APPENDIX E

Development of Recommendations Memo

MEMORANDUM

To: David Stillman, Transportation Manager, City of Cupertino

Matthew Schroeder, Senior Transportation Planner, City of Cupertino

From: Christopher Kidd, Alta Planning + Design

Date: February 26, 2026

Re: Cupertino Active Transportation Memo – Recommendations Network Memo

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Introduction

This memo outlines the approach and methodology for developing recommendations for the City of Cupertino Active Transportation Plan. This methodology uses consistent data and a clear process to apply federal, state, and City design guidance in an objective and context-sensitive manner. The outcome of this methodology is a set of maps depicting existing and newly proposed projects. A full list of proposed projects, extents, and facility types is provided in the Project Prioritization memo.

Proposed improvements will prioritize the development of a complete active transportation network that improves equitable outcomes, safety, access, and comfort for people of all ages and abilities.

This memo is organized in the following sections:

- **Guidelines and Standards** – Doucumentation of the local, state, and federal guidelines considered during development of recommenations.
- **Bicycle Recommendation Considerations** – Documentation of evaluation criteria used when selecting bicycle network recommendations.
- **Pedestrian Recommendation Considerations** – Documentation of evaluation criteria used when selecting pedestrian network recommendations.
- **Existing Active Transportation Network** – Documentation of the existing active transportataion network as of Fall 2025.
- **Recommended Active Transporation Network** – Documentation of recommended active transportation projects.

Guidelines and Standards

Local, state, and federal guidelines and standards to follow for developing recommendations includes:

- City of Cupertino Standard Details (2016)
- Defines standards for street cross sections, roadway striping, and sight triangles at intersections
- City of Cupertino Transportation Study Guidelines (2025)
- Defines how to evaluate a private development project's effect on transportation access and circulation for all travel modes
- City of Cupertino Complete Streets Policy (2018)
- Informs process for ensuring right-sized, multi-modal treatments for roadways
- Caltrans 7th Edition Highway Design Manual (HDM) – Chapter 1000 Bicycle Transportation Design (2015)
- Informs the design and implementation of bicycle facilities. References FHWA Bikeway Selection Guide
- Caltrans Design Information Bulletin Number 94 – Complete Streets Contextual Design Guidance (2024)
- Informs decision to maximize the use of the public right of way to achieve sustainable and equitable mobility
- Caltrans Design Information Bulletin Number 89-02 – Class IV Bikeway Guidance (2022)
- Informs the design and implementation of Class IV bicycle facilities
- Caltrans Traffic Calming Guide (2023)
- Informs design and implementation of different traffic calming treatments
- FHWA Bikeway Selection Guide (2019)
- Informs facility type recommendation based on roadway speed, volume, and urban/rural context
- FHWA Small Town and Rural Multimodal Networks (2016)
- Informs rural bicycle and pedestrian recommendations
- FHWA Safe Transportation for Every Pedestrian (STEP)
- Informs pedestrian improvements
- FHWA STEP: Improving Visibility at Trail Crossings (2021)
- Informs pedestrian and bicycle improvements at trail crossings
- FHWA Proven Safety Countermeasures
- Supplements pedestrian and bicycle recommendations as needed based on location
- FHWA Road Diet Informational Guide
- Informs road diet feasibility determination

In instances of conflicting guidance between the resources above, precedent will be given to Cupertino City Standard Details and past practice.

Recommendation Development Phases

Infrastructure recommendations for bicycle projects and for pedestrian projects were developed in two main phases. The first phase built directly on the Existing Conditions memo and the Needs Assessment memo, using key data to build out an initial “backbone” network of bicycle and pedestrian improvements.

- **Gaps and Deficiencies** - A desktop review of existing facilities (ex. sidewalk, marked crosswalks, and bike infrastructure) to identify clear network deficiencies and/or gaps.
- **Needs Assessment** - Streets identified in the key findings for Pedestrian Level of Traffic Stress analysis, Bicycle Level of Traffic Stress analysis, high activity areas identified in Active Trip Potential analysis, and areas with high indirect trip values in the Stress-Adjusted Short Trips analysis.
- **Vision Zero Action Plan** - Streets and intersections identified as priority corridors and locations in the 2024 Vision Zero Action Plan.
- **Travel Demand** - Streets with transit routes and high-ridership bus stops, areas near schools, commercial corridors, large employment sites, and recreation sites.

The second phase focused on identifying additional improvements across the rest of the city, based on the considerations and criteria listed below. This round also incorporated feedback received during public engagement activities from Fall 2025, as appropriate, such as specific locations or infrastructure improvements requested using the online mapping tool and during in-person outreach events. Community input was evaluated by the project team to identify feasible, cost-effective solutions to community concerns and ideas.

Recommendation Development Approach

Bicycle Recommendations Considerations

The project team identified context-sensitive bike facility recommendations using a multi-step approach that allows us to evaluate feasibility while meeting the needs of people bicycling in Cupertino. Following the guidelines and standards described above (**Guidelines and Standards**), the process for determining proposed bicycle projects is outlined below:

1. Identify potential improvements (i.e., corridors and intersections)
2. Identify desired bike facility type (class)
3. Evaluate desired bike facility type (class) for feasibility using various criteria (described below)
4. Recommend preferred bike facility based upon feasibility evaluation (step 3 above)
5. If necessary, explore feasible alternatives or the “next best” facility if the preferred bike facility is not determined to be feasible.

The citeria used to evaluate bicycle network recommendations for feasibility are described in the following sections.

Criterion 1: Plan Context

Recommended bicycle projects from Cupertino’s 2016 Bike Plan were screened for projects that have not been implemented or that are in the design process. These projects were reviewed for feasibility and used to identify potential connection enhancements. The project team also screened Cupertino streets that are identified as Countywide Corridor Connections in the 2025 VTA Countywide Bike Plan (ongoing at the time) and the 2025 Santa Clara County Active Transportation Plan. This second screening helped ensure the County and Cupertino Bicycle Network recommendations were aligned.

Criterion 2: Roadway Reconfiguration Feasibility Index & Usable Space

The project team used average daily traffic (ADT) data to identify roadways which may be candidates for roadway reconfiguration (“road diet”) based o ncurrent traffic volumes, number of lanes, and identified need for greater accommodation for active transportation modes (i.e., people walking, biking, or rolling). Per FHWA and Caltrans guidelines, ADT provides a good first determination of whether to consider a road diet. This threshold was used to update recommendations from the 2016 Bike Plan.

Criterion 3: Roadway Context

Roadway context, such as posted speed limits and traffic volumes, were used to determine the appropriate type of bicycle facility to recommend. State and Federal guidance suggest, in general, the higher the speed and volume of a roadway, the more separated and protective the recommended bike facility should be. **Figure 1** shows general guidance for how vehicle volumes and speeds can be taken into consideration to determine a preferred bike facility type.

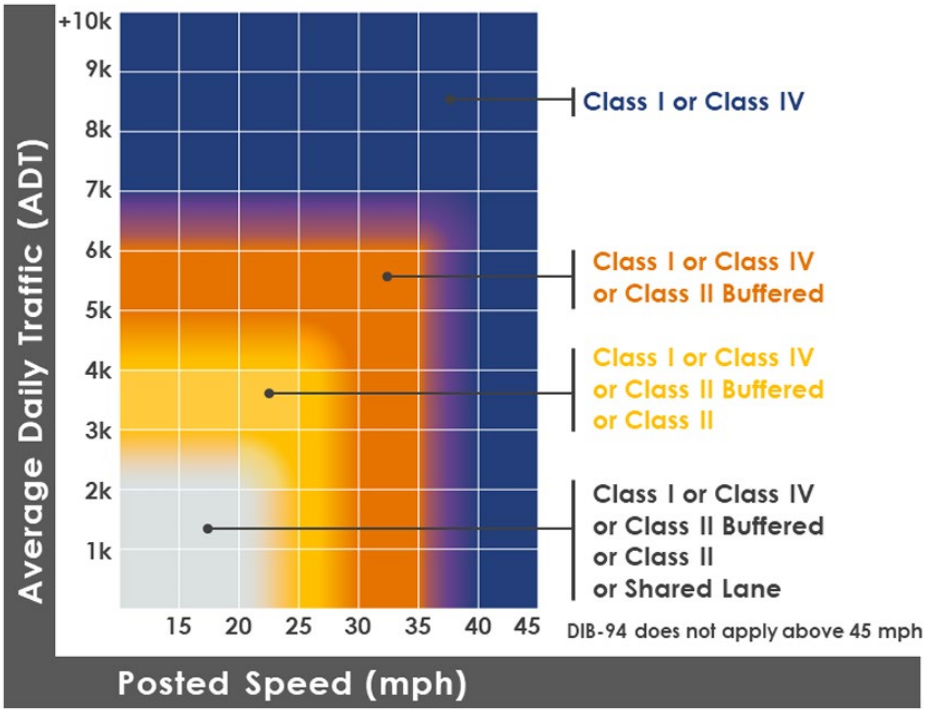

Figure 1. Caltrans DIB-94 Selection Chart

Criterion 4: Public Input

Public input that was collected during the first round of outreach regarding major barriers, popular destinations, and commonly used routes was also used to develop bicycle network recommendations.

Public input that was collected during the second round of outreach regarding proposed projects was used to further refine and update network recommendations for the bicycle network.

Other Considerations

In addition to the three primary criteria described above, Alta considered other factors when determining bicycle recommendations, including but not limited to:

- High Stress (Level of Traffic Stress 4) roadway segments according to the Bicycle Level of Traffic Stress (BLTS) analysis
- Unique environmental conditions like topography and landscape
- Physical constraints including available right of way
- Barriers such as railroads, highways, and waterways
- Traffic vehicle mix (e.g., whether roadways have a lot of bus or freight/truck traffic)
- Frequency of driveways and intersections

Pedestrian Recommendation Considerations

The project team developed pedestrian network recommendations with intentions to update the recommendations from the 2018 Cupertino Pedestrian Transportation Plan and support the land use visions as currently presented in the 2024 Cupertino General Plan Mobility Element. The pedestrian recommendstions include both intersection and corridor improvements for people walking.

Pedestrian Intersection Recommendations

The process utilized to develop the Pedestrian Intersection Recommendations is outlined below.

- **Intersection Typologies:** The project team developed pedestrian crossing treatment typologies for intersections based on the City's street functional classifications – for example, arterial/arterial, arterial/collector, and other combinations, as well as facilities such as highway on/off ramps and mid-block crossings. Ongoing and/or adopted project designs for intersections, especially freeway interchanges, were incorporated into this typology approach. The typologies will include a recommended crossing enhancement design toolbox, for which multiple options could potentially be used in tandem, depending on the context. The specific mix of recommended treatments was developed based on demonstrated effectiveness from guidance including FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, FHWA, 2017, Caltrans' Traffic Calming Guide, Caltrans DIB 94, and FHWA's STEP: Improving Visibility at Trail Crossings. Typologies are not intended to be "one size fits all", but to provide a starting point for further analysis and to develop a systematic, consistent approach for use of these treatments throughout the City.

- **Compile Previous Project Recommendations:** The project team identified previously proposed pedestrian infrastructure projects from the *City of Cupertino's 2024 Vision Zero Action Plan, 2023 Local Roadway Safety Plan, 2018 Pedestrian Transportation Plan, and 2016 Bicycle Transportation Plan* that have been completed or have been funded. This set the stage for identifying intersections for potentil improvements.

- **Identify Additional Candidate Intersections:** The project team developed a list of candidate project locations by evaluating intersections between arterials and/or collector streets within a one-quarter mile of public schools, major bus stops, popular City facilities, and selected large employer. Other locations included the on- and off-ramps at interstate interchanges as well as intersections in the High Injury Network. The project team also reviewed feedback received during public engagement activities, as appropriate, such as specific locations or infrastructure types requested using the online mapping tool and during in-person outreach events.

- **Assign Typologies to Candidate Intersections and Integrate with Previous Data Collection:** Available GIS data was used to identify the known features of these intersections in the candidate project list, such as traffic controls and presence of crosswalks. Candidate project locations identified in the previous two steps were further screened for feasibility and need of pedestrian safety. The intersections in the finalized list were classified according to the pedestrian crossing typologies and included as the pedestrian intersection recommendations.

Sidewalk Network Recommendations

The following sections summarized the development process of the recommended sidewalk network.

- **Assess Sidewalk Network, Gaps, and Connectivity:** The project team identified major sidewalk gaps from the existing conditions analysis, focusing on arterials and collectors. The recommended sidewalk network ensures sidewalk are on both sides of the roadway if located within one-quarter mile of the following: large-scale commercial/residential land use; schools; popular City facilities; or high-ridership bus stop as identified in the existing conditions analysis. Sidewalk recommendations were also considered where barriers that require a circuitous path of travel between key origins and destinations, including railroad tracks, creeks, and highways.

Transportation Technology Corridors Considerations

The project team developed Transportation Technology Corridors recommendations based on the intersection recommendations typology C, which include traffic signal and traffic control improvements. Improvements along these corridors are intended to improve mobility for all travel modes while ensuring safety by reducing conflicts between motorized travel modes and active modes.

The recommended corridors were identified by reviewing the intersection typology C recommendations at existing signalized intersections and screening those to determine their appropriateness for potential technology upgrades. Improvements in this category could include red-light cameras, speed-enforcement cameras (when legally permissible), adaptive detection for vehicles, pedestrians, and bicyclists, and audible pedestrian detection.

Existing Active Transportation Network

Existing Bike Network

The City has an existing bikeway network with 50.5 miles of bikeways shown in **Figure 2** and **Table 1**. These include over 25 miles of bike lanes (Class II) and buffed bike lanes (Class IIB), seen on major roads like De Anza Boulevard and Homestead Road. The existing bike network also consist of a series of bike boulevards (Class IIIB), which account for several miles of lower-traffic streets that prioritize comfort for users of all ages and abilities. Cupertino's bike boulevards are routed through residential areas where traffic is less dense, often supplemented with speed tables, traffic circles, or traffic diverters. The City has also invested in low-stress shared-use paths (Class I), including trails like the Regnart Creek Trail, which connect key areas of Cupertino with off-road options for people of all ages and abilities.

Table 1: Summary of Existing Bike Network

Bikeway Facility	Mileage
Shared use path (Class I)	6.5 mi
Bike lane (Class II)	18.5 mi
Upgraded bike lane (Class II)	7.1 mi
Bicycle Boulevard (Class III)	8.2 mi
Bike Route (Class III)	6.5 mi
Separated Bikeway (Class IV)	4.4 mi
Total	**51.2 mi**

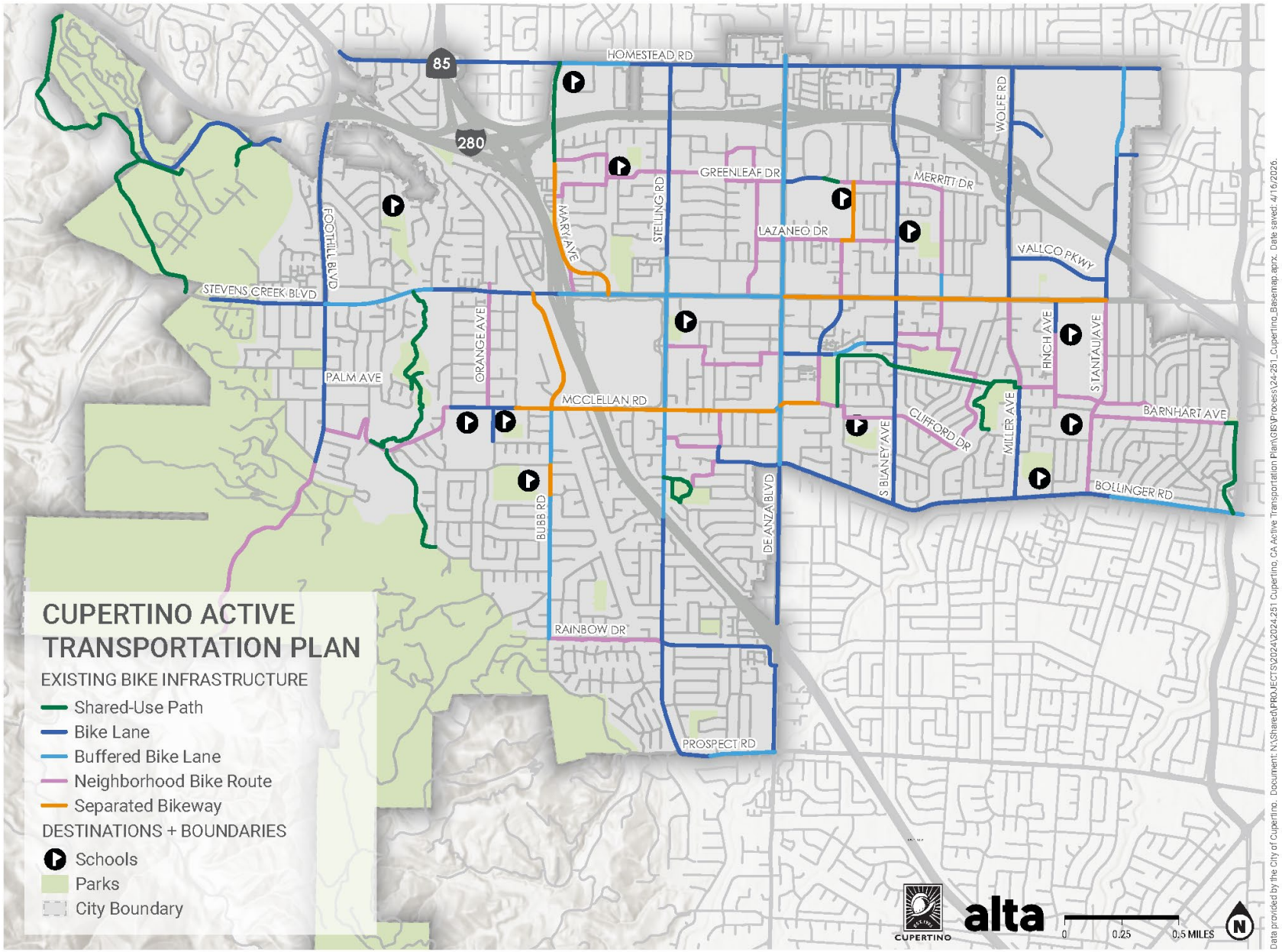

Figure 2. Existing Bike Network

Existing Pedestrian Network

Cupertino has a relatively well-developed sidewalk network, particularly in the areas around its denser centers and southern residential neighborhoods. In areas near the Cupertino Village Shopping Center, Main Street, and schools, like Cupertino High School, sidewalks are common and well-maintained.

The roadway crossings for pedestrians in Cupertino is variable, with a mix of well-designed crossings in higher-density areas and gaps in infrastructure in lower-density, residential areas. In denser commercial zones crosswalks are generally well-marked. Areas with higher foot traffic have enhanced crosswalks, including use of Rapid Rectangular Flashing Beacons (RRFBs) at uncontrolled intersections. Some residential or less-developed areas, especially in the outskirts of the City, crosswalks are sparse, requiring pedestrians to cross without adequate infrastructure or walk further to find a safe crossing point.

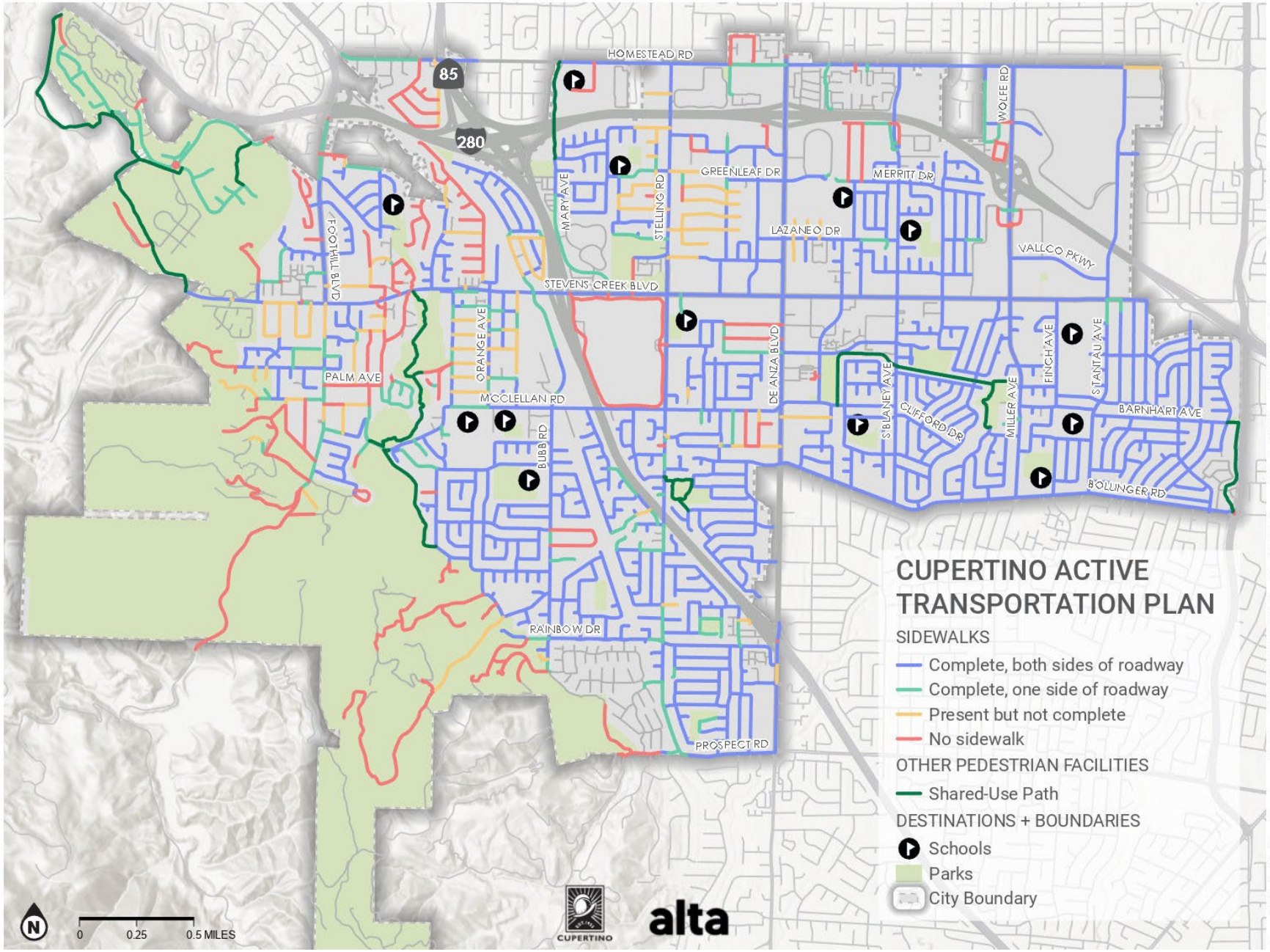

Figure 3. Existing Sidewalk Network

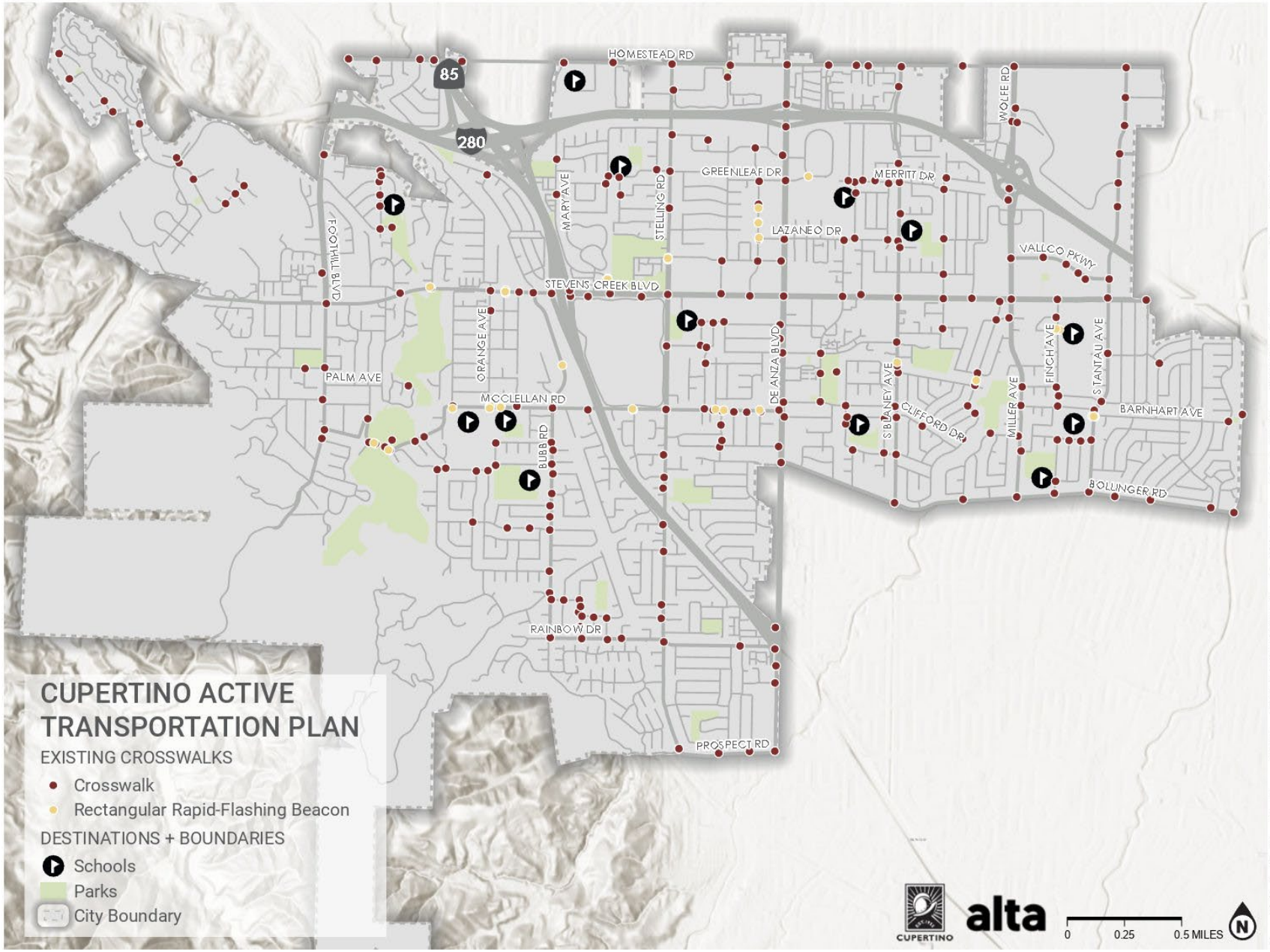

Figure 4. Existing Crosswalks

Recommended Active Transportation Network

Recommended Bike Network

The recommended bike network consist of 36.5 miles of new or upgraded bike facilities as shown in **Figure 5**. The recommended bike network primarily expands the Neighborhood Bike Routes (Class III & IIIB) which are routed through residential areas where traffic is less dense, often supplemented with traffic calming elements. Many of the existing Class II Bike Lanes are upgraded to Class IIB Buffered Bike Lanes or Class IV Separated Bikeways to provide people on bikes more separation from motor vehicles on major roadways such as Stevens Creek Boulevard or Miller Avenue. Recommnedations continue the City's history of investment in its network of Class I Shared-Use Paths to provide residents and visitors with recreational opportunities and off-street connections. The recommended bike network also includes eight bike intersections improvements to facilitate crossings at major roadways.

Table 2. Summary of Recommended Bike Network

Bikeway Facility	Mileage/Quantity
Shared use path (Class I)	6.3 mi
Bike lane (Class II)	0.5 mi
Upgraded bike lane (Class II)	9.0 mi
Neighborhood Bike Route (Class III & IIIB)	15.1 mi
Separated Bikeway (Class IV)	5.6 mi
Bike Intersection Improvement	8 count
Total	**36.5 mi**

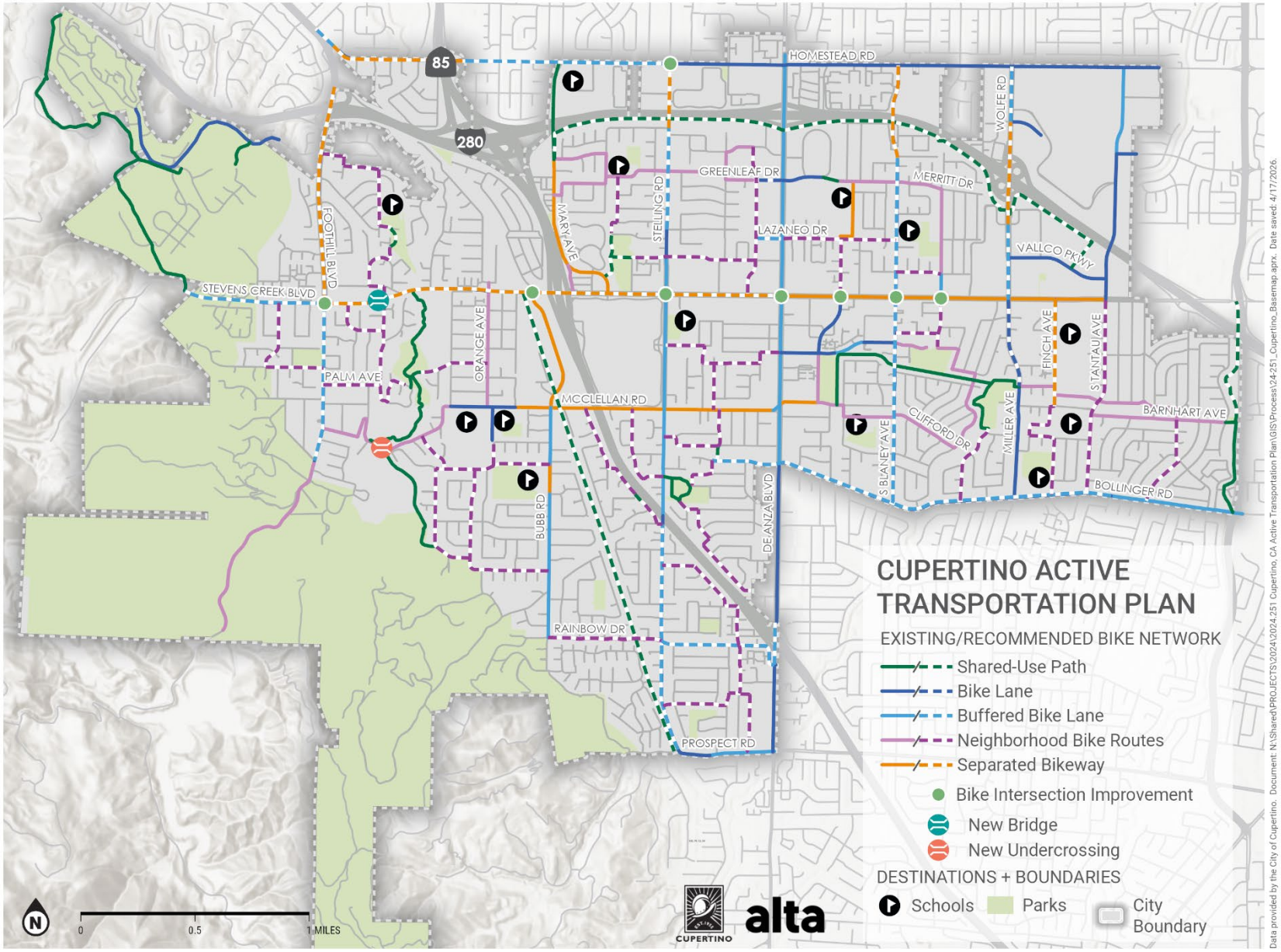

Figure 5. Recommended Bike Network

Recommended Pedestrian Network

The recommended sidewalk network consist of 3.6 miles of new sidewalks and 115 intersection improvements to bridge gaps in the existing pedestrian network. The recommended intersection typologies are described below.**Table 3, Table 4** & **Figure 6** provide a summary of the recommended pedestrian network.

- **Group A – Crossing and Accessibility Improvements:** Advanced Stop/Yield Bar, In-Street Crossing Sign, High-Visibility Crosswalk, Visibility Improvements, Improved Lighting.
- **Group B – Roadway Improvements:** Pedestrian refuge island, Curb extension, Curb ramp.
- **Group C – Traffic Control Improvements:** Signal timing changes (LPI, longer ped phase), Rectangular Rapid Flashing Beacon (RRFB), New signal.

Table 3. Summary of Sidewalk Recommendations

Sidewalk Recommendation	Mileage
Sidewalk on 1-side	2.3 mi
Sidewalk on 2-sides	1.3 mi
Total	**3.6 mi**

Table 4. Summary of Intersection Recommendations

Intersection Recommendation Typologies	Quantity
Typology A	42
Typology B	10
Typology C	9
Typology AB	29
Typology AC	3
Typology BC	7
Typology ABC	15
Total	**115**

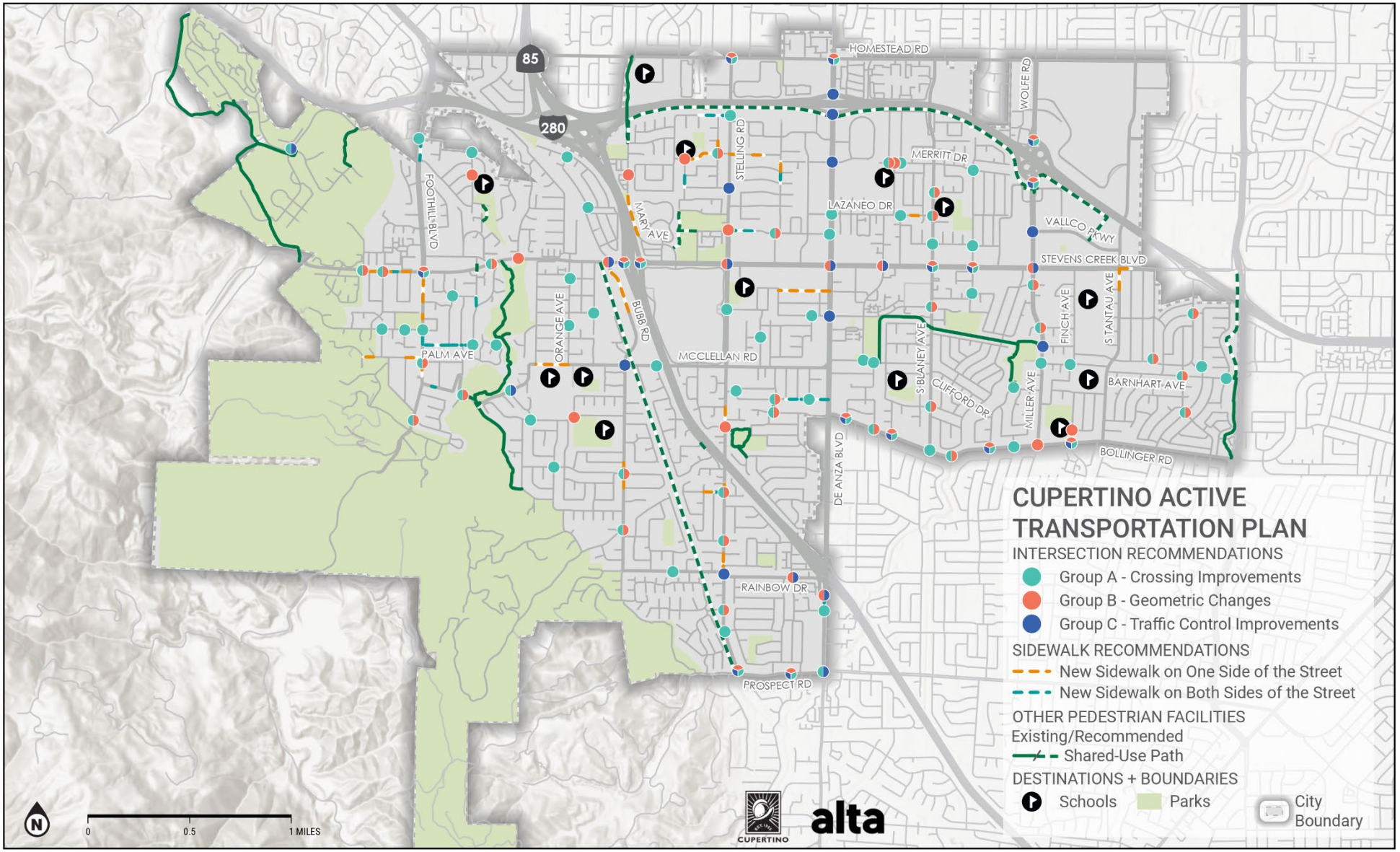

Figure 6. Recommended Pedestrian Network

Recommended Transportation Technology Corridors

The recommended transportation technology corridors consist of technology improvements along major roadways to ease the movement of motor vehicles and active transportation modes while improving safety for all modes. There are 11.2 miles of recommended transportation technology corridors shown in **Figure 7**. Improvements at intersections along these corridors may include red-light cameras, speed-enforcement cameras (when legally permissible), adaptive detection for vehicles, pedestrians, and bicyclists, and audible pedestrian detection. Corridors for transporation technology corridors were selected in coordination with the Planning Commission and City Council, with a focus on high-priority corridors from the Vision Zero Action Plan, as well as corridor intersections with Typology C identified for pedestrian network recommendations.

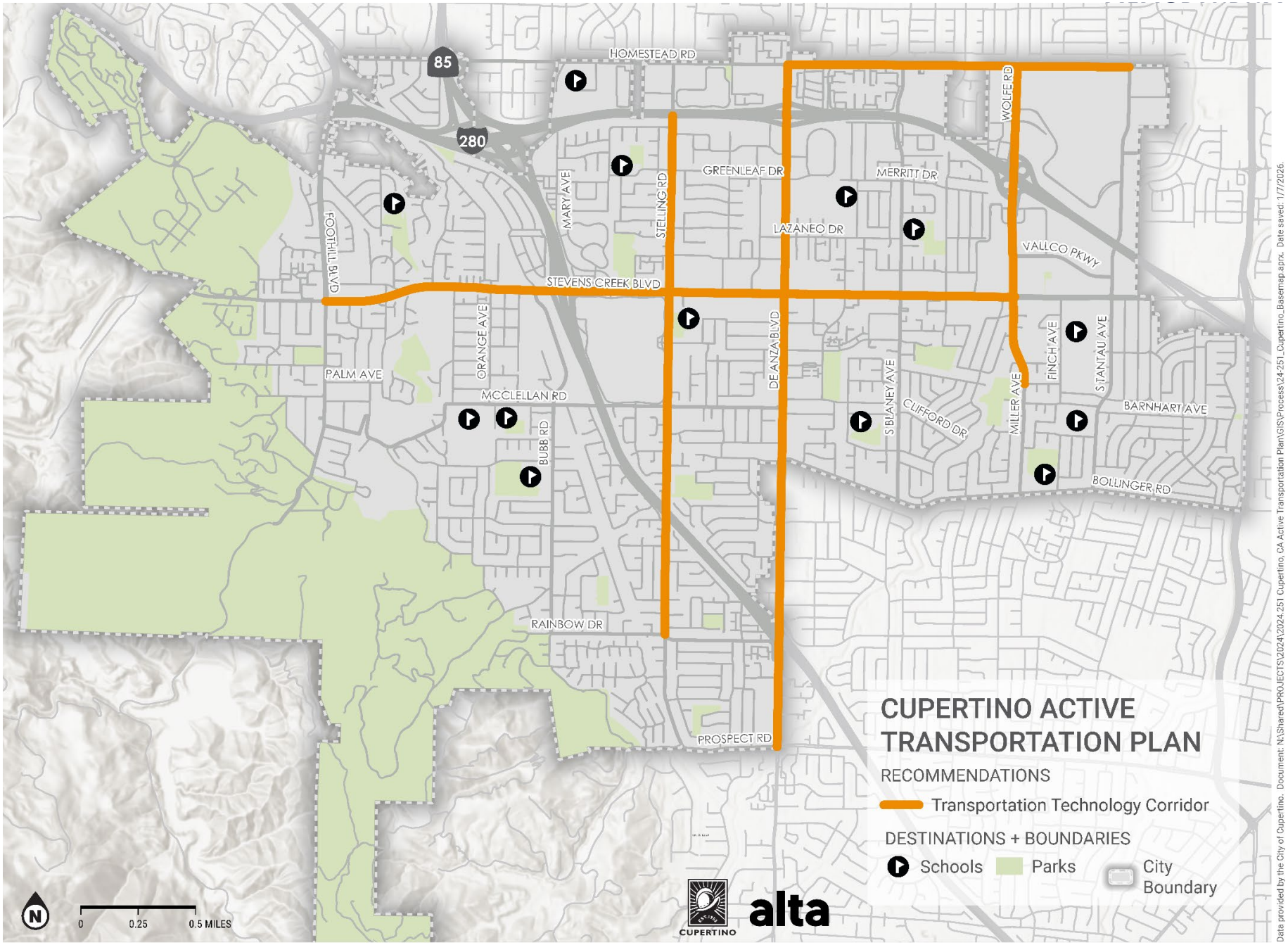

Figure 7. Recommended Transportation Technology Corridors