly adopted a bottom-up planning approach, with participatory community engagement.

The City of Ottawa includes the roughly two-thirds of the Ottawa area's urban population, but also includes an enormous amount of rural land outside of the urban area. The portion of the City within the urban boundary is geographically similar to Sacramento, with a medium-sized pre-war North American city center surrounded by post-war low-density suburbs. Despite the physical similarities, Ottawa was not selected because its 15-minute Neighbourhoods plan is not connected to its transportation plan for biking infrastructure. The 15-minute Neighbourhoods plan is part of the City Master Plan, which is focused on land use planning and pedestrian amenities.

The City of Guadalajara was not selected because there was insufficient information available.

The City of Montréal was not selected because the plan is not yet complete, and it is primarily focused on land use rather than transportation.

2.2 City of Paris, France

The City of Paris, France, has been one of the main proponents of the *15-minute city* concept, with the inclusion of the "Ville de Quart d'Heure" as part of the successful mayoral campaign of Anne Hidalgo in 2020. In the subsequent years, implementation of the concept has begun with organizational reform and planning documents.

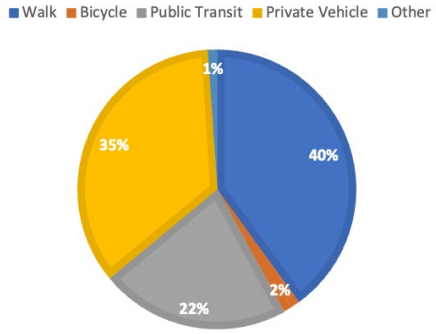


Figure 1: Mode Split - Greater Paris, 2018

2.2.1 Urban Form

The City of Paris has a population of 2.1 million people, while Greater Paris has a population of over 7 million people. The City of Paris has an area of only 40.5 square miles, resulting in a density of 52,000 people per square mile – ten times the density of the City of Sacramento. It is served by a comprehensive subway (Metro) network, with 246 of the Paris Metro stations being located within the City of Paris. It also has a regional rail network, the RER, which allows suburban trains to travel through the city center.

The City of Paris is divided in to 20 *arrondissements* (districts), which were grouped into 17 administrative sectors as part of a municipal reorganization in 2020. Each sector has its own mayor and council, in addition to the City mayor and council.

2.2.2 Framework to Implement a 15-minute City

The *Parisian Proximity Pact* (*Pacte Parisienne de la Proximité*) of 2021 was a municipal reorganization which granted additional administrative powers and funding to the 17 sectors. The sectors are now responsible for maintaining the public realm, including determining or adjusting the use of street space, creating green spaces, collecting garbage and assigning police resources within the sector. A local animation fund for each sector is allocated as part of the City budget, and the mayor of the sector determines how to apply the funding.

The *2021-2026 Cycling Plan (Plan vélo 2021-2026)* envisages a considerable expansion of the biking network within a short timespan. It includes a budget of €250 Million for 2021-2026. It includes:

- Building 110 miles of new permanent separated bicycle paths, of which 30 miles had been implemented as tactical urbanism projects during 2020-2021.
- A hierarchy of primary routes (Vélopoitain) and secondary routes.
- Transforming one-way streets into two-way streets for biking.
- Building 130,000 new bicycle parking spaces.
- Developing Dutch-style protected intersections.

Neighborhood-focused transportation elements of the mayor's vision statement for a 15-minute city include:

- Implementing School Streets – pedestrianized streets near schools.
- Removing roughly half of all on-street parking spaces, using the space for greenery, playgrounds or bicycle parking.
- Increasing multifunctionality of spaces such as using school yards as community spaces outside of school hours.

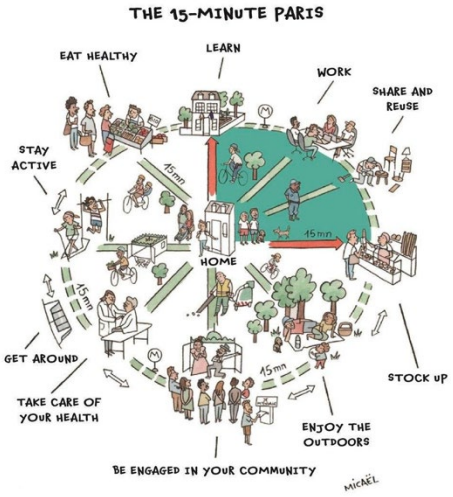


Figure 2: Anne Hidalgo concept for a 15-minute Paris. Image: Paris en commun, Micael

2.2.3 Unique Features of Paris' Approach

The Paris implementation of the 15-minute city vision includes more substantial changes to the direction of the city than many other 15-minute city plans. Not only does it change transportation and land use policies, it also includes organizational reform in the form of Proximity Pact which increased power and funding for the sector governments.

Paris' is the only plan which places boundaries on the neighborhoods – other plans focus solely on the principle of proximity without establishing sectors within which the full range of urban functions should be accessible. Decentralizing control over urban functions increases the risk that different sectors receive different quality of municipal service, or different levels of control over municipal processes. The Proximity Pact combats this risk by stating that each sector will receive a similar amount of funding from the city government.

The plan includes an active focus on neighborhood equity, which it identifies as an important point given the economic disparity between sectors. However, given that the plan only covers the City of Paris, it has little ability to address the severe inequality between the City of Paris and the surrounding suburbs which are far less wealthy than the City.

2.2.4 Lessons Learned for Sacramento

- The rapid and substantial change in priorities that the City of Paris has experienced in the past half-decade was enabled by the well-organized and promoted vision with political backing. The 15-minute vision was a key election issue of the 2020 election, so by re-electing Mayor Hidalgo, the citizens created a mandate to place a high importance on neighborhood cohesion and quality of life. The lesson for Sacramento is that producing a significant change in the priorities of the City and the design of streets is most likely to be successful if accompanied by well-organized support from citizens and politians, in addition to planners and engineers.
- It is worth considering neighborhood empowerment to increase citizen buy-in to the vision. However, it is important that a similar level of control be exerted by different neighborhoods regardless of their economic status, otherwise decentralization of power could exacerbate inequality between neighborhoods.

2.3 City of Utrecht, Netherlands

2.3.1 Urban Form

Utrecht is a compact city with 370,000 residents in the city proper and 660,000 residents in the urban area. It is part of the Randstad urban region, which is by far the largest urban region in the Netherlands, with a population of over 8 million people. Some other cities in the Randstad region include Amsterdam, Rotterdam and the Hague. Although each individual city is relatively compact, many residents in the Randstad work in a different city from where they live. In the greater Utrecht region, the urbanized area has a radius of only about 6 miles but the average distance from home to work is 15.2 miles as of 2021[2].

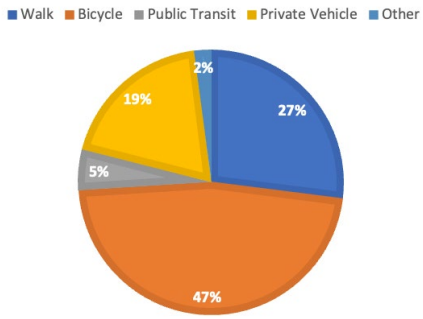


Figure 3: Mode Split - City of Utrecht, 2019

Many trips between Utrecht and other cities are by train. Utrecht Centraal Station is the busiest train station in the Netherlands, with 190,000 riders per weekday, of whom 77% are entering or exiting the station, while the remainder are only transferring between trains[3]. Regional rail, light rail, and bus rapid transit lines radiate out from Centraal Station, enabling fast and reliable trips across the city using public transit.

Utrecht is also one of the world's leading cities for biking infrastructure, with a bicycle mode share of 47% in 2019 and a total active transportation mode share of 72%.

2.3.2 History of Becoming a 15-minute City

Utrecht is already a 15-minute city. A GIS-based analysis by Knap et al. (2023) found that 100% of residents in the greater Utrecht area can reach all 9 of the primary categories of destination within 15 minutes via a safe biking route. The City of Utrecht has now set the goal of becoming a 10-minute city as part of its 2040 Urban Space Strategy.

The process of redesigning the city to become safer and more livable began in the late 1970's with measures to restrict the amount of motor traffic in densely populated areas of the city. Most of the streets in the city center are too narrow to accommodate both motor traffic and dedicated biking infrastructure, so private motor traffic is prevented from cutting through the center using one-way restrictions and dead-end streets. The small number of drivers heading to and from destinations in the center share the narrow streets with pedestrians and cyclists at a low speed. The wide streets which were created in the 1950's for through motor traffic have been repurposed as primary transit and biking routes with dedicated busways and bicycle paths.

[2] *Centraal Bureau voor de Statistiek (2021). Werknemersbanen en reisafstand; woon- en werkregio. https://www.cbs.nl/nl-nl/cijfers/detail/85481NED?q=woon-werkafstanden*

[3] *Nederlandse Spoorwegen (2022). Reizigersgedrag 2022. https://dashboards.nsjaarverslag.nl/reizigersgedrag/utrecht-centraal*

In the 1990's, the Netherlands introduced the principles of Sustainable Safety, a transportation planning methodology which focuses on minimizing exposure to risk and working with human psychology. As streets in Utrecht are reconstructed, they are updated to reflect the latest design standards for the particular road classification, or the network is adjusted in order to change the road classification. Streets intended to remain as through motor traffic routes are equipped with wide asphalt bicycle paths separate from the main roadway. Streets within residential neighborhoods are designated as 30 km/h (20 mph) zones where through motor traffic is prevented using modal filters and speeds are kept low using geometric features such as brick paving, sharp corners and narrow roadways.

Some recent developments in Utrecht include the opening of the world's largest bicycle parking facility: a three-level indoor facility at Centraal station with 12,500 public parking spaces and 1,000 rental bicycles (OV Fiets)[4], and the opening of a new light rail line connecting Centraal station to Utrecht University, which is located on the eastern edge of the city.

2.3.3 Framework to Implement a 10-minute City

The 2040 Urban Space Strategy (Ruimtelijke Strategie 2040) is the City of Utrecht's land use and transportation planning strategy from 2023 until 2040. It envisions how the city should accommodate the growing population, which is projected to increase from 370,000 people in 2023 to 470,000 people in 2040. The title objective of the plan is to have all regular destination types within 10 minutes by walking, biking, or public transit of all homes.

Land Use Strategy

The plan aims to add 60,000 new housing units while minimizing the geographic expansion of the city, to maintain residents' access to rural areas. The plan proposes several strategies:

- Develop regional centers in addition to Utrecht's city center, to improve access to services in outlying areas.
- Direct new development to areas around railway or rapid transit stations.
- Continue to encourage mixed land uses.
- Expand park space.
- Protect rural areas near the city for recreational purposes.
- Build one greenfield urban expansion, *Rijnenburg*, with 25,000 housing units.

Transportation Network Strategy

The plan intends to continue to prioritize walking, biking and public transit. Targets of the plan include to:

- Build a new public transit ring line so fewer trips need to pass through Utrecht Centraal station.
- Add more park-and-ride facilities to intercept private car trips destined to the city center.
- Expand multimodal mobility-as-a-service facilities at outlying transit stations, such as carshare, bikeshare and rideshare facilities.
- Continue to expand secure indoor bicycle parking facilities at train stations and major transit stations.

[4] *City of Utrecht (N.D.) Fietsenstalling Jaarbeursplein: Grootste ter werld*
https://www.utrecht.nl/wonen-en-leven/verkeer/fiets/fiets-stallen/fietsenstalling-stationsplein-utrecht-grootste-ter-wereld/

- Continue to build a dense grid of primary biking routes and expand 30 km/h zones in residential areas.

2.3.4 Unique Features of Utrecht's Approach

- Unlike most other cities with x-minute city plans, Utrecht is already a 15-minute city.
- The 10-minute city plan does not represent a new direction, but rather a strengthening of the pre-existing direction which successfully created a 15-minute city with measures such as prioritizing biking, walking and public transit through infrastructure, concentrating new development around railway or rapid transit stations, and reducing speeds in residential neighborhoods.
- Land use and transportation are planned as a single process.
- Utrecht already has a dense city center with strong public transit connections to outlying areas. The plan includes an increased focus on polycentric development and rapid transit connections between suburban nodes.

2.3.5 Lessons Learned for Sacramento

- The prioritization of bicycles and public transit in the transportation network is a very useful tool to implement the vision of a 15-minute city. In 15 minutes, a resident can comfortably cover two- to three-miles biking, compared to only half a mile on foot. Creating a dense network of streets or paths where biking feels safe and convenient has produced a biking mode share far higher than any of the other cities with 15-minute city plans.
- Utrecht has managed to achieve an extremely high rate of active transportation despite the fact that many trips are much longer than would be practical using active transport alone, notably the average commute length. The key to this success is the combination of biking and railways which allows people to make trips from Utrecht to other cities in a similar amount of time as driving. The active transport networks within the city allow short trips for essential functions such as accessing shops, education and healthcare, but also as the last-mile component of longer distance trips. The City of Sacramento makes up only a quarter of the population of the Greater Sacramento area, so the combination of walking or biking with public transit will be essential to conveniently connect residents with services and destinations in other parts of the urban area.
- It is difficult to create a true 15-minute city without jointly planning land use and transportation. Improving the biking, walking and transit networks will only bring destinations within 15 minutes of home if those destinations are already sufficiently nearby. Utrecht has been planning transportation and land use as a single process for decades, and the current 10-minute city plans continue to include both land use and transportation planning.

2.4 Greater Melbourne, Australia

2.4.1 Urban Form

Melbourne is the second largest city in Australia with over 5 million inhabitants in the Greater Melbourne area. The urban area spans 987 square miles and has a population density of 5,097 persons per square mile, which is approximately equal to that of the City of Sacramento. Greater Melbourne is comprised of 31 local municipalities including the City of Melbourne which covers just 14 square miles at the center of the city and has just under 160,000 residents. Melbourne's 15-minute neighborhood plan is led at the regional level by the State of Victoria, so this case study will focus on the Greater Melbourne area.

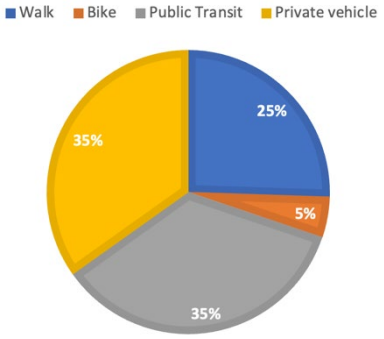


Figure 4: Mode Split - Trips to work in the City of Melbourne, 2021

As a result of its vast area and numerous municipalities, Melbourne has a variety of land use contexts, from dense urban centers to suburban communities and rural lands. The major transportation spines extend from the city center outward in all directions (excluding directly south, as the city is located on Port Phillip Bay) in a radial pattern with major roadways and rail lines connecting to metropolitan and major activity centers. In the city center, trips are distributed roughly evenly between private motor vehicles, public transit and active transportation modes, but in the suburban areas the vast majority of trips are taken with a private motor vehicle.[5]

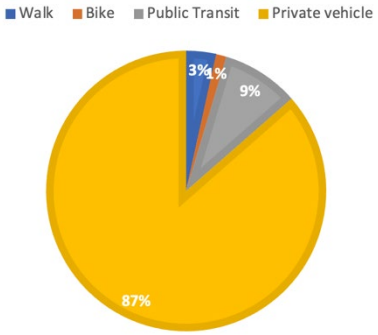


Figure 5: Mode Split - Trips to work in Greater Melbourne, 2021

2.4.2 Framework to Implement the 20-minute City

Plan Melbourne 2017-2050 is Greater Melbourne's long-range plan to integrate long-term land use, infrastructure, and transport planning efforts to address the city's environmental, population, housing, and employment needs. Through nine principles, seven outcomes, 32 directions, and 90 policies, Plan Melbourne outlines the long-term vision, goals, and how they will be achieved. References to 20-minute communities are scattered throughout the plan but is the key focus of Principle 5: Living locally – 20-minute neighborhoods and further outlined in Direction 5.1: Create a city of 20-minute neighborhoods.

Melbourne defines 20-minute neighborhoods as those where most people can meet most of their daily needs within a total trip time of 20 minutes on foot; meaning a 10-minute walk (roughly 800 meters) to their destination and a 10 minute walk home. The plan identifies the key features of a 20-minute neighborhood as six hallmarks, as shown in Figure 1. These hallmarks are addressed through a number of relevant policies throughout the plan including the following, among others:

[5] *Australian Bureau of Statistics, 2021 (https://www.abs.gov.au/census)*

- Policy 2.1.1 Maintain a permanent urban growth boundary around Melbourne to create a more consolidated, sustainable city.
- Policy 2.1.2 Facilitate an increased percentage of new housing in established areas to create a city of 20-minute neighborhoods close to existing services, jobs, and public transport.
- Policy 3.3.1 Create pedestrian-friendly neighborhoods.
- Policy 3.3.2 Create a network of biking links for local trips.
- Policy 5.1.1 Create mixed-use neighborhoods at varying densities.
- Policy 5.1.2 Support a network of vibrant neighborhood activity centers.
- Policy 5.3.1 Facilitate a whole-of-government approach to the delivery of social infrastructure.

Figure 6. The six hallmarks of 20-minute neighborhoods, identified in Plan Melbourne 2017-2050.

In 2018, the Minister for Planning of the state of Victoria launched a 20-minute neighborhood pilot program "to embed a whole-of-government approach to 20-minute neighborhoods in established neighborhoods". The whole-of-govenent approach establishes that the initiative is to be supported by all levels of government, as well as the various agencies within a level of government. Three neighborhoods with low-rise suburban characteristics were selected for the project. Each neighborhood project was delivered in three stages, first establishing community partnerships through place-based engagement followed by technical assessments on walkability, the transport network, land use, housing density, and vegetation cover, and finalized by identifying appropriate initiatives and infrastructure opportunities for the neighborhood. Temporary activations were implemented to test ideas and longer-term concept plans were developed for pilot sites in the neighborhoods.

Victoria State Government's *20-Minute Neighborhoods* report provides detailed information on the pilot program and a summary of neighborhood projects. Key opportunities identified in the communities addressing transportation and the public realm included:

- Streetscape improvements to revitalize activity centers, including the installation of bicycle lanes.
- Enhanced connectivity and amenity of natural areas through improved walking and biking paths.
- Improved pedestrian safety, particularly around schools.
- "Pop up" shops and street trading.
- Public art installations and "creative spaces".

2.4.3 Unique Features of Melbourne's Approach

- In contrast to the typical 15-minute city approach, Melbourne applied a 20-minute neighborhood approach where the desired maximum trip length was a 10-minute walk in each direction. This was based on research finding that 800 meters (0.5 miles) was the maximum distance that people are willing to walk for daily needs. This is a remarkably optimistic target given the low-density nature of many suburban areas in Greater Melbourne.
- Given the large number of municipalities and governmental agencies within Greater Melbourne there is a great emphasis on the whole-of-government approach to reduce conflicts between government groups.
- A place-based approach, as outlined in *Movement and Place Victoria,* was applied, putting people at the center of transportation planning and recognizing that streets are not only for the movement of people and goods but are also places for people to spend time.
- Temporary activations in the form of pilot projects and tactical urbanism were implemented and studied beginning in 2018 before the 20-minute neighborhood concept was officially incorporated into *Plan Melbourne 2017-2050* in 2020.
- There is a focus on re-using and converting existing (municipal) buildings to increase density while also incorporating green corridors and green infrastructure to improve access to nature / natural features.

2.4.4 Lessons Learned for Sacramento

- A 15-minute city or 15-minute neighborhoods cannot be achieved solely through addressing one aspect of urban planning (land use, housing, transportation, etc.). The concept would need to be incorporated throughout the City's major planning documents to address the six hallmarks of 20-minute neighborhoods as outlined in Plan Melbourne 2017-2025 and the directions and policies contained within.
- Bringing together stakeholders to establish a clear framework and coordinate actions on a wider basis will result in improved outcomes. This contrasts with individualized infrastructure and planning projects delivered in isolation that may compete with other projects or goals.
- Pilot projects can be very useful in testing and evaluating approaches before formalizing them. Such projects allow for flexibility, granting the City time to easily adjust approaches as needed before establishing official documents that are more difficult to amend.
- Pilot projects also provide an opportunity to develop partnerships with the community and empower them to influence the direction of the work, building support from an early stage.

2.5 City of Barcelona, Spain

2.5.1 Urban Form

Barcelona is the second largest city in Spain with 1.6 million inhabitants in the city proper. The city's boundaries cover just 39 square miles resulting in a population density of 41,547 persons per square mile. Being the center of a metropolitan region with over 5.6 million people, Barcelona has a dense, urban context with few low-density suburban neighborhoods. The city does, however, have many large parks and open spaces, particularly to the north of the urban area.

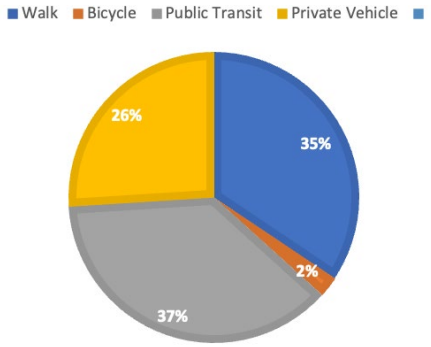


Figure 7: Mode Split - City of Barcelona, 2018

The city has a robust network of bicycle lanes following the grid pattern of the city streets and a widespread transit network built on metro lines spanning the entire city. The dense nature of the city and provision of high-quality transportation networks result in a modal share split that is more balanced than many western cities. In 2018, 37.3 percent of trips were made by public transit and 34.4 percent were made by walking. Contrary to most North American communities, 26.0 percent of trips were made by automobile. However, just 2.3 percent of trips were made by bicycle.[6]

2.5.2 Framework to Implement the 15-minute City

Barcelona's superblock approach has garnered international attention for its unique method of creating vibrant streets near residents. A superblock is a cluster of nine city blocks grouped into one (as shown in Figure 8). This superblock is roughly 400 meters (0.25 miles) long by 400 meters (0.25 miles) wide and contains inner streets that are closed to through vehicle traffic. The first superblock in Barcelona was created in 1993 but wasn't replicated until two more were implemented in 2005. It was several more years before the concept was prioritized again, becoming a key component of Barcelona's *Urban Mobility Plan (2013-2018)*. Within this plan, the City committed to converting 120 intersections into spaces for people through pilot projects in six neighborhoods. These projects proved to have numerous benefits including increasing the number of biking trips by 30 percent and the number of walking trips by 10 percent. Although vehicle traffic volumes increased by 2.6 percent in surrounding neighborhoods, volumes in the target area decreased by 58 percent. The Poblenou neighborhood even saw a 30.7 percent increase in ground-level commercial businesses, with the number increasing from 65 to 85.

The success of these projects led to the increased importance of the superblock concept in the *2024 Urban Mobility Plan*. The current plan calls for the creation of 503 superblocks across the city as a key driver to reduce vehicle trips from 26.0 percent to 18.5 percent, leaving the remaining 81.5 percent of trips to be made by walking, biking, or transit. These projects will be funded in part by the European Investment Bank who has committed to funding 40 climate change mitigation and adaptation projects with 23 percent of funding being earmarked for projects directly related to the creation of superblocks. In tandem with superblocks, the City has identified that it will add 32 km (20 miles) of pedestrian-only streets, expand the biking network by 40 percent, and implement 67 km (42 miles) of bus

[6] *Pla de Mobilitat Urbana 2024, Ajuntament de Barcelona,* https://bcnroc.ajuntament.barcelona.cat/jspui/bitstream/11703/128157/1/Pla%20de%20Mobilitat%20Urbana_bcn_2024.pdf

lanes. In the Eixample neighborhood, it will also transform the streets so one out of every three streets becomes a green hub, ensuring every resident of the neighborhood has access to a square and green hub within 200 meters (650 feet) of their home. The City identifies key co-benefits to this plan as reduced noise and air quality improvements to improve quality of life and public health.

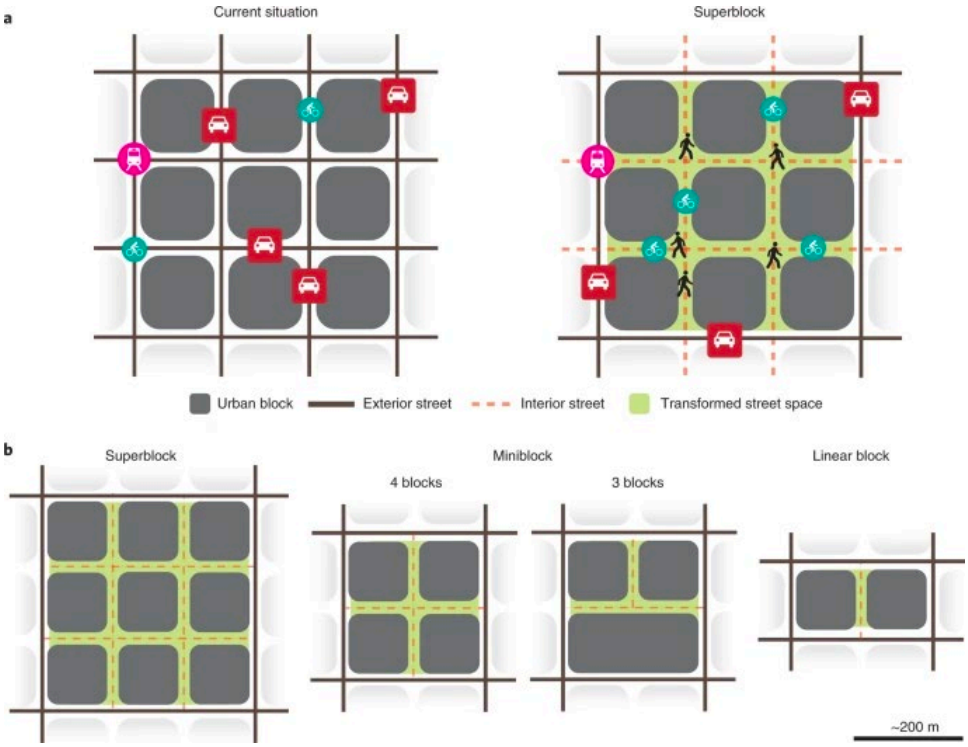


Figure 8: Theory of superblocks. Image from Eggiman, S. (2022).

To successfully support the creation of 15-minute neighborhoods with the superblock approach, proper implementation is key. As mentioned above, nine city blocks are combined to create one superblock bound by main vehicle through routes. The internal streets of the superblock are then designed such that through traffic for private vehicles is discouraged or prevented entirely, though access is maintained for local traffic, taxis, delivery vehicles, and transit, as needed. Street design features such as curbless cross-sections, modal filters, and textured permeable pavement support the creation of pedestrian-priority shared streets where motorists must travel at 10 km/h (6 mph). Street parking is prohibited and the City aims to achieve 80 percent tree cover to provide shade and increase access to greenspace. Tactical urbanism features such as street furniture, moveable planters, and public art are also typically implemented to enhance the character of the space and invite people to spend time in it.

Figure 9. Barcelona's superblocks from above (left) and at street level (right)
left image source: https://www.fastcompany.com/90732811/how-barcelonas-superblocks-could-work-in-other-cities,
right image source: https://cities-today.com/barcelona-to-expand-superblocks-to-city-centre-district/.

2.5.3 Unique Features of Barcelona's Approach

- The superblock approach is unique in that it does not require the modification of the existing building stock or major changes to infrastructure so it is a viable approach for many cities. An analysis of superblock potential found that while potential varies by city, for some, up to 40 percent of streets can be transformed into superblocks or miniblocks (four blocks combined instead of nine) and that irregular street patterns can also be suitable for this implementation.[7]
- Following pushback from the community on the initial pilot projects due to a lack of public consultation, Barcelona has implemented a robust participatory planning approach including a public ideas contest for the design of streets and squares. The ideas must meet certain environmental and accessibility criteria, among others and are then shared with the public for feedback to select a winner and finalize the designs. This results in every superblock being unique to the community for which it is designed.
- The superblocks approach has a significant focus on the creation of green hubs and corridors, combining the 15-minute city concept with urban greening efforts to disperse natural areas throughout the community rather than focusing them in one area such as a large park.

2.5.4 Lessons Learned for Sacramento

- Significant change can be created with relatively simple solutions. Barcelona's superblocks have shown that major infrastructure projects are not required to create more vibrant neighborhoods or encourage alternative transportation. Design changes through tactical urbanism and other relatively low cost measures (e.g. modal filters) can have a significant impact on how streets are used. Barcelona leveraged the redundancy intrinsic in grid networks to establish a clear road network hierarchy which distinguishes between "place" streets and "flow" streets. The prioritization of different streets for different purposes helps strengthen those streets for their defined purpose. Many portions of Sacramento also have a grid street pattern which could be leveraged in a similar way.
- A robust public participation plan is valuable to minimize opposition and create neighborhoods that are representative of the community that lives there and meets their needs.

[7] *Eggiman, S. (2022). The potential of implementing superblocks for multifunctional street use in cities. Retrieved from https://www.nature.com/articles/s41893-022-00855-2*

- Reducing motor traffic on local streets has allowed both the green space and the tree canopy to be expanded along the superblock hubs and corridors. This can help reduce the effects of hot weather by increasing the available shade and reducing the urban heat island effect.

2.6 City of Bogotá, Colombia

2.6.1 Urban Form

Bogotá is the capital and largest city of Colombia. Surrounded by mountains, the geographical constraint has produced a city which is incredibly dense.

It is served by a highly developed network of bus rapid transit (BRT), including dedicated busways with substantial stations. Thanks to the extensive BRT network, the city had a 43% mode share for public transit in 2019. The system suffers from its own success, with overcrowding on buses and in stations as well as bus traffic congestion even on dedicated busways. As a result, the city has begun construction of a new metro (subway) line, with additional lines being planned.

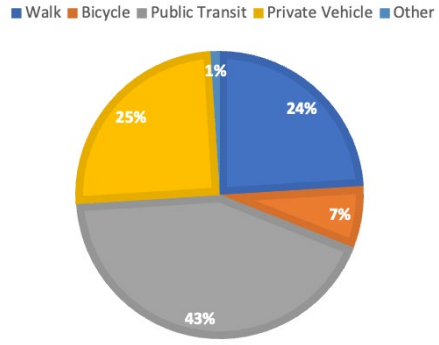


Figure 10: Mode Split - City of Bogotá, 2019

Bogotá has long been a leader in active transportation in South America, with notable initiatives including the Ciclovía open streets events which have been occurring on Sundays since 1974. In 2019 the city had an 6.6% modal share for biking, which is estimated to have increased to 8% by 2022[8]. Bogotá's biking infrastructure originally consisted of reserved space for biking on sidewalks, but is now being improved to consist of dedicated biking facilities designed for the operating speeds of bicycles.

2.6.2 Framework to Implement a 30-minute City

The *2021 Land Use Plan (Plan de Ordenamiento Terriotorial)* includes a target of achieving a 30-minute city, where residents would be able to reach all essential services within 30 minutes by walking and biking.

The Vital Neighborhoods (Barrio Vital) vision plan is a subset of the land use plan which aims to improve the quality of life of residents by improving streets. It identifies 33 neighborhoods that can be transformed into vital neighborhoods with a strong focus on mobility. In these areas, existing street space would be repurposed to expand space for pedestrians, bicycles, and businesses. Tactical urbanism and pilot projects are a major component of the plan to enable quick and cost-effective rollout as well as facilitating public engagement. 373 streets near childcare centers will be transformed into "Children's Priority Zones" including play streets.

As part of rapid transit expansions, secure bicycle parking facilities are being constructed at stations. Bogotá is currently constructing its first metro (subway) line, and indoor bicycle parking facilities (*cycloparquerados*) are being constructed at 12 of the 16 stations.

[8] *Institute of Transport Development & Policy (2022). From Transmilenio to Cycle Networks – Lessons Learned from Bogotá's Comprehensive Urban Community Planning*

2.6.3 Unique Features of Bogotá's Approach

- Bogotá implemented 47 miles of separated bicycle lanes during the Covid-19 pandemic, and aims to continue expanding the network.
- The Vital Neighborhoods plan is not evenly applied across the city, but rather in specific areas. This is intended to enable evaluation of the impacts of changes, comparing the redesigned neighborhoods to the unchanged neighborhoods.
- During initial implementations of corridor redesigns, public opposition was significant. As a result, the planning process was adjusted to introduce participatory planning and increase resident involvement in the design process.

2.6.4 Lessons Learned for Sacramento

- Including a plan without sufficient buy-in from the public can result in the project being opposed or stopped due to public opposition. The planning process for neighborhood streets should include meaningful public engagement early in the project to identify residents' objectives and desires and tailor the implementation tools for the (desired) activities in the neighborhood.
- Tactical urbanism and pilot projects can be an effective short-term measure to observe the effects of streetscape changes. For the effects of changes to be measurable, it can be helpful to fully implement the changes in a specific set of neighborhoods while (momentarily) keeping some other neighborhoods unchanged. It is more difficult to assess the impacts of the changes if change is implemented gradually and uniformly across the city.
- Include bicycle parking and micromobility connections (bikeshare, etc) at rapid transit stations to facilitate longer trips.

3. SUMMARY OF FINDINGS

3.1 Common Elements

Many of the selected plans had common features, including the following.

- X-minute city plans integrate both land use and transportation network planning.
- Many plans include establishing hubs (suburban town centers in Utrecht; neighborhood hubs (schools) in Paris; green hubs in Barcelona).
- Urban growth boundaries (Utrecht, Melbourne).
- Multifunctional urban spaces (Utrecht, Paris, Melbourne), such as using school facilities outside of school hours.
- Cities vary from 10-minute city (Utrecht) to 15-minute city (Paris) and 20-minute city (Melbourne) but the x-minute concept is just a guiding principle and can be adapted for different city sizes and contexts.
- When creating an x-minute city plan, all cities have a robust public participatory process, and include the community in all levels of design.
- Many cities have already implemented their plans to varying degrees (pilot projects in Melbourne, Barcelona, and Bogota; widespread application in Utrecht) to evaluate their effectiveness.
- It is important to consider fears of displacement and gentrification when creating an x-minute city plan. To address this, retain and build affordable housing, remove parking minimums, and apply other concepts that will mitigate the effects of gentrification.
- All cities have a great emphasis on transforming streets and creating people-centric spaces, promoting safe walking and biking and creating greenspace. Adding greenery to cities has major benefits for biodiversity, urban heat island effect, CO_2 absorption, and mental health.

3.2 Differences

There are also significant differences in implementation strategies, illustrating that 15-minute cities are not a one-size-fits all solution.

- The nature of x-minute plans varies considerably. Utrecht's is a 20-year land use and transportation master plan while Barcelona plans for shorter time periods.
- The travel time targets vary between cities:

City	Travel time target	Modes considered
Paris	15 minutes one-way	Walking
Utrecht	10 minutes one-way	Walking or Cycling
Melbourne	20 minutes round trip	Walking
Barcelona	N/A	N/A
Bogotá	30 minutes one-way	Walking or Cycling

Moreno notes that the threshold should be context dependent (i.e. consider where the city is starting from), though a 10 to 15-minute threshold is often used to define "walking distance" for the purpose of transportation planning, regardless of 15-minute city intiatives.

- Barcelona, Melbourne, and Bogotá launched pilots when implementing their x-minute plans in a selected neighborhood to test out ideas and concepts. They also used tactical urbanism and quick-build methods to quickly and cheaply make changes to the design of the streets and observe the effects.
- Utrecht, Paris, and Melbourne included the x-minute principles as part of larger master plans, to be implemented across the city.

3.3 Recommendations for Sacramento

- Public engagement is key to project success, especially for neighborhood community improvements. Initial implementations in Barcelona and Bogotá had insufficient public participation, resulting in public opposition. Giving residents more ownership over the initiative facilitated implementation. The City of Sacramento's Slow Streets initiative – in which the neighborhood implementations were requested and approved by community members – serves a good example of a process which fosters resident ownership and involvement in the changes to neighborhood streets.
- Strong political support is also helpful to effectively implement 15-minute city concepts, as is the case weith Paris' 15-minute city plan which was a major election issue, is strongly supported by the mayor and has been approved by city council. In Sacramento, maintaining a good relationship with City councilors and providing detailed project status updates and eventual post-implementation statistics can help maintain political support for the project.
- For the greatest effectiveness over the long term, the 15-minute city concepts should be incorporated into all planning documents to ensure all land use and transportation decisions are linked and work toward the goal of creating 15-minute neighborhoods.
- Ensure the emphasis of transportation planning within the 15-minute plan is on human-centered travel such as walking and rolling (biking, scootering, rollerblading, skateboarding, etc.).
- Enact zoning ordinances and other policies that are supportive of / complementary to 15-minute plans. Such policies may include the requirement of a certain proportion of dwelling units to be designated affordable, the elimination of parking minimums, and the implementation of paking maximums.
- Establish hubs which act as community focus areas. These hubs could be centered around community facilities, key commercial centers, greenspace, major transit stations, or other key land uses within Sacramento.
- Facilitate the combination of public transit with active transportation, especially at light rail or regional rail stations.
- Select key neighborhoods to implement pilot projects or phase in changes to test theoretical 15-minute plan concepts in the real world. Experiences from Melbourne, Barcelona, and Bogotá have shown that this approach can allow the municipality to evaluate the implemented approach and adjust as needed for future implementations. If the pilot project approach is taken, tactical urbanism allows for the use of relatively easy, low-cost measures and greater flexibility as ideas evolve.

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Appendix B

Neighborhood Connections Project List

The following Appendix includes project extents and summary information for each Neighborhood Connections Primary Route. The information includes:

- **Project ID:** A unique identifier for each Primary Route and reflected in **› Figure 19** and **› Figure 20**. The Project ID is for identification purposes and does not reflect project priority.
- **Corridor Streets:** The streets the Primary Route follows.
- **Corridor Enhancements:** A general description of the treatments which should be considered for implementation for the project.
- **Corridor Length:** Length of the corridor in miles.
- **Existing Max Speed Limit:** Existing highest posted speed limit on the corridor extents.
- **Existing Max Bike LTS Score:** The highest existing bike Level of Traffic Stress Score on the corridor extents as displayed in **› Figure 12**.
- **Existing Max Walking Comfort Score:** The highest existing Pedestrian Comfort Score on the corridor extents as displayed in **› Figure 8**.
- **Crossing Arterial(s):** A list of the arterials the Primary Route crosses.
- **Parallel Arterial(s):** A list of the arterials the Primary Route runs parallel to or provides parallel connectivity to.
- **Disadvantaged Community Criteria Met:** Notes which criteria for a disadvantaged community the corridor meets, if any, as noted in **› Figure 3.**
- **Vision Zero HIN Overlap:** Identifies corridors on the City's Vision Zero High Injury Network.
- **Secondary Route Connection:** Notes whether there are any Secondary Routes which intersect or support the Primary Route and which could be implemented with the Primary Route.

Project ID	Corridor Streets	Corridor Enhancements	Corridor Length (miles)	Existing Max Speed Limit	Existing Max Bike LTS Score	Existing Max Pedestrian Comfort Score	Crossing Arterial(s)	Parallel Arterial(s)	Disadvantaged Community Criteria Met	Vision Zero HIN Overlap
1	UNIVERSITY AVE	Traffic Calming, Crossing Enhancements, Wayfinding	2.06	35	4	3	FAIR OAKS BLVD & HOWE AVE	HOWE AVE		Yes
2	BEWICKS CIR & CARNEROS CREEK WAY & DUCKHORN DR & FAR NIENTE WAY & SAINTSBURY DR & SPARROW DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.12	35	3	2	ARENA BLVD & EL CENTRO RD	EL CENTRO RD		
3	ALBORAN SEA CIR & HOVNANIAN DR & LAKE KATIE WAY & MANERA RICA DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.82	25	2	1	EL CENTRO RD & NATOMAS CENTRAL DR	NATOMAS CENTRAL DR		
4	GIARRE WAY & KOS ISLAND AVE & LENTINI WAY & OLIVADI WAY & PO RIVER WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.52	25	2	1	N/A	N/A		
5	WITTER WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.59	25	2	1	EL CENTRO RD	EL CENTRO RD		
6	KOKOMO DR & N PARK DR & NORTHBOROUGH DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.47	35	3	2	E COMMERCE WAY & NATOMAS BLVD	N/A		
7	CLUB CENTER DR & DANBROOK DR & HONOR PKWY & REGENCY PARK CIR	Traffic Calming, Crossing Enhancements, Wayfinding	2.36	35	3	2	NATOMAS BLVD	N/A		
8	ALLARD CT & BROOKMERE WAY & Creekside Trail & MAYBROOK DR & NORTHBOROUGH DR & ROSE ARBOR DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.31	30	2	1	NATOMAS BLVD	N/A		
9	BRIDGECROSS DR & DANBROOK DR & N BEND DR & REGENCY PARK CIR	Traffic Calming, Crossing Enhancements, Wayfinding	3.02	30	3	2	NATOMAS BLVD	N/A		
10	BANKSIDE WAY & KOKOMO DR & MABRY DR & NEW MARKET DR & PARK PLACE DR & TOWN CENTER DR & VIA INGOGLIA ST	Traffic Calming, Crossing Enhancements, Wayfinding	4.28	30	2	2	DEL PASO RD & E COMMERCE WAY & NATOMAS BLVD	DEL PASO RD & E COMMERCE WAY		
11	BANFIELD DR & BURBERRY WAY & CLIFF HOUSE WAY & East Drainage Canal & GREG THATCH CIR & MACON DR & NEW HAMPSHIRE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	4.28	25	2	1	E COMMERCE WAY & NATOMAS BLVD	NATOMAS BLVD		
13	AIRPORT RD & BILSTED WAY & ENDEAVOR WAY & GLOSTER WAY & INNOVATOR DR & NATOMAS CROSSING DR & PROSPER RD & TANZANITE AVE & TANZANITE CT	Traffic Calming, Crossing Enhancements, Wayfinding	2.76	40	4	4	E COMMERCE WAY & TRUXEL RD	ARENA BLVD & TRUXEL RD		
14	ARCO ARENA EAST ENTRY DR & BLACKROCK DR & GATEWAY PARK BLVD & N BREEZY MEADOW DR & TERRACINA DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.46	45	4	3	DEL PASO RD & TRUXEL RD	DEL PASO RD	CJEST	
15	AUSTIN ST & BELL AVE & DANROTH DR & ENGLEWOOD ST & GRACE AVE & JESSIE AVE & LONE LEAF DR & SANTA ANA AVE & SULLY ST & TAYLOR ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.99	40	4	3	BELL AVE & MAIN AVE & NORWOOD AVE	BELL AVE & MAIN AVE & NORWOOD AVE		Yes
16	BARANDAS DR & ENDSLEY AVE & LAVENDER JADE AVE & MOSSY CREEK ST & NORTH COVE DR & SHEARWATER DR & SWAINSON WAY & UNITY POINTE AVE & W RIVER DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.57	35	4	2	W EL CAMINO AVE	W EL CAMINO AVE		
17	GATEWAY OAKS DR & RIVER PLAZA DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.75	35	4	3	GARDEN HWY	GARDEN HWY		
18	BANNON CREEK DR & CAPITAL PARK DR & CROSSMILL WAY & JIBBOOM ST & MILLCREEK DR & NATOMAS PARK DR & SAGEMILL WAY & UNNAMED RD	Traffic Calming, Crossing Enhancements, Wayfinding	2.08	30	2	1	GARDEN HWY & TRUXEL RD & W EL CAMINO AVE	TRUXEL RD		
19	FUNSTON DR & MAMMOTH WAY & MIRAMONTE DR & SODA WAY & URBANA WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.08	25	2	1	TRUXEL RD	TRUXEL RD		

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20	BREWERTON DR & BRIDGEFORD DR & CHUCKWAGON DR & MENDEL WAY & MILLCREEK DR & OLD WEST DR & PEBBLEWOOD DR & PONY EXPRESS DR & SEAMIST DR & STONECREEK DR & WATERWHEEL DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.90	25	2	1	SAN JUAN RD & TRUXEL RD & W EL CAMINO AVE	TRUXEL RD & W EL CAMINO AVE		
21	EDMONTON DR & NATOMA ST & PEBBLEWOOD DR & POTOMAC AVE	Traffic Calming, Crossing Enhancements, Wayfinding	2.14	25	2	1	NORTHGATE BLVD & TRUXEL RD	SAN JUAN RD		
22	AMERICAN AVE & BOWMAN AVE & BRIDGEFORD DR & CAMARILLO DR & HAGGIN AVE & NORTHFIELD DR & NORTHSTEAD DR & NORTHVIEW DR & REGATTA DR & RIO TIERRA AVE & SEMINOLE WAY & SOTANO DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.84	25	2	1	NORTHGATE BLVD & W EL CAMINO AVE	NORTHGATE BLVD		
23	ACACIA AVE & ALTOS AVE & ARCADE BLVD & BRANCH ST & FAIRFIELD ST & LAS PALMAS AVE & PALO VERDE AVE & SONOMA AVE	Traffic Calming, Crossing Enhancements, Wayfinding	2.78	25	2	1	MARYSVILLE BLVD & NORWOOD AVE	N/A		
24	ACADEMY WAY & DEL PASO BLVD & JUDAH ST & JULIESSE AVE & KATHLEEN AVE & KENWOOD ST & LOS ROBLES BLVD & PENDLETON ST & SHELDEN ST & TESSA AVE	Traffic Calming, Crossing Enhancements, Wayfinding	2.76	35	4	2	MARYSVILLE BLVD	N/A		
25	PATIO AVE & SOUTH AVE	Traffic Calming, Crossing Enhancements, Wayfinding	3.09	30	3	2	E COMMERCE WAY & MARYSVILLE BLVD & NORTHGATE BLVD & NORWOOD AVE	SILVER EAGLE RD		
26	BALSAM ST & CYPRESS ST & FELL ST & GRAND AVE & KERN ST & NORTH AVE & PINELL ST	Traffic Calming, Crossing Enhancements, Wayfinding	3.60	30	3	2	MARYSVILLE BLVD	MARYSVILLE BLVD & RALEY BLVD		
27	ALTOS AVE & FAIRBANKS AVE & FORD RD & HARRIS AVE & HAYES AVE & MABEL ST & MORRISON AVE & OPPORTUNITY ST & PASEO NUEVO ST & ROSE ST & TAYLOR ST & WESTERN AVE	Traffic Calming, Crossing Enhancements, Wayfinding	4.57	30	3	2	NORWOOD AVE & SAN JUAN RD & SILVER EAGLE RD	SILVER EAGLE RD	CJEST	
28	Y ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.92	25	2	1	ALHAMBRA BLVD & BROADWAY & STOCKTON BLVD	BROADWAY		Yes
29	BEAUMONT ST & BRANCH ST & CLAY ST & DIXIEANNE AVE & ELEANOR AVE & EVERGREEN ST & FRIENZA AVE & GLENROSE AVE & LAMPASAS AVE & LAS PALMAS AVE & LEXINGTON ST & TAFT ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.46	30	3	2	DEL PASO BLVD & EL CAMINO AVE	EL CAMINO AVE		
30	CALVADOS AVE & CANTALIER ST & CANTERBURY RD & EXPO PKWY & GIBSON ST & OXFORD ST & REDWOOD AVE & SOUTHGATE RD & WOODLAKE DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.44	25	2	2	ARDEN WAY & DEL PASO BLVD & EXPOSITION BLVD	GROVE AVE		
31	ACOMA ST & COLFAX ST & REDWOOD AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.68	25	2	2	ARDEN WAY & EL CAMINO AVE	GROVE AVE		
32	TRIBUTE RD	Traffic Calming, Crossing Enhancements, Wayfinding	0.41	25	2	1	EXPOSITION BLVD	N/A		
33	ALBATROSS WAY & CORMORANT WAY & POINT WEST WAY & ROYALE RD & SACRAMENTO INN WAY & WOOLLEY WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.25	25	2	2	ARDEN WAY & EL CAMINO AVE	EL CAMINO AVE		
34	CAMELLIA AVE & CARLSON DR & ERLEWINE CIR & MODDISON AVE & SANDBURG DR & STATE UNIVERSITY DR	Traffic Calming, Crossing Enhancements, Wayfinding	3.20	30	3	3	H ST & J ST	N/A		
35	39TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.44	25	2	1	FOLSOM BLVD & J ST & STOCKTON BLVD	N/A		

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36	36TH WAY & 43RD ST & 45TH ST & A ST & AIKEN WAY & C ST & DEFOREST WAY & MCKINLEY VILLAGE WAY & MEISTER WAY & TIVOLI WAY	Traffic Calming, Crossing Enhancements, Wayfinding	2.02	30	2	1	N/A	N/A		
37	51ST ST & COLOMA WAY & D ST & MCKINLEY BLVD	Traffic Calming, Crossing Enhancements, Wayfinding	2.11	25	2	1	ALHAMBRA BLVD	N/A		
38	51ST ST & 53RD ST & SUTTER PARK WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.92	25	2	1	FOLSOM BLVD & J ST	N/A		
39	45TH ST & 48TH ST & F ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.02	25	2	1	FOLSOM BLVD & J ST	N/A		
40	BELMAR ST & CHESTNUT HILL DR & CLIFFWOOD WAY & LA RIVIERA DR & LAKE FOREST DR & NOTRE DAME DR & OCCIDENTAL DR & UNNAMED RD & WISSEMANN DR	Traffic Calming, Crossing Enhancements, Wayfinding	3.86	35	4	2	FOLSOM BLVD & WATT AVE	FOLSOM BLVD	CJEST	
41	35TH ST & 58TH ST & GRANADA WAY & L ST & LOUIS WAY & M ST & N ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.51	25	2	1	ALHAMBRA BLVD	FOLSOM BLVD & J ST		Yes
42	33RD ST & 34TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.37	25	2	1	BROADWAY & FOLSOM BLVD & J ST & STOCKTON BLVD	ALHAMBRA BLVD		
43	11TH ST & 19TH ST & 20TH ST & C ST & D ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.71	30	3	2	12TH ST & 16TH ST	10TH ST & 12TH ST		
44	28TH ST & V ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.89	25	2	1	J ST & L ST & P ST & Q ST	29TH ST & W ST		
45	E ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.69	30	3	1	10TH ST & 12TH ST & 16TH ST & 29TH ST & 9TH ST & E ST	E ST		
46	11TH ST & 5TH ST & F ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.25	30	3	2	10TH ST & 12TH ST & 15TH ST & 16TH ST & 29TH ST & 30TH ST & 7TH ST & 9TH ST & ALHAMBRA BLVD	10TH ST & 12TH ST & 5TH ST & E ST & G ST		
47	CAPITOL AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.21	30	4	3	15TH ST & 16TH ST & 19TH ST & 21ST ST & 29TH ST & 30TH ST & ALHAMBRA BLVD & FOLSOM BLVD	L ST & N ST		
48	O ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.23	25	2	1	15TH ST & 16TH ST & 19TH ST & 21ST ST	N ST & P ST		
49	4TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.45	25	2	1	CAPITOL MALL & I ST & I STREET BRG & J ST & L ST & N ST & P ST	3RD ST & 5TH ST		
50	11TH ST & 18TH ST & O ST & R ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.62	25	2	2	10TH ST & 15TH ST & 16TH ST & 3RD ST & 5TH ST & 9TH ST & P ST & Q ST	10TH ST & 19TH ST & N ST & P ST & Q ST		
51	6TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.56	25	2	1	BROADWAY & W ST & X ST	5TH ST & 7TH ST		
52	8TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.56	25	2	1	BROADWAY & W ST & X ST	7TH ST & 9TH ST		
53	18TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.76	25	2	1	BROADWAY & W ST & X ST	19TH ST	CJEST	

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54	11TH ST & S ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.20	30	3	2	10TH ST & 15TH ST & 16TH ST & 19TH ST & 21ST ST & 29TH ST & 30TH ST & 9TH ST & ALHAMBRA BLVD	10TH ST & T ST		Yes
55	T ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.69	30	1	1	10TH ST & 15TH ST & 16TH ST & 19TH ST & 21ST ST & 9TH ST	T ST		
56	17TH ST & 5TH ST & BIDWELL WAY & CRATE AVE & MUIR WAY & VALLEJO WAY	Traffic Calming, Crossing Enhancements, Wayfinding	3.01	30	2	2	BROADWAY & FREEPORT BLVD & LAND PARK DR	RIVERSIDE BLVD		
56	2ND AVE & 50TH ST & 5TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.04	30	2	2	BROADWAY & FREEPORT BLVD & LAND PARK DR	RIVERSIDE BLVD		
57	MARKHAM WAY & REGINA WAY & SANTA BUENA WAY & SWANSTON DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.95	25	2	1	LAND PARK DR	N/A		
58	14TH ST & BURNETT WAY & MARTY WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.80	25	2	1	BROADWAY & LAND PARK DR	LAND PARK DR		
59	25TH ST & 26TH ST & CASTRO WAY & DONNER WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.11	25	2	1	BROADWAY & W ST & X ST	N/A		
60	2ND AVE & 50TH ST & 5TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	3.24	35	2	2	21ST ST & ALHAMBRA BLVD & BROADWAY & FRANKLIN BLVD & LAND PARK DR & STOCKTON BLVD	BROADWAY		
61	21ST ST & 33RD ST & 35TH ST & 38TH ST & 4TH AVE & 5TH AVE & PORTOLA WAY	Traffic Calming, Crossing Enhancements, Wayfinding	2.58	25	2	2	BROADWAY & FRANKLIN BLVD & STOCKTON BLVD	BROADWAY		
62	57TH ST & V ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.52	25	2	1	BROADWAY	N/A		
63	37TH ST & MILLER WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.62	30	3	2	STOCKTON BLVD	N/A		
64	49TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.56	25	1	1	BROADWAY	N/A		
65	12TH AVE & 1ST AVE & 42ND ST & 43RD ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.93	25	2	1	BROADWAY & STOCKTON BLVD	STOCKTON BLVD	CJEST	
66	16TH AVE & 26TH AVE & 27TH AVE & 33RD ST & 34TH ST & 35TH ST & 36TH ST & STRAWBERRY LN	Traffic Calming, Crossing Enhancements, Wayfinding	2.10	25	2	1	BROADWAY	MARTIN LUTHER KING JR BLVD		Yes
67	2ND AVE & 51ST ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.58	25	2	1	N/A	N/A		
68	69TH ST & REDDING AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.99	30	1	2	14TH AVE & FOLSOM BLVD	FOLSOM BLVD		
69	BUSINESS DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.35	25	2	1	14TH AVE	N/A		
70	10TH AVE & 12TH AVE & 38TH ST & 7TH AVE & 8TH AVE & 99 POC at 8th Ave & 9TH AVE & SAN JOAQUIN ST	Traffic Calming, Crossing Enhancements, Wayfinding	3.73	25	2	2	65TH ST & FRANKLIN BLVD & STOCKTON BLVD	BROADWAY		
71	11TH AVE & 22ND AVE & 54TH ST & 55TH ST & 58TH ST & 60TH ST & 61ST ST & CIBOLA WAY & SAN FRANCISCO BLVD	Traffic Calming, Crossing Enhancements, Wayfinding	4.18	25	2	1	65TH ST & BROADWAY & FRUITRIDGE RD	65TH ST & 59TH ST & STOCKTON BLVD		
72	69TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.50	25	2	1	14TH AVE	FOLSOM BLVD		

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73	25TH AVE & 73RD ST & EMERSON RD & VANDENBERG DR & WHITTIER DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.11	25	2	1	14TH AVE & FRUITRIDGE RD	FOLSOM BLVD & POWER INN RD		
74	BELLEVIEW AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.62	25	2	1	FRUITRIDGE RD	N/A		
75	17TH AVE & 18TH AVE & 76TH ST & 77TH ST & BRADFORD DR & VANDENBERG DR & WILKINSON ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.98	25	2	1	FRUITRIDGE RD	POWER INN RD		
76	21ST AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.43	35	3	2	65TH STREET EXPY	14TH AVE & FRUITRIDGE RD		
77	21ST AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.98	35	3	2	65TH STREET EXPY & STOCKTON BLVD	14TH AVE & FRUITRIDGE RD		
78	46TH ST & LAWRENCE DR & PERRY AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.05	30	3	2	STOCKTON BLVD	14TH AVE & FRUITRIDGE RD	CJEST	
79	53RD AVE & COUGAR DR & HOMETOWN WAY & LOGAN ST & ROCK CREEK WAY & SOMERTON WAY & STALLINGS DR & SUNRISE SOUTH DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.73	30	3	2	ELDER CREEK RD & POWER INN RD	FOLSOM BLVD & POWER INN RD		Yes
80	63RD ST & DIAS AVE & FOWLER AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.27	30	2	2	ELDER CREEK RD & STOCKTON BLVD	65TH STREET EXPY & STOCKTON BLVD		
81	LEMON HILL AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.76	40	4	3	65TH STREET EXPY & POWER INN RD & STOCKTON BLVD	47TH AVE		
82	15TH AVE & 59TH ST & 61ST ST & 62ND ST & JANSEN DR & MCMAHON DR & ORTEGA ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.71	30	2	2	65TH STREET EXPY & FRUITRIDGE RD	65TH STREET EXPY		
83	55TH ST & CITRUS TREE WAY & LEMON PARK WAY & LEMON VIEW WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.74	25	2	1	FRUITRIDGE RD	STOCKTON BLVD		
84	21ST AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.92	30	3	2	FRANKLIN BLVD	N/A		
85	ARLINGTON AVE & E PACIFIC AVE & WILMINGTON AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.50	25	2	1	SUTTERVILLE RD	FRANKLIN BLVD		
86	10TH AVE & 18TH AVE & JEFFREY AVE & LEW WAY & W PACIFIC AVE & W PACIFIC BYP	Traffic Calming, Crossing Enhancements, Wayfinding	0.80	25	2	1	SUTTERVILLE RD	N/A		
87	26TH ST & E CURTIS DR & W CURTIS DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.74	25	2	1	SUTTERVILLE RD	FRANKLIN BLVD		
88	11TH AVE & 12TH AVE & 23RD ST & SACRAMENTO CITY COLLEGE & SUTTERVILLE BYP	Traffic Calming, Crossing Enhancements, Wayfinding	0.99	25	2	1	FREEPORT BLVD & SUTTERVILLE RD	FREEPORT BLVD		
89	22ND AVE & 23RD ST & HELEN WAY & JOAQUIN WAY & LARSON WAY & MEER WAY & STACIA WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.54	25	2	1	FREEPORT BLVD	FREEPORT BLVD		
90	26TH AVE & 27TH AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.72	30	3	2	FRANKLIN BLVD	FRUITRIDGE RD		
91	28TH ST & 38TH AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.12	25	2	1	FRANKLIN BLVD & FRUITRIDGE RD	FRANKLIN BLVD	CJEST	
92	HARIAN WAY & HILLARD ST & IRVIN WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.88	25	2	1	FREEPORT BLVD	FRUITRIDGE RD		Yes
93	34TH AVE & CARMELA WAY & HELEN WAY & NORMAN WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.34	25	2	1	FRUITRIDGE RD	FRUITRIDGE RD		

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94	32ND AVE & CLAUDIA DR & GILGUNN WAY & RICKEY DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.74	25	2	1	FREEPORT BLVD & FRUITRIDGE RD	N/A		
95	27TH AVE & CASILADA WAY & DEL RIO RD & ELMER WAY & KARBET WAY & NOONAN DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.35	30	3	2	SEAMAS AVE	FRUITRIDGE RD		
96	CARMELA WAY & MEAD AVE & MONTEREY WAY & OREGON DR & POTRERO WAY & WENTWORTH AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.87	30	2	2	FREEPORT BLVD & FRUITRIDGE RD & SUTTERVILLE RD	FREEPORT BLVD		
97	EUCLID AVE & MULBERRY LN & VOLZ DR & WARREN AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.87	25	2	2	SUTTERVILLE RD	N/A		
98	13TH AVE & 17TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.61	25	2	1	N/A	LAND PARK DR & FREEPORT BLVD		
99	11TH AVE	Traffic Calming, Crossing Enhancements, Wayfinding	0.93	25	2	1	FREEPORT BLVD	N/A		
100	14TH AVE & 15TH AVE & 17TH AVE & 18TH ST & 19TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.21	25	2	1	FREEPORT BLVD & SUTTERVILLE RD	FREEPORT BLVD		
101	13TH AVE & 13TH ST & 14TH AVE & 15TH AVE & 18TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.37	25	2	1	N/A	N/A		
102	DETROIT BLVD	Traffic Calming, Crossing Enhancements, Wayfinding	0.91	30	3	2	MEADOWVIEW RD	N/A		
103	WINDBRIDGE DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.34	35	3	2	POCKET RD	N/A		
104	ALMA VISTA WAY & BRANWOOD WAY & FARM DALE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.13	25	2	2	POCKET RD	FREEPORT BLVD	CJEST	
105	EHRHARDT AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.11	30	3	2	CENTER PKWY & FRANKLIN BLVD	COSUMNES RIVER BLVD		Yes
106	CARLIN AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.05	25	2	1	N/A	FRANKLIN BLVD & CENTER PKWY		
107	COCKLE BUR DR & CRYSTAL HILL WAY & HOLLY JILL WAY & JACINTO AVE & KEVINBERG DR & LANCRAFT DR & LANGTREE WAY & MAPLETON WAY & RIGHTWOOD WAY & STUBBLEFIELD WAY & VALLEY LARK DR & VILLAGE CREEK WAY & VILLAGE RIDGE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	2.72	35	3	2	CENTER PKWY	FRANKLIN BLVD & CENTER PKWY		
108	BRENTWICK WAY & CLEARBROOK WAY & CRANLEIGH AVE & DAMASCAS DR & DARTFORD DR & HOLLYBROOK DR & JACINTO AVE & MILLBORO WAY & PORT HAYWOOD WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.69	35	3	2	BRUCEVILLE RD & CENTER PKWY	N/A		
109	JACINTO RD	Traffic Calming, Crossing Enhancements, Wayfinding	0.59	35	4	3	BRUCEVILLE RD	N/A		
110	BEAUCANON CT & CHARENTE WAY & DAMASCAS DR & MASTERS ST & SERIO WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.00	25	2	2	BRUCEVILLE RD	SHELDON RD		
111	JOCELYN WAY & MASTERS ST & MELVILLE DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.69	25	2	1	SHELDON RD	N/A		
112	COTTON LN & IMAGINATION PKWY & SERIO WAY & SHASTA AVE & TOLSON ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.05	25	2	2	BRUCEVILLE RD	CALVINE RD		

Project ID	Corridor Streets	Corridor Enhancements	Corridor Length (miles)	Existing Max Speed Limit	Existing Max Bike LTS Score	Existing Max Pedestrian Comfort Score	Crossing Arterial(s)	Parallel Arterial(s)	Disadvantaged Community Criteria Met	Vision Zero HIN Overlap
113	ARROYO VISTA DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.23	25	2	1	CENTER PKWY	BRUCEVILLE RD		
114	ALPINE FROST DR & HOSPITAL DR & TIMBERLAKE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.92	35	4	3	BRUCEVILLE RD	COSUMNES RIVER BLVD		
115	CHERRYWOOD CIR & GANDY DANCER WAY & GRANDSTAFF DR & LINDBROOK WAY & LIONEL CT	Traffic Calming, Crossing Enhancements, Wayfinding	1.52	25	2	1	VALLEY HI DR	N/A		
116	BAMFORD DR & GRANDSTAFF DR & HANFORD WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.16	25	2	1	BRUCEVILLE RD & CENTER PKWY & VALLEY HI DR	CENTER PKWY		
117	ALVERN WAY & CAMINO ROYALE DR & GARDEN VIEW WAY & HALKEEP WAY & HOLLYHURST WAY & LISBON WAY & VALLEY GREEN DR & VALLEY VALE WAY & YVONNE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.82	25	2	1	CENTER PKWY & FRANKLIN BLVD	CENTER PKWY & COSUMNES RIVER BLVD	CJEST	
118	AMBLEBROOK WAY & ARMADALE WAY & BAMFORD DR & COUNTRY SCENE WAY & GEARNY DR & KENTWAL DR & MONAGHAN CIR & PEDRICK ST & PRAIRIE CREEK WAY & WHISPER WOOD WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.69	25	2	1	CENTER PKWY & FRANKLIN BLVD	FRANKLIN BLVD		Yes
119	DEER CREEK DR & DEER HILL DR & DEER LAKE DR & DEERGLEN WAY & DEERLEAF DR & RED DEER WAY & VALLEY HI DR & WHITE STAG WAY	Traffic Calming, Crossing Enhancements, Wayfinding	2.04	35	4	2	FRANKLIN BLVD & MACK RD	FRANKLIN BLVD		
120	ARMADALE WAY & DEER CREEK DR & LA CORUNA DR & TORRENTE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.39	25	2	1	FRANKLIN BLVD	FRANKLIN BLVD		
121	GRAMONT WAY & LA MANCHA WAY & LERNER WAY & OMAHA CT & PRESCOTT WAY & SADDLEBACK WAY & SEYFERTH WAY & TANGERINE AVE & TELFER WAY & WARDELL WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.18	40	4	3	CENTER PKWY	N/A		
122	BOYCE DR & BROOKFIELD DR & TANGERINE AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.44	30	3	2	CENTER PKWY & FRANKLIN BLVD & MACK RD	CENTER PKWY & FRANKLIN BLVD		
123	BROOKFIELD DR & NIXOS WAY & SUN CASTLE LN & SUN PASSAGE LN & SUN SHOWER CIR & SUN SHOWER PL & VALLEY WIND WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.01	45	4	4	FRANKLIN BLVD & MACK RD & MEADOWVIEW RD	CENTER PKWY & FRANKLIN BLVD		
124	LUTHER DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.50	40	4	3	FLORIN RD	FRANKLIN BLVD		
125	LUTHER DR & MANDY DR & MEADOWGATE DR & MUNSON WAY & ROBINRIDGE WAY & SHINING STAR DR & SPARROWOOD WAY & WRENWOOD DR	Traffic Calming, Crossing Enhancements, Wayfinding	3.31	25	2	1	FLORIN RD & FRANKLIN BLVD	FRANKLIN BLVD		
126	53RD AVE & CLIPPER WAY & WOODBINE AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.21	30	2	2	47TH AVE & FLORIN RD & RIVERSIDE BLVD	24TH ST		
127	29TH ST & INDIAN LN & LOMA VERDE CT & LOMA VERDE WAY & YREKA AVE	Traffic Calming, Crossing Enhancements, Wayfinding	1.81	30	3	2	FLORIN RD & MEADOWVIEW RD	24TH ST		
128	HITHER WAY & TORRANCE AVE & WAINSCOTT WAY & WATER MILL WAY	Traffic Calming, Crossing Enhancements, Wayfinding	0.73	25	2	1	MEADOWVIEW RD	N/A		
129	24TH ST & AMHERST ST & JOHN STILL DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.12	35	3	2	MEADOWVIEW RD	MEADOWVIEW RD		

Project ID	Corridor Streets	Corridor Enhancements	Corridor Length (miles)	Existing Max Speed Limit	Existing Max Bike LTS Score	Existing Max Pedestrian Comfort Score	Crossing Arterial(s)	Parallel Arterial(s)	Disadvantaged Community Criteria Met	Vision Zero HIN Overlap
130	19TH ST & EXPEDITION WAY & MANORSIDE DR & MONARCH AVE & TUNGSTEN WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.22	35	4	2	N/A	N/A	CJEST	
131	AMHERST ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.12	30	3	2	MEADOWVIEW RD	FREEPORT BLVD		Yes
132	69TH AVE & BALFOUR WAY & CANDLEWOOD WAY & MATSON DR & SYLVIA WAY	Traffic Calming, Crossing Enhancements, Wayfinding	2.23	25	2	2	N/A	MEADOWVIEW RD		
133	68TH AVE & GARDENDALE RD	Traffic Calming, Crossing Enhancements, Wayfinding	1.74	25	2	1	N/A	FLORIN RD		
134	19TH ST & 24TH STREET BYP & 65TH AVE & 66TH AVE & 67TH AVE & STRATFORD ST	Traffic Calming, Crossing Enhancements, Wayfinding	1.78	25	2	1	N/A	FLORIN RD		
135	22ND ST & TAMOSHANTER WAY	Traffic Calming, Crossing Enhancements, Wayfinding	1.33	25	2	1	FLORIN RD & MEADOWVIEW RD	24TH ST		
136	20TH ST & 60TH AVE & AMHERST ST & Chorley Park	Traffic Calming, Crossing Enhancements, Wayfinding	0.90	30	2	2	FLORIN RD	FLORIN RD		
137	VENTURA ST	Traffic Calming, Crossing Enhancements, Wayfinding	0.38	25	2	1	47TH AVE	N/A		
138	23RD ST & 48TH AVE & 53RD AVE & 56TH AVE & 57TH AVE & DEMARET DR & HOGAN DR & MIDDLECOFF WAY & TAMOSHANTER WAY	Traffic Calming, Crossing Enhancements, Wayfinding	2.64	25	2	1	FLORIN RD	24TH ST		
139	13TH ST	Traffic Calming, Crossing Enhancements, Wayfinding	2.03	25	2	1	N/A	FREEPORT BLVD		
140	56TH AVE & HAVENHURST DR & PARKSHORE CIR	Traffic Calming, Crossing Enhancements, Wayfinding	1.21	25	2	1	N/A	FLORIN RD		
141	14TH ST & 47TH AVE & S LAND PARK DR	Traffic Calming, Crossing Enhancements, Wayfinding	0.96	25	2	1	N/A	FREEPORT BLVD		
142	GLORIA DR & LAKE PARK DR & SILVER LAKE DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.40	30	3	2	N/A	RIVERSIDE BLVD		
143	GLORIA DR & HAVENSIDE DR & PARK RIVIERA WAY & RIVERGATE WAY	Traffic Calming, Crossing Enhancements, Wayfinding	4.02	35	3	2	FLORIN RD	RIVERSIDE BLVD	CJEST	
144	LITTLE RIVER WAY & RUSH RIVER DR	Traffic Calming, Crossing Enhancements, Wayfinding	2.21	35	3	2	N/A	RIVERSIDE BLVD		Yes
145	PARK RIVIERA WAY & POCKET RD	Traffic Calming, Crossing Enhancements, Wayfinding	1.39	30	3	2	RIVERSIDE BLVD	RIVERSIDE BLVD		
146	35TH AVE & BELLEAU WOOD LN & DICKSON ST & LONSDALE DR	Traffic Calming, Crossing Enhancements, Wayfinding	1.67	40	4	3	FREEPORT BLVD & SEAMAS AVE	FRUITRIDGE RD		
147	PIEDMONT DR & SEAMAS AVE & SURF WAY		1.18	40	4	3	RIVERSIDE BLVD	RIVERSIDE BLVD & SEAMAS AVE		

Appendix C

Traffic Calming Toolbox

Sacramento
Neighborhood Connections Plan

Traffic Calming Toolbox Technical Memorandum
September 2024

KITTELSON & ASSOCIATES

City of SACRAMENTO
Department of Public Works

Introduction

Sacramento's Neighborhood Connections are intended to provide comfortable connections for people to walk or bike to everyday destinations on minor collectors and local streets. To do this, Neighborhood Connections utilize design treatments to:

- **Slow traffic speeds and lower vehicle volumes** to a level that people of all ages and skill levels feel comfortable sharing the road with vehicle traffic.
- Create comfortable, frequent, and accessible places to **cross the street.**

In addition to improving comfort for people walking, biking, or rolling, these treatments also can help to reduce crashes and improve travel for all roadway users. In order to achieve this, there are three main types of treatments which can be considered:

Traffic Calming Treatments

These treatments help to slow speeds. There are two types of speed control elements:

- Primary: These treatments are the most effective at lowering speeds when spaced approximately every 250 to 500 feet. They include any treatment which provides horizontal or vertical deflection.
- Secondary: These treatments help support primary elements and can provide comfort and placemaking elements, but may not sufficiently reduce speeds on their own. They include on-street parking, street trees, painted lane narrowing, and similar visual cues.

Crossing Treatments

These treatments improve the experience crossing the street at intersections or mid-block by shortening crossing distances and increasing visibility for users.

Volume Lowering Treatments

These treatments lower traffic volumes. There are two types of volume control elements:

- Primary: These treatments restrict the through movement of vehicles while allowing pedestrians and cyclists – and potentially emergency and service vehicles – to pass through. If not applied across a wide area, traffic volumes may simply shift to other local streets, creating issues in a new location so it is important to consider the network during application. Traffic diverters are the main primary vehicle volume lowering treatments.
- Secondary: These treatments are speed reducing treatments which may encourage lower vehicle traffic, such as speed humps.

Turning Movement Treatments

These treatments slow turning vehicles and improve visibility between drivers and people walking or biking across the street.

Walking Improvements

These treatments make the walking environment feel more comfortable, and include regular crossings, shade, as well as treatments to lower vehicle speeds.

Biking Improvements

These treatments make the biking environment feel more comfortable and include shade and treatments to lower vehicle speeds and volumes.

Sacramento's Traffic Calming Treatments

The table below includes the full list of treatments considered and which of the goals they address. The treatments are described in detail through the remainder of this document, including benefits, challenges, cost, application guidance, and further resources for review.

Treatment	Traffic Calming	Crossings	Volumes	Turning Movements	Walking	Bicycling
Speed Humps / Lumps / Tables	■	■	■			■
Traffic Diverter / Street Closure	■	■	■		■	■
Median Islands / Pedestrian Refuge Islands	■	■			■	■
Mini Roundabouts / Traffic Circles	■	■		■	■	■
Chicanes	■		■		■	■
Pinch Points	■	■			■	■
Raised Crosswalks / Intersections	■	■		■	■	■
Street Trees	■				■	■
On Street Parking	■					
Lane Narrowing	■	■			■	■
Curb Extensions	■	■		■	■	
Geometry Changes / Curb Radii	■	■		■	■	■
Hardened Centerlines	■	■		■	■	■

Speed Humps / Lumps / Tables

Elevated mounds 3-4" in height placed in the roadway intended to slow vehicles. The mounds may include gaps to allow emergency vehicles and bicycles to travel through without experiencing vertical deflection. To achieve effective traffic calming, features should be spaced appropriately 250 to 500 feet apart. When placed near pedestrian crossings, they can significantly enhance comfort for those crossing.

Benefits

- Slows down drivers.
- Easily navigated by bicyclists.
- Work best when spaced frequently.

Constraints

- May require emergency vehicles to slow down and create discomfort for transit riders but can be designed to minimize these impacts.

Application Guidance

Speed humps / lumps / tables are typically applied mid-block on low volume, low speed, one- or two-way local streets and minor collectors. While avoiding driveways is preferred, they may be placed in front of driveways on a case by case basis. Speed humps may be placed near intersections but not within them. Additionally, placing speed humps on either side of a pedestrian crossing can help to create a slow zone, lowering speeds and improving pedestrian comfort. Speed lumps should be installed in accordance with the City Speed Lump Program.

Issues Addressed

Traffic Calming | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $2,500 per location
- Range: $1,500 to $5,500 per location (pedbikesafe.org)

Additional Resources

- Sacramento Speed Lump Program
- Caltrans Traffic Calming Guide
- CA MUTCD
- FHWA Traffic Calming ePrimer
- NACTO Urban Street Guide: Speed Hump

Traffic Diverter / Street Closure

Street modifications which partially or fully close the street to vehicular traffic while still allowing access for people walking and biking. Diagonal diverters prevent all through movement, and forced turn diverters prevent through traffic on one street.

Benefits

- Establishes priority for walking and biking.
- Reduces cut-through traffic.
- Can be accomplished with temporary, quick-build materials.

Constraints

- Limits vehicle access (may be modified to allow emergency vehicle access).
- Traffic study may be conducted to evaluate impacts to adjacent streets.

Application Guidance

Traffic diverters are typically applied at intersections of low volume, low speed, one- or two-way residential streets with more than 1,500 vehicles per day. Typically, diverters should be considered only when an alternate route for vehicle traffic exists, but care should be taken not to shift cut through traffic to local streets. Diverters should be well marked and signed to alert drivers to watch for people biking through or turning at the feature. Full street closures can provide space for community events.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Range*: $15,000 to $50,000 per location (pedbikesafe.org)

Additional Resources

- Caltrans Traffic Calming Guide
- Caltrans HDM Topic 404
- NACTO Urban Street Design Guide: Temporary Street Closures

Median Islands / Pedestrian Refuge Islands

Medians in the center of local streets and minor collectors which shift the travel path of vehicular traffic. Median islands at intersections or mid-block crossing locations may include a cut out to provide protected space for people walking and biking when crossing the street.

Benefits

- Slows traffic by creating a lateral shift.
- Increases motorist visibility of pedestrians.
- Reduces pedestrian exposure to vehicle traffic.
- Allows people walking and biking to navigate only one direction of traffic at a time.

Constraints

- Street width should be wide enough to accommodate a vehicle on either side of the median (9' minimum). *Note: If intended for use as a pedestrian refuge island, it must be consistent with accessibility guidelines.*

Application Guidance

Median islands are typically applied on all streets and should especially be considered on streets with higher speeds and volumes. This treatment may provide a temporary refuge, allowing a person walking or biking to navigate one direction of traffic at a time. Median islands can be applied midblock or at signalized or unsignalized intersections, and can double as a diverter to prevent cut-through traffic on a bicycle route.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $10,500 per location
- *Range:* $10,000 to $30,000 per location *(pedbikesafe.org)*

Additional Resources

- Caltrans Traffic Calming Guide
- Caltrans HDM Index 405.4
- Caltrans HDM Topic 904
- NACTO Urban Bikeway Design Guide

Mini Roundabouts / Traffic Circles

Mini roundabouts are unsignalized, circular intersections where incoming traffic yields to traffic in the intersection. Designs may include separated bike lanes or shared lanes to accommodate people biking. Traffic circles require less space and may be stop controlled.

Benefits

- Slows down drivers.
- Can improve traffic flow and reduce severity of crashes.
- Provides an opportunity for landscaping or placemaking.

Constraints

- Works better with relatively even traffic volumes.
- May require additional treatments for people walking and biking.
- May require additional space for transit or freight.

Application Guidance

These treatments are typically applied on lower speed, 2-4 lane local roadways or collectors at intersections with 3 to 4 legs with enough space to provide a lateral shift to slow traffic. Treatment designs may include improvements for people walking and biking including separated bike lanes, shared lanes, or refuge islands.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $500,000 per location
- *Range:* $25,000 to $1.2 million per location *(pedbikesafe.org)*

Additional Resources

- Caltrans Traffic Calming Guide
- CA HDM Chapter 400
- CA MUTCD
- NCHRP 1043 Guide for Roundabouts
- FHWA Traffic Calming ePrimer
- NACTO Urban Street Design Guide: Mini-roundabout

Chicanes

Segments of curb, landscaping, or other curb extension and alternate from one side of the road to the other to create a curved segment of roadway which shortens a driver's sight lines, lowering speeds. Additional space may be utilized for parking, landscape, or other elements.

Benefits

- Slows down drivers.
- Increase available public space on a corridor.

Constraints

- Requires additional roadway space; generally feasible for streets with on street parking.

Application Guidance

Chicanes are typically applied midblock on residential or low volume streets to slow vehicular traffic without impacting emergency vehicles. Additional signage and stripping can make drivers aware of upcoming bend in the roadway. Chicanes may not be appropriate on transit priority streets.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $2,500 per location
- *Range:* $2,500 to $16,000 per location *(pedbikesafe.org)*

Additional Resources

- Caltrans Traffic Calming Guide
- CA HDM Topic 404
- CA HDM Index 303.4
- NACTO Urban Street Design Guide: Chicane
- FHWA Traffic Calming

Pinch Points

Horizontal extension of the curb into the street that narrow travel lanes by 1 to 2 feet or narrow a two-lane roadway into one wide travel lane shared by vehicles traveling in both directions, requiring drivers to yield to each other.

Benefits

- Reduces vehicle speeds.
- May be paired with mid-block crossings to reduce crossing distances for people walking.
- Can be installed on primary emergency vehicle routes or transit routes.

Constraints

- Considerations should be made for bike lanes or drainage.
- Stop or yield signage should be provided if the street in narrowed to one lane.

Application Guidance

Pinch points act like mid-block curb extensions and are typically installed on low volume streets. Bicycle volumes are higher, a separated pathway should be considered to enable people biking to bypass the pinch point and avoid conflict with drivers who may seek to overtake the cyclists prior to or in the narrowed portion. A bicycle bypass should be strongly considered where heavy vehicle traffic is expected. Reflective paint and other materials can be used to heighten visibility.

Issues Addressed

Traffic Calming | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $2,500
- *Range:* $2,000 to $25,000 per location *(pedbikesafe.org)*

Additional Resources

- Caltrans Traffic Calming Guide
- CA HDM Index 303.4 and 404.4
- NACTO Urban Street Design Guide: Curb Extensions
- FHWA Countermeasures

Raised Crosswalks / Intersections

Crosswalks or intersections which are elevated to sidewalk level to slow vehicles and increase driver alertness. Raised crossings are a variation which raises only the pedestrian/bicycle crossing, and they can be used as shared use path crossings. Detectable warnings and drainage should also be considered.

Benefits

- Increases visibility.
- Slows down drivers.
- Easy to cross for people with mobility impairments.

Constraints

- May require emergency vehicles to slow down.
- Drainage impacts should be considered.

Application Guidance

Typically installed at intersections or midblock crossings on lower speed 2-3 lane local roads or collectors. These raised elements improve visibility and encourage drivers to yield at crossings. They may also be installed on side street crossings and driveways to prioritize nonmotorized users. While ADA compliance is required, crosswalks do not need to be marked if the intersection is flush with the sidewalk. Additionally, raised intersections may be combined with special pavers and/or murals to create visual placemaking.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* varies widely based on location
- *Range:* $25,000 to $100,000 per location *(pedbikesafe.org)*

Additional Resources

- Caltrans Traffic Calming Guide
- Caltrans DIB 82
- NACTO Raised Intersections
- FHWA Traffic Calming e-Primer

Street Trees

Trees planted along a roadway can change the perception of drivers such that the road appears narrower than it is. Additionally, street trees can be used to increase comfort for people walking by lining sidewalks and for people biking by providing shade in bike lanes, helping to reduce temperatures on hot days.

Benefits

- Slows drivers down.
- Trees increase comfort for people walking or biking by providing shade.
- Reduces traffic noise.
- Helps address City's tree canopy goals.

Constraints

- Root systems can impact underground utilities and nearby sidewalks.
- Maintenance should be considered when selecting species.

Application Guidance

Street trees may be applied on local, collector, and arterial roadways. The differing maintenance needs of tree species – including soil volume, water consumption, and root systems - should be considered when selecting landscaping treatments. Street trees should ideally be installed behind curbs in buffer zones and medians. Street trees should be trimmed regularly to preserve sight distance and allow clearance for transit and other large vehicles.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- Varies widely based on tree type and maintenance / irrigation needs

Additional Resources

- Caltrans Traffic Calming Guide
- CA HDM Index 303.4 and 404.4
- Caltrans DIB 94
- NACTO Urban Street Design Guide: Curb Extensions
- FHWA Countermeasures

On Street Parking

On-street parking reduces roadway width by allowing parking along a roadway curb, causing a driver to experience increased "friction" on the side of the road resulting in lower driver speeds.

Benefits

- Slows drivers.
- Provides public service to people who drive.

Constraints

- May require coordination with local enforcement and signage to ensure no parking is permitted to allow for on-street sweeping.
- May impact user visibility and sight distances at driveways and intersections.

Application Guidance

On street parking can be provided on one or both sides of the roadway, or on alternating sides to narrow the roadway (as a **Chicane**). On street parking, on its own, Is not effective where parking demand is low. In these cases, other features such as curb extensions and pinch points can be used to narrow the roadway even when parking is not utilized. Parking should not be allowed to obstruct driver sight lines and impede visibility of pedestrian crossings.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- On-street parking is generally installed when the street is built without additional cost

Additional Resources

- Caltrans Traffic Calming Guide
- NACTO Speed Reduction Mechanisms
- FHWA Traffic Calming e-Primer

Lane Narrowing

Narrowing lanes to 11' and reducing the total amount of space for vehicles can provide visual cues for drivers to slow down. This effect may be achieved via striping, adding a bikeway, adding vertical elements, or moving curb.

Benefits

- Slows down drivers.
- Reduces crossing distances for people walking.
- May provide space for placemaking amenities.

Constraints

- If emergency vehicles or other large vehicles frequently use the street, lane narrowing via striping only should be considered.

Application Guidance

Narrowing lanes can reduce vehicle speeds while freeing up right-of-way for other modes (e.g, bike lanes, transit stops) or placemaking amenities (e.g. parklets, landscaping). The curbside lane may be up to 11 ft to accommodate larger vehicle traffic such as transit or freight. In some cases, narrower lanes may be allowed per City guidance.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $3 per linear foot

Additional Resources

- Caltrans DIB 94
- Caltrans Traffic Calming Guide
- FHWA Traffic Calming e-Primer
- NACTO Lane Widths

Curb Extensions

Horizontal extensions of the curb into the street at intersections or mid-block crossings to expand the place where pedestrians can stand, narrow crossing distances for people walking, provide additional space for placemaking and landscape features, and reduce speeds of turning vehicles.

Benefits

- Shortens crossing distances and improves visibility.
- Slows turning vehicles.

Constraints

- Turning radius for large vehicles should be considered where applicable.
- There may be impacts to bike lanes and drainage.

Application Guidance

Curb extensions may be raised or street level and are typically installed on 2-4 lane roadways with on-street parking. They may be applied mid-block or at intersections. Curb extensions can be used to create "bus bulbs" which prevent vehicles from parking in a bus stop and allow buses to stop in-lane, reducing their travel time. Curb extensions can provide a visual marker to indicate the gateway to a slow speed neighborhood or area.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- *Average:* $13,000 per location
- *Range:* $2,000 to $20,000 per location *(pedbikesafe.org)*

Additional Resources

- Caltrans Traffic Calming Guide
- CA HDM Index 303.4 and 404.4
- NACTO Urban Street Design Guide: Curb Extensions
- FHWA Countermeasures

Geometry Changes / Curb Radii

Changing roadway geometry or narrowing curb radii increases the amount of curb space, requiring vehicles to slow down when turning. This treatment can also be used to realign skewed intersections to right angles.

Benefits

- Improves visibility for everyone using the intersection.
- Reduces crossing distances.
- Reduces vehicle turning speeds.
- May provide additional space for landscape.

Constraints

- Large trucks and busses may ride over the curb if radii are too narrow.

Application Guidance

Typically applied at intersections which are skewed or which have wide or poorly defined corner radii. Curb radii should be designed to induce a turning speed of 15 mph or less (see NACTO guide for centerline turning radius to speed design guidelines). A variety of traffic calming elements can be used to accommodate the turning radius of large vehicles while still restricting the turning speed of smaller vehicles.

Issues Addressed

Speeds | Crossings | Volumes | Turning Movements | Walking | Bicycling

Planning Level Cost Estimate

- Varies widely based on location needs; see curb extension for baseline averages.

Additional Resources

- CA HDM Chapter 400
- Caltrans Traffic Calming Guide
- NACTO Urban Street Design Guide

Hardened Centerline

Hardened centerlines are typically a flexible delineator post or raised speed hump placed along the road centerline at an intersection to narrow the path through the intersection.

Benefits

- Encourage drivers to turn left at lower speeds.
- Guides vehicles to a wider turning angle for slower, more predicable turns.
- Helps drivers better see people crossing the street.

Constraints

- Turning radius of trucks and buses should be considered while installing.

Application Guidance

Hardened centerlines (also known as "left turn hardening") are typically installed next to crosswalks and are applied at intersections to increase driver yielding to people in crossings by enforcing a wider turning angle. The method may include vertical elements and may be designed as mountable. 6-foot extensions are recommended but should be no less than 2 feet.

Issues Addressed


Speeds


Crossings

Volumes


Turning Movements


Walking


Bicycling

Planning Level Cost Estimate

- *Average:* $825 each
- *Range:* $500 to $1,000 per location

Additional Resources

- Caltrans Pedestrian Safety Countermeasures Toolbox
- NACTO Don't Give Up at the Intersection

Appendix D

Corridor Treatment Examples and Cost Estimates

The following Appendix includes existing conditions and preliminary treatment recommendations for the full extents of the 10 example Neighborhood Connections corridors, including:

1. **South Ave/Altos Ave/Ford Rd** (Del Paso Heights)
2. **8th Ave/9th Ave** (Oak Park/Tahoe Park)
3. **Tamoshanter Way** (Golf Course Terrace/ Meadowview)
4. **N Park Dr** (North Natomas)
5. **W River Dr** (Willow Creek)
6. **Las Palmas Ave/Sonoma Ave** (Richardson Village/Hagginwood)
7. **Redding Ave/Bradford Dr/75th St** (Tahoe Park/ Colonial Manor)
8. **Wentworth Ave/Irwin Ave/26th Ave** (South Land Park/Hollywood Park)
9. **Pebblewood Dr/Potomac St** (Northgate/South Natomas)
10. **Ehrhardt Ave/Carlin Ave** (Valley Hi/ North Laguna)

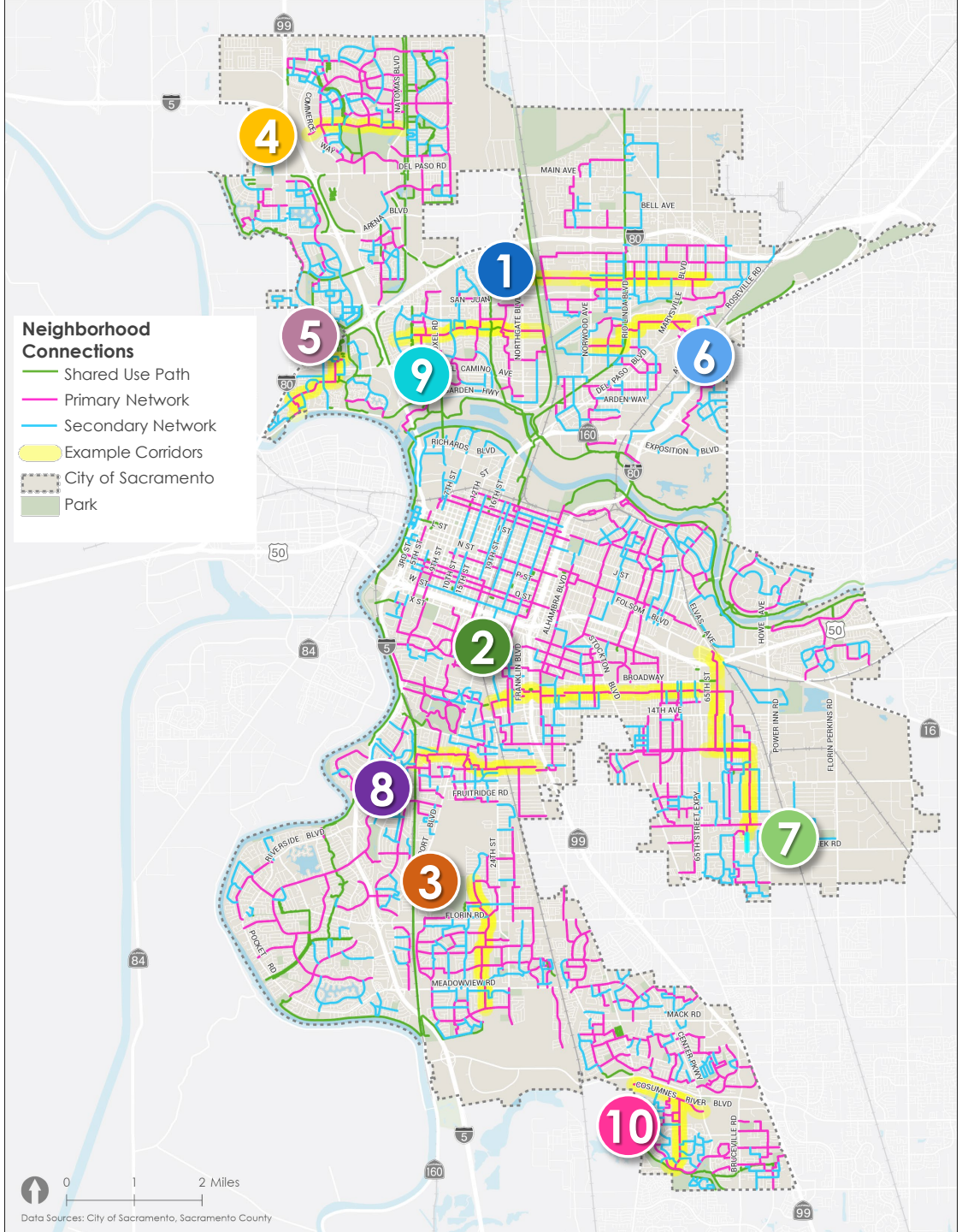
Each of these corridors would be subject to additional engineering study and design to further understand the feasibility of the improvements prior to seeking funding for implementation. The example corridors emphasized capturing as many applications of the traffic calming toolbox treatments as possible – ultimate treatments selected may be different to better respond to design constraints and/ or neighborhood preferences.

Sacramento Neighborhood Connections Plan

CORRIDOR TREATMENTS

Study Area

1. South Ave / Altos Ave / Ford Rd
2. 8th Ave / 9th Ave
3. Tamoshanter Way
4. N Park Dr
5. W River Dr
6. Las Palmas Ave / Sonoma Ave
7. Redding Ave / Bradford Dr / 75th St
8. Wentworth Ave / Irwin Ave / 26th Ave
9. Pebblewood Dr / Potomac Ave
10. Ehrhardt Ave / Carlin Ave



Recent Traffic Calming in Sacramento: **Vallejo Way from 5th St to Muir way**

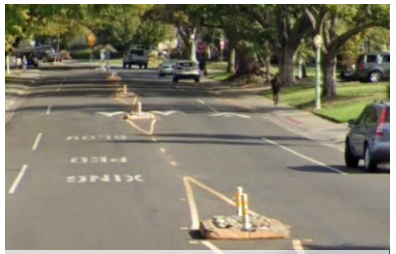
Neighborhood: Land Park

Feature Spacing: 50’ - 180’

Crossing Spacing: 300’ – 750’

- Pedestrian Refuge
- Speed Lump
- Marked Crossing
- Median Islands

Pedestrian Refuge


Median Island


Speed Lump

1 South Ave / Altos Ave / Ford Rd North Sacramento

Corridor Extents:

Larchwood Drive to Kern Street

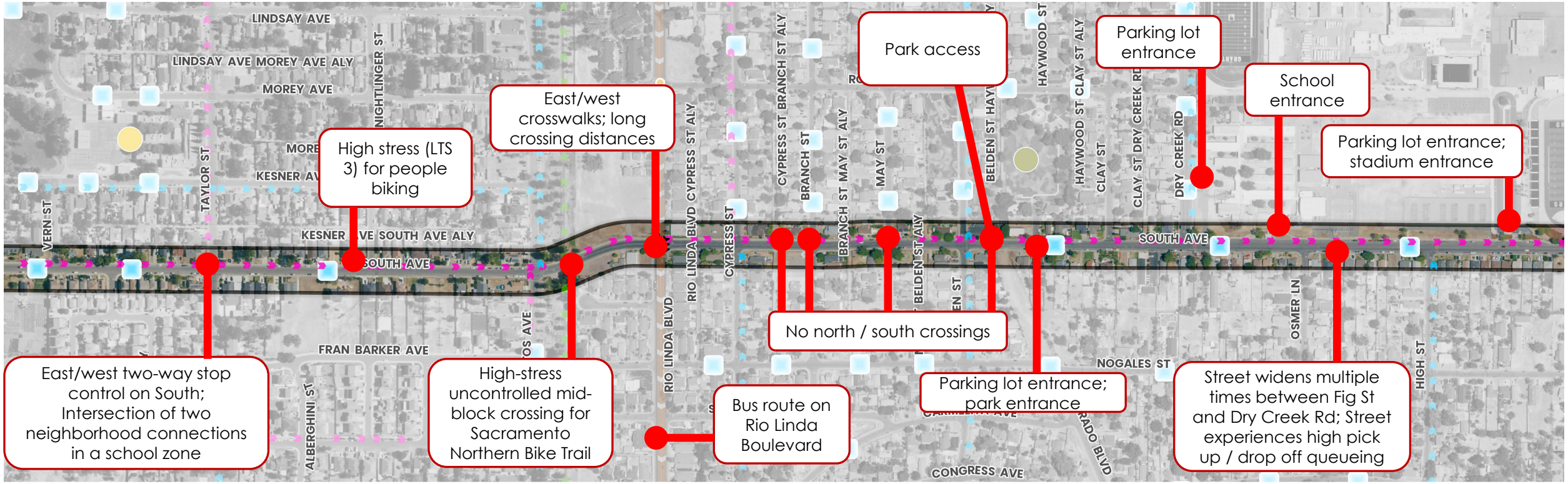
(2.80 miles)

Nearby Destinations:

- Garden Valley Elementary School
- Garden Valley Park
- Del Paso Park
- Grant West High School
- Castori Park
- Michael J. Castori Elementary

1 South Ave / Altos Ave / Ford Rd North Sacramento – Existing Conditions

1 South Ave / Altos Ave / Ford Rd North Sacramento – Existing Conditions

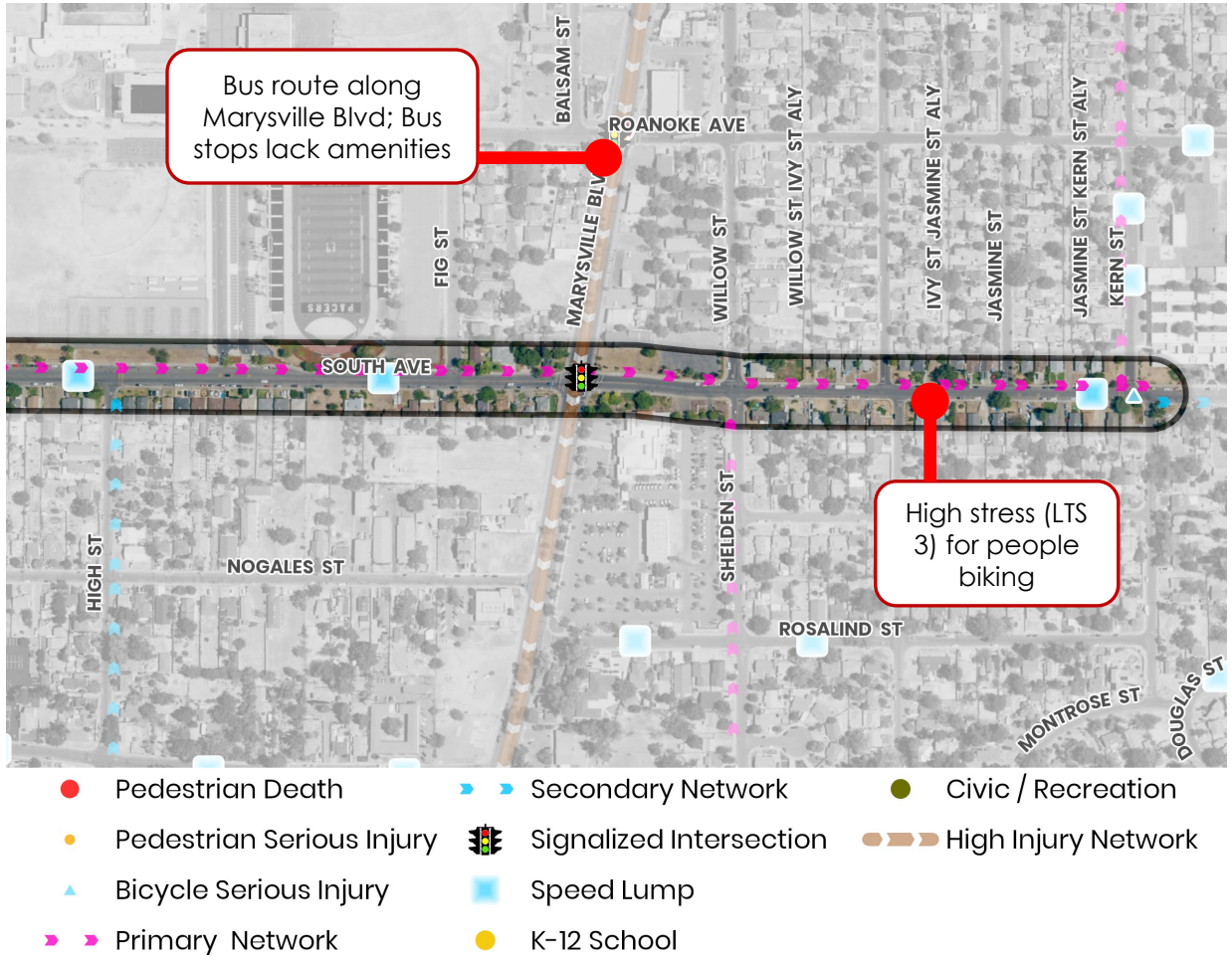


0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

- Pedestrian Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- K-12 School
- Civic / Recreation
- High Injury Network

1 South Ave / Altos Ave / Ford Rd North Sacramento – Existing Conditions



1 South Ave / Altos Ave / Ford Rd North Sacramento – Recommendations

Additional treatments:

- Shared lane markings on Patio Avenue and South Avenue
- Evaluate lighting at all crossings
- Evaluate opportunities for street tree planting
- All crosswalks should be evaluated for enhanced crossing treatments

Recommended Treatments

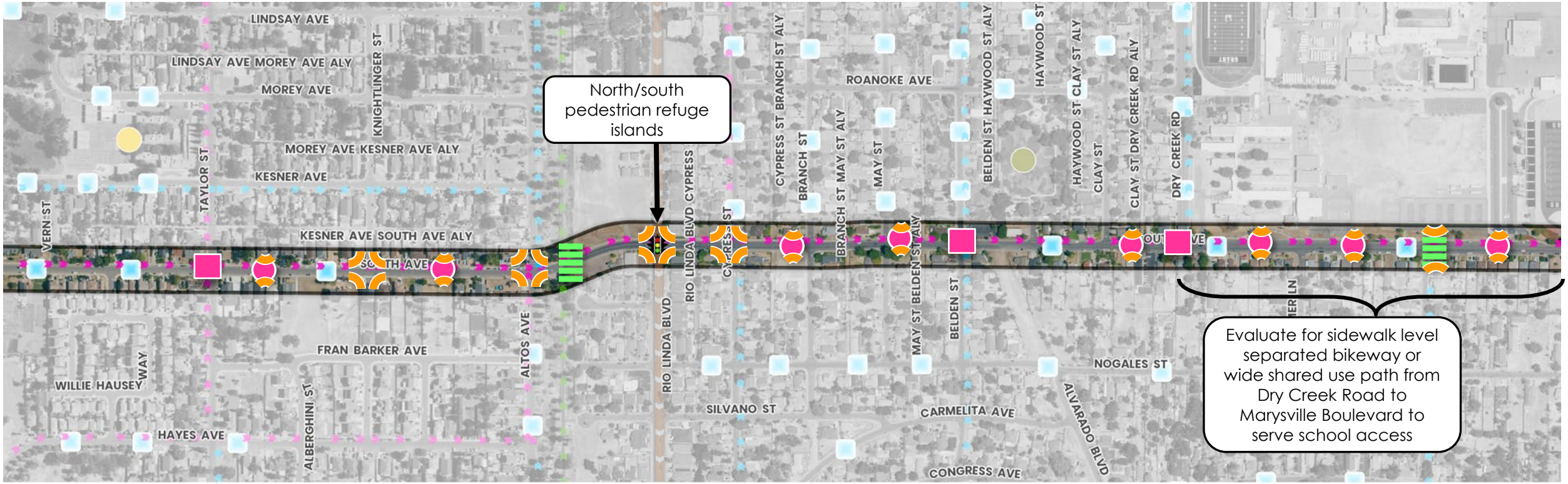
- Raised intersection
- Speed lump

- Pedestrian Death
- Bicycle Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- Essential Needs
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

1 South Ave / Altos Ave / Ford Rd North Sacramento – Recommendations



Additional treatments:

- Shared lane markings on South Avenue
- Evaluate lighting at all crossings
- Evaluate opportunities for street tree planting
- All crosswalks should be evaluated for enhanced crossing treatments

Recommended Treatments

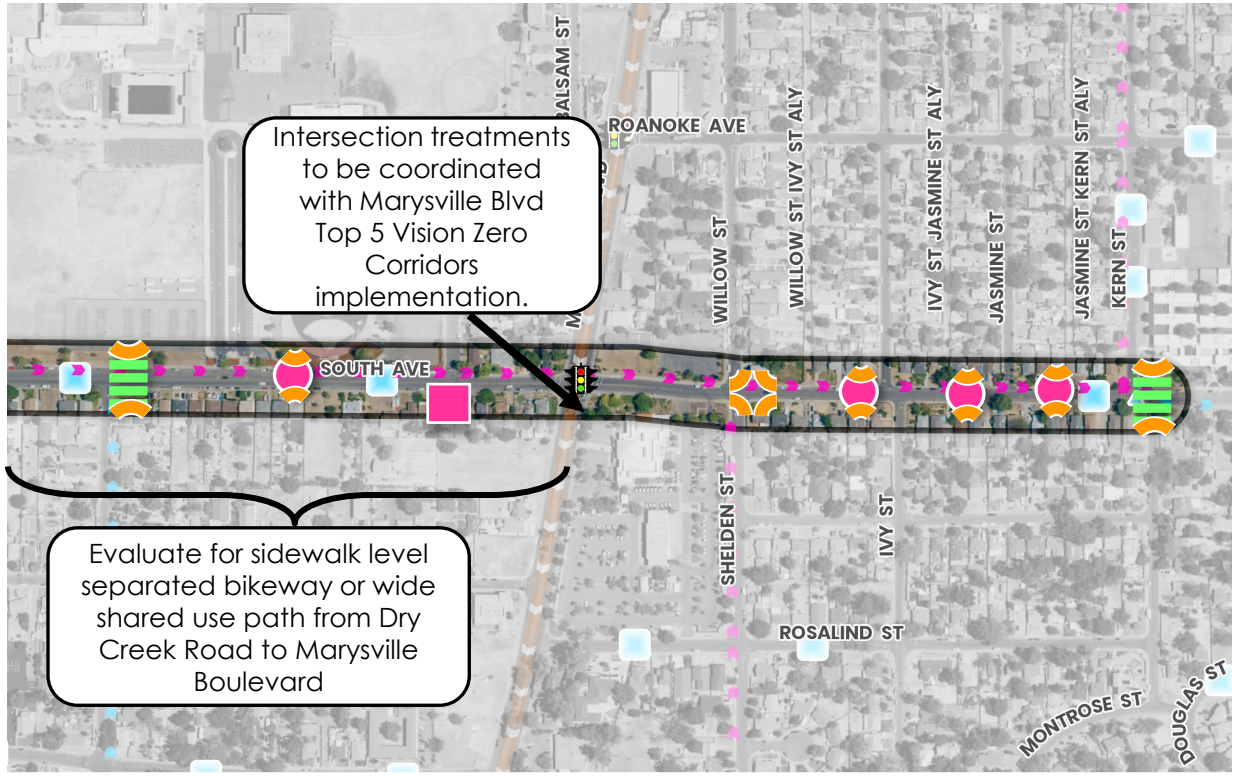
- Curb extension
- Raised intersection
- Pinch Point
- Raised Crosswalk
- Speed lump

- Pedestrian Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- K-12 School
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

1 South Ave / Altos Ave / Ford Rd North Sacramento – Recommendations



Recommended Treatments

- Curb extension
- Raised intersection
- Raised Crosswalk
- Speed lump

Additional treatments:

- Shared lane markings on South Avenue
- Evaluate lighting at all crossings
- Evaluate opportunities for street tree planting
- All crosswalks should be evaluated for enhanced crossing treatments

2 8th Ave / 9th Ave | Fruitridge Broadway

Corridor Extents:

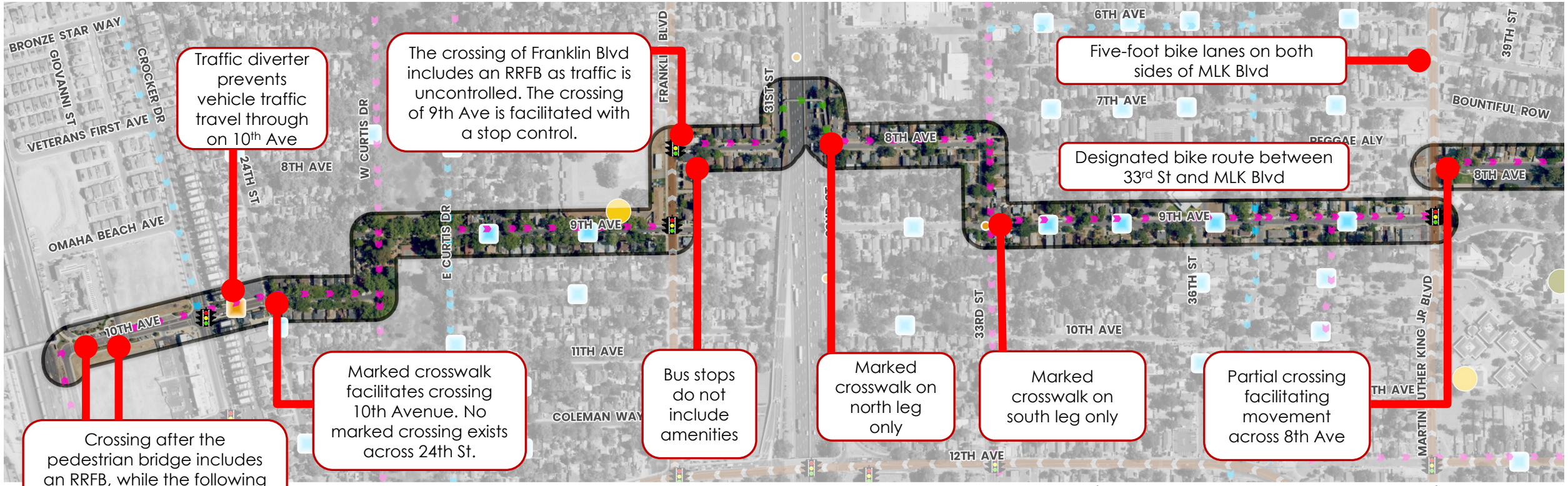
10th Avenue to 65th Street

(3.40 miles)

Nearby Destinations:

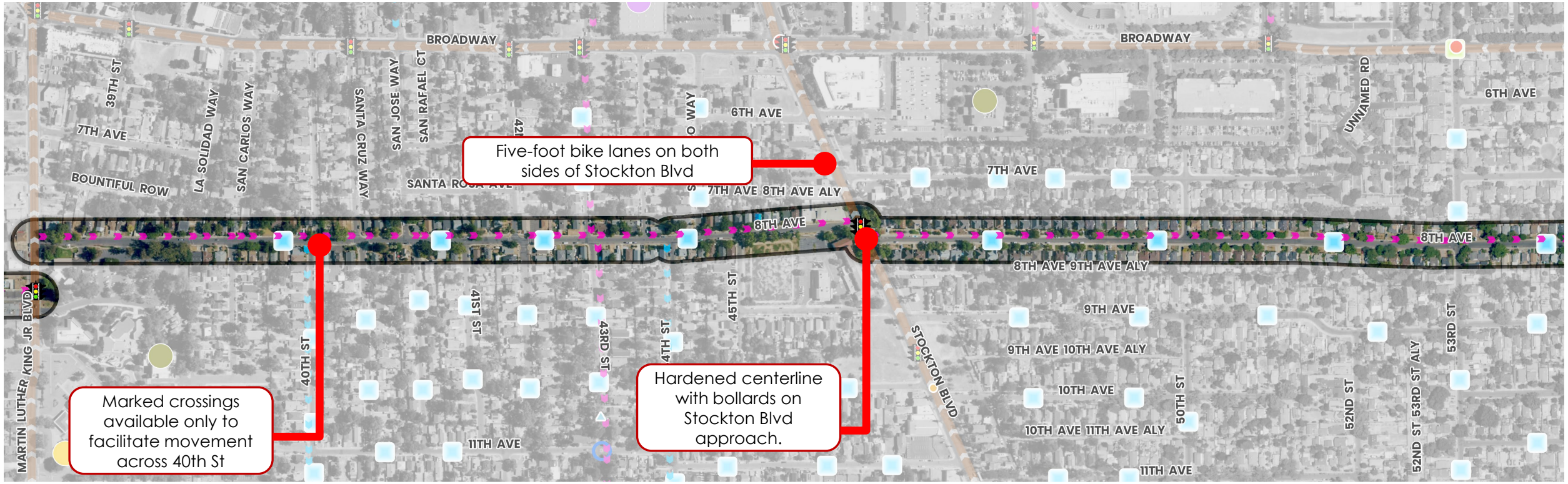
- Hughes Stadium
- Curtis Park
- Bret Harte Elementary School
- Oak Park Community Center
- Tahoe Elementary School

2 8th Ave / 9th Ave Fruitridge Broadway – Existing Conditions



Other: Vulnerable users along corridor with senior facility and elementary school

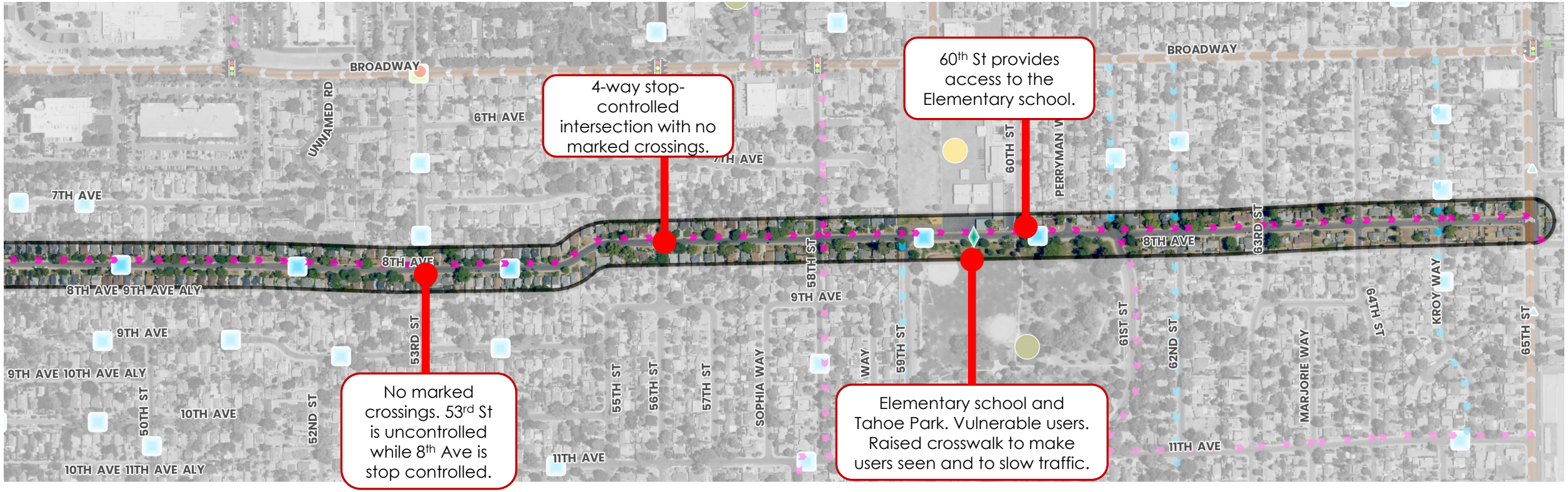
2 8th Ave / 9th Ave Fruitridge Broadway – Existing Conditions



Other:

- Fatal pedestrian crash history along Stockton Blvd
- Offset intersections west of Stockton Blvd
- No marked crossings east of Stockton Blvd

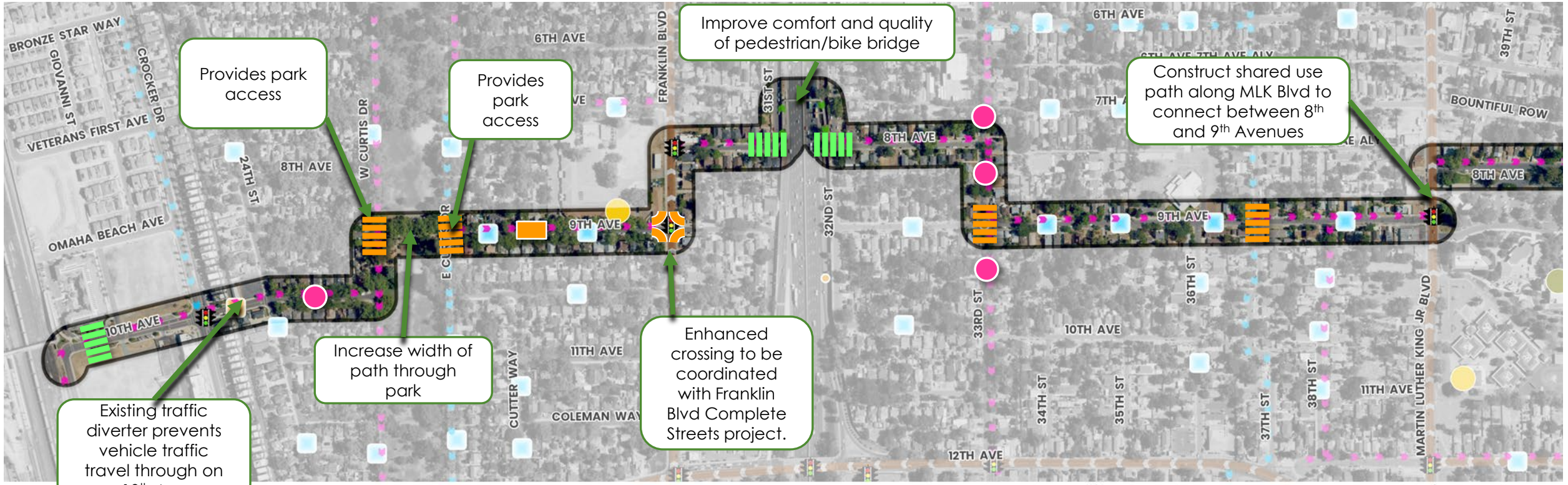
2 8th Ave / 9th Ave Fruitridge Broadway – Existing Conditions



Other:

- No marked crossing outside of school zone

2 8th Ave / 9th Ave Fruitridge Broadway – Recommendations



Recommended Treatments

- Curb extension
- Speed lump
- Raised crosswalk
- Marked crossing
- Raised intersection
- Chicane

- Pedestrian Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Diverter
- Speed Lump
- K-12 School
- Civic / Recreation
- High Injury Network

Existing Conditions

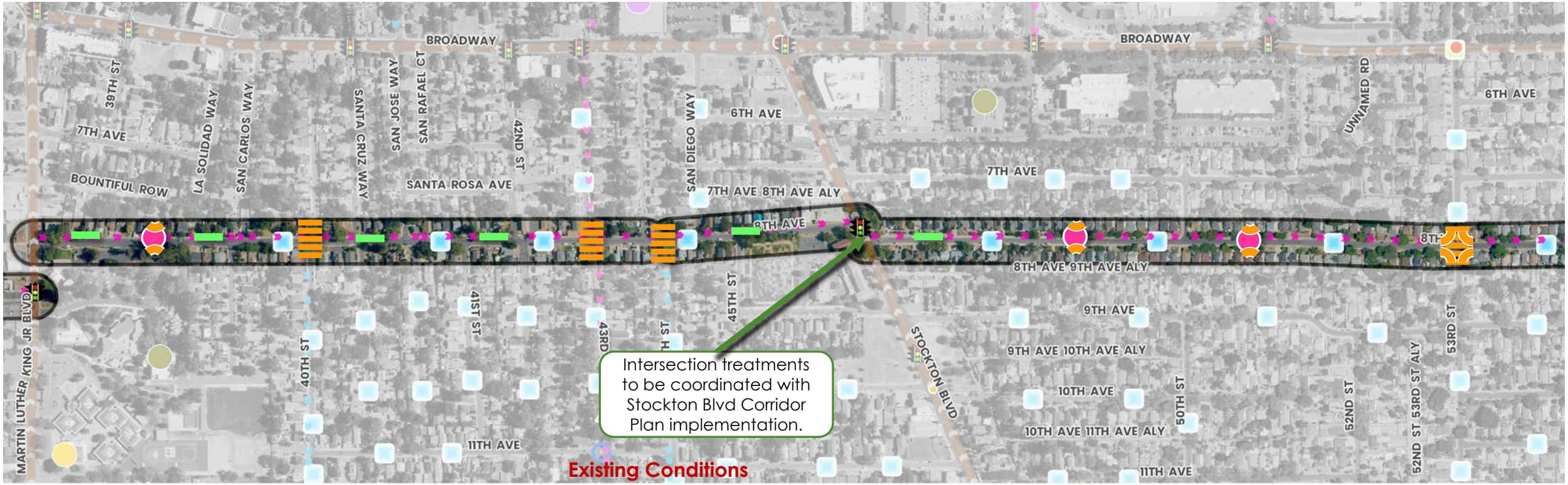
Additional treatments:

- Evaluate lighting at all crossings
- Evaluate presence of street trees

Additional treatments:

- Shared lane markings on Patio Avenue and

2 8th Ave / 9th Ave Fruitridge Broadway – Recommendations



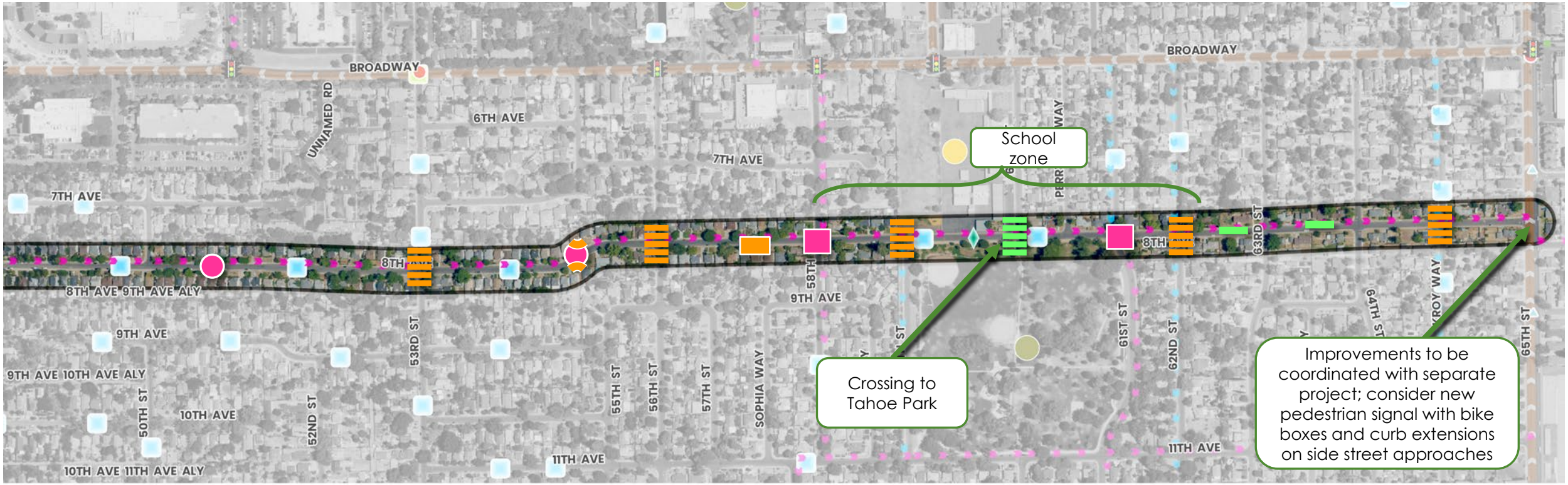
Recommended Treatments

- Curb extension
- Raised crosswalk
- Raised intersection
- Chicane
- Speed lump
- Median Islands
- Marked crossing

Existing Conditions

- Pedestrian Death
- Pedestrian Serious Injury
- Bicycle Serious Injury
- Primary Network
- Secondary Network
- Signalized Intersection
- Pedestrian Refuge
- Speed Lump
- Traffic Circle
- K-12 School
- Essential Needs
- Civic / Recreation
- High Injury Network

2 8th Ave / 9th Ave Fruitridge Broadway – Recommendations



Recommended Treatments

- Curb extension
- Speed lump
- Raised crosswalk
- Raised intersection
- Marked crossing

Existing Conditions

- Pedestrian Death
- Bicycle Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Pedestrian Refuge
- Raised Crosswalk
- Speed Lump
- K-12 School
- Civic / Recreation
- High Injury Network

3 Tamoshanter Way | South Sacramento

Corridor Extents:

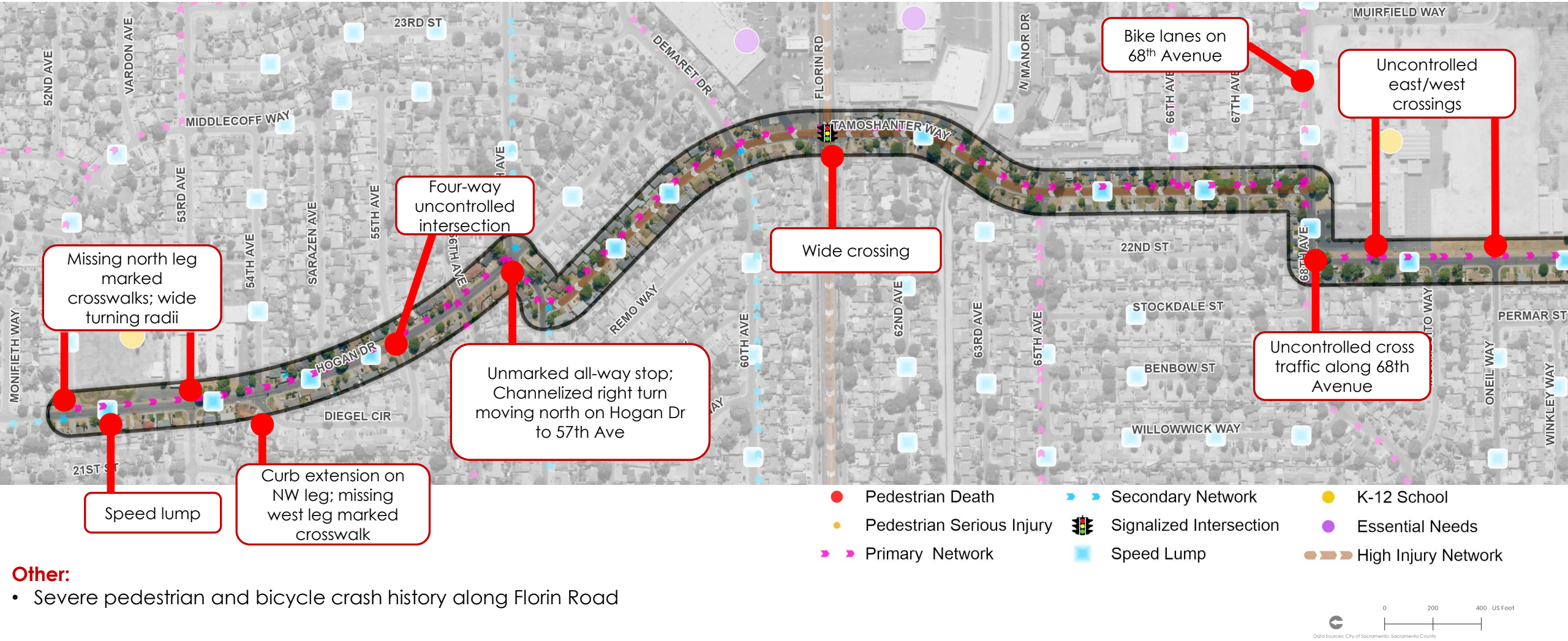
Middlecoff Way to John Still Drive

(2.07 miles)

Nearby Destinations:

- HW Harkness Elementary School
- Florin Square Shopping Center
- Goethe School Park
- John H. Still K-8 School
- MLK Jr Library
- Steve Jones Park

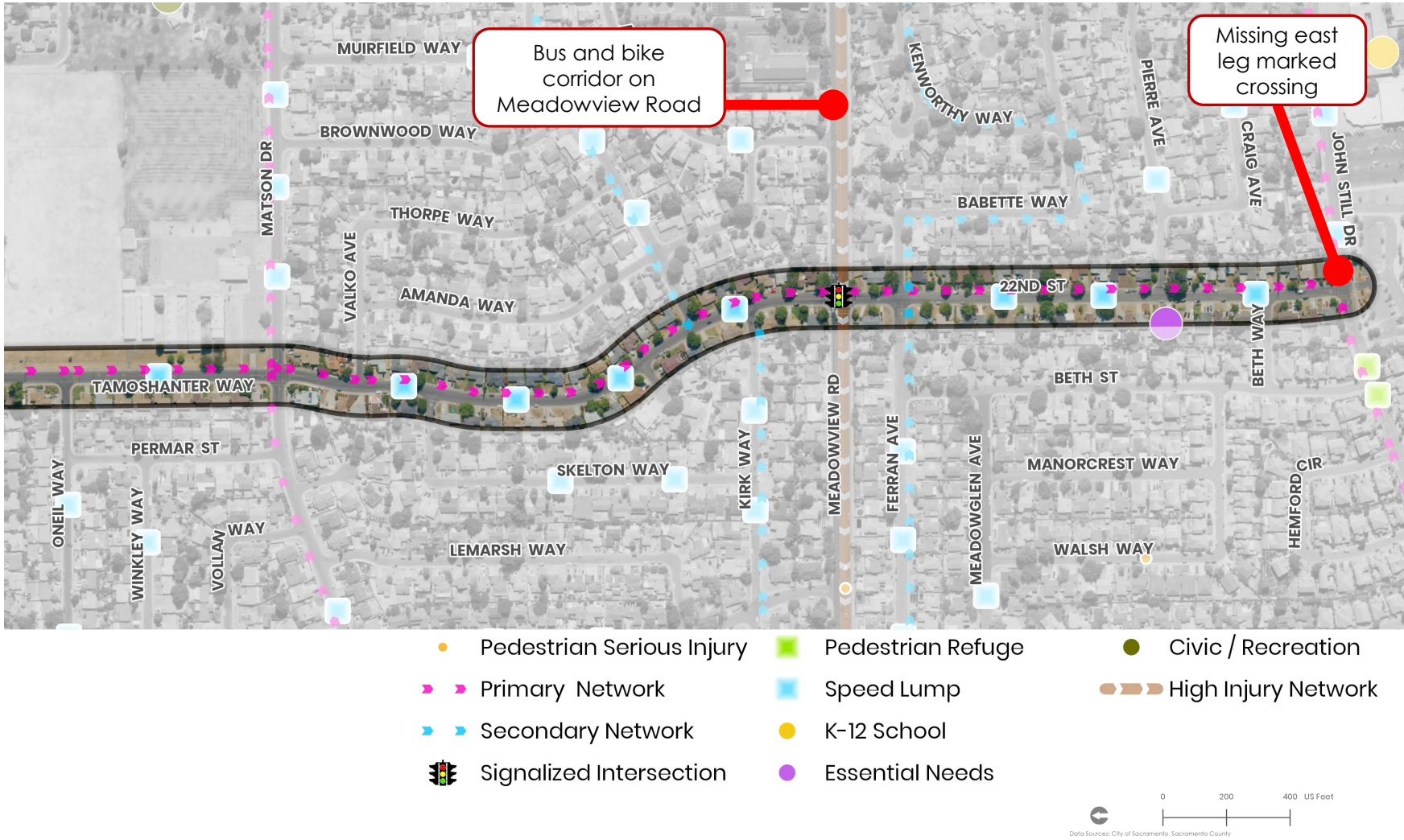
3 Tamoshanter Way | South Sacramento – Existing Conditions



Other:

- Severe pedestrian and bicycle crash history along Florin Road

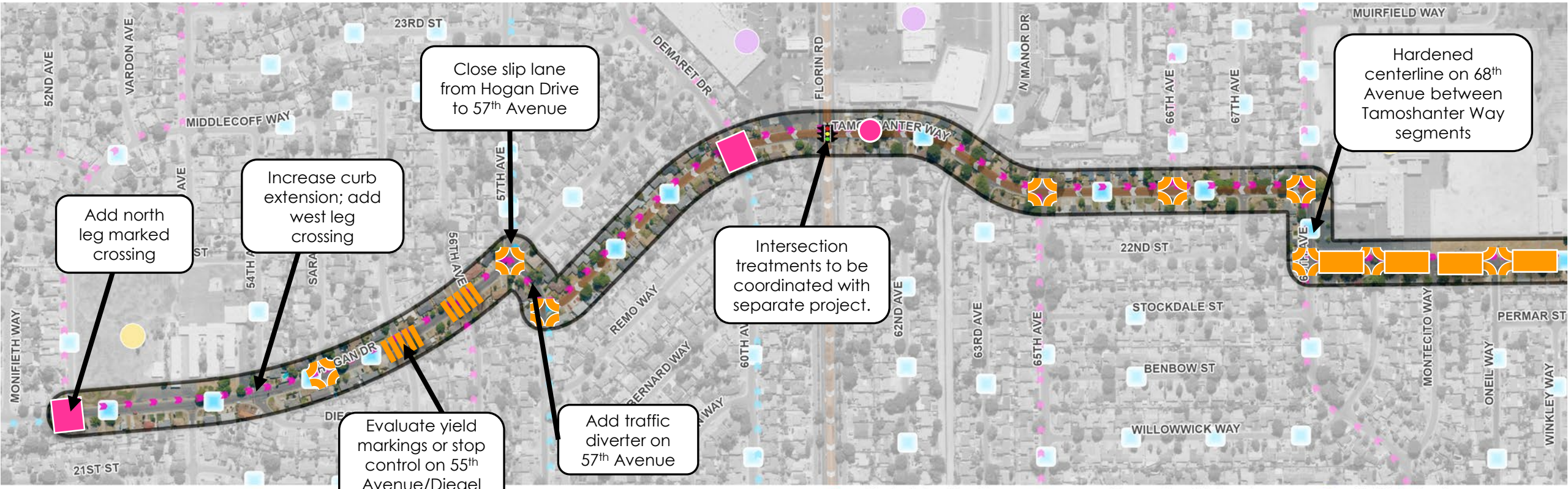
3 Tamoshanter Way | South Sacramento – Existing Conditions



Other:

- Inconsistent speed lump spacing
- Inconsistent crosswalk striping

3 Tamoshanter Way | South Sacramento – Recommendations



Additional treatments:

- All crosswalks should be evaluated for enhanced crossing treatments

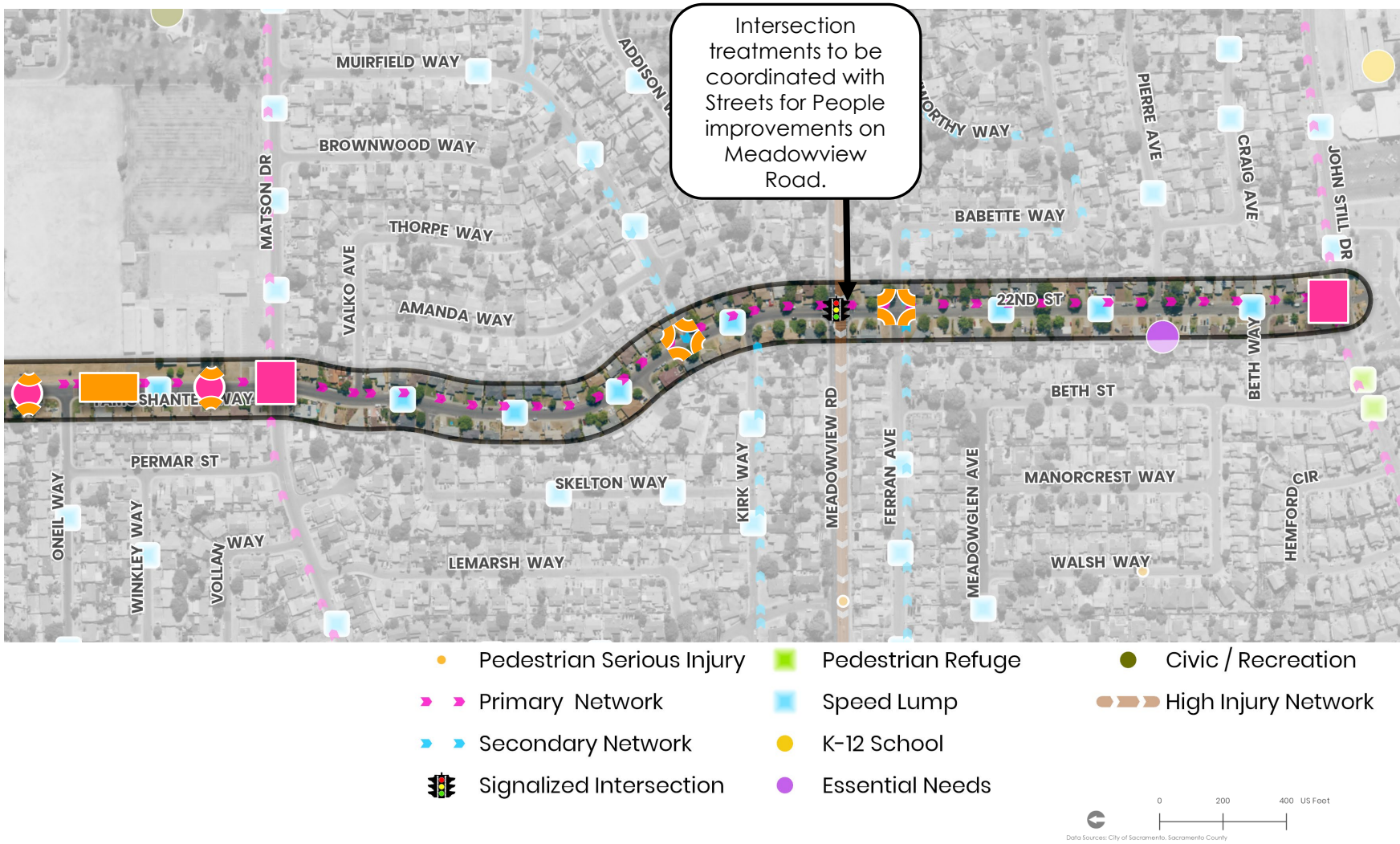
Recommended Treatments

- Curb extension
- Speed lump
- Marked crossing
- Chicane
- Raised intersection

3 Tamoshanter Way | South Sacramento – Recommendations

Recommended Treatments

- Curb extension
- Marked crossing
- Raised intersection
- Speed lump
- Chicane



Additional treatments:

- All crosswalks should be evaluated for enhanced crossing treatments

4 N Park Dr | North Natomas

Corridor Extents:

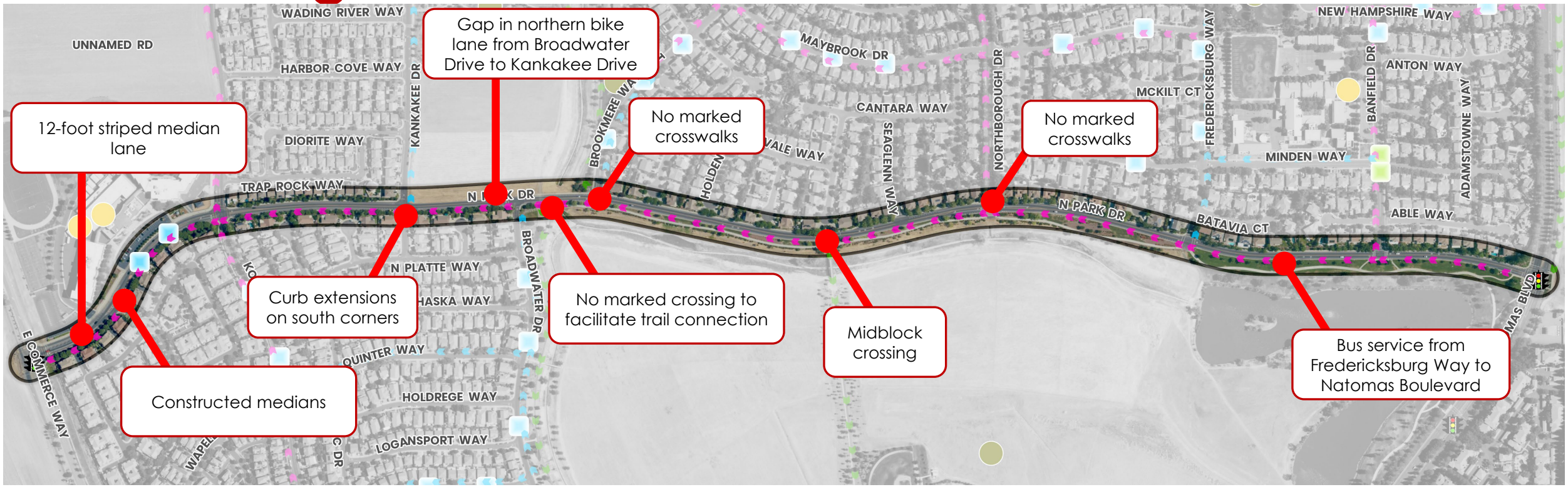
E Commerce Way to Natomas Blvd

(1.44 miles)

Nearby Destinations:

- Natomas Middle School
- H. Allen Hight Elementary School
- Wild Rose Park
- Heron School
- North Natomas Regional Park

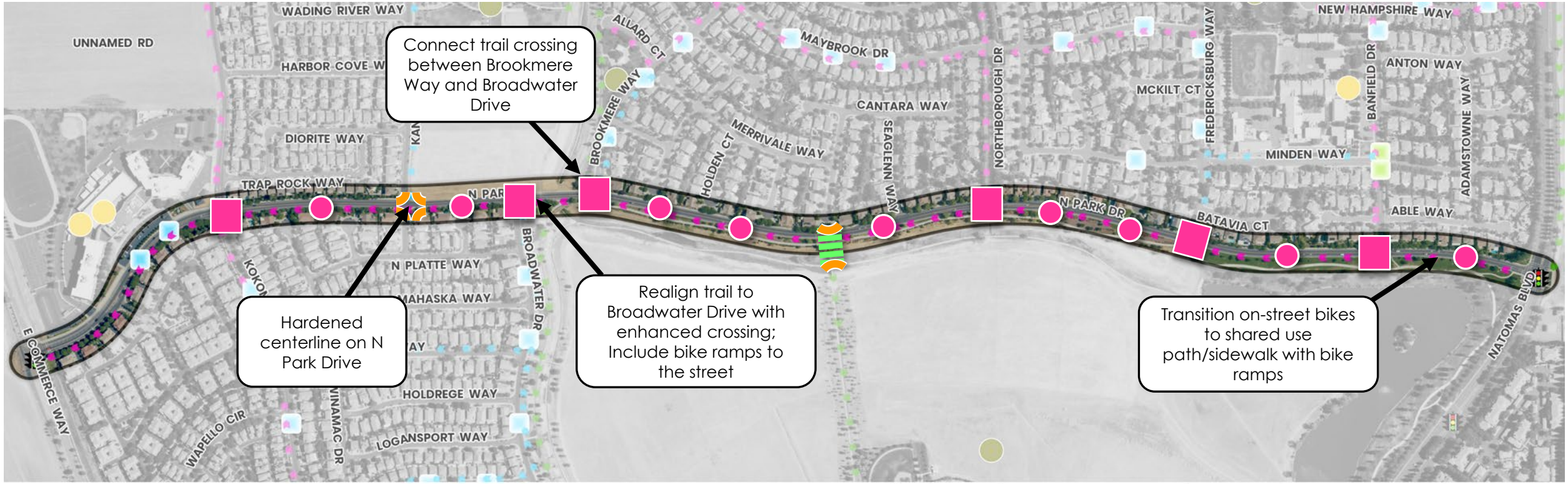
4 N Park Dr | North Natomas – Existing Conditions



Other:

- Bike lanes along N Park Drive
- Traffic calming lacks along corridor to help slow vehicle speeds.
- N Park Drive is ranked a bicycle LTS 4 and pedestrian comfort level 2
- Inconsistent crosswalk markings
- Lack of corridor traffic calming treatments

4 N Park Dr | North Natomas - Recommendations



Additional treatments:

- Evaluate lighting at all crossings
- Evaluate presence of street trees
- Speed lumps spaced approximately every 500' along N Park Drive
- Stripe buffered bike lanes along N Park Drive

Recommended Treatments

- Curb extension
- Raised crosswalk
- Raised intersection
- Speed lump

5 W River Dr | Willow Creek

Corridor Extents:

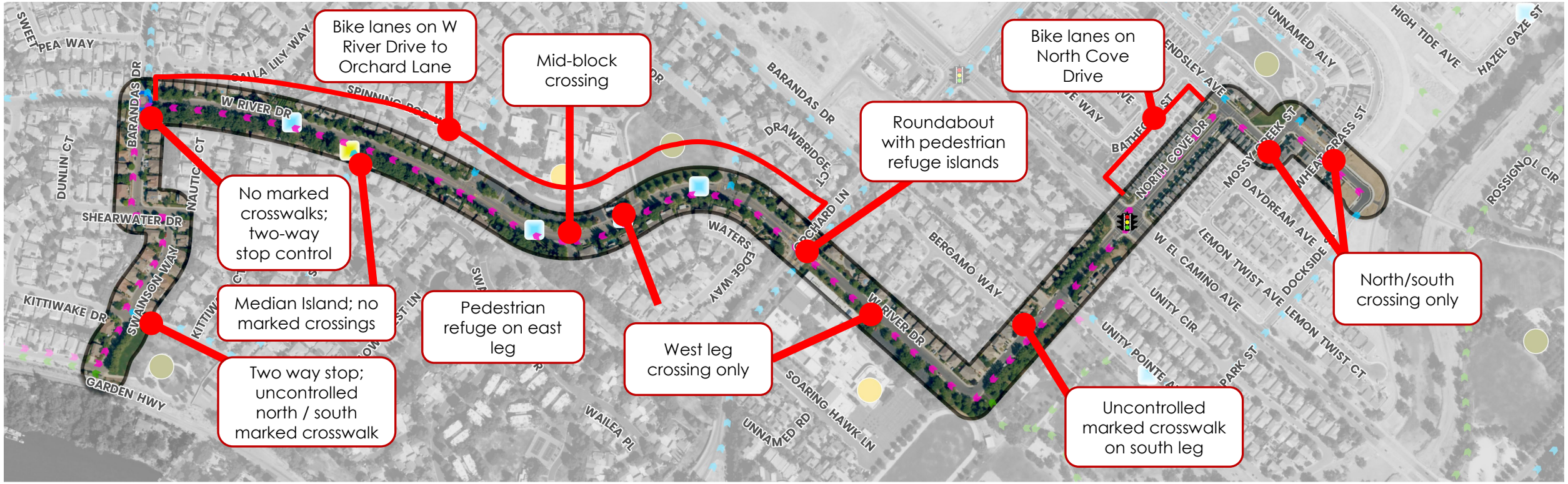
Swainson Way to Lavender Jade Ave

(1.38 miles)

Nearby Destinations:

- Shorebird Park
- Two Rivers Elementary School
- Leroy Greene Academy
- Orchard Park

5 W River Dr | Willow Creek – Existing Conditions



Other:

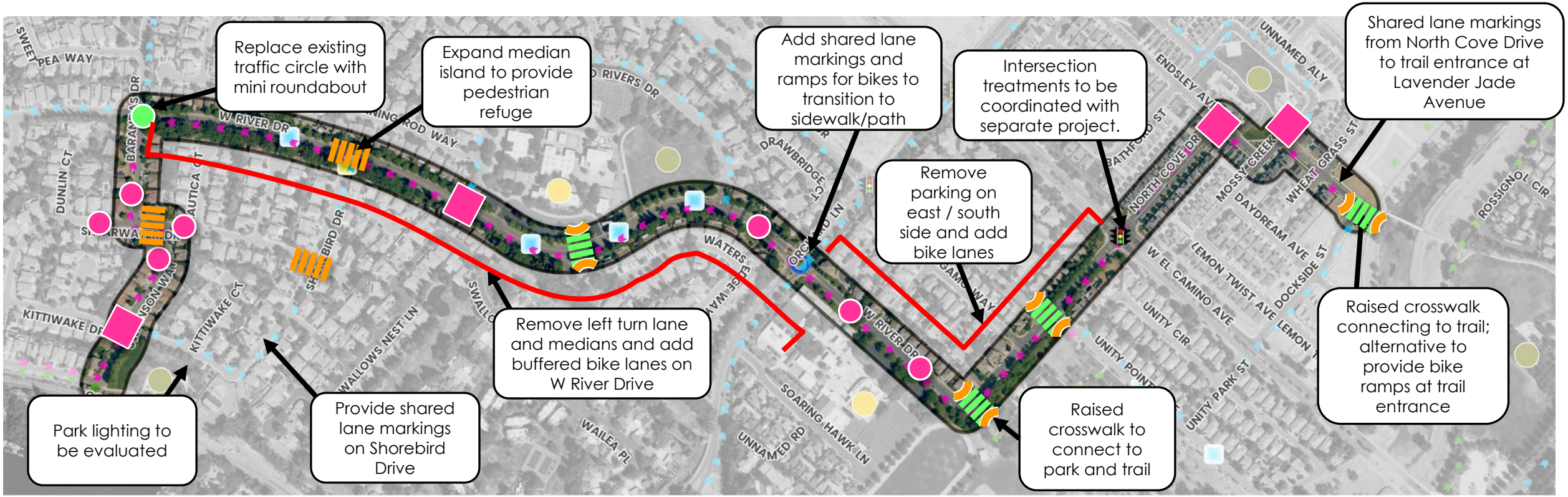
- W River Dr is ranked as bicycle LTS 3 and pedestrian comfort level 2
- Limited marked crosswalks across Shorebird Drive
- Inconsistent crosswalk striping

- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Median Island
- Speed Lump
- Traffic Circle
- K-12 School
- Civic / Recreation

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

5 W River Dr | Willow Creek – Recommendations



Additional treatments:

Recommended Treatments

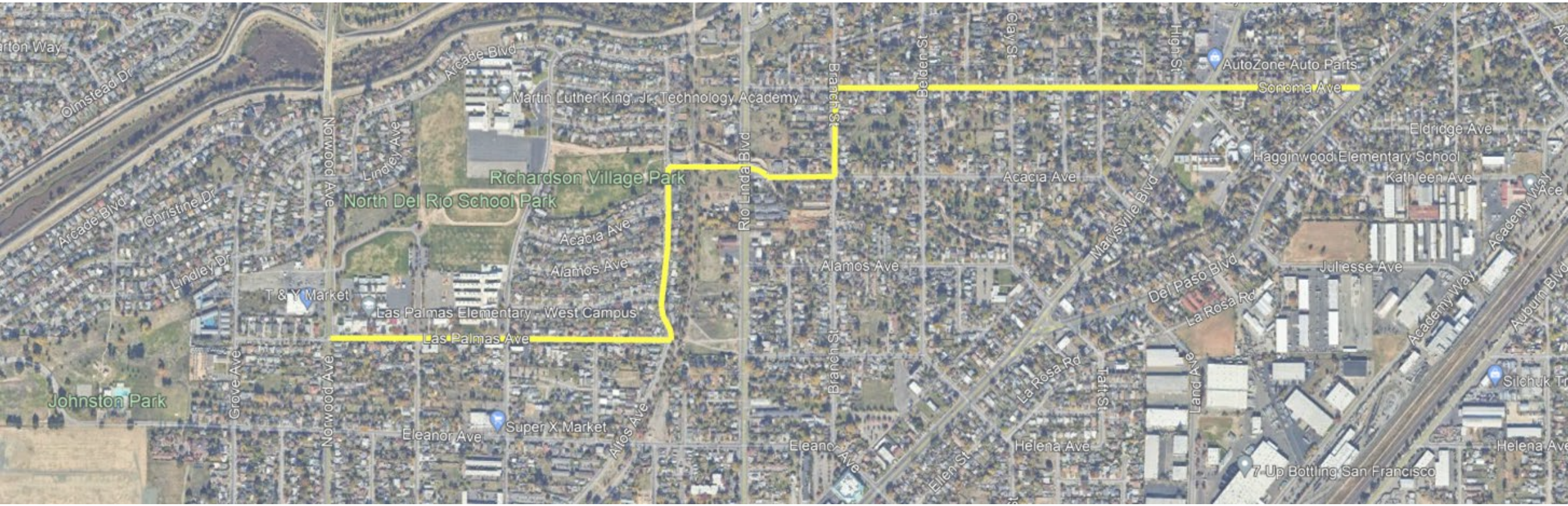
- Curb extension
- Raised intersection
- Marked crosswalk
- Raised crosswalk
- Speed lump
- Mini Roundabout

- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Median Island
- Speed Lump
- Traffic Circle
- K-12 School
- Civic / Recreation

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

6 Las Palmas Ave / Sonoma Ave
North Sacramento



Corridor Extents:

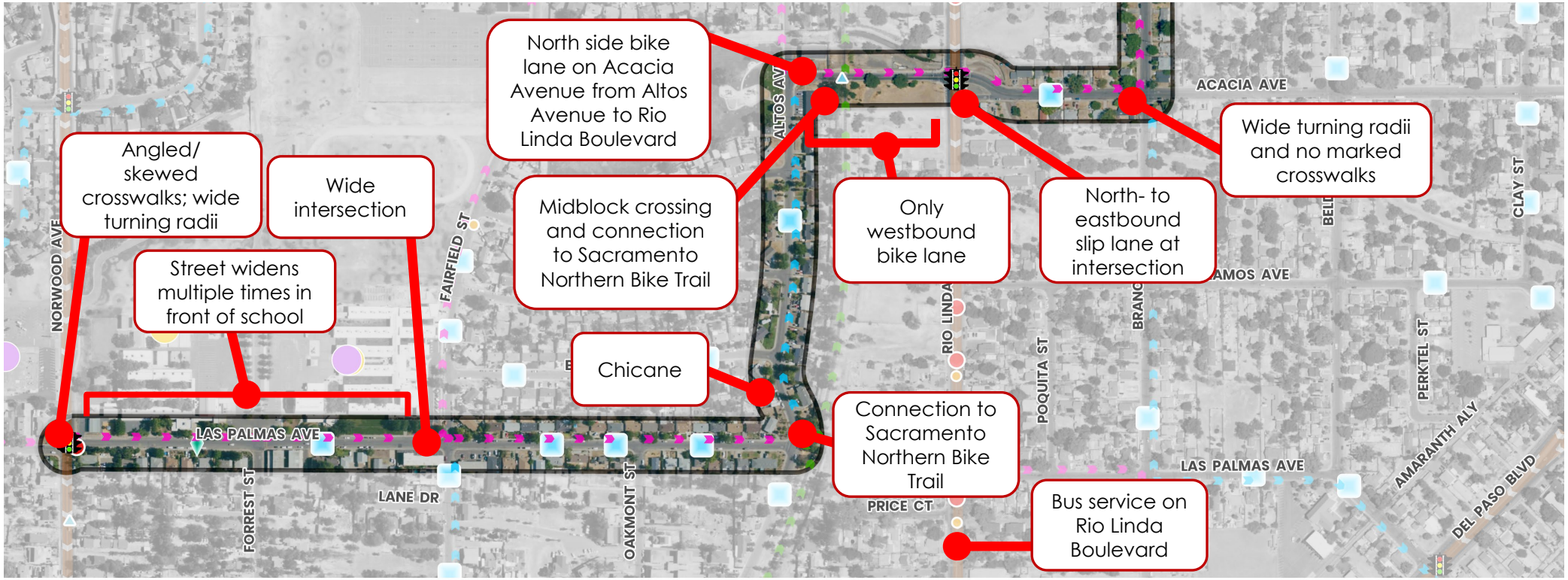
Norwood Ave to Del Paso Blvd

(1.82 miles)

Nearby Destinations:

- Las Palmas Elementary
- Richardson Village Park
- Hagginwood Elementary School
- North Del Rio School Park

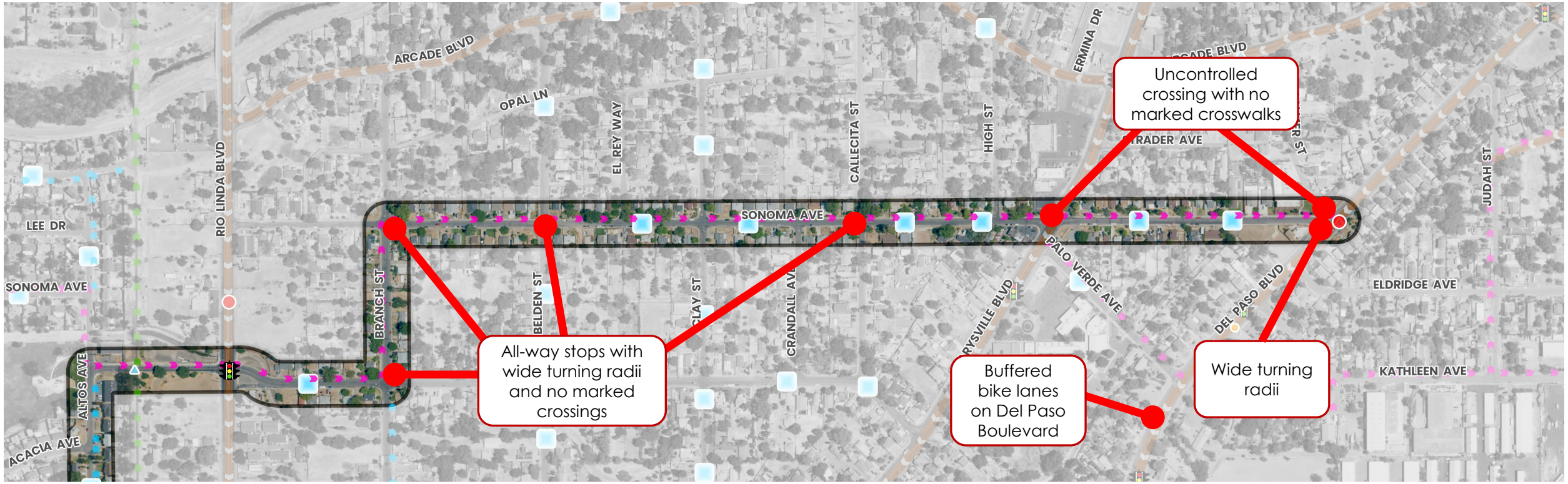
6 Las Palmas Ave / Sonoma Ave North Sacramento – Existing Conditions



Other:

- Fatal pedestrian crash history at Norwood Ave and Las Palmas Ave
- Inconsistent crosswalk striping

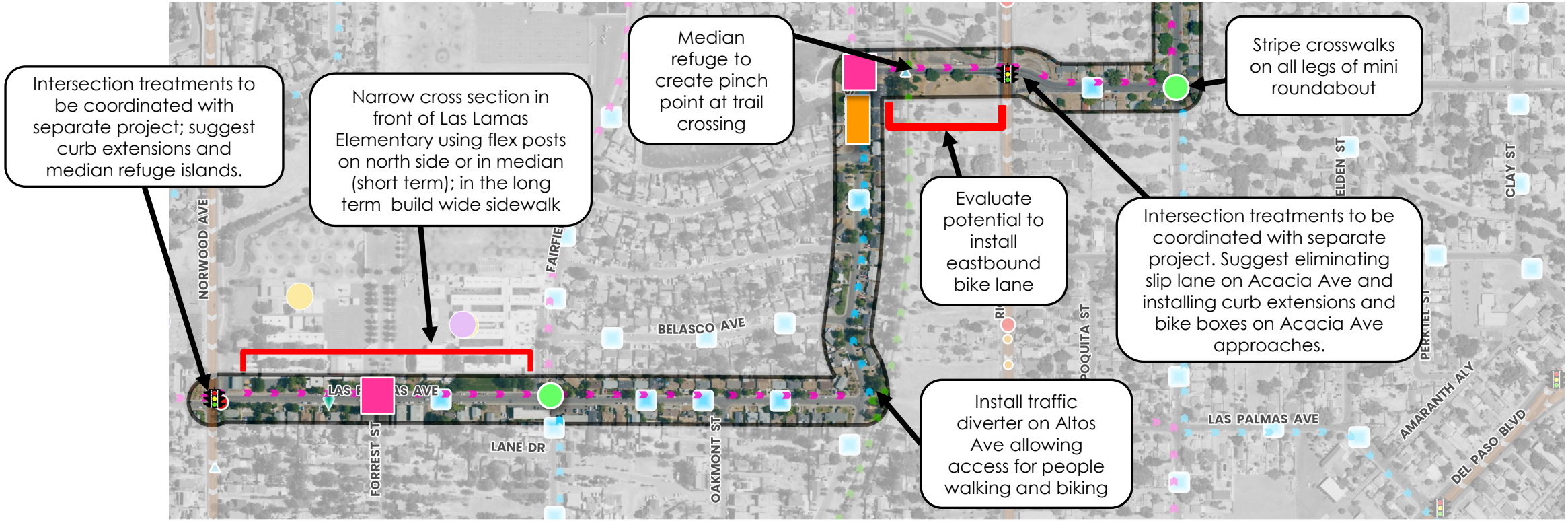
6 Las Palmas Ave / Sonoma Ave North Sacramento – Existing Conditions



Other:

- Fatal pedestrian and serious injury crash history along Rio Linda Blvd
- No marked crossings across Sonoma Avenue
- Fatal and severe pedestrian and bike crash history along Marysville Boulevard

6 Las Palmas Ave / Sonoma Ave North Sacramento – Recommendations



Additional treatments:

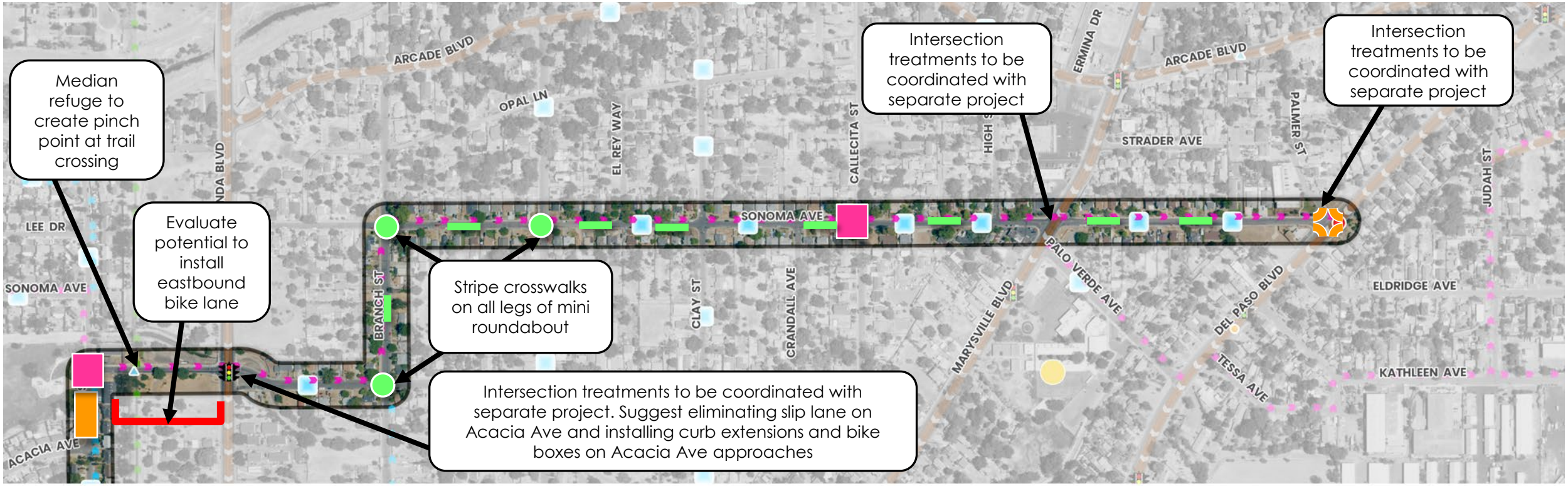
- Remove parking on north side of Las Palmas Avenue from Forrest Street to Fairfield Street to extend sidewalk

Recommended Treatments

- Curb extension
- Raised crosswalk
- Raised intersection
- Chicane
- Mini Roundabout

- Pedestrian Death
- Pedestrian Serious Injury
- Bicycle Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Raised Crosswalk
- Speed Lump
- K-12 School
- Essential Needs
- Civic / Recreation
- High Injury Network

6 Las Palmas Ave / Sonoma Ave North Sacramento – Recommendations



Additional treatments:

Recommended Treatments

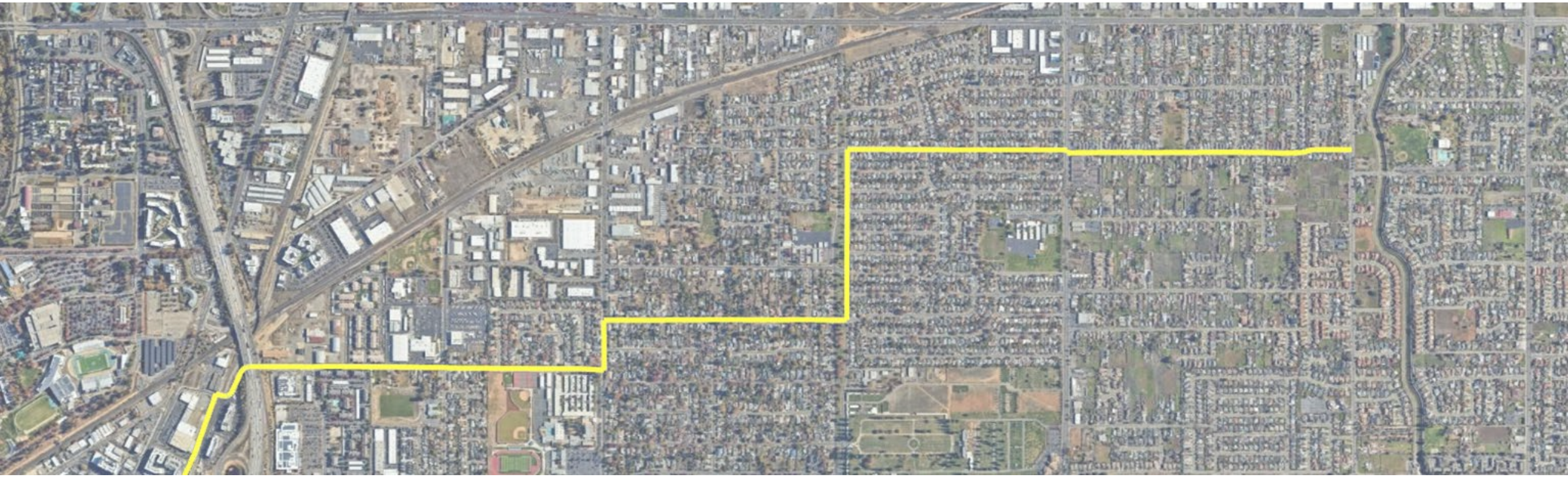
- Curb extension
- Raised intersection
- Median Islands
- Chicane
- Mini Roundabout

- Pedestrian Death
- Pedestrian Serious Injury
- Bicycle Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- K-12 School
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento



Corridor Extents:

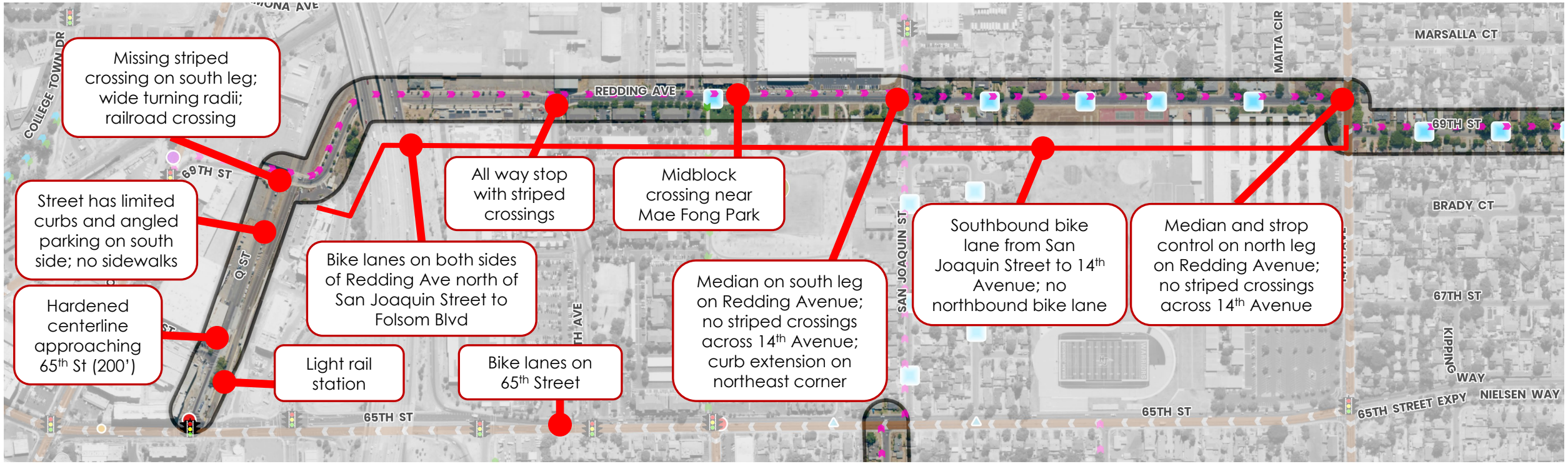
Power Inn Rd to Lemon Hill Ave

(3.19 miles)

Nearby Destinations:

- George Sim Community Center
- New Joseph Bonnheim Elementary School
- Max Baer Park
- Hiram W. Johnson High School
- Mae Fong Park
- University / 65th Street Light Rail Station

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento – Existing Conditions

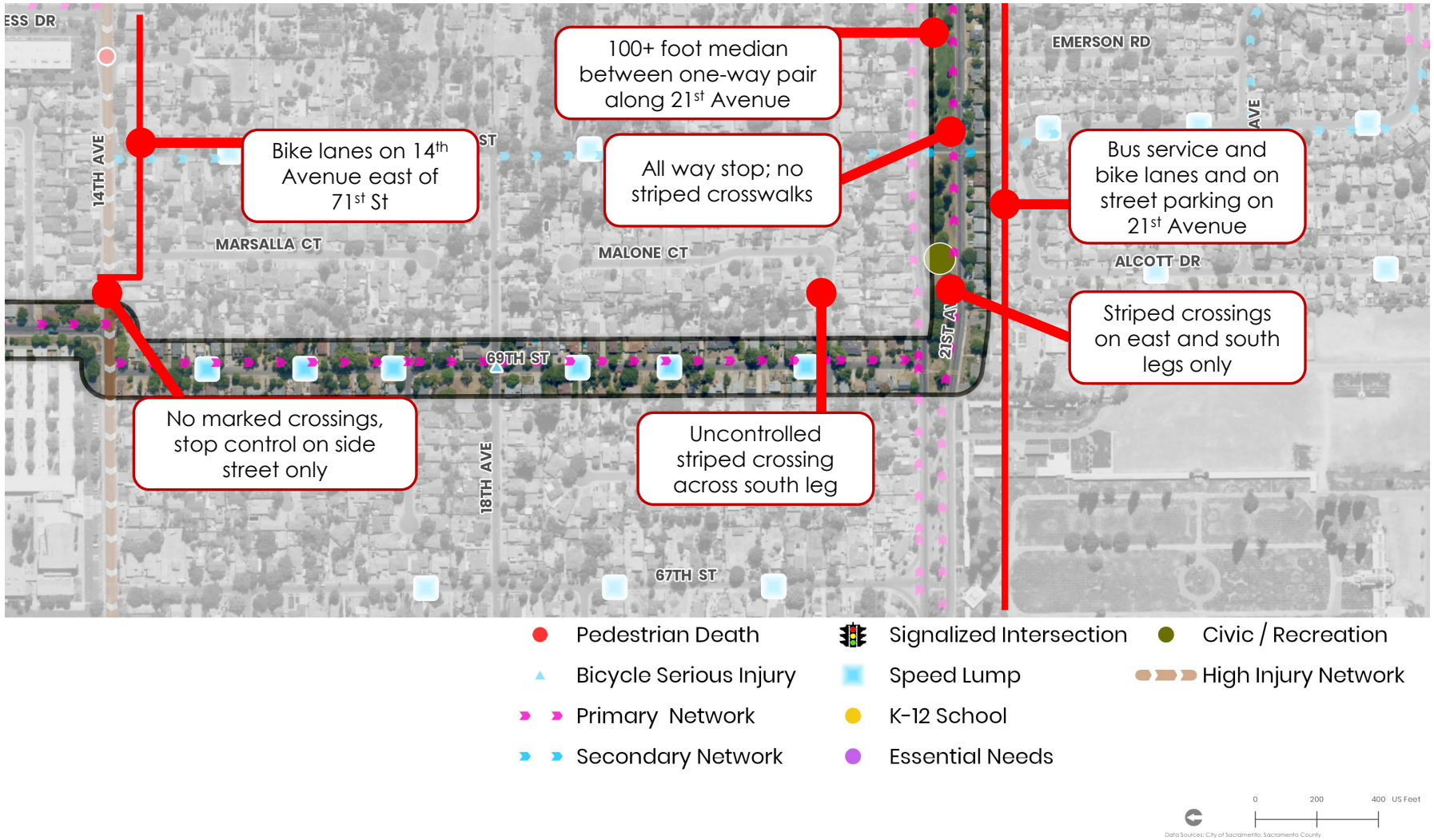


Pedestrian Death
Pedestrian Serious Injury
Bicycle Death
Shared Use Path
Primary Network
Secondary Network
Speed Lump
K-12 School
Essential Needs
High Injury Network

Other:

- No striped crossings across Redding Avenue, north of Maita Circle

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento – Existing Conditions



Other:

- No striped crossings across 14th Avenue between 21st Street and Redding Avenue

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento – Existing Conditions

Other:

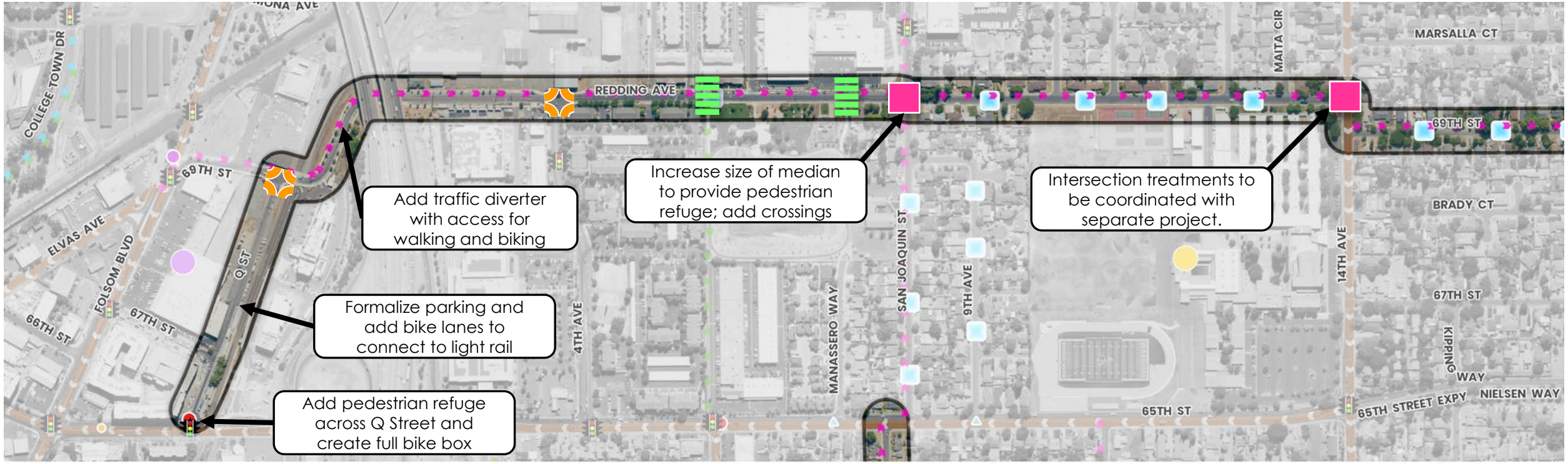
- 21st Street is ranked as bicycle LTS 4
- No striped crossings on Wilkinson Street south of Fruitridge Road (3/4 mi)
- Wide turning radii on side streets along Wilkinson Street
- No striped crossings on Bradford Street between Fruitridge Road and 21st Avenue (1/2 mi)

- Pedestrian Death
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- K-12 School
- Essential Needs
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento – Recommendations



Additional treatments:

Recommended Treatments

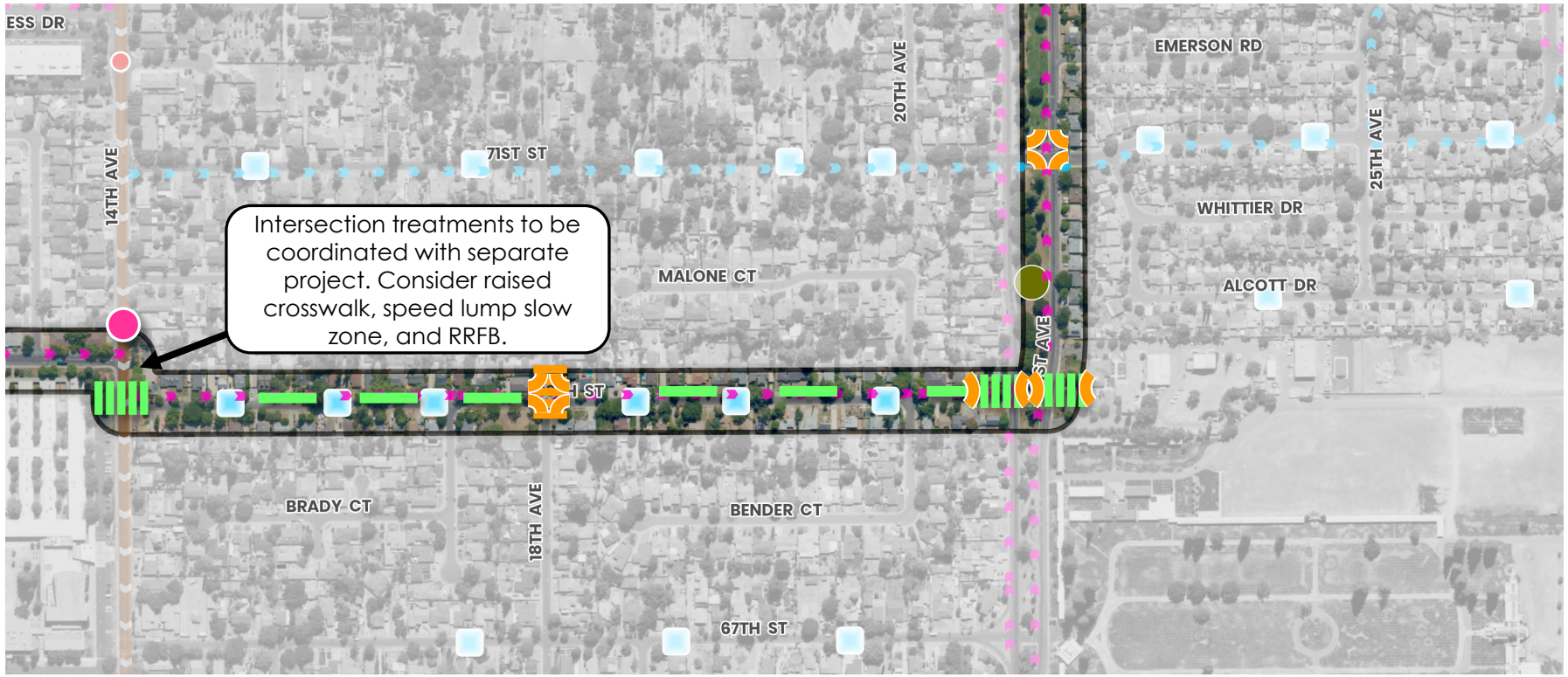
- Curb extension
- Raised intersection
- Chicane
- Raised Crosswalk

- Pedestrian Death
- Pedestrian Serious Injury
- Bicycle Death
- Shared Use Path
- Primary Network
- Secondary Network
- Speed Lump
- K-12 School
- Essential Needs
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento – Recommendations

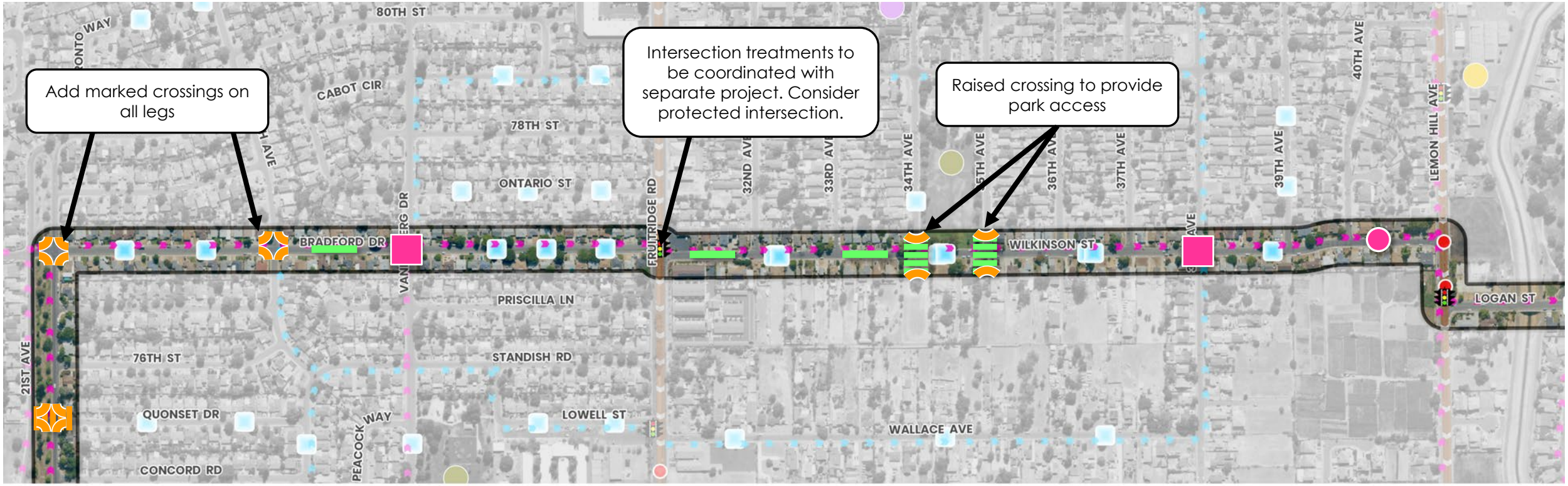


Additional treatments:

Recommended Treatments

- Curb extension
- Raised crosswalk
- Raised intersection
- Median Islands
- Speed lump
- Marked Crossing

7 Redding Ave / Bradford Dr / 75th St Southeast Sacramento – Recommendations



Additional treatments:

- Tighten curb radii on side streets along Wilkinson Street and add marked crossings

Recommended Treatments

- Curb extension
- Raised crosswalk
- Raised intersection
- Speed lump
- Median Islands
- Marked Crossing

- Pedestrian Death
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- K-12 School
- Essential Needs
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

8 Wentworth Ave / Irwin Ave / 26th Ave Hollywood Park

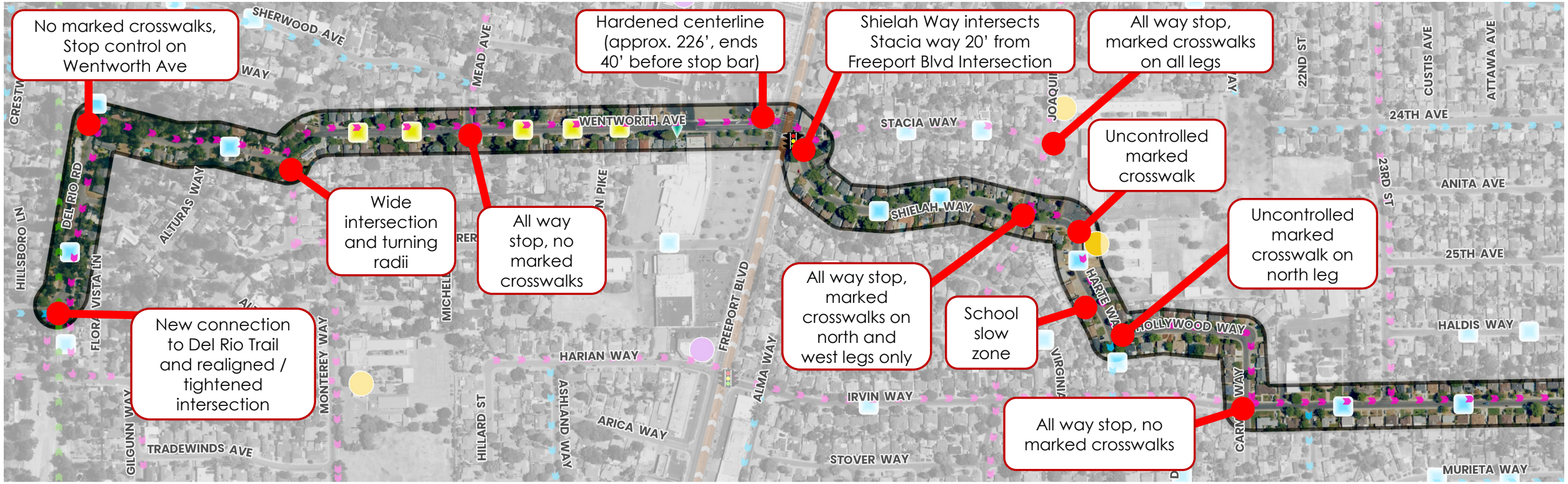
Corridor Extents:

Normandy Lane to Franklin Boulevard

Nearby Destinations:

- Leonardo Da Vinci K-8 School
- Hollywood Park Elementary
- Fruitridge SacRT station

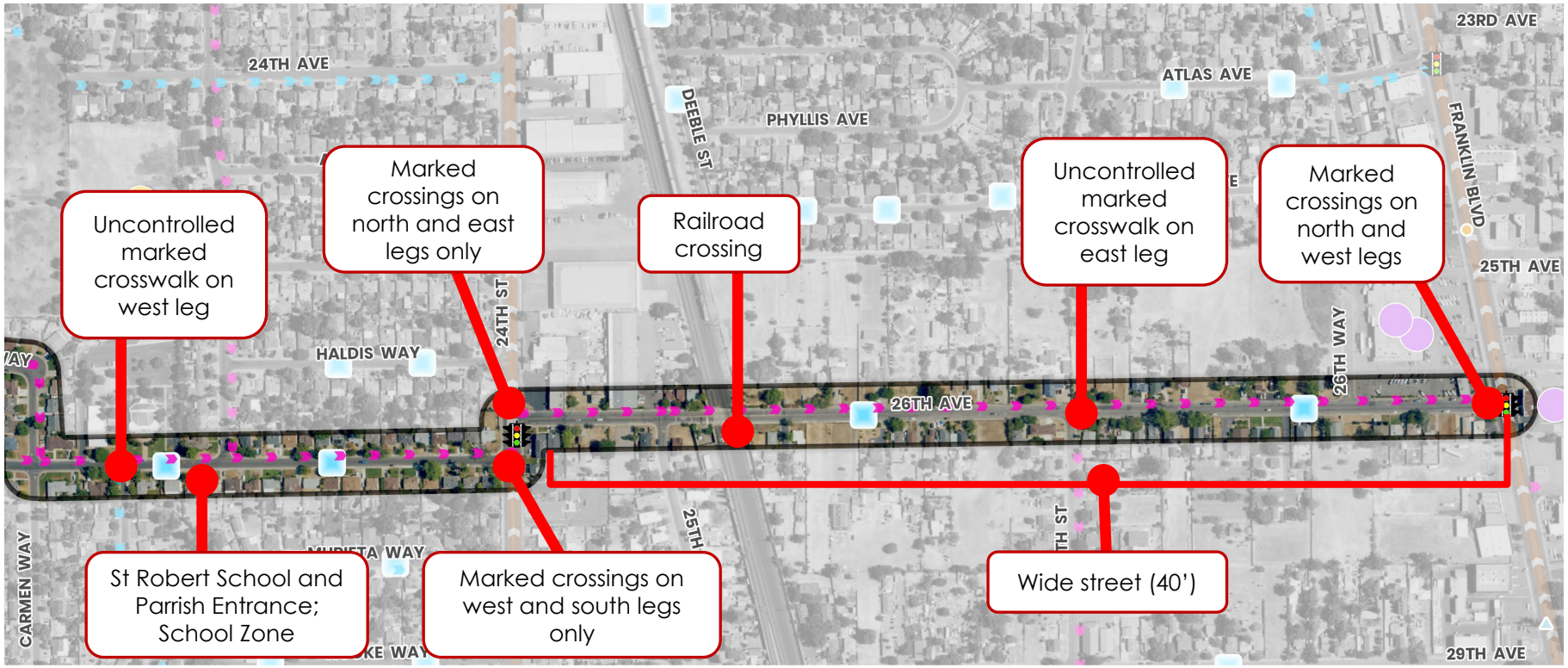
8 Wentworth Ave / Irwin Ave / 26th Ave Hollywood Park – Existing Conditions



Other:

- No sidewalks on Del Rio Road or Wentworth Avenue from Del Rio Road to Monterey Way
- Sidewalks, sharrows, and on-street parking on Wentworth Avenue east of Monterey Way
- Garbage cans and on-street parking occupy curbside along Shielah Way

8 Wentworth Ave / Irwin Ave / 26th Ave Hollywood Park – Existing Conditions



Other:

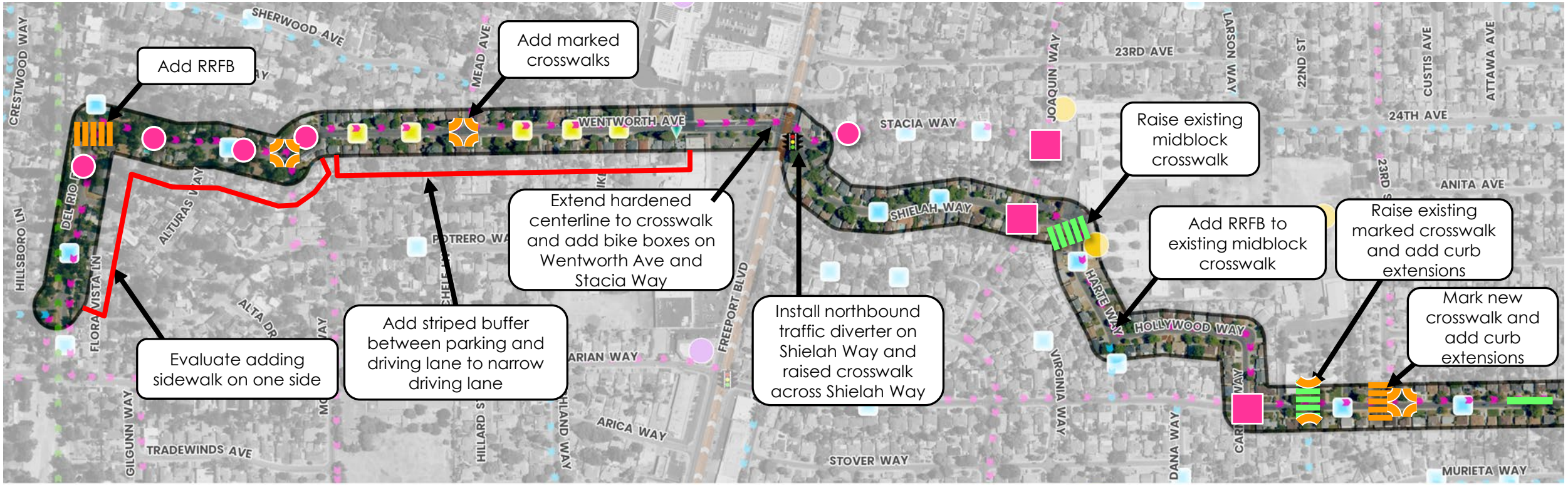
- Wide street along 26th Avenue when on-street parking is not utilized
- Limited marked crosswalks across 26th Avenue
- Wide turning radii on side streets along 26th Avenue

Pedestrian Serious Injury
Bicycle Serious Injury
Primary Network
Secondary Network
Signalized Intersection
Speed Lump
K-12 School
Essential Needs
High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

8 Wentworth Ave / Irwin Ave / 26th Ave Hollywood Park – Recommendations



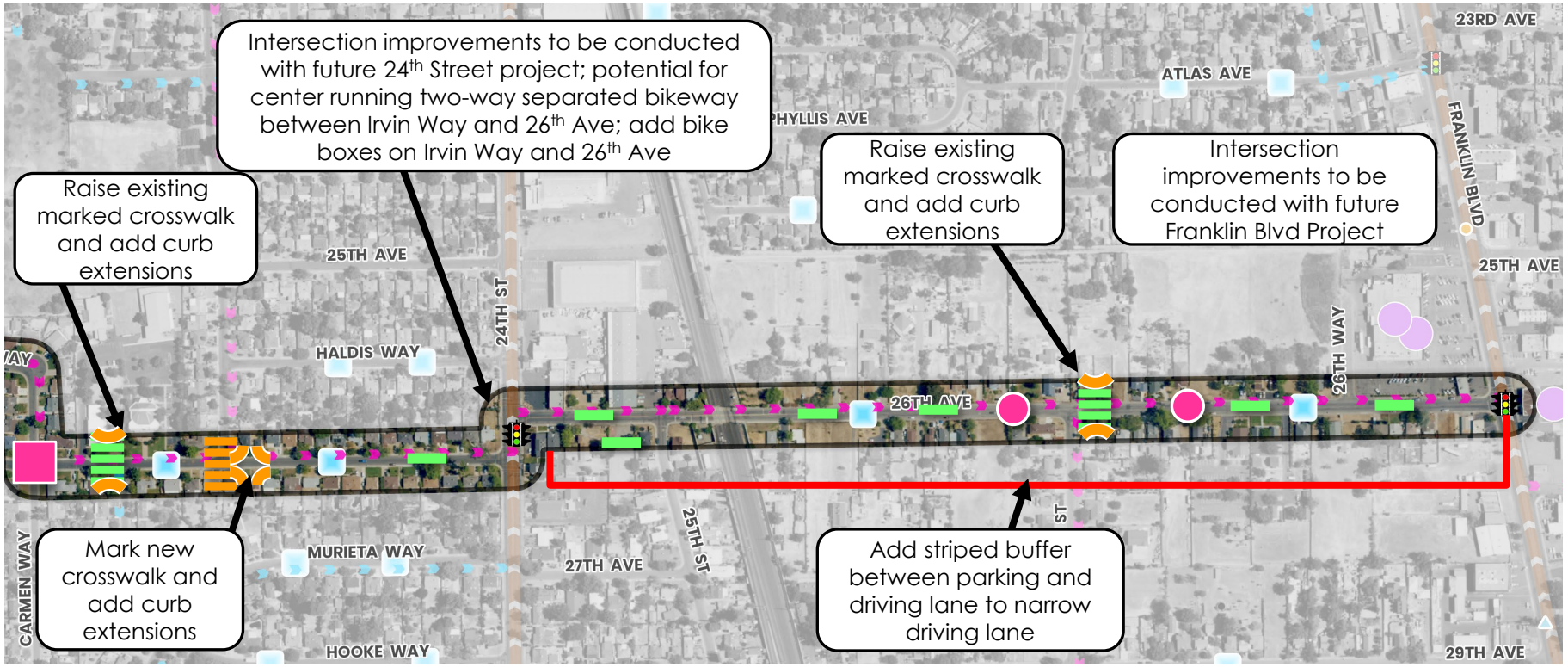
Additional treatments:

Recommended Treatments

- Curb extension
- Marked crosswalk
- Raised intersection
- Raised crosswalk
- Speed lump
- Median Islands

- Pedestrian Serious Injury
- Primary Network
- Secondary Network
- Signalized Intersection
- Median Island
- Raised Crosswalk
- Speed Lump
- K-12 School
- Essential Needs
- High Injury Network

8 Wentworth Ave / Irwin Ave / 26th Ave Hollywood Park – Recommendations



Additional treatments:

- Add marked crosswalks and tighten radii on side streets along 26th Avenue

Recommended Treatments

- Curb extension
- Median Islands
- Raised intersection
- Raised crosswalk
- Speed lump

- Pedestrian Serious Injury
- Bicycle Serious Injury
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- K-12 School
- Essential Needs
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

9 Pebblewood Dr / Potomac Ave Northgate/South Natomas

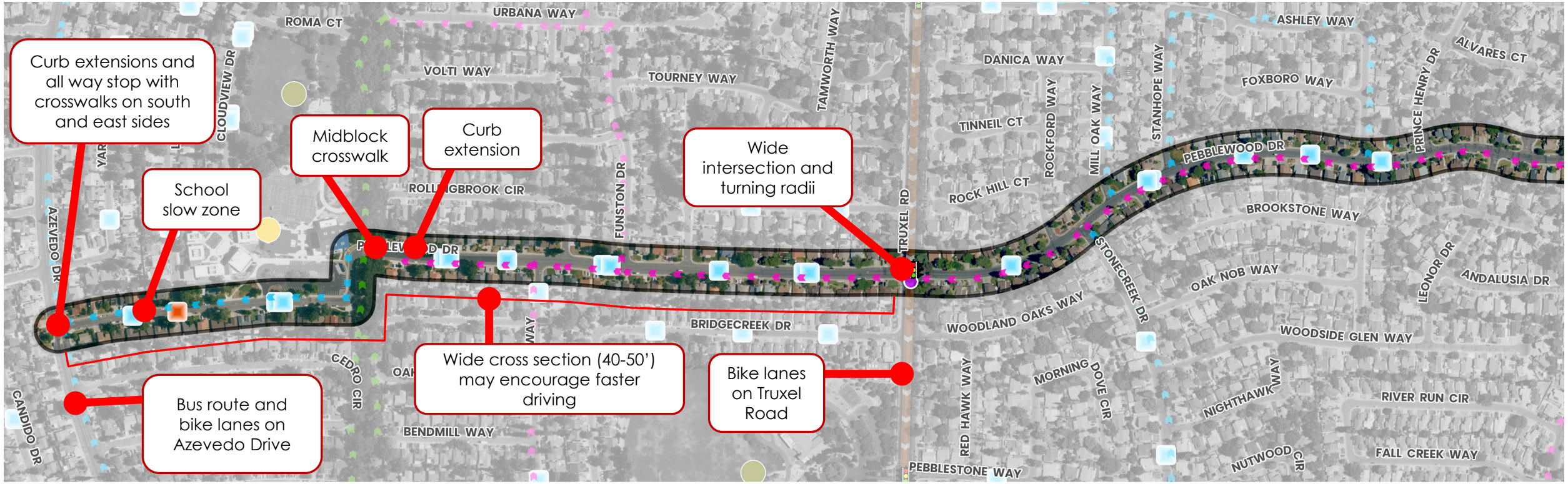
Corridor Extents:

Azevedo Drive to Natoma Street

Nearby Destinations:

- Jefferson School
- Bannon Creek Park and Parkway
- South Natomas Community Center
- Ninos Parkway
- John Straunch Park and Elementary School
- E Levee Road trail

9 Pebblewood Dr / Potomac Ave Northgate/South Natomas – Existing Conditions



Other:

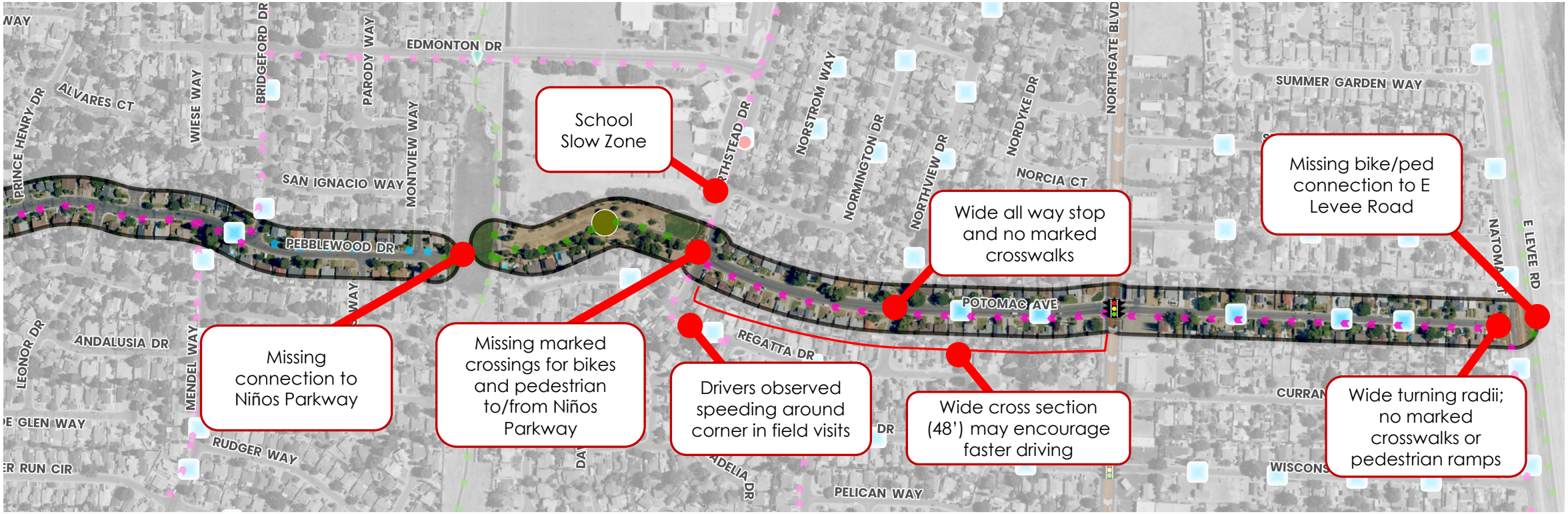
- Sharrows on Pebblewood Drive
- Wide turning radii on side streets along Pebblewood Drive with no marked crosswalks
- Limited marked crosswalks cross Pebblewood Drive; up to ¾ mile between crosswalks

Shared Use Path
Primary Network
Secondary Network
Signalized Intersection
Curb Extension
Speed Hump
K-12 School
Civic / Recreation
High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

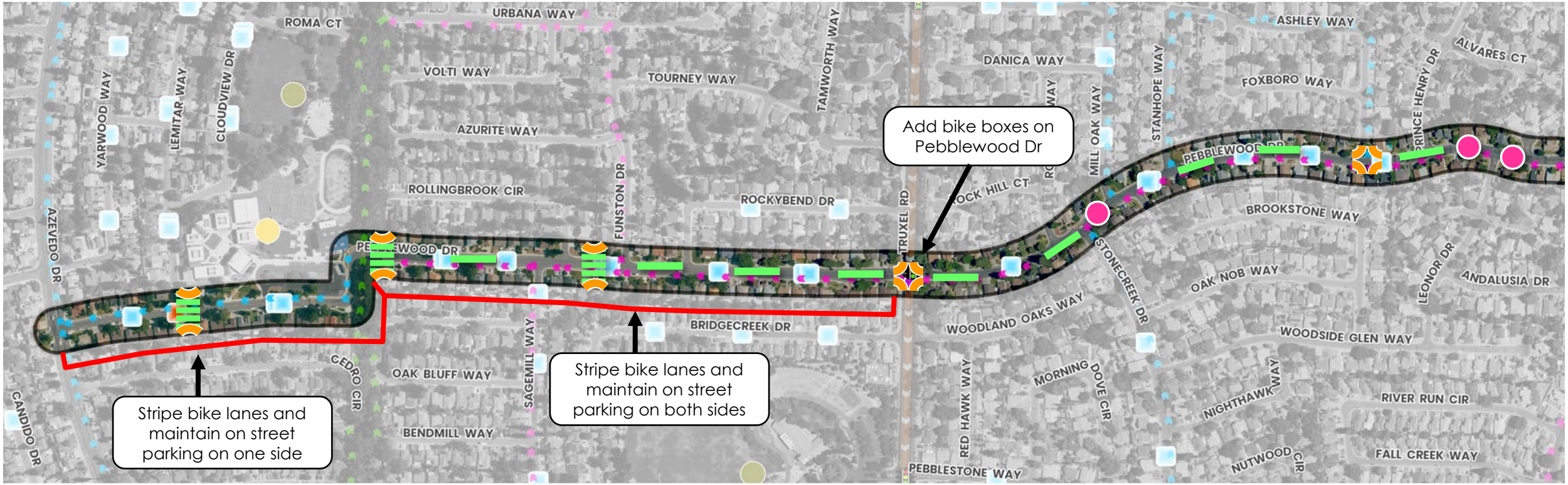
9 Pebblewood Dr / Potomac Ave Northgate/South Natomas – Existing Conditions



Other:

- 44' + curb to curb width on Potomac Avenue (west of Northgate Boulevard) and Northstead Drive

9 Pebblewood Dr / Potomac Ave Northgate/South Natomas – Recommendations



Additional treatments:

- Reduce turning radii and add marked crosswalks across side streets along Pebblewood Dr

Recommended Treatments

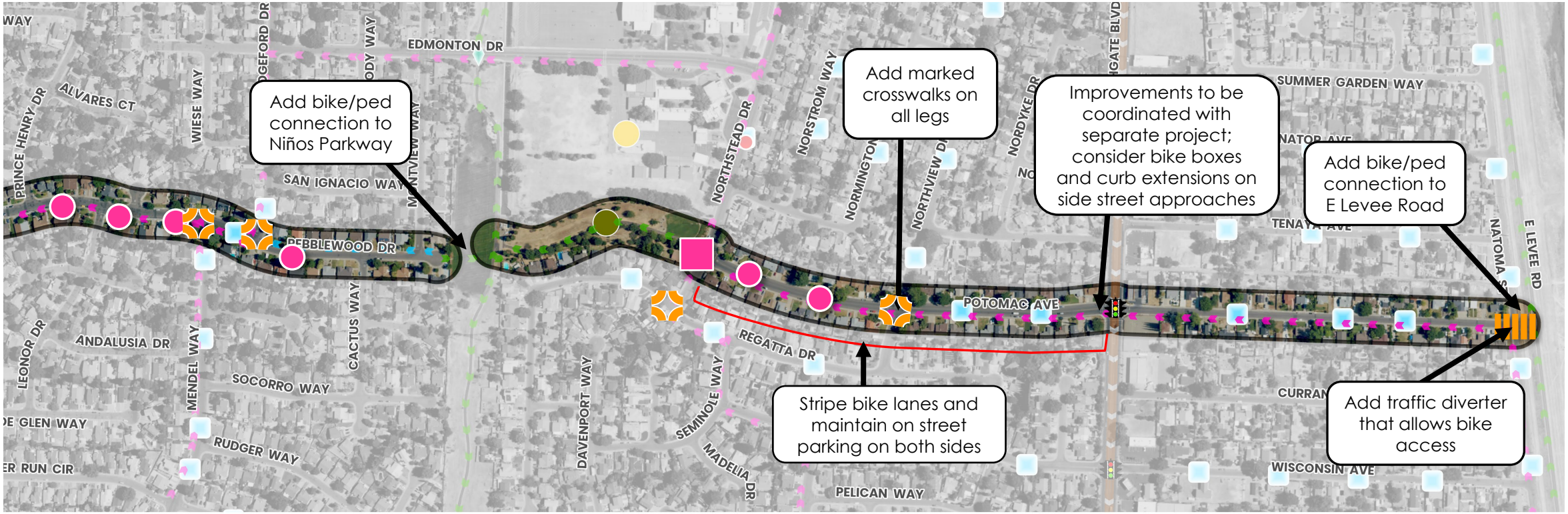
- Curb extension
- Median Islands
- Raised intersection
- Raised crosswalk
- Speed lump

- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Curb Extension
- Speed Hump
- K-12 School
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

9 Pebblewood Dr / Potomac Ave Northgate/South Natomas – Recommendations



Additional treatments:

- Reduce turning radii and add marked crosswalks across side streets along Pebblewood Dr

Recommended Treatments

- Curb extension
- Median Islands
- Raised intersection
- Raised crosswalk
- Speed lump

- Pedestrian Death
- Pedestrian Serious Injury
- Shared Use Path
- Primary Network
- Secondary Network
- Signalized Intersection
- Raised Crosswalk
- Speed Lump
- K-12 School
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

10 Ehrhardt Ave / Carlin Ave | Valley Hi/North Laguna

Corridor Extents:

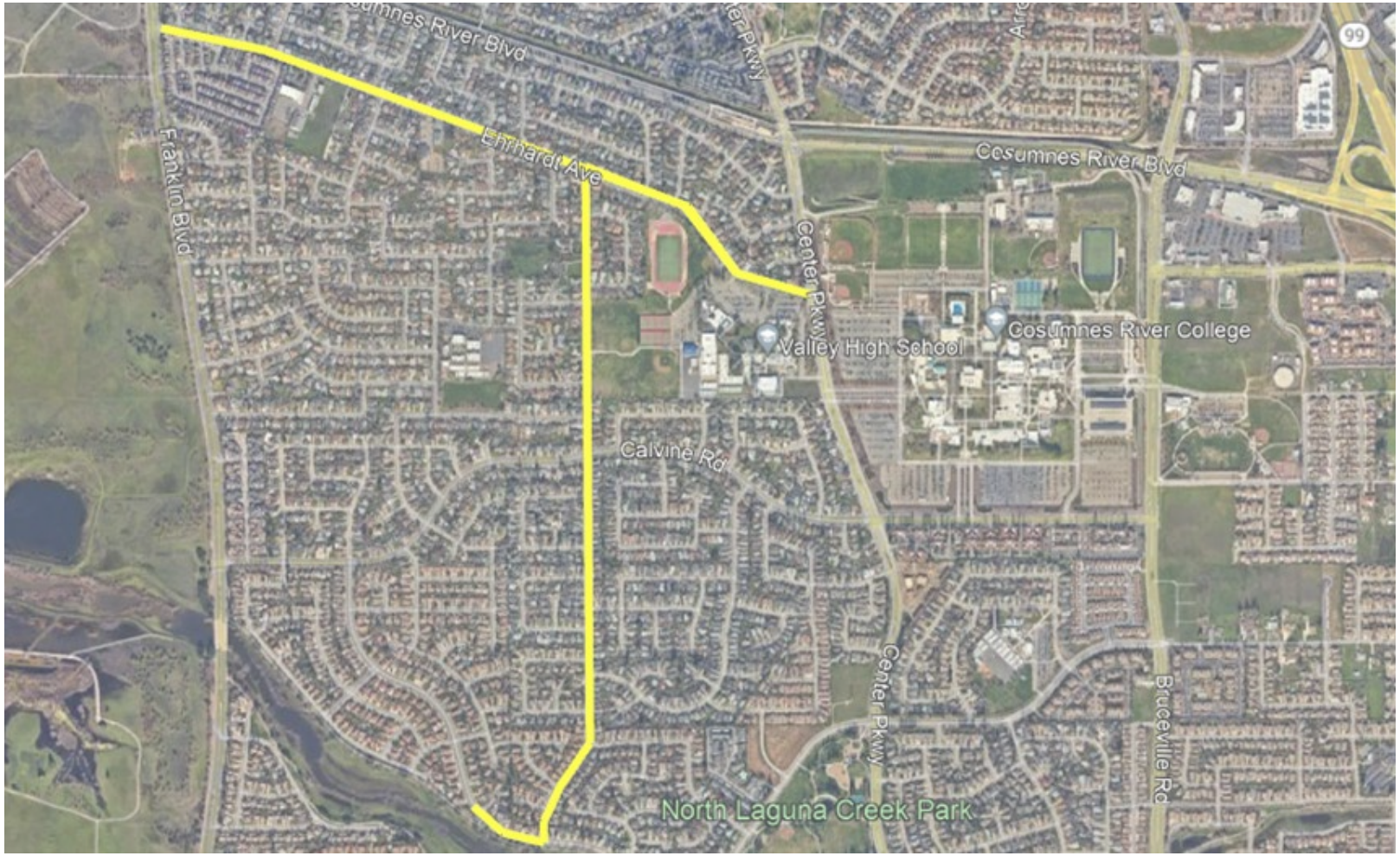
Ehrhardt Avenue from Franklin Boulevard to Center Parkway and

Carlin Avenue from Ehrhardt Avenue to Jacinto Avenue and

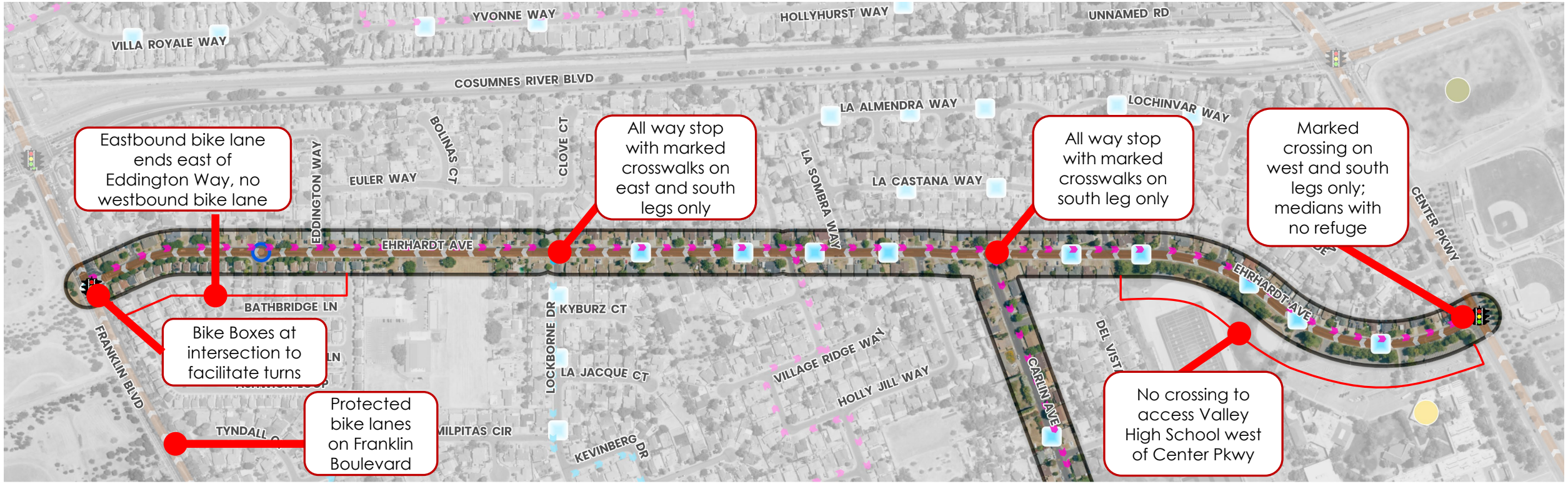
Jacinto Avenue from Carlin Avenue to Wingina Court

Nearby Destinations:

- Hollywood Park Elementary
- Valley High School
- Consumnes River College and park
- John Reith Elementary School
- North Laguna Creek Wildlife Area



10 Ehrhardt Ave / Carlin Ave Valley Hi / North Laguna – Existing Conditions



Other:

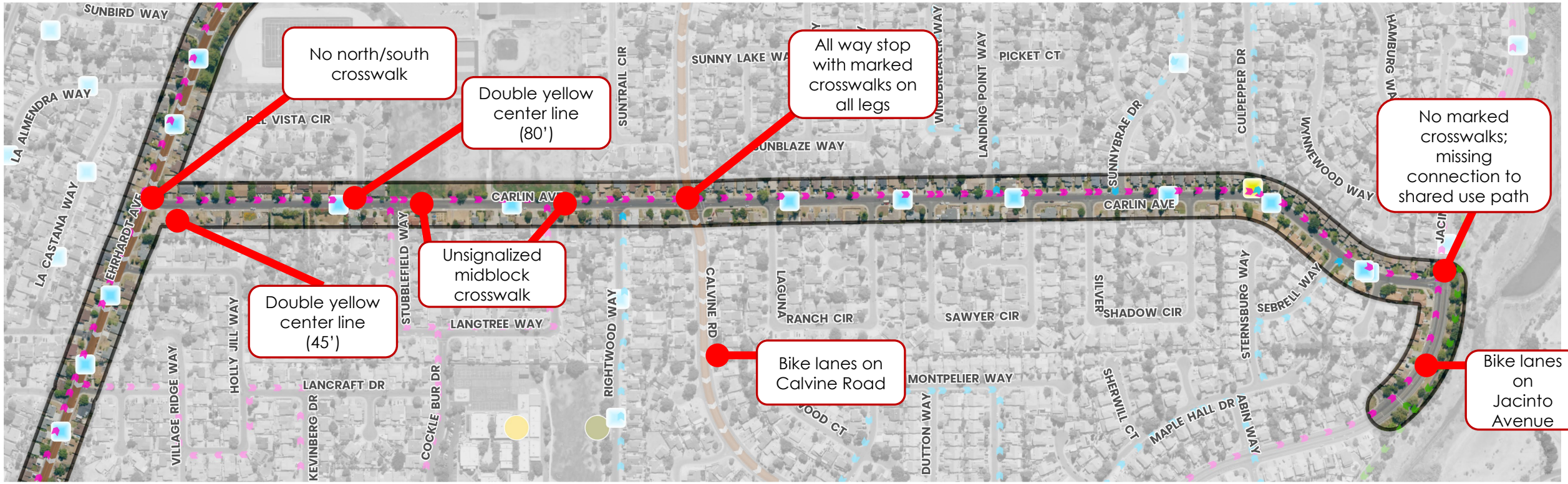
- Bike lane on the south side and sharrow on north side of Ehrhardt Avenue from Franklin Boulevard to Eddington Way
- No marked crosswalks across side streets along Ehrhardt Avenue west of Lockborne Drive
- Double yellow striped centerline along Ehrhardt Avenue

Bicycle Serious Injury
Primary Network
Secondary Network
Signalized Intersection
Speed Lump
Traffic Circle
K-12 School
Civic / Recreation
High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

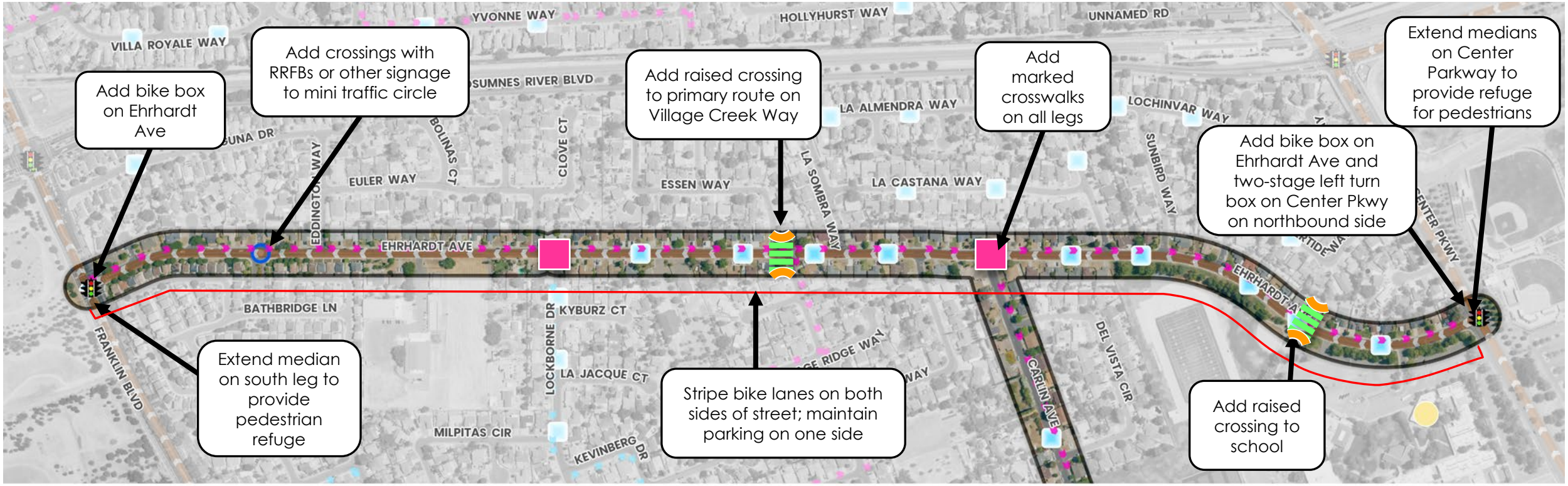
10 Ehrhardt Ave / Carlin Ave Valley Hi / North Laguna – Existing Conditions



Other:

- Sharrows on Carlin Avenue
- No marked crosswalks or pedestrian ramps unless otherwise noted; distances between east/west crosswalks up to ¾ mile
- Slow School Zone from Rightwood Way to Del Vista Circle
- No marked crosswalks across Carlin Avenue south of Calvine Road

10 Ehrhardt Ave / Carlin Ave Valley Hi / North Laguna – Recommendations



Additional treatments:

- Reduce turning radii and add marked crosswalks across side streets along Ehrhardt Avenue

Recommended Treatments

- Raised intersection
- Raised crosswalk

- Bicycle Serious Injury
- Primary Network
- Secondary Network
- Signalized Intersection
- Speed Lump
- Traffic Circle
- K-12 School
- Civic / Recreation
- High Injury Network

0 200 400 US Feet

Data Sources: City of Sacramento, Sacramento County

10 Ehrhardt Ave / Carlin Ave Valley Hi / North Laguna – Recommendations

Additional treatments:

- Add pedestrian ramps and crosswalks across streets along Carlin Avenue

Recommended Treatments

- Curb extension
- Raised crosswalk
- Median Islands
- Raised intersection
- Mini Roundabout

STREETS FOR PEOPLE

SACRAMENTO ACTIVE TRANSPORTATION PLAN