Piedmont Safer Streets

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Piedmont Safer Streets is the update to the City of Piedmont's 2014 Pedestrian and Bicycle Master Plan, with an additional focus on general traffic safety.

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Prepared for the City of Piedmont by Eisen | Letunic

Piedmont Department of Public Works and Department of Planning & Building | piedmont.ca.gov

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Piedmont City Council

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Piedmont Pedestrian and Bicycle Advisory Committee

- Hugh Louch, Chair
- Kristin Robrock, Vice Chair
- Sofia Barandiaran
- Siddharth Bhatia
- Eugene Brown, Jr.
- Katie DeWitt
- Audrey Edel
- Brett Hondorp
- Thomas Reicher

City of Piedmont staff

- Daniel Gonzales, Public Works Director
- Kevin Jackson, Planning & Building Director
- Gopika Nair, Associate Planner
- John Wanger, PE, City Engineer

Consultants

- Niko Letunic, Project Manager (Eisen|Letunic)
- Josh Ellsworth, Associate Planner (Eisen|Letunic)
- Heather Lybarger, Graphic/Web Designer (Eisen|Letunic)

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1 | Introduction

Why this plan?

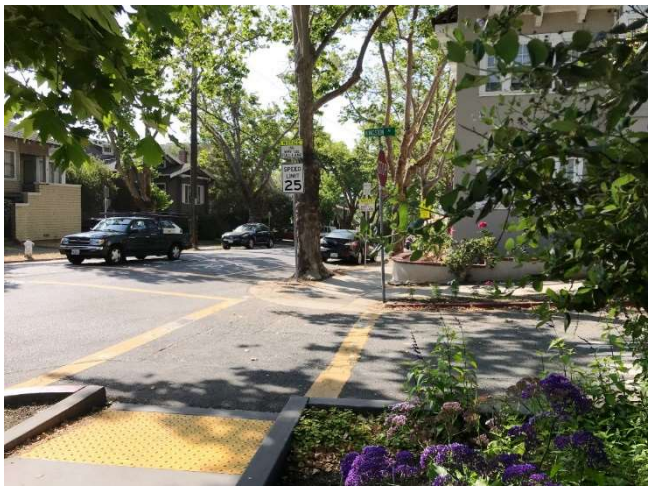
In 2014, the Piedmont City Council adopted the Piedmont Pedestrian and Bicycle Master Plan (PBMP). The PBMP was the City's first comprehensive planning document devoted to walking and biking. The plan proposed and prioritized a set of infrastructure and non-infrastructure projects to improve conditions for pedestrians and bicyclists.

The Piedmont Safer Streets (PSS) plan represents the update to the 2014 plan, and also an expansion of that plan, in that it includes a new, additional focus on broader traffic safety. The 2014 planning process revealed many community needs and concerns related to general traffic safety, beyond immediate issues of pedestrian and bicycle safety. Those concerns could not be addressed at that time, as they were outside the scope of the PBMP project. The new PSS plan provided the opportunity to address those issues.

The new plan meets a requirement of the Alameda County Transportation Commission that the municipalities in the county update their pedestrian and bicycle plan(s) every five years (with some flexibility). In addition to meeting that requirement, the PSS planning process had four main objectives:

- Determine changes in the community's needs, concerns, expectations and priorities concerning walking, biking and general traffic safety.
- Revisit the proposed pedestrian- and bicycle-related projects and other recommendations in the 2014 plan, including the citywide bicycle network; and revise, supplement and re-prioritize the recommendations as necessary.
- Incorporate recommendations to address the community's key concerns regarding broader traffic safety.
- Given very limited funds for transportation improvements, emphasize low-cost, affordable solutions to address Piedmont's main walking, biking and traffic safety needs.

In short, the PSS plan is intended to make the City's streets safer for everyone, and make walking and biking in Piedmont easier, more pleasant and more popular than ever.



The planning process

The PSS planning process was begun in mid-2020. The plan was developed by a project team consisting of City staff and planning consultants. The process was guided with the help of a 9-member Pedestrian and Bicycle Advisory Committee appointed by the City Council at the start of the project. The committee consists of Piedmont residents with a range of backgrounds and experiences roughly representative of the City's demographics. The planning process consisted of four main tasks:

- Update our understanding of the local planning context surrounding walking, biking and traffic safety in Piedmont. As part of that task, the project team analyzed traffic collisions for the previous ten-year period; reviewed relevant transportation-related plans and studies developed since the 2014 plan; and inventoried transportation projects accomplished in Piedmont also since 2014. The report prepared for that task formed the basis for Chapter 2 of this document, "Planning Context."

- Conduct a comprehensive community needs assessment. The objective of this task was to gather input from residents on the needs and challenges regarding walking, biking and traffic safety in Piedmont; specific locations of concern; and ideas and suggestions for improving conditions. The report for that task served as the basis for Chapter 3, "Community Needs Assessment." A series of appendices to the plan contain the more than 2,500 public comments submitted in writing as part of the needs assessment process.

- Using the key findings from the previous two tasks, revisit and update as necessary the proposed pedestrian- and bicycle-related recommendations in the 2014 plan; formulate recommendations to address the community's main concerns regarding traffic safety; and prioritize the recommendations. The results of this task are reflected in Chapter 4, "Recommended Projects," and Chapter 5, "Prioritization and Implementation."

- Prepare various draft and final versions of the Piedmont Safer Streets plan and of an "Initial Study/Negative Declaration" (IS-ND) and associated notices for environmental review of the plan under the California Environmental Quality Act (CEQA). Administrative drafts of the various documents were reviewed and commented on by City staff. A public draft of the plan document was reviewed and commented on by the Pedestrian and Bicycle Advisory Committee and the public at large. The draft IS-ND will also be available for public review and comment, and a final draft version will be presented to the City Council at the same time as the final draft of the Piedmont Safer Streets plan.

2 | Planning Context

The first substantive task in the Piedmont Safer Streets planning process was to look at changes in recent years to the planning context surrounding walking, biking and traffic safety in Piedmont. As part of that task, the project team analyzed traffic collisions over the previous ten years; reviewed relevant transportation-related plans and studies developed since the 2014 plan; and inventoried walking-, biking- and other transportation-related projects and activities accomplished in Piedmont also since 2014. This chapter presents the key findings from that task.

Traffic collisions

This section contains an analysis of traffic collisions in Piedmont. The data for all but the last part of this section comes from the California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS), a database of collisions reported by local police departments and other law enforcement agencies. The analysis covers the period from 2010 through 2019, the most recent ten-calendar-year period for which SWITRS data was available. Our analysis considers only the more serious collisions—those resulting in injuries or fatalities. It does not include those collisions that resulted only in property damage.

Overview

For the 2010–2019 period, there were 86 traffic collisions reported in Piedmont that resulted in injuries to the people involved and zero that resulted in fatalities. Of those 86 collisions, 16 involved pedestrians, 20 involved bicycles and one additional collision involved both. An additional 49 collisions involved motor vehicles (cars, trucks and motorcycles) but no pedestrians or bicycles. See the table below for a fuller breakdown by type of collision.

Type of collision	Number
Involving pedestrians and/or bicycles	37
Motor vehicle–pedestrian	16
Motor vehicle–bicycle	16
Bicycle alone (non-collision)	4
Bicycle–pedestrian	1
Not involving pedestrians or bicycles	49
Two or more moving motor vehicles	22
Motor vehicle–parked vehicle/other object	18
Other motor vehicle (unclear from data)	9
Total	*86*

A comparison between the first and second five-year periods (2010–2014, before the adoption of the 2014 Pedestrian and Bicycle Master Plan; and 2015–2019) shows that collisions involving pedestrians almost doubled, from an average of 1.2 per year to 2.2. On the other hand, collisions involving bicycles declined from an average of 2.6 per year to 1.6. (These figures count the single bicycle–pedestrian collision as two collisions: one involving a bicycle and one involving a pedestrian.)

The 86 collisions summarized above resulted in 100 people injured (some collisions resulted in multiple injury victims). The table below categorizes the injury victims by the severity of their injury, and includes separate columns for pedestrians, bicyclists and drivers and their passengers.

Injury severity	Total	Ped	Bike	Driver/ pass.
Severe injury	2	1	0	1
Other visible injury	30	8	11	11
Complaint of pain	68	10	11	47
Total	*100*	*19*	*22*	*59*

Of the 16 motor vehicle–pedestrian collisions, more than half (nine) were caused primarily by drivers not yielding to pedestrians at crosswalks or by drivers' "unsafe starting or backing of a vehicle." Among the 16 motor vehicle–bicycle collisions, the top 'primary collision factor' was unsafe or improper turning (whether by drivers or cyclists; six collisions). More than half of the 49 collisions involving motor vehicles but not pedestrians or bicycles resulted from just two primary collision factors: unsafe/improper turning (16 collisions) and speeding (nine collisions). Overall, more than a fifth of the collisions (19 of 86) involved a party under the influence of alcohol or drugs.

Collision hotspots

The maps on the following pages show the locations of the 16 motor vehicle–pedestrian collisions, 16 motor vehicle–bicycle collisions and one bicycle–pedestrian collision (Figure 1); and the 49 collisions involving motor vehicles but not pedestrians or cyclists (Figure 2). Below are some conclusions regarding the locations of these collision. It should be noted that while collision clusters indicate hotspots, or areas of concern, they do not necessarily correspond to traffic risk or hazard level. Some streets and intersections of the City might have more collisions simply because they have more traffic, not because they are inherently more dangerous.

Pedestrian collisions: Almost half the collisions involving motor vehicles and pedestrians (7 of 16) occurred on a short stretch of Oakland Avenue west of Highland Avenue and on Highland Avenue between Craig and Vista Avenues. Only three of the 16 collisions took place east of Highland Avenue, and only one took place south of Piedmont Park.

Bicycle collisions: Two-thirds of the collisions involving cyclists (14 of 21, including the single bicycle-pedestrian collision) occurred in the quadrant of the City that is north and west of Piedmont Park. Also, almost all the collisions took place on or just off designated bikeways, including segments of Linda, Grand, Blair, Highland, Magnolia, Wildwood and La Salle Avenues.

Motor-vehicle collisions: Of the 49 collisions involving motor vehicles, approximately three-quarters, or 36, occurred along Piedmont's four main thoroughfares: Grand, Oakland, Highland and Moraga Avenues. Grand Avenue saw the most collisions, particularly at Oakland Avenue, around the Greenbank Avenue/Cambridge Way/Lower Grand Avenue intersections and at Rose Avenue.

Fig. 1 | **Collisions involving pedestrians and/or bicyclists**

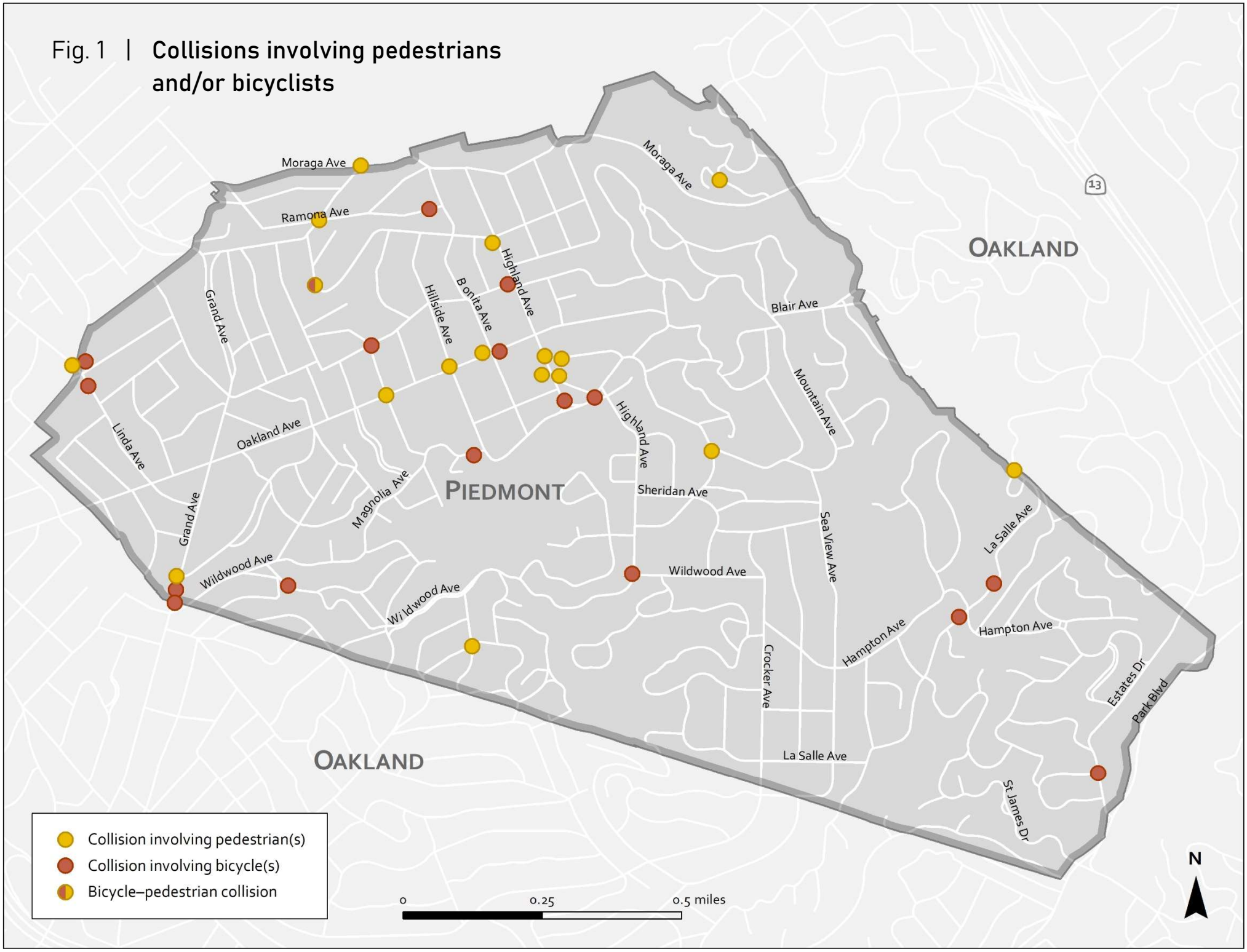
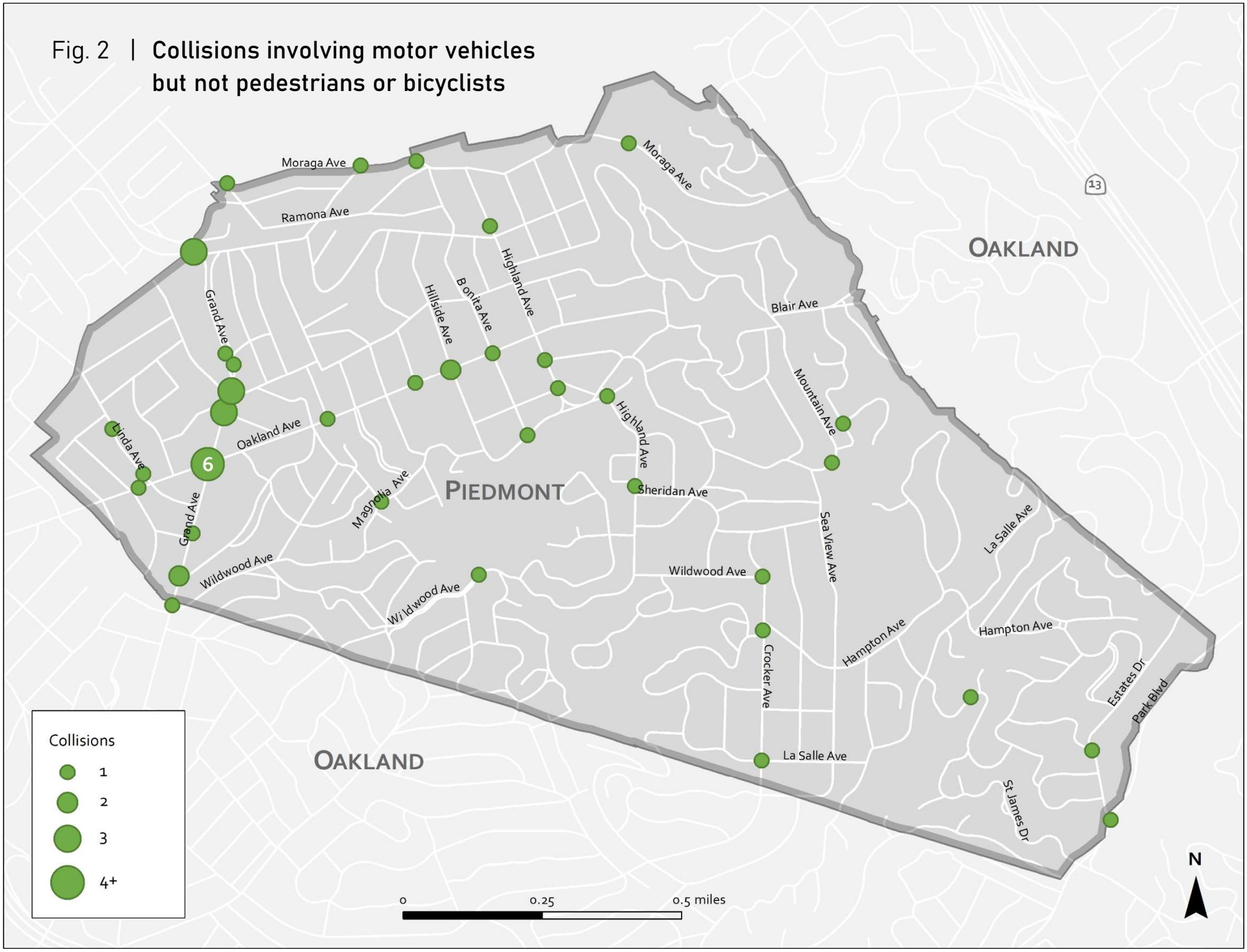


Fig. 2 | **Collisions involving motor vehicles but not pedestrians or bicyclists**



OTS rankings

Every year, the California Office of Traffic Safety (OTS) ranks the state's cities against other cities with similar-sized populations on various traffic safety statistics. The rankings are based on data from several sources, including SWITRS, and give varying weights to such factors as population, daily vehicle-miles traveled, crash records and crash trends.

In 2017—the latest year for which OTS had published rankings as of this writing—Piedmont generally ranked as safer in terms of traffic hazards than over two thirds of its peer cities. An OTS ranking of 1 is considered the 'worst' in terms of traffic safety, so for the 101 cities in Piedmont's population group, a ranking of 1 is the worst, 51 is average and 101 is the best. Piedmont's composite, or overall, ranking, was 69th out of 101 cities (see table below)—in other words, better than 68% of other cities in its group.

Type of collision	Ranking*
Composite	69
Pedestrians	76
Bicyclists	61
Total fatal and injury	91
Speed related	77
Nighttime	91

** Out of 101 cities, where 1 is 'worst' and 101 is 'best.'*

Piedmont ranked 76th (better than 75% of peer cities) in terms of pedestrian traffic safety and 61st in terms of bicycle traffic safety (better than 60% of peer cities). Also, Piedmont ranked 91st in terms of fatalities and injuries; 77th for speed-related collisions; and 91st for nighttime collisions. OTS notes that its "rankings are only indicators of potential problems" and that "there are many factors that may either understate or overstate a city/county ranking that must be evaluated based on local circumstances."

Related plans and studies

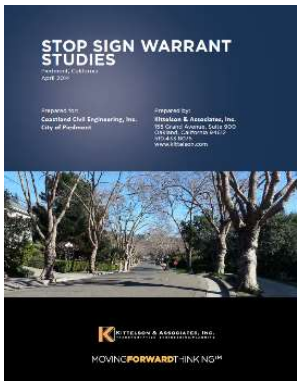
This section summarizes traffic- and transportation-related plans and studies relevant to the Piedmont Safer Streets project that have been developed since the 2014 Pedestrian and Bicycle Master Plan. The documents were reviewed with an eye toward specific and 'actionable' proposed projects, practices, policies and other recommendations that might be appropriate for eventual inclusion in the Piedmont Safer Streets Plan. The section is divided into two sub-sections: (i) City of Piedmont plans and studies (items 1–12 below); and (ii) plans by other agencies (items 13–15). The Piedmont plans and studies are available at bit.ly/PSS_studies (scroll to near the bottom of the page).

City of Piedmont plans and studies

❶ Speed Zone Engineering and Traffic Survey (2014)

This study surveyed car speeds on 14 street segments throughout Piedmont (see the map on page 2 of the study) during off-peak hours and analyzed existing speed limits. The study recommended one speed-limit change: increasing it from 25 mph to 30 mph on Oakland Avenue. In that case, the study also suggested a speed-feedback sign (to inform drivers when they are speeding) or increased speed enforcement.

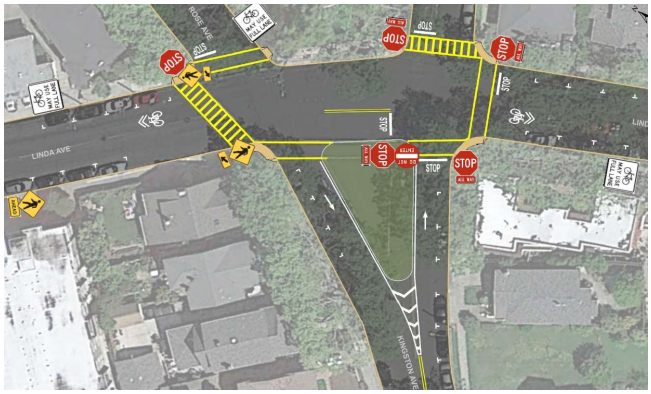
❷ Stop Sign Warrant Studies (2014)



This report provided traffic analyses and findings for proposed multi-way stop controls at three intersections: Crocker Avenue/ Ashmount Avenue, Crocker Avenue/La Salle Avenue and Hampton Road/Sea View Avenue. The report found that stop control is not justified at any of the intersections and instead recommended alternatives to control speeds and improve traffic on the minor streets. The recommendations are listed on pages 13–14 of the report and include improving the sight distance of drivers stopped at the intersections, and introducing physical traffic-calming measures.

❸ Kingston Avenue–Linda Avenue–Rose Avenue Triangle Traffic Study (2015)

This study considered two design concepts for this intersection, shown on pages 2–3 of the study, consisting of changes to pavement markings and traffic controls. Concept 1 involves a landscaped median occupying the currently empty median space on Kingston Avenue south of Linda Avenue. Concept 2 involves enlarging the landscaped median by converting the two-way portion of Kingston Avenue south of Linda Avenue and east of the triangle into a northbound-only segment.



Concept 2 of the Kingston Avenue–Linda Avenue–Rose Avenue Triangle Traffic Study.

❹ Moraga Avenue S-Curve Improvements (2015)

This study reviewed existing conditions at the Moraga Avenue 'S-Curve' around Ramona Avenue, and proposed several infrastructure improvements. Page 2 of the study contains a conceptual drawing of the intersection with callouts outlining the various proposed improvements.

2014 Pedestrian and Bicycle Master Plan

As mentioned in the introduction, the Piedmont Pedestrian and Bicycle Master Plan (PBMP) was adopted in 2014. The plan recommended a series of improvements consisting of five high-priority projects (see pages 72–89 of that document) and several lower-priority projects (pages 90–91); programs in the areas of safety, education, enforcement and encouragement/promotion (pages 91–93); new policies or changes to City practices (page 95); and other, smaller-scale implementation actions (pages 96–97).

The five high-priority projects that were recommended are:

- Enhanced street crossings at 27 key locations around the City.
- A citywide bikeway network, consisting of bike lanes and signed bike routes on 42 street segments.
- 'Road diets' on Grand Avenue and on Highland Avenue, to replace a travel lane in each direction with bike lanes and a center turn lane.
- Sidewalk railings on the Oakland Avenue bridge.
- Reconfiguration of the Highland Avenue 'bend' (roughly from Vista Avenue to Piedmont Court).

A number of the recommended street-crossing enhancements and bikeways have been installed, or are in the process of being installed (see the "Construction projects" section of this report). The road diet on Grand Avenue and the Oakland Avenue bridge railings have also been completed.

❺ Grand Avenue & Oakland Avenue Pedestrian Safety Analysis (2016)

Based on an analysis of existing conditions, this study evaluated three signal-timing concepts at the intersection of Grand and Oakland Avenues in order to improve safety, especially for pedestrians. The study recommended a shorter-term 'signal optimization' alternative that would increase crossing times for pedestrians and possibly a more expensive, longer-term 'signal phasing' alternative that would allow for left-turn phasing.

❻ Residential Permit Parking Survey on Kingston Avenue and Vicinity (2016) and Addendum (2017)

In response to a neighborhood request, the City evaluated the possibility of a permit-only parking system on portions of Rose, Kingston, Lake and Linda Avenues. The 2016 study concluded that a residential permit parking program would improve access to on-street parking by area residents and is justified by the data. The study recommended that the City work with the residents to design the rules for the parking program. The 2017 addendum examined several additional considerations and proposed four 'bundles' of program rules for presentation to the residents.

❼ Piedmont Climate Action Plan 2.0 (2018)

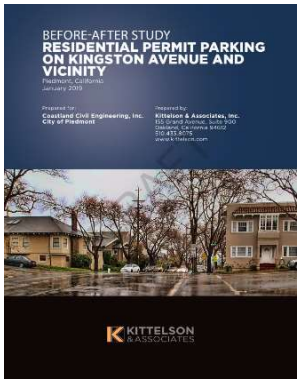
This is the update to the City's original Climate Action Plan (CAP), adopted in 2010. Implementation tables on pages 90–92 and 101 of the updated plan list relevant transportation-related objectives and specific measures and actions. Objectives include increasing the number of trips made by biking and walking; reducing transportation emissions from schools; and reducing municipal transportation emissions.

❽ Intersection Analysis (2018)

This study assessed traffic-safety concerns at five intersections and provided location-specific recommendations. The intersections (and the pages of that study on which the recommendations are listed) are:

- Moraga Avenue / Mesa Avenue (page 5).
- Crest Road / Hampton Road (page 7).
- Harvard Road / Portsmouth Road (page 9).
- Lincoln Avenue / Sheridan Avenue (pages 11–12).
- Somerset Road / Crest Road (page 13).

❾ Residential Permit Parking on Kingston Avenue and Vicinity (2019)



This before–after study found that the residential permit parking program in the Kingston Avenue neighborhood (see item 6 above) increased the availability of on-street parking in the study area across all periods of data collection. The study suggested that additional feedback be collected from neighborhood residents. Because Greenbank Avenue, outside the study area, saw a notable increase in both daytime and nighttime parking, the study also suggested that parking activity on that street continue to be monitored.

❿ Path Inventory (2019)

In 2019 the City inventoried all public paths in Piedmont (in other words, walkways other than sidewalks) to assess conditions and identify any needed repairs. Path conditions were evaluated on safety concerns, structural integrity and aesthetics, and each path was given an overall condition rating of very good, good, fair, poor or very poor. Also, each repair project was given a priority ranking of 1, 2 or 3, indicating high, medium and low priority, respectively. The total estimated cost for the recommended repairs was $220,000. The inventory report also noted additional potential work to address root damage, slope instability, drainage issues and other path maintenance challenges.

⓫ Scenic Avenue Engineering and Traffic Surveys (2019–2020)

In 2019–2020, the City conducted a series of three surveys analyzing traffic volumes and speeds on Scenic Avenue north of Blair Avenue. The segment is a narrow residential street with on-street parking that is nevertheless used for two-way traffic, and for the most part has no sidewalks, which forces pedestrians to walk in the street. While the surveys recommended keeping the street's speed limit at 15 mph, in December 2020, the Piedmont City Council approved a pilot program for the installation of traffic-calming 'speed cushions' on Scenic Avenue between Blair and Alta Avenues (and also on Greenbank Avenue between Oakland and Grand Avenues). The installations were approved on a one-year trial basis, pending further public input, data collection and analysis, and additional discussion by the City Council.

⓬ Wildwood Gardens One-Way Loop Conversion (2020)

The City evaluated a neighborhood request to convert the western loop of Wildwood Gardens to one-way traffic. This study, which also analyzed the eastern loop, recommended keeping the loops two-way. The study also recommended restricting on-street parking in narrow portions of the eastern loop, especially where the roadway curves, to provide better access for emergency and other larger vehicles.

Plans by other agencies

⓭ Grand Avenue Road Diet Before/After Study (2016)

In May 2016, the City of Oakland implemented a road diet on Grand Avenue between Elwood Avenue and the Piedmont city limit, near Jean Street/Wildwood Avenue. The project replaced two travel lanes (one in each direction) with bike lanes and a center turn lane. Just over two months later, Oakland conducted a before/after study of the changes, based on traffic data collected. The study found that the road diet had substantial benefits by increasing the number of bicyclists using the street while reducing motor vehicle–bicycle conflicts. The main tradeoff was increased traffic queues and delay in the weekday afternoon/evening peak period, primarily at the Jean Street/Wildwood Avenue intersection. The study suggested that modifying the signal timing at the intersection would likely mitigate those impacts.

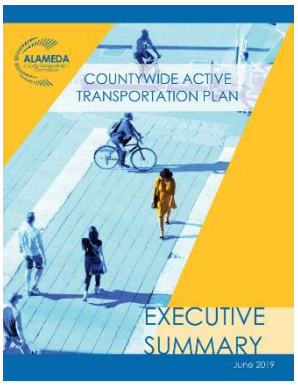
⓮ Let's Bike Oakland (2019)

Maps in the Let's Bike Oakland plan show existing bikeways that connect into or lead very close to Piedmont on the following Oakland streets: Linda Avenue, Oakland Avenue, Grand Avenue and Lakeshore Avenue (see the map on page 84). These bikeways consist of bike lanes.

In addition, the plan recommends new or upgraded bikeways on the following streets connecting to or running very near Piedmont (see the maps on pages 92 and 94; descriptions of the bikeway types are on page 22):

- Ramona Avenue: neighborhood bike route.
- Moraga Avenue: bike lanes.
- Pleasant Valley Avenue (connecting to Ronada Avenue and Grand Avenue in Piedmont): buffered bike lanes.
- Brandon Street (connecting to Rose Avenue): neighborhood bike route.
- Oakland Avenue: buffered bike lanes.
- Grand Avenue: protected bike lanes.
- Lakeshore Avenue (ending near Winsor Avenue): buffered bike lanes.
- Sunnyhills Road (connecting to Indian Road): neighborhood bike route.
- Park Boulevard: bike lanes south of St. James Drive and a bike path north of it.
- Leimert Boulevard (connecting to St. James Drive): neighborhood bike route.

⓯ Alameda Countywide Active Transportation Plan (2019)



For Piedmont, the plan's "Community Profiles" chapter states that "low-stress connectivity…is generally decent for bicyclists" and that challenges to bicycling within the City "would likely be more related to topography." The profile goes on to mention that Piedmont's main barriers to pedestrian and bicycle connectivity are Piedmont Park and, more generally, the disconnected street network in some areas.

The maps on pages 56 and 57 of the chapter show Piedmont's bicycle and pedestrian high-injury networks (HINs). These are the worst-performing local street segments in terms of frequency and severity of traffic collisions. The streets of highest concern for bicycling are Linda, Grand, Highland, Wildwood and La Salle Avenues. For walking, Highland Avenue (for its entire length) is the street of highest concern; other streets of concern are Grand, Oakland, Estrella, Moraga, Bonita, Vista, Craig, Mountain and Dudley Avenues and Abbot Way.

Physical projects

This section summarizes transportation-related projects that the City of Piedmont has completed since 2014 or that are in progress, pending or being planned as of this writing.

- Miscellaneous crossing improvements at intersections including:
  - Moraga/Mesa Avenues: Striping and signage.
  - Rose/Echo Avenues: Specific improvements still to be determined.
  - Grand Avenue/Fairview Avenue: paint, striping and plastic posts to narrow the Intersection.
  - Grand Avenue at Ace Hardware: Pedestrian safety island.
  - Highland Avenue/Craig Avenue: bulbouts and enhanced crosswalks.
  - Oakland Avenue at Sunnyside, Howard, Jerome and El Cerrito Avenues: Pedestrian-actuated flashing beacons (as part of the Oakland Avenue pavement rehabilitation project); further improvements are still being determined for the intersections at Jerome and El Cerrito Avenues.
  - Magnolia Avenue/Nova Drive: Improvements to be determined.
  - Wildwood Avenue/Palm Avenue: new crosswalk.

Crossing improvements at Grand Avenue/Fairview Avenue.

- Bikeways on the following street segments:
  - **Cambridge Way**: Bike route between Grand and Ricardo Avenues.
  - **Grand Avenue**: Bike lanes between Rose Avenue and Greenbank Avenue/Cambridge Way. Also, bike lanes as part of the road diet mentioned earlier, between Greenbank Avenue/Cambridge Way and the City limit to the south.
  - **Highland Avenue**: Bike route between Magnolia and Sierra Avenues.
  - **Linda Avenue**: Bike lane westbound and bike route with sharrows eastbound between Rose and Grand Avenues.
  - **Magnolia Avenue**: Bike route between Hillside Avenue and Nova Drive, including with sharrows in the downhill direction.
  - **Moraga Avenue**: Bike lanes between Ramona and Bonita Avenues; and bike route between Bonita and the City limit to the east, including sharrows in the downhill direction between Mesa Avenue and the City limit.
  - **Sheridan Avenue**: Bike lanes between Highland and Caperton Avenues.
  - **Vista Avenue**: Bike route with sharrows between Hillside and Highland Avenues.

Linda Avenue at Beach Play Field.

- Road diet on Grand Avenue between the City limit to the south and Greenbank Avenue/Cambridge Way. The project entailed removing one travel lane in each direction and using the freed-up space to install bike lanes and a center turn lane.

Grand Avenue after the road diet.

- Bulbouts (sidewalk extensions) at Linda Avenue/Kingston Avenue and bulbouts, flashing beacons and new street lighting at the mid-block crosswalks on Linda Avenue around Beach School.

Bulbouts on Linda Avenue along Linda Playground.

- All-way stop signs:
  - Magnolia Avenue at Hillside, El Cerrito and Park View Avenues.
  - Wildwood Avenue at Nova Drive, Prospect Road and Highland Avenue.
  - Hampton Road at Crocker Avenue and at Sea View Avenue.
  - St. James Drive/Hampton Road.

- Landscaped triangle at the intersection of Kingston, Linda and Rose Avenues.

Kingston–Linda–Rose triangle.

- Safety railings along both sidewalks of the Oakland Avenue bridge. The main impetus for the project was to prevent schoolchildren from accidentally falling into the travel lanes.

Sidewalk railings on the Oakland Avenue bridge.

- Painted island and crosswalks on Nova Drive at Magnolia Avenue.

The Nova Drive/Magnolia Avenue intersection.

- New or improved pedestrian curb ramps at intersections including:
  - Arbor Drive at Fairview Avenue and at Nova Drive.
  - Hampton Road at Hampton Court and at Glen Alpine Road.
  - Harvard Road/Portsmouth Road.
  - Highland Avenue at Park Way, Craig Avenue, Mountain Avenue, Piedmont Court, Sierra Avenue and Caperton Avenue.
  - Magnolia Avenue at El Cerrito Avenue, Jerome Avenue, Larmer Court and Park View Avenue.
  - Nova Drive at Magnolia Avenue and at Wildwood Avenue.
  - Oakland Avenue at Howard, Sunnyside and Olive Avenues.
  - Sheridan Avenue/Caperton Avenue
  - Wildwood Avenue at Piedmont Park

- Steel bollards along the perimeter of the sidewalk fronting the Corpus Christi School campus, at the intersection of Estates Drive and Park Boulevard. The project was in response to several incidents of runaway cars at the intersection.

Bollards in front of Corpus Christi School.

- **Street resurfacing projects,** including on Abbott Way, Annerley Road, Arbor Drive, Caperton Avenue, Craig Avenue, Crocker Avenue, Echo Lane, Harvard Road, Highland Way, Magnolia Avenue, Moraga Avenue, Nellie Avenue, Oakland Avenue, Requa Place and Wildwood Avenue.

Programs and activities

In addition to the physical projects listed previously, a number of activities, programs and initiatives related to walking, biking and traffic have also been carried out in Piedmont since 2014. These are summarized below.

Safe Routes to School

Perhaps the most common walking- and biking-related events and activities are those designed to encourage and make it safer for children to walk and bike to school. In past years, "Safe Routes to Schools" (SR2S) activities have been conducted at the three elementary schools in Piedmont—Beach, Havens and Wildwood—and at Piedmont Middle School.

In Piedmont—and throughout Alameda County—most SR2S efforts are led by the Alameda County Transportation Commission, through its Safe Routes to School (SR2S) Program, with the participation and collaboration of the Piedmont Unified School District and individual schools. Schools have a critical role to play in promoting a safe traffic environment around schools and in encouraging the school community—not only children but also parents, teachers and administrators—to walk or bike to school (including by making parking for bicycles and scooters available at schools).

Below is an inventory of SR2S activities at the four schools since the 2014–15 school year. Interest in the SR2S program on the part of the schools declined more recently, so that no activities were conducted at any of the schools in the 2018–19 and 2019–20 school years.

2014–15 school year

- Havens, Beach and Wildwood, and Piedmont Middle: International Walk and Roll to School

Day (global encouragement event held in October).
- Havens and Beach: Walk and Roll to School Day (similar to the previous event but local, and held in May).
- Piedmont Middle: Golden Sneaker Contest (competition among classrooms for the most students and administrators using active or shared transportation options to get to school).
- All elementary schools: Bike Festival, held at Beach (in partnership with the Piedmont Police Explorers and the Boy Scouts) and featuring a variety of educational, safety-oriented and encouragement activities.

2015–2016 school year

- Havens, Beach and Wildwood, and Piedmont Middle: International Walk and Roll to School Day.
- All elementary schools: Bike Festival at Beach.

2016–2017 school year

- Piedmont Middle: International Walk and Roll to School Day.
- All elementary schools: Bike Festival at Beach.

2017–2018 school year

- Piedmont Middle: International Walk and Roll to School Day.

Pedestrian and Bicycle Advisory Committee

In 2020 the Piedmont City Council created a nine-member Pedestrian and Bicycle Advisory Committee (PBAC), consisting of appointed volunteers. The committee, which serves in an advisory capacity to City staff and the Council, will guide the development of the Piedmont Safer Streets Plan and, eventually, also its implementation. The committee met for the first time in October 2020.

Bike to Work Day

Perhaps the best-known bicycle-promotion initiative is Bike to Work Day, held annually in the Bay Area in May. That day, during the morning and/or evening commutes, volunteers at a network of 'energizer stations' give away refreshments, incentive items, bike commuting information and, of course, encouragement to bicyclists.

For many years now, Piedmont Connect (a grassroots group with a focus on environmental sustainability) and Bike East Bay (a bicycle advocacy organization) have co-sponsored and staffed an energizer station in the Ace Hardware parking lot. In 2019, for the first time, Piedmont featured a second energizer station, this one staffed by City employees and officials, and located at the entrance to the Piedmont Community Hall parking lot. Among other co-sponsors, the City's Police Department provided safety lights, while Mulberry's Market gave away fruit and cookies.

Piedmont riders at the energizer station at Ace Hardware in 2019. (Credit: Piedmont Post.)

Crosswalk policy

The City receives numerous requests from the public for the installation of crosswalk markings and 'Stop' and 'Yield' signs. While these requests are reviewed by City staff using industry standards, in 2017 the City Council adopted written policies for the installation of those traffic devices. The objectives of the policy are to better ensure consistency and objectivity in the review of residents' requests; provide transparency on the process to the public; and allow for flexibility to industry standards in addressing unique conditions on local streets. Adoption of such a policy was a recommendation in the 2014 Pedestrian and Bicycle Master Plan.

3 | Community Needs Assessment

As part of the Piedmont Safer Streets planning process, and following the planning context task described in the previous chapter, the City conducted an extensive community needs assessment. The purpose of the assessment was to gather input from residents on the needs and challenges regarding walking, biking and traffic safety in Piedmont; specific locations of concern; and ideas and suggestions for improving conditions.

The needs assessment was conducted from mid-November 2020 through early January 2021. Public input was gathered through five main channels: (i) an online survey; (ii) an interactive "pinnable" map; (iii) a comment form on the project website (PiedmontSaferStreets.org); (iv) emails to the project email address (info@PiedmontSaferStreets.org); and (v) a virtual community workshop. This chapter describes those engagement opportunities in more detail and concludes by summarizing the main issues and themes raised by the public through the needs assessment.

In total, the City heard from approximately 400 different people and received over 2,500 separate comments in writing. The comments are compiled in a series of appendices to the plan. It is important to note that, while this is extensive input, the respondents represent a very small percentage of Piedmont's population, and are not necessarily representative of the community as a whole.

Online survey

The online survey was open for a little over six weeks, from November 20, 2020 to January 3, 2021. The survey, which was administered through SurveyMonkey, contained 19 questions. All the questions were optional. Respondents were eligible to win one of three $50 gift cards for Mulberry's Market. The survey received 338 responses (not every respondent answered every question, however). Below are the questions included in the survey, along with a summary of the responses to each question. While the survey has been closed for comment, it may still be viewed at bit.ly/PSS_survey.

Several survey questions asked people to indicate, on a five-point scale, how satisfied they are with certain projects recently completed by the City (questions 9, 10, 12 and 13) or how supportive they are of certain ideas or potential projects (questions 14–16). These questions included a second part allowing people to submit a comment explaining why they are or are not satisfied or supportive.

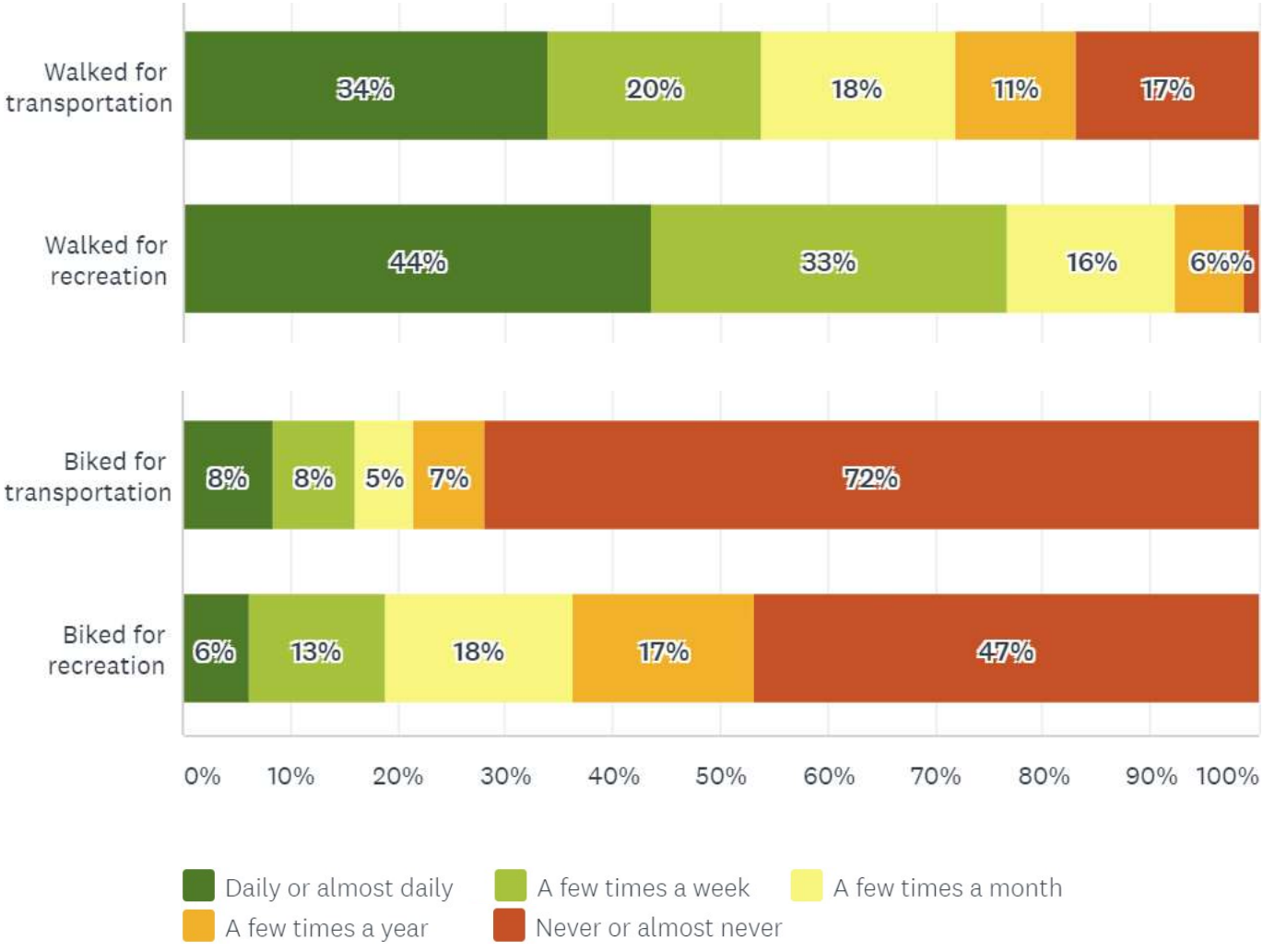
It is worth noting that for these types of questions, the first part (the five-point scale) almost always receives many more responses than the second part (the follow-up comment). The main reason is that people who are unsatisfied or unsupportive are more likely to take the time to submit a comment than people who are satisfied or supportive. More importantly, this also explains why, for example, under question 15, more than three-quarters of respondents indicated that they support the

installation of speed humps strongly or somewhat whereas the opinions in the explanatory comments tend to be more negative.

Q1: Walking and biking *before* the pandemic

The first question asked, "How often did you walk or bike in Piedmont before the pandemic, either for transportation (school, work, transit, shopping, etc.) or for recreation (fun, exercise, etc.)?" As shown on the first bar of the chart below, more than half of respondents (54%, representing the dark-green and light-green bands combined) used to walk in Piedmont for transportation at least a few times a week; meanwhile, more than three-quarters (77%) did so for recreation (second bar). At the other end of the spectrum (the red and orange bands combined), 28% rarely or never walked for transportation (first bar) and 7% rarely or never walked for recreation (second bar).

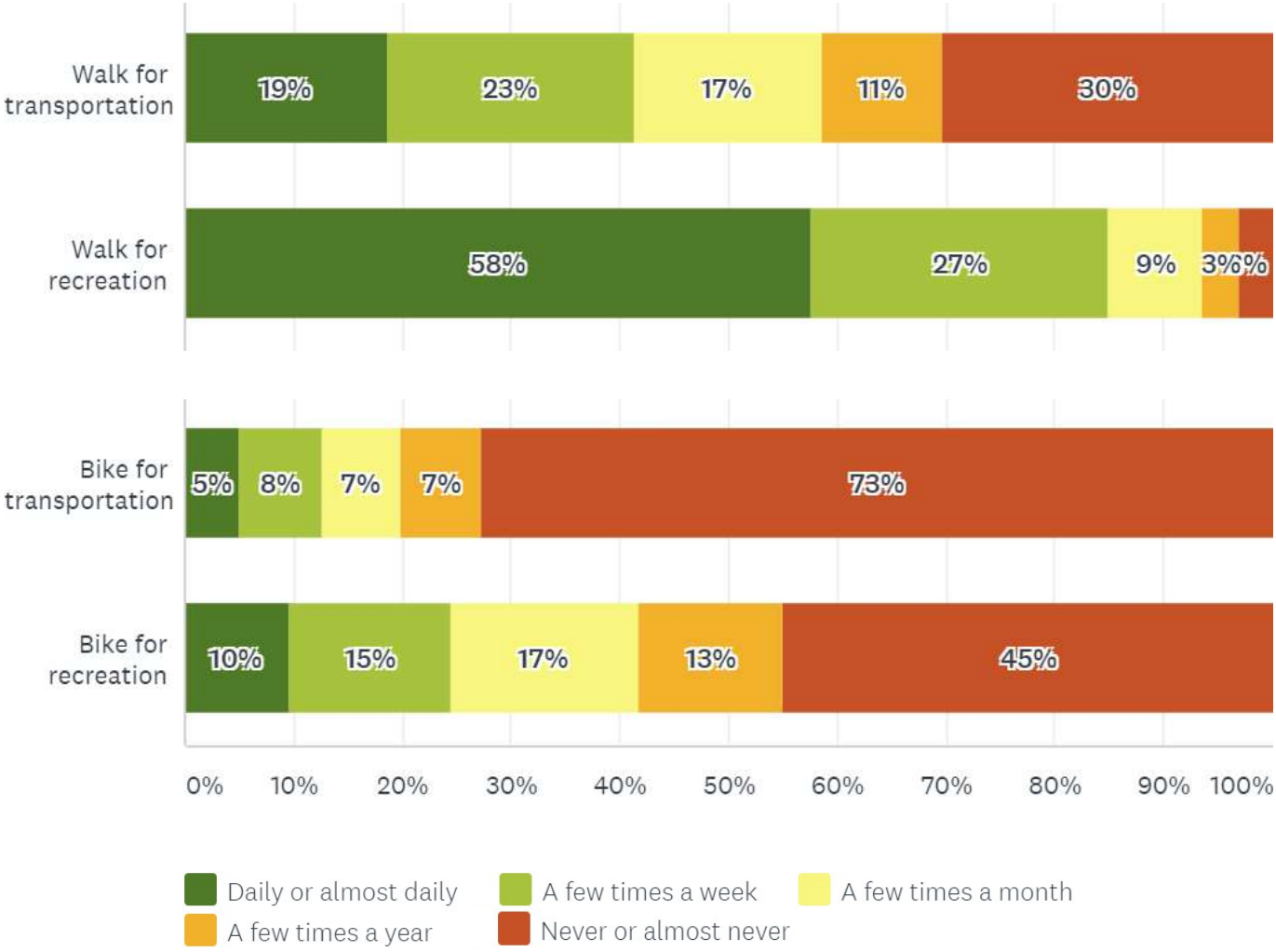
As far as biking (the third and fourth bars below), 16% of respondents used to bike in Piedmont for transportation at least a few times a week while 19% did so for recreation (fourth bar). On the other hand, almost 80% rarely or never biked for transportation and almost two-thirds (64%) rarely or never biked for recreation.



Q2: Walking and biking *during* the pandemic

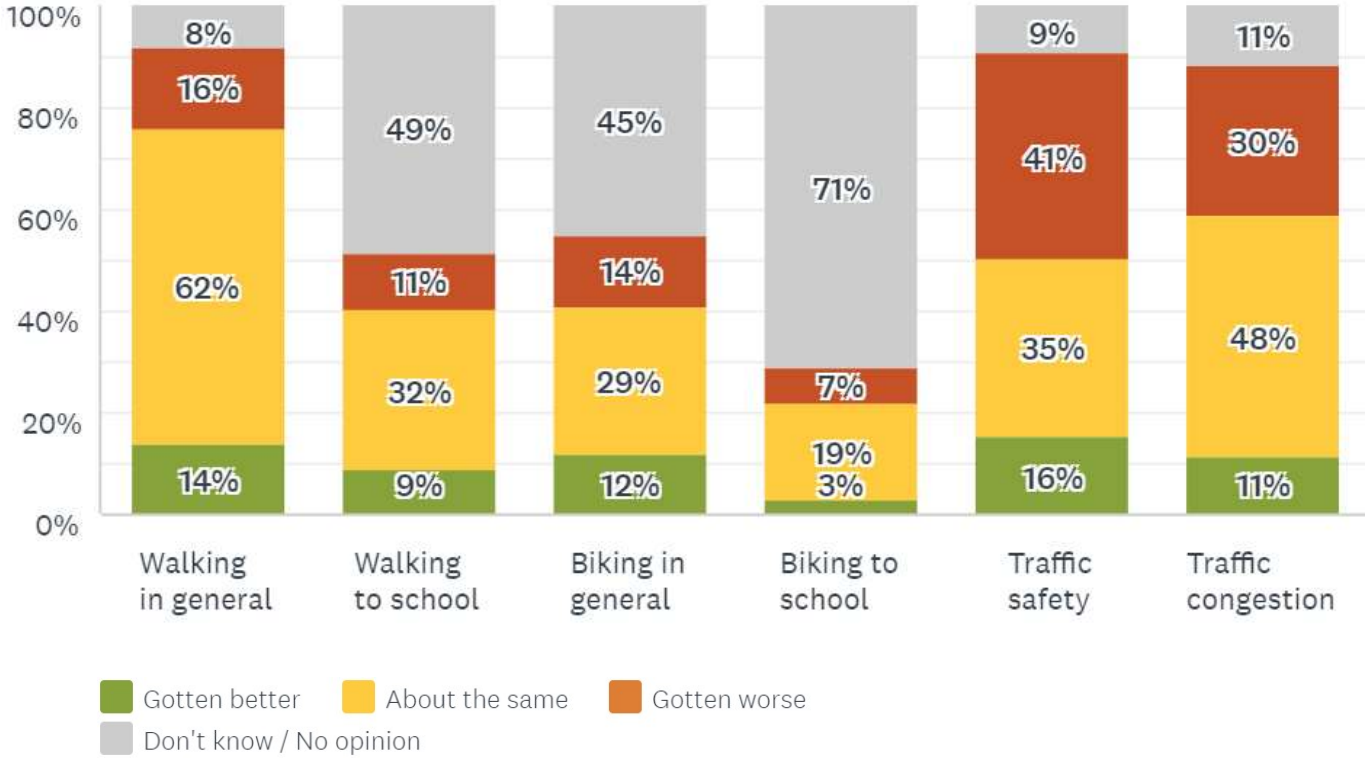
This question asked, "…during the pandemic, how often do you walk or bike in Piedmont, either for transportation or for recreation?" The first bar of the chart below shows that 42% of respondents walk at least a few times a week (the dark-green and light-green bands combined) for transportation. As might be expected, this figure was higher before the pandemic (54%; see Question 1), when more people were commuting or out running errands. The second bar shows that 85% are now walking at least a few times a week for recreation; not surprisingly, this figure is higher now than before the pandemic, when it was 77%.

The changes are similar for biking (the third and fourth bars below): fewer respondents bike at least a few times a week for transportation now compared to before the pandemic (13% against 16%) while more respondents do so now for recreation (25% against 19%).



Q3: Changes in recent years

This question asked, "How have [the activities or conditions on the list below] changed in Piedmont in recent years?" In almost every case, the majority of respondents feel that conditions are about the same or do not have an opinion (yellow and gray bands combined). At the same time, in all cases more people feel that conditions have gotten worse (red bands) rather than better (green bands). This is especially true for traffic safety—41% said conditions have gotten worse, compared to 16% who said they have gotten better—and for traffic congestion, where the respective percentages were 30% and 11%.



The question included a sub-question asking, "Do you have more specific information about any recent changes? You can mention, for example, changes in driving behavior or changes on a particular street or intersection." 230 people submitted a response (see **Appendix A**). Below are key common themes from those responses:

- Walking and biking have increased throughout Piedmont in general but have decreased around schools during the pandemic. Because of the lack of sidewalks, there are more people walking in the roadway, which is a safety concern.
- Drivers seem to be speeding more on the main streets, such as Highland, Moraga, Grand, Oakland and Mountain Avenues. Speeding could be addressed through more enforcement and educational outreach to drivers, including young, new drivers.
- New improvements such as stop signs and crossing enhancements and have increased safety for pedestrians and cyclists. However, some drivers are still not getting the message.
- The Grand Avenue road diet elicits mixed feelings: it has improved conditions for cyclists and pedestrians but increased congestion and caused more traffic and speeding on adjacent streets.

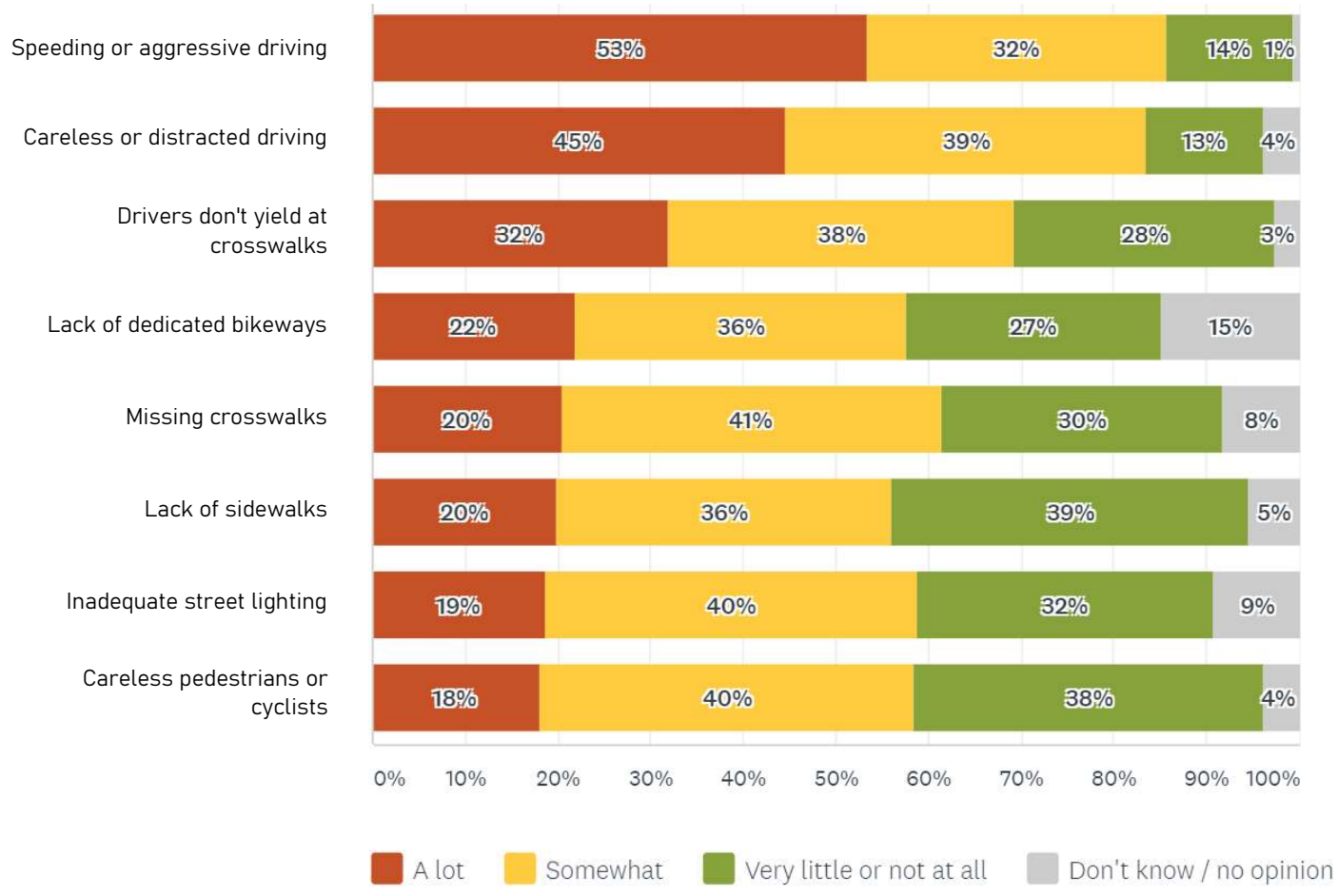
Q4: Changes during the pandemic

This was an open-ended question asking, "What changes have you noticed in walking, biking or traffic conditions during the pandemic?" 280 people responded to this question (see **Appendix B**). Common themes from the responses include:

- More people out walking and biking recreationally, especially during the daytime.
- More walking in the roadway due to social distancing requirements and lack of sidewalks in some places.
- Less car traffic but more speeding and erratic driving because there is also less congestion.
- More delivery trucks, which speed and violate parking regulations more than local residents.

Q5: Factors that contribute to unsafe traffic conditions

This question listed several factors that can make for unsafe traffic conditions and asked, "In your opinion, how much do these factors contribute to unsafe conditions in Piedmont?" (The order of the items was randomized on the online survey.) As shown on the chart below, the three factors that respondents most feel contribute "a lot" (red bands) to unsafe traffic conditions in Piedmont are: (i) Speeding or aggressive driving (53% of respondents feel this contributes a lot); (ii) Careless or distracted driving (45%); and (iii) Drivers not yielding at crosswalks (32%).



Q6 and Q7: Traffic safety concerns on respondents' block or street, and at other specific locations

Question #6 was an open-ended question asking, "…are there any serious traffic safety issues or concerns on your block or street?" 252 people responded (see **Appendix C**). Question #7 asked a similar but different question: "…are there any serious traffic safety issues or concerns at other specific locations in Piedmont that you are aware of?" 173 people responded (see **Appendix D**).

Because of what Question #6 asked, there were comments about a long list of streets and intersections in Piedmont. However, a disproportionate number of responses to both Questions #6 and #7 touched on the few main streets (with many comments focusing on speeding). Because the responses overlapped to a large extent, this summary combines the responses to both questions:

- Several areas of concern were raised about Oakland Avenue: speeding; inadequate pedestrian crossings; drivers failing to yield to pedestrians; and drivers not paying attention to pedestrians when turning onto or from side streets.
- Similar concerns on Grand Avenue, including speeding but also misaligned pedestrian crossings, poor sight lines due to the on-street parking and lack of signalized crossings.
- The Grand Avenue road diet and traffic on Oakland Avenue are both causing drivers to cut through—and speed—on side streets.
- Speeding on Wildwood Avenue is a key concern because of the presence of school-going children.
- Speeding on Moraga Avenue presents a special danger to cyclists because of the hills and curves, and to pedestrians at several intersections, especially at Coaches Field.
- Speeding is also a concern on the wide segment of Highland Avenue, as are pedestrian crossings with limited sight lines for drivers due to the on-street parking.

Q8: Ideas for improving traffic safety

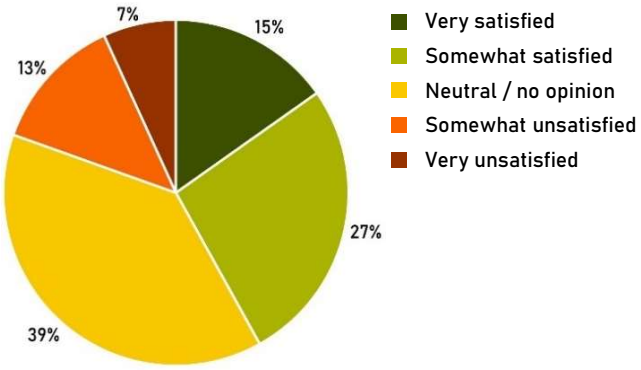
This question asked, "Do you have any ideas [other than street improvements or more traffic enforcement] for improving traffic safety in Piedmont?" 162 people responded (see **Appendix E**). Ideas commonly expressed in the responses include:

- Lower posted speed limits.
- Educational campaigns to address speeding and reckless driving, especially targeting new drivers.
- More pedestrian and bicycle infrastructure, including speed humps/bumps, wider sidewalks, lighted crosswalks, signage, road diets and bike lanes, especially near schools.
- Piloting "slow streets" or "local-traffic-only streets" to calm traffic while encouraging more walking and biking.
- Educating cyclists and pedestrians of all ages about safe use of the streets, including encouraging people to walk on sidewalks instead of in the roadway.
- Consider removing parking and creating one-way streets to allow for bike lanes or sidewalks on streets that would strengthen bicycle and pedestrian connections.

Q9: Recently installed bikeways

This question asked, "Since [2014], the City has installed bike lanes or signed bike routes on segments of Grand, Highland, Linda, Magnolia, and Moraga Avenues. How satisfied are you with the bikeways that have been installed in recent years?"

As the pie chart below shows, more than twice as many respondents were very or somewhat satisfied (42%, representing the dark-green and light-green slices of the pie combined) than were very or somewhat unsatisfied (20%—the red and orange slices combined). The remainder (39%) were neutral or did not have an opinion. (The numbers do not add up to 100% due to rounding.)



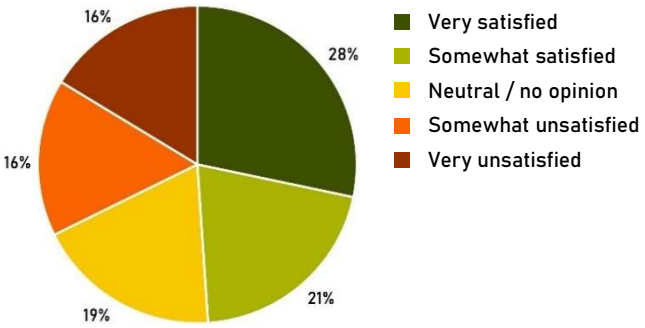
The question included a field allowing people to explain why they were satisfied or unsatisfied with the recently installed bikeways. 124 people responded (see **Appendix F**). Key common themes from the responses include:

- While safer for cyclists, the road diet and bike lanes on Grand Avenue have worsened congestion, and there are not enough cyclists to warrant the inconvenience to drivers.
- While new bike lanes on portions of Moraga Avenue were welcomed, there are continued significant safety concerns on the street related to speeding and the street's hilly, curvy nature.
- The City should install more bike lanes, including protected bike lanes (which feature some physical separation between cyclists and cars, such as painted buffers and plastic bollards).

Q10: Grand Avenue road diet

This question asked, "In 2016, the City put Grand Avenue on a road diet by removing a travel lane in each direction and using the freed-up space for bike lanes and a center turn lane (see photo below). How satisfied are you with that project?"

As shown on the chart, opinion was split, with almost half of respondents being very or somewhat satisfied (49%) and a third (32%) being very or somewhat unsatisfied.



171 people explained why they are satisfied or unsatisfied with the Grand Avenue road diet (see **Appendix G**). Below are key common themes from those comments:

- The bike lanes have made cycling a viable option on the street and have made it easier for pedestrians to cross.
- The road diet has greatly increased traffic back-ups and delay, especially during commute hours, and the bike lanes are not used enough to warrant these impacts.
- The turning lane has made it easier for cars to make left turns while protecting pedestrians and cyclists.
- The road diet would benefit from additional changes, such as safer transitions for the bike lanes, intersection crossing enhancements, synchronized traffic lights, and more traffic coordination with the City of Oakland.

Q11: City's bikeway network

This was an open-ended question asking, "Now that the 2014 plan is being updated is a good time to revisit the City's bikeway network. Are there any streets that should be added to, or removed from, the network? Why? Any other thoughts or comments about the bikeway network?"

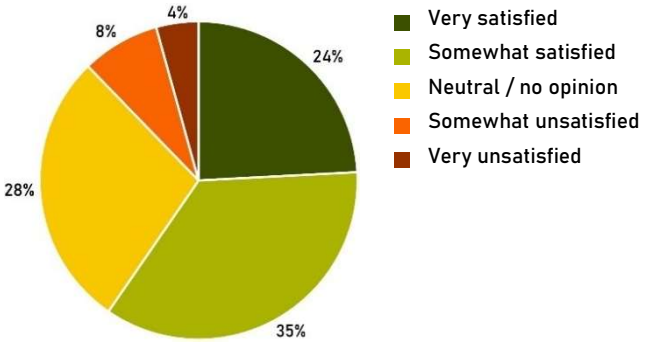
122 people responded to this question (see **Appendix H**). Key common themes from the responses include:

- The city cannot readily accommodate more bikeways due to on-street parking needs, the width of streets and the topography, among other factors.
- The road diet on Grand Avenue has caused traffic back-ups and delays. The street should revert to four travel lanes, and the road diet concept should not be replicated on Highland Avenue.
- Moraga Avenue needs bike lanes along its entire length, including because Coaches Field is a popular destination for children.
- Fill in the bike lane gaps on Highland, Sheridan and Wildwood Avenues and Hampton Road.
- Consider bike lanes on St. James and Scenic Avenues and on Oakland Avenue's uphill direction.

Q12: Recently installed intersection improvements

This question asked, "The 2014 Pedestrian and Bicycle Master Plan proposed improvements at 27 intersections around the City to make them safer for pedestrians to cross…. How satisfied are you with the intersection improvements that have been installed in recent years?" The question referred respondents to a map, list and description of the proposed improvements, and also to an illustration of sample improvements.

Almost 60% of respondents are very or somewhat satisfied with the recently installed intersection improvements while only a fifth as many (12% of the total) are very or somewhat unsatisfied.



Almost 60% of respondents are very or somewhat satisfied with the recently installed intersection improvements while only a fifth as many (12% of the total) are very or somewhat unsatisfied.

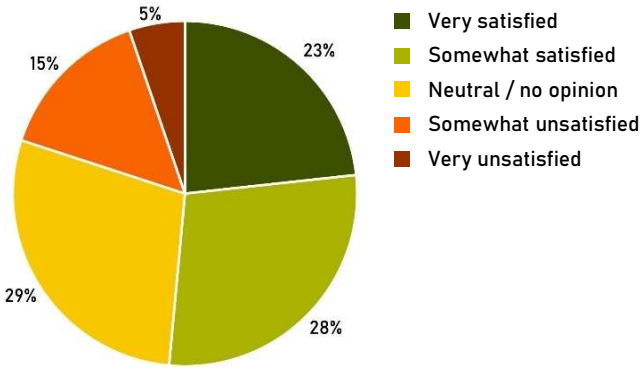
115 people explained why they are satisfied or unsatisfied with the various intersection improvements (see **Appendix I**). Below are key common themes from those responses:

- The improvements, especially those near schools, have made it safer for students who walk or bike to school.
- The improvements would benefit from better design: they pose tripping hazards for pedestrians, are confusing to drivers and are an eyesore.
- There is an appreciation for the increased number of stop signs, especially on Highland and Magnolia Avenues and Hampton Road, as speeding continues to be a top concern.

Q13: Intersection improvements at Grand and Fairview Avenues

This question asked, "In 2020, the City made improvements at the intersection of Grand Avenue and Fairview Avenue using paint, striping and plastic bollards/posts (see photo below). This is an example of quick-build street design, aimed at improving traffic safety quickly and inexpensively. How satisfied are you with that project?"

Slightly more than half of respondents (51%) are very or somewhat satisfied with the project while 20% are very or somewhat unsatisfied.



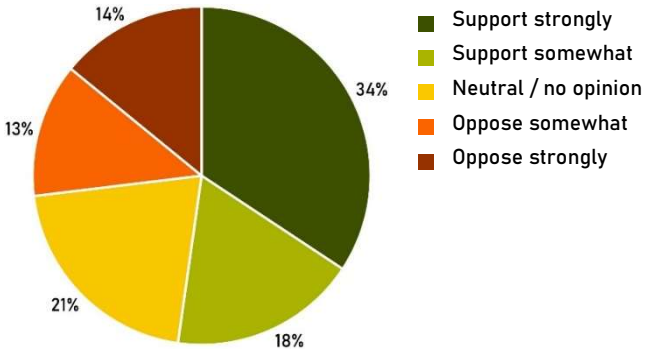
118 people explained why they are satisfied or unsatisfied (see **Appendix J**). Below are key common themes from their comments:

- The project slows cars down and makes it safer for pedestrians to cross. This solution should be incorporated in other locations around the city.
- The design is unattractive and does not fit Piedmont's character. Permanent infrastructure, especially with landscaping, would be more in line with the City's commitment to high development standards.
- The design is confusing for drivers.

Q14: Highland Avenue road diet

This question asked, "The 2014 Pedestrian and Bicycle Master Plan proposed a road diet on Highland Avenue (between Park and Magnolia). This would replace two travel lanes with bike lanes and a center turn lane. That project has not been realized yet. Do you support or oppose that proposal?"

Almost twice as many respondents support the proposal strongly or somewhat (52%) than oppose it strongly or somewhat (27%).



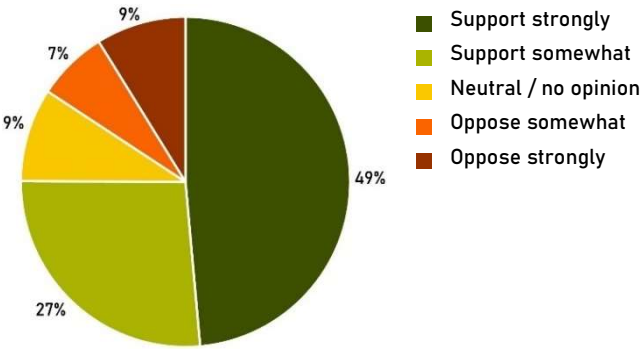
120 people explained why they do or do not support this proposal (see **Appendix K**). Key common themes from those comments include:

- The road diet will cause congestion—especially during commute hours and around Havens School and the Mulberry's Market parking lot—with little anticipated use by cyclists; the project would be an unwise use of public funds.
- There are concerns about the safety of a turning lane and of traffic spilling out onto neighborhood streets.
- Bike lanes on Highland Avenue, as a flat and straight thoroughfare, would be a major improvement for cyclists and an important piece of the city's bikeway network.

Q15: Speed humps

This question asked, "The City is considering speed humps for certain residential streets with a history of speeding. (Speed humps are gentler than speed bumps; they slow cars to 15–20 mph, whereas speed bumps slow cars to 5–10 mph.) Do you support or oppose the installation of speed humps?"

More than three-quarters (76%) of respondents support the installation of speed humps strongly or somewhat, with almost half (49%) supporting it strongly. 16% oppose it strongly or somewhat.



147 people explained why they support or do not support the installation of speed humps (see **Appendix L**). Below are key common themes from those comments:

- Speed humps are effective for slowing down drivers but should be strategically placed and should not be overused.
- If improperly designed, speed humps inconvenience cyclists and impair access by emergency vehicles.
- Speed humps are annoying for drivers to navigate and can cause damage to cars.
- Speed humps are also annoying for residents: they are unsightly and make for noisy conditions.
- Explore other measures to slow down traffic instead, including stop signs, lower speed limits, more enforcement and planted medians.
- Locations commonly suggested for speed humps include Scenic, Oakland, Highland and Mountain Avenues. Multiple other locations were also mentioned.

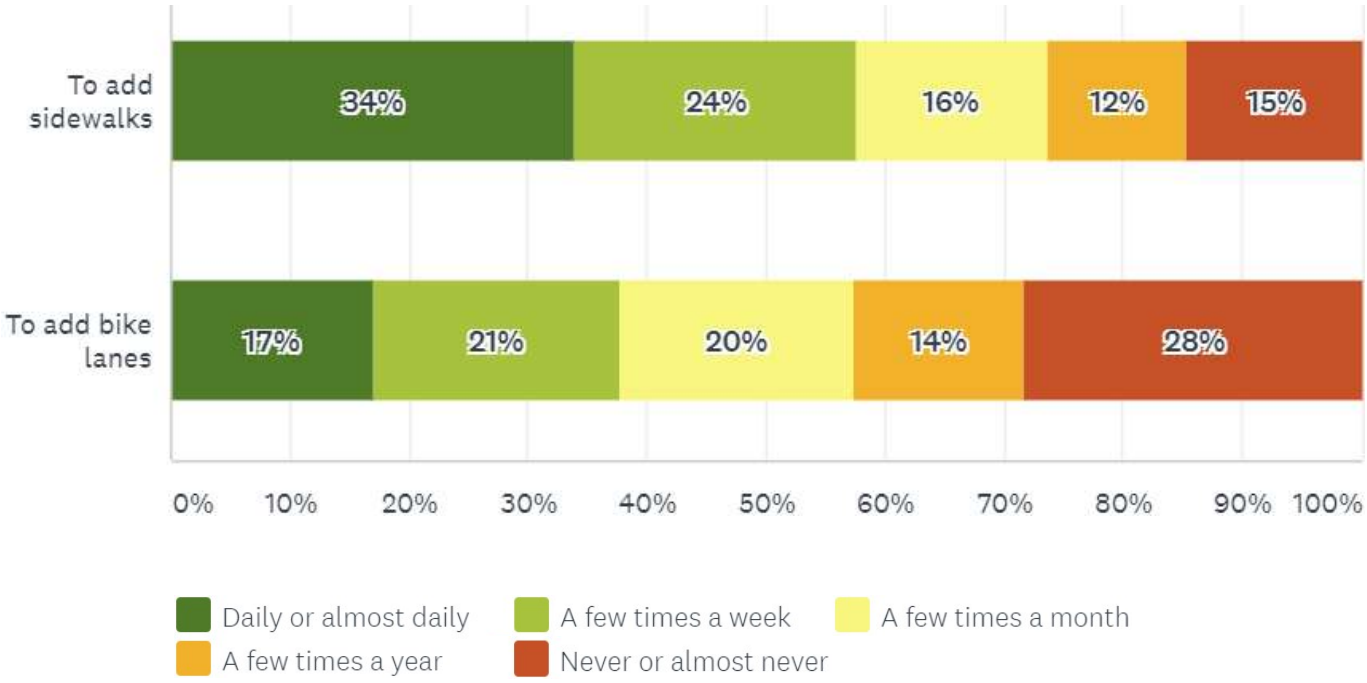
Q16: Removal of street parking

This question asked, "Many streets in Piedmont are too narrow in their current configuration to fit sidewalks or bike lanes. In general, to what extent do you support removing street parking on one side of the street where necessary to add sidewalks or bike lanes?"

If the purpose is to add sidewalks, almost 60% of respondents support this strategy strongly or somewhat, while 27% oppose it strongly or somewhat. If the purpose is to add bike lanes, just under 40% support it strongly or somewhat, while just over 40% oppose it strongly or somewhat.

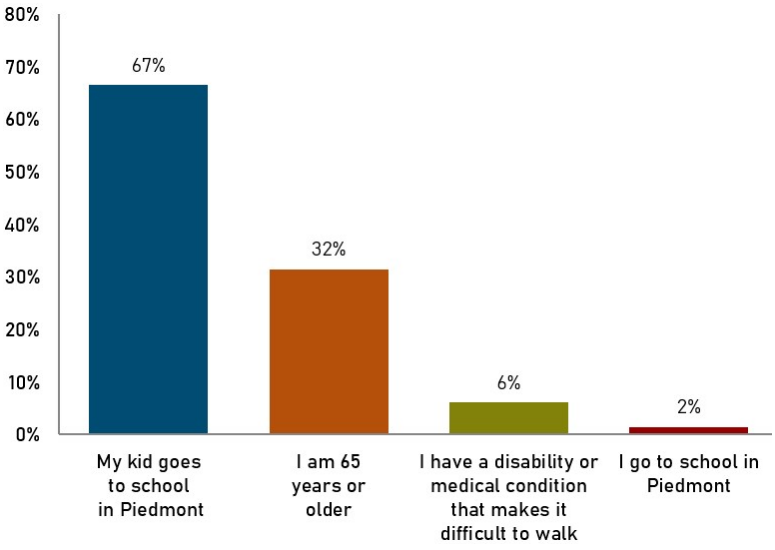
149 people explained why they support or do not support these ideas (see **Appendix M**). Key common themes from those comments include:

- Remove on-street parking to fill in missing sidewalks in order to address concerns about pedestrians having to walk in the roadway.
- Remove parking on narrow streets to make it easier for emergency vehicles to get through.
- This is much less necessary for bike lanes, for several reasons: there is not enough demand to warrant it; cyclists should use the roadway; and parked cars slow down traffic, which makes it safer for cyclists.
- On-street parking is scarce in Piedmont, so it should not be removed.
- On-street parking could be removed if more people used their driveways and garages.
- These decisions should be made based on the will of the people who live on the affected streets.
- Any removal of on-street parking should focus on streets that serve as key pedestrian and bicycle routes and connectors.



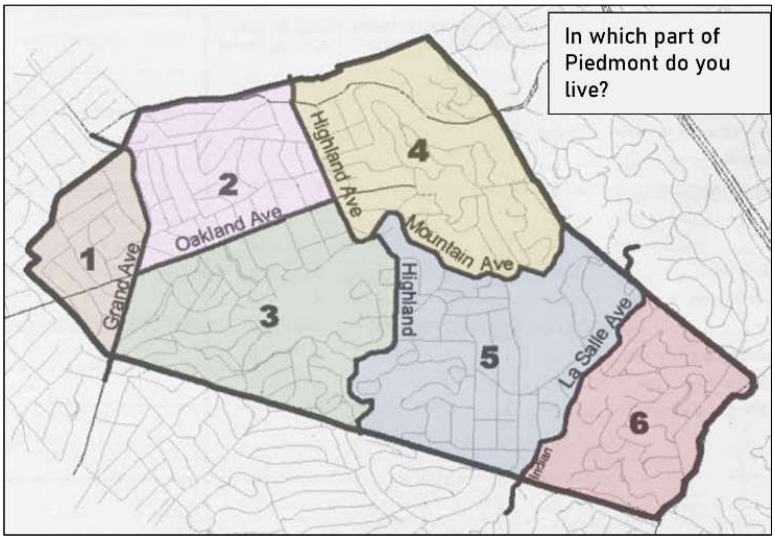
Q17: Demographics

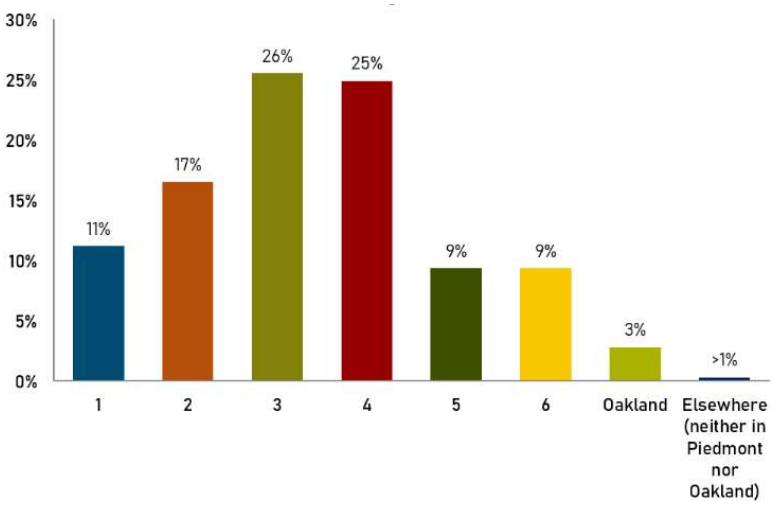
As the bar chart at right shows, two-thirds (67%) of respondents have a child who attends school in Piedmont, while an additional 2% of respondents are kids themselves who go to school in Piedmont. One third of respondents (32%) are 65 years or older. Lastly, 6% have a disability or medical condition that makes it difficult to walk at least some of the time.



Q18: Place of residence

This question asked people in which part of Piedmont they live, based on the map at right. As shown on the bar chart below the map, approximately one quarter each of respondents live in the areas labeled 3 (roughly, south of Oakland Avenue and west of Highland Avenue) and 4 (east of Highland Avenue and north of Mountain Avenue). Altogether, 97% of respondents live in Piedmont, while 3% live in Oakland.





Q19: Drawing for gift cards; sign-ups for project updates

- 233 respondents provided their email address in order to be entered in the drawing for one of three $50 gift cards for Mulberry's Market. (See the end of this chapter for the results of the drawing.)
- 177 people provided their email address in order to receive announcements and updates about the Piedmont Safer Streets project.

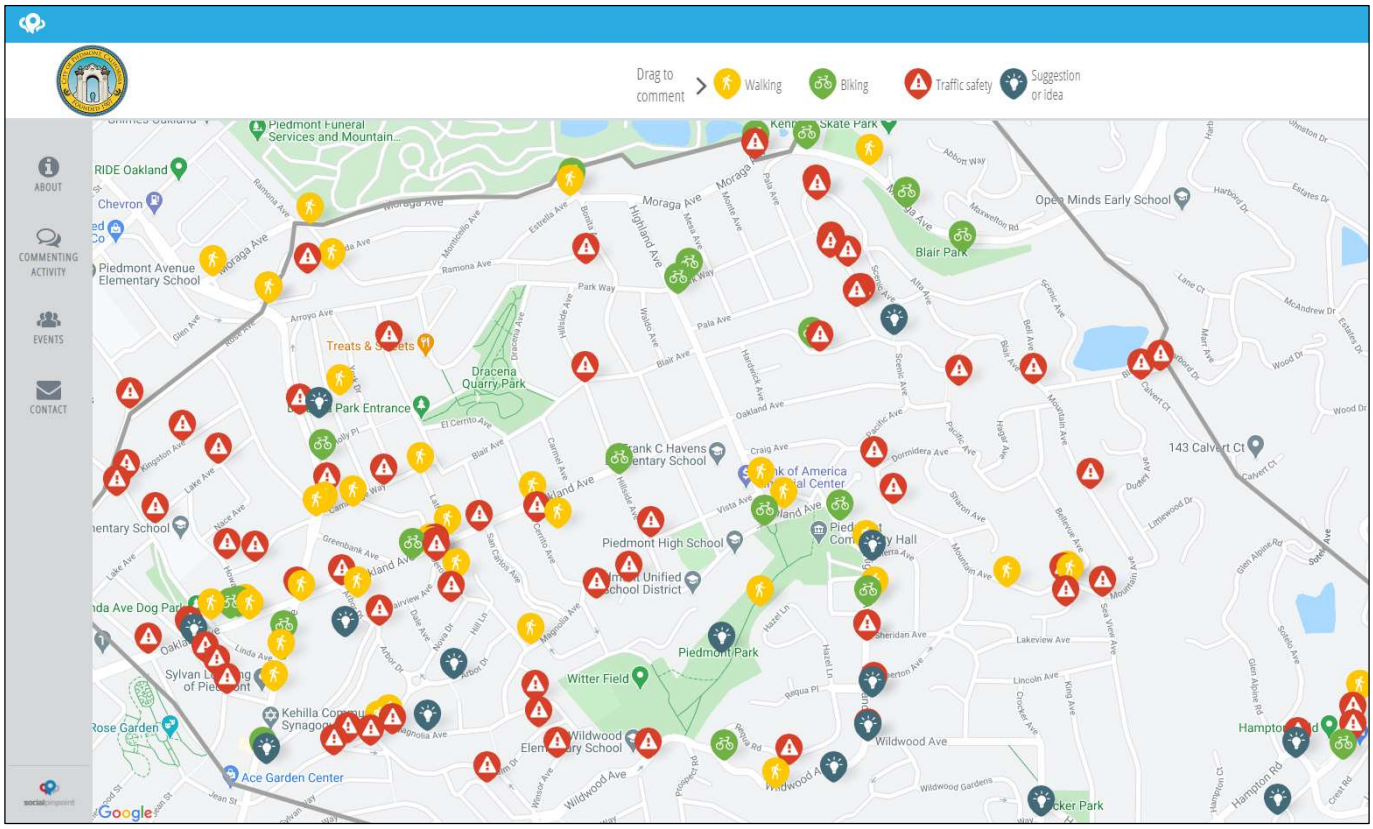
Pinnable map

The City set up an online map on which people could pin markers with location-specific as well as general comments, and also read and respond to the comments that others pinned. The map was open for comment during the same time period as the survey, from November 20, 2020 to January 3, 2021. People who posted comments on the map also were entered in the drawing for the Mulberry's Market gift cards mentioned earlier.

People could post four types of comments, using markers of different colors, as shown in the screenshot below: comments related to (i) walking (yellow markers), (ii) biking (green markers) and (iii) general traffic safety (red markers), and also (iv) suggestions and ideas (blue markers). People submitted 343 comments, broken down by comment type as follows:

- Comments about walking: 82 comments; these comments are listed and shown on maps in **Appendix N**.
- Comments about biking: 40 comments; see **Appendix O**.
- Comments about general traffic safety: 166 comments; see **Appendix P**.
- Suggestions and ideas: 55 comments; see **Appendix Q**.

Below is a summary of the comments under each of the comment types.



Comments about walking (82 comments)

- Of the 82 walking-related comments, all but six were posted in the western two-thirds of the city (roughly the area west of Mountain and Crocker Avenues). The main concentrations of comments are along Oakland and Grand Avenues.
- A good majority of the walking-related comments concern challenging pedestrian crossing conditions at intersections. These conditions include poorly marked crosswalks; the need for additional stop signs, crosswalks, bulbouts and street lighting; poor sight lines and visibility; and speeding drivers and drivers failing to yield to pedestrians.
- A number of additional comments concern sidewalk gaps or sidewalks in poor condition.
- The walking-related comment with the most "up votes" from other people (11, posted on Grand Avenue at Cambridge Way) stated that the existing crosswalk at this location "Should be slightly north to better capture people coming down Greenbank and Cambridge" and that it "Would be helpful to have blinking yellow lights for pedestrians, as people drive way too fast down Grand."
- Two other comments garnered more than six up votes each: (i) "Need more work" on Oakland Avenue because "Despite the lighted signs on this street, there have been many close calls with cars ignoring pedestrians in crosswalks" (posted on Oakland Avenue at Latham Street; nine up votes); and (ii) "Need a lighted crosswalk for school children" (posted at Grand and Oakland Avenues; also nine up votes).

Comments about biking (40 comments)

- A disproportionate number (28 or 70%) of the biking-related comments were posted on or north of Oakland Avenue (that part of the city represents less than a third of the city's area). Only two of the 40 comments are in the eastern third of the city.
- Also a disproportionate number of the comments are on a small handful of the City's primary streets. The streets with the most comments on or very near them are Moraga Avenue (ten comments), Grand Avenue (seven) and Highland Avenue (five).
- The top theme expressed in the biking-related comments is the need for bike lanes. People suggested bike lanes on Moraga Avenue, Highland Avenue, Hampton Road and La Salle Avenue, among other streets.
- The biking-related comment with the most up votes (nine, posted on Wildwood Avenue near Requa Road) mentioned that there is "No space for uphill cyclists between parked cars and traffic" on Wildwood.
- Two comments received eight up votes each: (i) a suggested bike lane on Moraga Avenue, ideally protected with "a curb or cones" and (ii) mention that there is "Not much space between fast moving cars and parked cars for cyclists" on Oakland Avenue in the uphill direction, and suggested a bike lane and signage.
- Two comments with seven up votes each suggested (i) bike lanes on the wide stretch of Highland Avenue and (ii) a continuous bike lane on Moraga Avenue, along with safety improvements at tight corners.

Comments about general traffic safety (166 comments)

- More comments of this type were posted on the map than of any other type of the comment; however, many of these comments are actually more specifically about walking and biking conditions.
- The comments under this category are broadly scattered throughout the city and are found on many streets, with the density of comments steadily increasing from the east side of the city to the west side.
- Among other locations, clusters of comments can be seen at the intersections of Kingston/Linda Avenues, Oakland/Jerome Avenues, Oakland/El Cerrito Avenues and Grand Avenue/Greenbank Avenue/Cambridge Way; and along the lower portion of Sunnyside Avenue, Portsmouth Road, Scenic Avenue and upper Blair Avenue, near the reservoir.
- A clear majority of the comments under this category regard speeding. Other concerns commonly cited include challenging pedestrian crossing conditions at intersections; distracted drivers; narrow travel lanes; and locations with

poor visibility and sight lines due to curves, on-street parking, overgrown vegetation or inadequate night-time street lighting.
- The comment under this category with the most up votes (15) mentioned that most cars do not stop at the crosswalk on Oakland Avenue at Sunnyside Avenue and asked that the crossing be made more visible.
- Two other comments collected more than 10 up votes each: (i) crossing Jerome on Oakland is dangerous (11 up votes); and (ii) the bollards installed at Nova Drive and Magnolia Avenue have created a confusing, unsafe situation and are "exceedingly ugly" (also 11 up votes).

Suggestions and ideas (55 comments)

- Of the 55 suggestions and ideas, 46 (or 84%) were posted on the western two-thirds of the city; nine (16%) are on the eastern third.
- The top suggestion topics are (i) ways to slow down speeding cars on various streets and (ii) locations where more or better street lighting is needed.
- The suggestion or idea with the most up votes by far (12) mentioned replacing the "unsightly" bollards at Grand and Fairview Avenues with "landscape and a water retention swale."
- The suggestion with the next most up votes (six) mentioned closing the "Olive–Sunnyside Loop that is bounded by Oakland Avenue…to traffic to the extent possible to allow for" more walking and cycling.
- Only two other suggestions received more than three up votes each: (i) marking the stairways and footpaths that exist around the city "consistently and simply" so that people realize that they are public rights-of-way (four up votes); and (ii) having a proper crosswalk at the stop sign on southbound Highland Avenue at Wildwood Avenue (also four up votes).

Drawing for Mulberry's Market gift cards

Anyone who submitted a comment through the online survey or pinnable map and who provided an email address was entered in a drawing for one of three $50 gift cards for Mulberry's Market. The drawing was held on January 4, 2021, using an online application called Random.org. 343 unique email addresses were entered in the drawing.

The three winners are listed below (their email addresses have been anonymized for privacy). All three redeemed their gift card.

- ji…49@gmail.com
- ji…er@gmail.com
- ke…li@sbcglobal.net

Project website and email

The home page of the Piedmont Safer Streets website (PiedmontSaferStreets.org) contained a form that people could use to sign up for the project contact list and also ask questions and submit comments. In addition, people could send comments to the project email address (info@Piedmont SaferStreets.org). In total, 54 comments were submitted through the project website or the project email address. These comments are listed in **Appendix R**.

The majority of the comments in that appendix (comments 22–54) were submitted as part of a neighborhood effort by Rose Avenue residents to brainstorm ideas to improve traffic safety on that street, particularly at the intersection with Echo Avenue. As for the remaining comments in Appendix R, it is not possible to summarize them meaningfully, as there are too few of them and they address many different topics. However, the comments were considered when identifying the overall key themes from the community needs assessment (see the "Key Input Themes" section at the end of this chapter).

Community workshop

As part of the needs assessment, the City hosted a virtual community workshop (on Zoom) on the evening of Wednesday, December 9, 2020. The workshop consisted of a presentation on the background and objectives of the Piedmont Safer Streets project, followed by a group discussion of various topics regarding walking, biking and general traffic safety in Piedmont. The topics were the same as those covered on the online survey.

A recording of the community workshop is available here. Comments made at the workshop were also considered when identifying the key input themes (below) from the needs assessment.

Key input themes

As mentioned previously, the City received more than 2,500 comments from the public through the five channels described above. The comments, which are compiled in appendices to this report, offer a rich, detailed look at the community's thoughts and opinions regarding walking, biking and traffic safety in Piedmont.

Below are the main themes that emerged from the comments, revealing Piedmonters' main areas of concern and key opportunities for improving conditions:

- The main concern expressed by commenters, perhaps by a large margin, is speeding traffic. Speeding is foremost a safety issue, especially for pedestrians and cyclists, who are more vulnerable users of the streets, but also for drivers. Speeding also has a corrosive effect on general neighborhood livability. Commenters' suggestions for curbing speeding ranged widely, including physical traffic calming measures, educational campaigns, stop signs, lower speed limits and more police enforcement.
- Specific to walking, the main concern, by far, is challenging crossing conditions for pedestrians at intersections. These conditions include poorly marked crosswalks; the need for additional stop signs, crosswalks, bulbouts and street lighting; poor sight lines and visibility; and speeding drivers and drivers failing to yield to pedestrians. A secondary walking-related concern is gaps in sidewalk coverage and existing sidewalks in poor condition.
- Regarding biking, the main need—other than addressing speeding—is to fill in gaps in the bikeway network, with segments of Moraga Avenue being among the most important gaps.
- There are mixed feelings regarding the Grand Avenue road diet. The project has improved safety for bicyclists and also pedestrians but causes back-ups, delays and spillover traffic onto adjacent streets.
- Similarly, there are mixed feelings regarding recently installed low-cost intersection improvements, such as at Grand and Fairview Avenues and at Nova Drive/Magnolia Avenue. These enhancements slow down traffic and make it easier for pedestrians to cross but are considered confusing and visually unattractive by many.
- Another specific concern is inadequate visibility and sight lines at many locations throughout the city. Contributing factors include street curves, on-street parking close to intersections, overgrown vegetation and inadequate night-time street lighting.

4 | Recommended Projects

As described in the introductory chapter, the objectives of the Piedmont Safer Streets plan included determining changes in the community's needs and concerns regarding walking, bicycling and general traffic safety; updating the proposed recommendations in the 2014 pedestrian and bicycle plan; and incorporating recommendations to address broader traffic safety.

This chapter outlines a set of recommended projects to address Piedmonters' top concerns as expressed through the community needs assessment for the Piedmont Safer Streets plan. This is essentially a work program of projects and activities for City staff, decision-makers and the larger community to undertake over approximately the next ten years, from 2022 through 2031.

The community's top concerns regarding walking, biking and traffic safety can be summarized as follows:

- Unsafe conditions at crosswalks—especially for children—resulting from drivers failing to see or yield to pedestrians.
- The lack of designated bikeways on the City's streets.
- Speeding traffic, which creates unsafe conditions for all street users: pedestrians, cyclists and other drivers.

To address these concerns, this plan recommends four main projects, as well as a set of additional, smaller-scale recommendations. The rest of this chapter describes each of these in more detail. Of the four main projects, the first three update recommendations in the 2014 plan, while the fourth one is designed to address speeding, an issue that did not receive sufficient attention in the 2014 plan.

Top recommended projects

1. Enhanced street crossings at key locations
2. Designated citywide bikeway network
3. Highland Avenue reconfiguration study
4. Neighborhood traffic calming program

1 Enhanced street crossings at key locations

The 2014 Pedestrian and Bicycle Master Plan (PBMP) included as a high priority, street-crossing enhancements at 27 key locations around the City. Crossing enhancements remain a high priority because they address the most common walking need expressed by Piedmonters through the needs assessment for this plan: challenging crossing conditions at intersections, especially for children.

The intersection of Grand and Fairview Avenues.

To address that concern, this plan proposes to install a range of crosswalk enhancements at priority locations around the City. These could include striped crosswalks; sidewalk bulbouts; advanced yield or stop lines; flashing crossing signs; pedestrian refuges or islands in the middle of the street; flashing radar speed signs on the approaches; and specially colored pavement. Figure 3, on the following page, shows a visual "toolkit" of sample crossing treatments to improve pedestrian comfort and safety at intersections. In addition, given that funds for transportation improvements are limited, Chapter 6 suggests lower-cost treatments to make crossings more pedestrian-friendly.

Since 2014, both minor improvements, such as painted crosswalks and stop signs, and more substantial changes have been made at a number of intersections (see Chapter 2) even though they are not on the 2014 priority list. There are several reasons for this. Some locations were improved opportunistically as part of larger projects (for example, as of this writing improvements are being made at Sunnyside and Howard Avenues as part of the Oakland Avenue pavement rehabilitation project). In other cases, projects emerged out of initiatives spearheaded by groups of neighbors.

As far as the 27 locations identified in the 2014 plan, improvements have been made at six locations:

- Linda Avenue at Beach School (mid-block crossing): Bulbouts, flashing beacons and new street lighting.
- Grand Avenue/Fairway Avenue: Intersection narrowing and crosswalk improvements using paint, striping and plastic posts.
- Highland Avenue/Craig Avenue: Bulbouts and enhanced crosswalks.
- Stop sign controls at:
  - Magnolia Avenue/El Cerrito Avenue
  - Magnolia Avenue/Park View Avenue
  - Wildwood Avenue/Prospect Road

The remaining locations are shown on the map in Figure 4 and are listed in the table following the map. As noted in the "Considerations" column, the locations were selected based on public input and by giving particular consideration to the city's four arterials—Grand, Highland, Moraga and Oakland Avenues—and to large, busy or confusing intersections near a school or on key school routes, namely Magnolia and Wildwood Avenues. (At the suggestion of City staff, one of the locations from the 2014 plan—Moraga Avenue/Red Rock Road—has been replaced with another location nearby, Moraga Avenue/Mesa Avenue; see the table on page 37 for an explanation of this change.) The last six locations on the list (#16–21), while not having particularly high foot traffic, were selected to create a safer route for students who live east of the Civic Center to walk to school.

Given the high demand and competing needs for pedestrian improvements, Chapter 5 proposes a subset of the highest-priority locations among the 21 recommended locations. These highest-priority locations—ten of them—are shown in Figure 4 in orange, while the remaining recommended locations are shown in yellow.

Fig. 3 | **Sample treatments for enhanced street crossings**

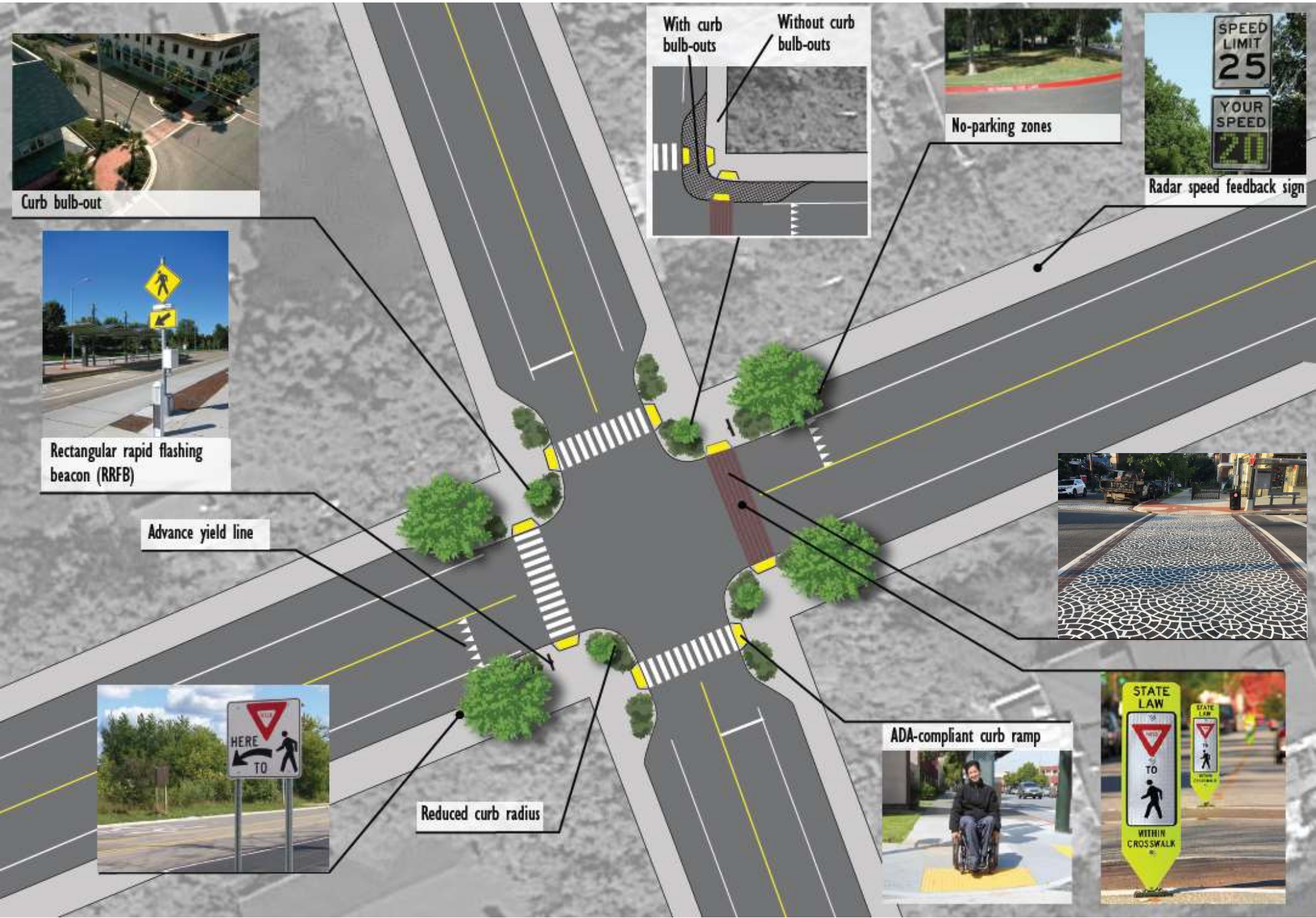
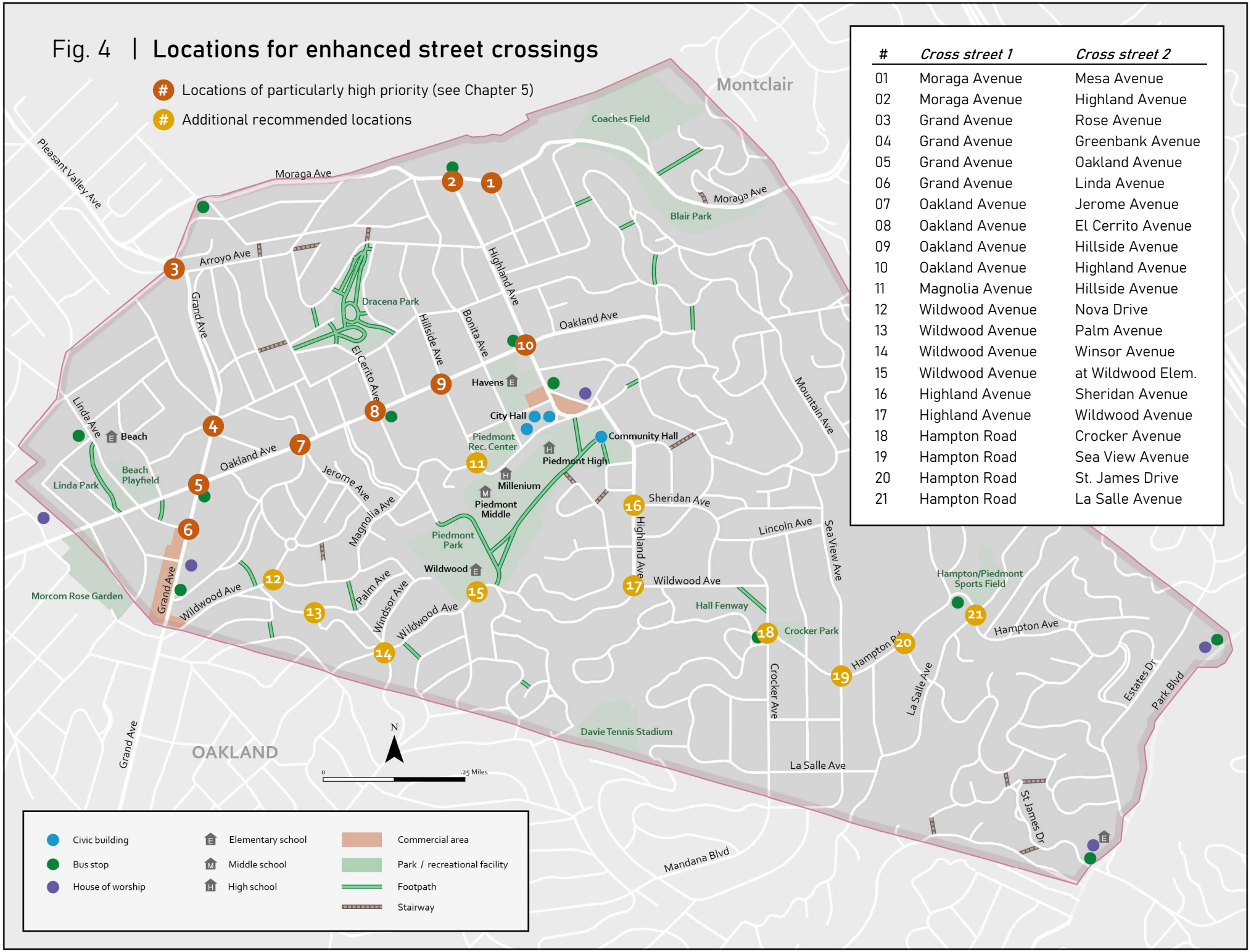


Fig. 4 | Locations for enhanced street crossings



#	*Cross street 1*	*Cross street 2*
01	Moraga Avenue	Mesa Avenue
02	Moraga Avenue	Highland Avenue
03	Grand Avenue	Rose Avenue
04	Grand Avenue	Greenbank Avenue
05	Grand Avenue	Oakland Avenue
06	Grand Avenue	Linda Avenue
07	Oakland Avenue	Jerome Avenue
08	Oakland Avenue	El Cerrito Avenue
09	Oakland Avenue	Hillside Avenue
10	Oakland Avenue	Highland Avenue
11	Magnolia Avenue	Hillside Avenue
12	Wildwood Avenue	Nova Drive
13	Wildwood Avenue	Palm Avenue
14	Wildwood Avenue	Winsor Avenue
15	Wildwood Avenue	at Wildwood Elem.
16	Highland Avenue	Sheridan Avenue
17	Highland Avenue	Wildwood Avenue
18	Hampton Road	Crocker Avenue
19	Hampton Road	Sea View Avenue
20	Hampton Road	St. James Drive
21	Hampton Road	La Salle Avenue

Locations for enhanced street crossings

Map key	*Cross street 1*	*Cross street 2*	*Considerations*
01	Moraga Avenue	Mesa Avenue	Very substantial need for traffic calming on Moraga Avenue. The Moraga Avenue/Red Rock Road location has been removed from the 2014 list because of feasibility issues in providing adequate pedestrian access in Blair Park, along the south side of Moraga. (However, City staff intend to conduct a study to consider improvement options for that location.) As replacement, the Moraga Avenue/Mesa Avenue has been added because of a long history of speed-related collisions causing property damage and near-misses.
02	Moraga Avenue	Highland Avenue	Intersection of two of the city's four arterials; Moraga has high-priority need for traffic-calming.
03	Grand Avenue	Rose Avenue	Particularly busy and confusing intersection.
04	Grand Avenue	Greenbank Avenue	Poor sightlines; used by many school children.
05	Grand Avenue	Oakland Avenue	Intersection of two of the city's four arterials; used by many school children.
06	Grand Avenue	Linda Avenue	Intersection of two routes to school.
07	Oakland Avenue	Jerome Avenue	Oakland Avenue is a popular school route and a direct access route from lower to central Piedmont. Along with Moraga Avenue, it is in particular need of traffic-calming and would benefit greatly from several safer crossings spaced at reasonable intervals along its length from Highland Avenue to Grand Avenue.
08	Oakland Avenue	El Cerrito Avenue	
09	Oakland Avenue	Hillside Avenue	
10	Oakland Avenue	Highland Avenue	
11	Magnolia Avenue	Hillside Avenue	A disproportionate amount of foot traffic on Magnolia (as on with Wildwood Avenue) consists of children walking to school; it would benefit from several safer crossings spaced at reasonable intervals along its length from Nova Drive to the Civic Center.
12	Wildwood Avenue	Nova Drive	As on Magnolia Avenue, a large percentage of pedestrians on Wildwood are children walking to school and this street also would benefit from several safer crossings spaced at reasonable intervals along its length from Grand Avenue to Highland Avenue. Particular issues of concern include: a long segment without crosswalks on the western stretch of the street; an especially confusing intersection at Winsor Avenue and Wallace Road; busy crossings in front of Wildwood Elementary and into Piedmont Park; and an unconventional crosswalk design at Prospect.
13	Wildwood Avenue	Palm Avenue	
14	Wildwood Avenue	Winsor Avenue	
15	Wildwood Avenue	at Wildwood Elementary	
16	Highland Avenue	Sheridan Avenue	These crossings would create a safer route to school for students who live east of the Civic Center.
17	Highland Avenue	Wildwood Avenue	
18	Hampton Road	Crocker Avenue	
19	Hampton Road	Sea View Avenue	
20	Hampton Road	St. James Drive	
21	Hampton Road	La Salle Avenue	

❷ Designated citywide bikeway network

The 2014 PBMP also designated a citywide network of bikeways as a high priority. The network is meant to provide a higher level of service for cyclists—in terms of safety and convenience—than other streets. The bikeway network continues to be a high-priority project because it is a foundational building block of a transportation network that accommodates cyclists, an important goal of the City.

In selecting the bikeways, the PBMP took the following criteria into consideration, balancing them against each other: directness of access to key destinations; street grades, traffic speeds and volumes; existing bicycling patterns; and connection to Oakland's bikeways. For this plan, the network has been revised slightly based on input from the public. The updated network is shown on the map on the following page. The main changes to the network are:

- A new route along Arroyo and Ricardo Avenues to provide an additional connection to Dracena Park.
- Incorporation into the network of the path through the Linda Avenue Park.
- Continuation of the Crocker Avenue bike route south to Oakland.

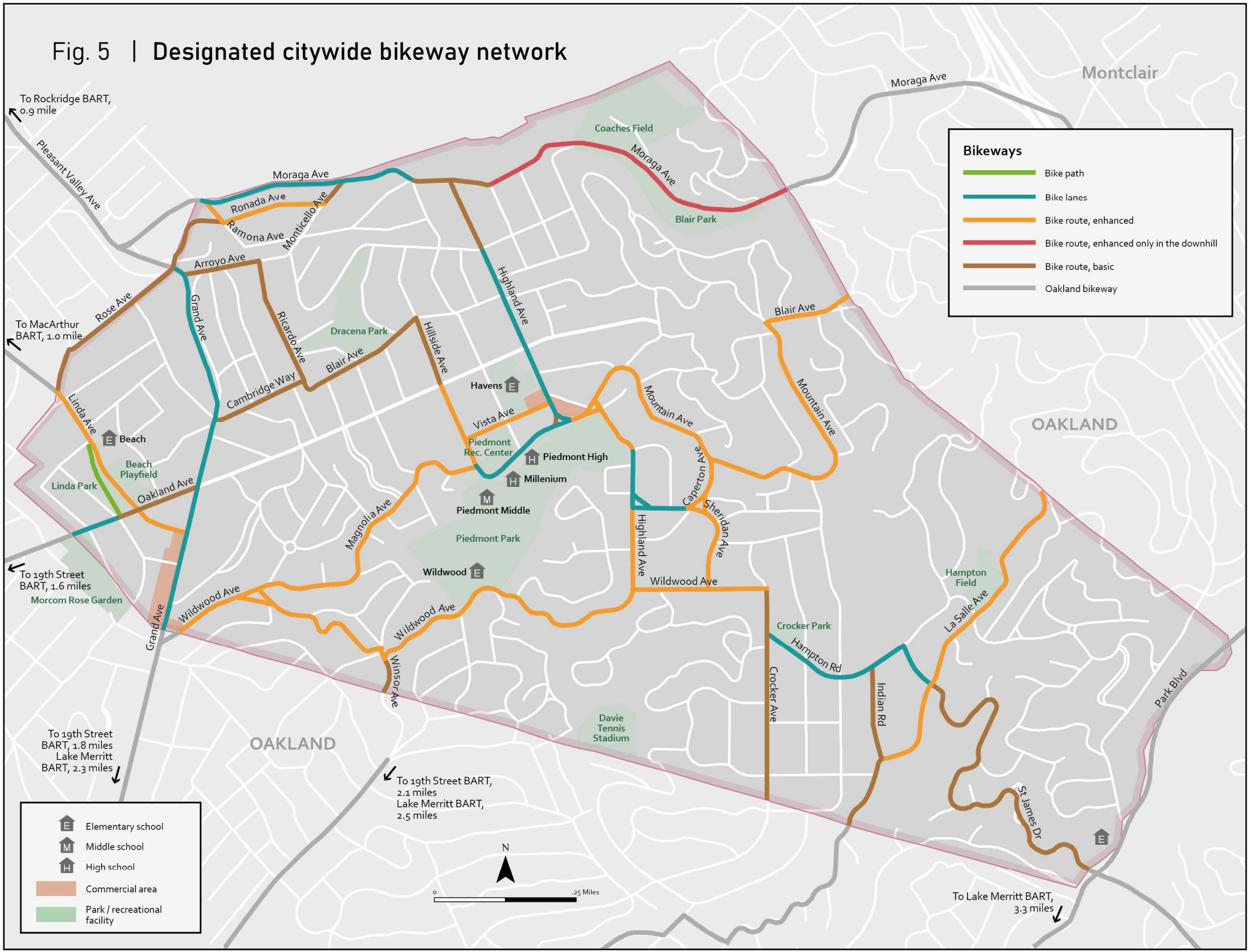
The updated network consists of approximately 12 miles of streets and off-street paths (compared to approximately 11 miles for the 2014 version). Following the map of the network is a table listing all the segments that make up the proposed network, including approximate length, type of bikeway recommended and implementation status. So far, only a small number of bikeways have been installed. The "Prioritization and Implementation" chapter proposes an approach for installing the remaining bikeways in a way that creates continuous connections and corridors to key destinations within Piedmont and in Oakland.

Like the 2014 network, the updated version consists primarily of bike lanes and bike routes. **Bike lanes** are on-street facilities marked by parallel white stripes several feet apart, a stenciled bike symbol and signage (see top image at left).

Bike routes are suggested for streets with narrow travel lanes, on which there is no room for bike lanes. Bike routes are marked with "Bike route" plaques (second image from the top) and signs reminding drivers and cyclists that bikes may use the full lane (third image).

In addition to the previous two signs, **"enhanced" bike routes** would feature sharrows (fourth image). These are pavement stencils placed in the middle of a travel lane. They suggest to cyclists where in the lane to ride, reinforce the idea that a cyclist may use the full lane, and encourage drivers to share the road. Enhanced bike routes are recommended particularly for streets where the speed differential between cars and cyclists is not significant—for example, on slower-speed streets or on downhills.

Fig. 5 | Designated citywide bikeway network



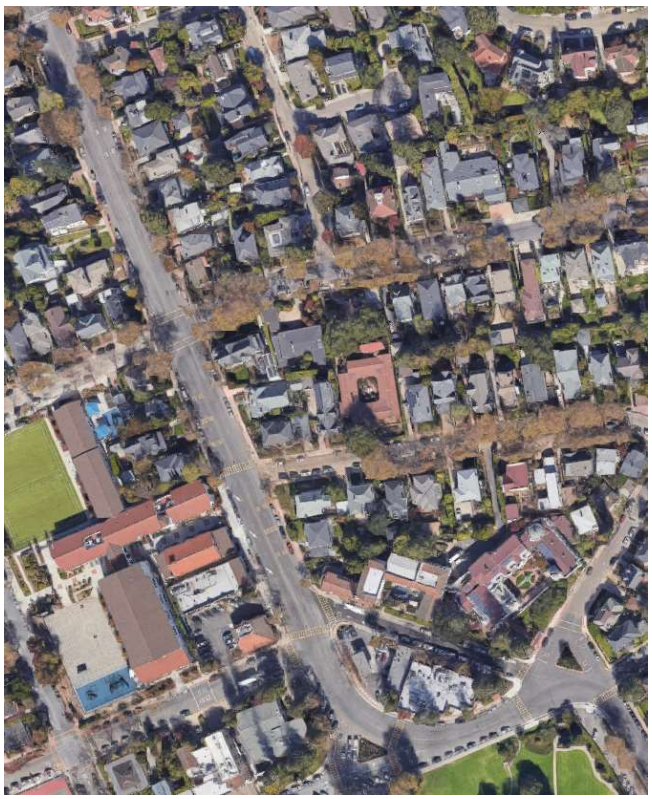
Recommended bikeway network, by street segment

Segment number	Street / location	From	To	Length (miles)	Bikeway type	Status
01	**Moraga**	Ramona	Bonita	0.4	Bike lanes	Currently bike lane on south (uphill) side, enhanced bike route on other side
02	**Moraga**	Bonita	Mesa	0.1	Bike route, basic	Existing
03	**Moraga**	Mesa	East city limit	0.6	Bike route, enhanced only in the downhill direction.	Existing (City staff is considering the feasibility of bike lanes in the uphill direction)
04	**Ramona**	Moraga	Ronada	< 0.1	Bike route, enhanced	Proposed
05	**Monticello**	Moraga	Ronada	0.1	Bike route, basic	Proposed
06	**Ronada**	Grand	Ramona	0.1	Bike route, basic	Proposed
07	**Ronada**	Ramona	Monticello	0.2	Bike route, enhanced	Proposed
08	**Rose**	Linda	Grand	0.3	Bike route, basic	Proposed
09	**Linda**	North city limit	Grand	0.4	Bike route, enhanced	Currently bike lane on north/east (uphill) side, enhanced bike route on other side
10	**Linda Avenue Park**	Linda / Lake	Oakland / Sunnyside	0.1	Bike path	Existing
11	**Oakland**	West city limit	Sunnyside	0.1	Bike lanes	In progress
12	**Oakland**	Sunnyside	Grand	0.2	Bike route, basic	In progress
13	**Grand**	North city limit	Greenbank / Cambridge	0.3	Bike lanes	Existing
14	**Grand**	Greenbank / Cambridge	South city limit	0.4	Bike lanes	Existing (project included road diet)
15	**Arroyo**	Grand	Ricardo	0.1	Bike route, basic	Proposed
16	**Ricardo**	Arroyo	Blair	0.2	Bike route, basic	Proposed
17	**Cambridge**	Grand	Ricardo	0.2	Bike route, basic	Proposed
18	**Blair**	Ricardo	Hillside	0.2	Bike route, basic	Proposed
19	**Hillside**	Blair	Oakland	0.1	Bike route, basic	Proposed
20	**Hillside**	Oakland	Magnolia	0.2	Bike route, enhanced	Proposed
21	**Vista**	Hillside	Highland	0.2	Bike route, enhanced	Proposed
22	**Highland**	Moraga	Park	0.1	Bike route, basic	Proposed
23	**Highland**	Park	Magnolia	0.4	Bike lanes	Recommendation includes road diet
24	**Highland**	Magnolia	Sierra	0.1	Bike route, enhanced	Currently basic bike route
25	**Highland**	Sierra	Sheridan	0.1	Bike lanes	Proposed

Segment number	Street / location	From	To	Length (miles)	Bikeway type	Status
26	**Highland**	Sheridan	Wildwood	0.1	Bike route, enhanced	Proposed
27	**Mountain–Highland**	East leg of the Mountain-Highland triangle		< 0.1	Bike route, enhanced	Proposed
28	**Mountain**	Highland	Blair	0.9	Bike route, enhanced	Proposed
29	**Blair**	Mountain	East city limit	0.2	Bike route, enhanced	Proposed
30	**Highland–Magnolia**	West leg of the Highland-Magnolia triangle		< 0.1	Bike route, basic	Proposed
31	**Magnolia**	Nova	Hillside	0.5	Bike route, enhanced	Existing
32	**Magnolia**	Hillside	Highland	0.2	Bike lanes	Proposed
33	**Nova**	Wildwood	Magnolia	0.1	Bike route, enhanced	Proposed
34	**Wildwood**	West city limit	Highland	1.0	Bike route, enhanced	Proposed
35	**Wildwood**	Nova	Sylvan	< 0.1	Bike route, enhanced	Proposed
36	**Wildwood**	Highland	Crocker	0.2	Bike route, enhanced	Proposed
37	**Winsor**	Wildwood	South city limit	0.1	Bike route, basic	Proposed
38	**Highland–Sheridan**	North leg of the Highland-Sheridan triangle		< 0.1	Bike lanes	Proposed
39	**Sheridan**	Highland	Caperton	0.1	Bike lanes	Proposed
40	**Sheridan**	Caperton	Wildwood	0.2	Bike route, enhanced	Proposed
41	**Caperton**	Mountain	Sheridan	0.1	Bike route, enhanced	Proposed
42	**Caperton–Sheridan**	East leg of the Caperton-Sheridan triangle		< 0.1	Bike route, enhanced	Proposed
43	**Crocker**	Wildwood	South city limit	0.4	Bike route, basic	Proposed
44	**Hampton**	Crocker	St. James	0.3	Bike lanes	Proposed
45	**Indian**	Hampton	South city limit	0.3	Bike route, basic	Proposed
46	**La Salle**	North city limit	Hampton	0.3	Bike route, enhanced	Proposed
47	**La Salle**	Hampton	Indian	0.3	Bike route, enhanced	Proposed
48	**St James**	Hampton	La Salle	0.1	Bike lanes	Proposed
49	**St James**	La Salle	East city limit	0.8	Bike route, basic	Proposed

❸ Highland Avenue reconfiguration study

The central stretch of Highland Avenue—the wider segment, from Park Way to and around Piedmont Park—is arguably Piedmont's "Main Street." It connects the northwestern and southeastern halves of the city to each other and to the Civic Center. It passes by Havens Elementary School; the small commercial hub around the corner of Vista Avenue; and Piedmont Park and the Community Hall. Every year, the avenue hosts Piedmont's premier community event, the Fourth of July parade.



Satellite view of the central stretch of Highland Avenue.

Despite its local importance and significance, Highland Avenue does not serve the community as well as it could. For one thing, south of Park Way the street is wider than warranted by existing traffic volumes, is challenging for slower pedestrians and for children to cross, and lacks designated bicycle facilities. For another, the stretch from Vista Avenue to Piedmont Court is one of the most confusing stretches of road in Piedmont. At this location, Highland Avenue transitions between two and four lanes, and the area has ten crosswalks and two small traffic islands, as well as the larger island formed by Highland Way. Lastly, the corridor suffers from congestion and unsafe traffic conditions associated with student drop-offs and pick-ups around Havens Elementary and the schools on nearby Magnolia Avenue.

Highland Avenue at Highland Way.

To address these shortcomings, this plan recommends a detailed traffic study of the Highland Avenue corridor. Piedmont City staff have extensive experience in scoping and managing corridor- and area-specific traffic studies. Since 2014, the City has conducted no less than a dozen such studies (see Chapter 2, "Planning Context," for a list). The Highland Avenue study should have three primary objectives, described below.

Objective #1: Road diet

The study's first objective would be to consider the potential for a "road diet" on the segment from Park Way to Vista Avenue. Under a road diet, the street would remain the same physical width but would be restriped from two travel lanes in each direction to one car lane and one bike lane, with a painted center turn lane. The parking lanes would remain as they are.

Road diets have several significant benefits: they make it safer and easier for pedestrians to cross;

create room for bike lanes; and make intersections simpler for drivers to navigate, particularly with regard to left-hand turns. A traffic-industry rule-of-thumb rule is that four-lane streets are good candidates for road diets if their average daily traffic count is below 15,000–20,000 cars. Traffic counts on Highland Avenue are significantly below that threshold. A further consideration is that Highland Avenue is already a two-lane street on either side of the segment in question (north of Park Way and south of Vista Avenue).

Nevertheless, it is important that the corridor study examine potential impacts of a road diet to traffic operations, particularly the possibility of back-ups at and on Oakland Avenue. If the study finds any possible significant negative traffic impacts, it should identify feasible mitigation measures, including changes to the timing of traffic signals. It is important that the study also identify, and if possible quantify, the potential benefits of implementing a road diet on Highland.

Objective #2: Reconfiguration of the "bend"

The second objective of the corridor traffic study would be to consider the reconfiguration of the Highland Avenue "bend," roughly from Vista Avenue to Piedmont Court with the goal of rationalizing and improving the safety of pedestrian, car and bike movements along this stretch. This could be achieved through the restriping of lanes, redesign of crosswalks and reshaping of the traffic islands at Magnolia Avenue and at Mountain Avenue, for example. In recognition that local resources for transportation projects are severely limited, reconfiguration options should rely on lower-cost surface solutions such as striping, painting, pavement markings and bollards rather than redesign of curbs and gutters and other expensive changes to the right-of-way.

Objective #3: Alleviating school-related congestion

The third objective of the study would be to explore strategies for alleviating congestion in the Civic Center core—on Highland Avenue but also on Magnolia Avenue—associated with student drop-offs and pick-ups around the various schools in the area: Havens Elementary, Piedmont High and Middle Schools, and Millennium High. The congestion creates potentially unsafe conditions for pedestrians, particularly for the many school children in the area.

One possibility that the traffic study should examine is to relocate most of the parking spaces currently on Magnolia Avenue to the east side of Piedmont Park, along Highland near Sierra Avenue, and create a dedicated location there for student drop-offs and pick-ups, with special signage and striping. From there, students of the various schools would walk through Piedmont Park to reach school.

Highland Avenue at Guilford Road, Near Sierra Avenue.

The Highland Avenue road diet and reconfiguration of the bend were included as recommendations in the 2014 Pedestrian and Bicycle Master Plan. Both were identified as high-priority projects for a number of reasons: they would serve a large majority of Piedmonters; would improve conditions for various types of users, including pedestrians, drivers, cyclists and the many children who use Highland as a route to school; address concerns commonly expressed by the community regarding pedestrian and broader traffic safety in the Civic Center; and enjoyed very strong community support at the time that the 2014 plan was prepared.

4 Neighborhood traffic calming program

Without a doubt, Piedmonters' top concern when it comes to traffic safety is speeding. Fast, aggressive driving is the main cause of traffic collisions and, especially, of severe injuries and fatalities; is one of the biggest deterrents to walking and biking; and detracts from neighborhood livability and quality of life. (Roughly speaking, a pedestrian hit by a car traveling at 20 mph has a 90% chance of surviving, but only a 10% chance if the car is traveling at 40 mph.)

A question in the survey administered as part of the community needs assessment for the Piedmont Safer Streets project listed several factors that can make for unsafe traffic conditions and asked, "In your opinion, how much do these factors contribute to unsafe conditions in Piedmont?" The factor that respondents most felt contributes "a lot" to unsafe traffic is speeding or aggressive driving, at 53% of respondents. (This was followed by careless or distracted driving, at 45%; and drivers not yielding at crosswalks, at 32%.)

The Kingston Avenue/Linda Avenue triangle.

While expensive, the most effective way to address speeding—more than enforcement or educational campaigns—is to redesign streets in ways that give drivers conscious and subconscious visual cues to drive more slowly. Traffic lights and stop signs control traffic at intersections but do not prevent speeding between intersections or at uncontrolled intersections. Traffic calming, on the other hand, is able to lower speeds along the length of street blocks. Traffic calming aims to reduce the number of crashes—and perhaps more importantly, their severity—and to make streets more comfortable for everyone, including pedestrians, cyclists and residents.

Traffic calming uses any of various physical treatments to slow cars. These include "vertical" treatments—so called because they raise cars momentarily above the level of the street—such as speed humps, speed bumps, speed cushions, raised crosswalks, speed tables and rumble strips (grooved pavement that alerts drivers through vibration and audible rumbling); and "horizontal" ones such as sidewalk bulbouts, traffic circles or mini roundabouts, median islands, tree wells in the parking lane and narrowed travel lanes.

Also, traffic calming measures including bulbouts, traffic islands and tree wells provide the opportunity to incorporate "green infrastructure" to help manage stormwater. Examples of green infrastructure include rain gardens, bioswales (vegetated channels) and other landscaped areas.

A number of cities, including some in the Bay Area, have formal neighborhood traffic calming programs through which residents can petition for traffic calming measures—usually smaller-scale, lower-cost ones—on their block or street. The City of Piedmont does not have a formal traffic calming program; instead, it considers residents' requests on a case-by-case basis. City staff have considered a draft policy for the installation of speed humps for purposes of neighborhood speed control but the policy has not been adopted.

When designed and installed properly, speed humps can be an effective tool in the traffic calming toolbox. However, they are not appropriate in every context, and not everyone likes them. Instead, this plan recommends that the City create a broader traffic calming program to incorporate a wider range of measures, treatments and solutions.

The program should include guidelines for the planning, selection, design and installation of traffic calming measures, as well as procedures for community engagement, and approval, denial and prioritization of requests. Development of the guidelines should be made with input from residents, the City's Fire and Police Departments and AC Transit to ensure that neighborhood traffic calming measures do not negatively impact access by fire trucks, ambulances, buses and other large vehicles, and by police and other emergency responders. The guidelines should also ensure that traffic calming measures are designed and built so as not to negatively impact cyclists. The program should have a strong data collection, evaluation and public feedback component, to serve as a learning mechanism for the types of traffic calming measures that work in different contexts.

Below are links to the traffic calming programs of other jurisdictions in the Bay Area that could serve as a template for Piedmont:

- City of Albany Traffic Calming Policy.
- City of San Mateo Neighborhood Traffic Management Program.
- City of San Ramon (Contra Costa County) Residential Traffic Calming Program.
- City of Redwood City (San Mateo County) Traffic Calming Program.
- City of Walnut Creek (Contra Costa County) Neighborhood Streets Program.

5 Additional recommendations

The four projects outlined earlier constitute the heart of the Piedmont Safer Streets recommendations. However, the plan proposes a number of additional, smaller-scale recommendations that have the potential to enhance conditions for pedestrians and cyclists, and improve traffic safety. The rest of this chapter describes these recommendations in more detail.

Additional recommendations

- Adopt a Vision Zero policy.
- Promote and support community-based traffic safety campaigns.
- Create an online "fix-it" request form.
- Create a GIS data portal.
- Adopt a transportation demand management program.
- Update the Piedmont Safer Streets plan.

Adopt a Vision Zero policy

Vision Zero is a growing movement in countries around the world to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy and equitable mobility for all. It envisions a different approach to traffic safety that departs significantly from the status quo in two ways. Specifically, Vision Zero recognizes that:

- People make mistakes. This means that streets must be designed with enough of a "margin of error"—with slower design speeds, for example—so that when inevitable mistakes do happen, they do not have severe consequences.
- Many factors contribute to safe mobility, including roadway design, the behavior of street users, enforcement, and technology. This calls for a multidisciplinary approach to address traffic safety, one that brings together traffic planners and engineers, policymakers, law enforcement officials, public health professionals, and community members at large.

Logo of the City of Alameda's Vision Zero campaign.

A useful entry point for municipalities into this new approach to traffic safety is the adoption of an official Vision Zero policy. Such a policy gets elected officials and other stakeholders involved; begins to build leadership and partnerships; and, more generally, advances the local discussion around traffic safety and creates a firmer commitment to improving conditions.

A typical Vision Zero policy commits a municipality to collecting and analyzing collision data; formulating and implementing countermeasures to prevent collisions; prioritizing community engagement in developing solutions; setting a clear time frame to achieve zero traffic deaths and serious injuries; and reporting on progress and challenges. The timeline is important in that it brings focus, urgency and accountability to the too-often-neglected issue of traffic safety.

Cover of the City of Fremont's (Alameda County) Vision Zero status report and action plan (May 2021).

Dozens of communities around the country have adopted Vision Zero policies, while some have moved on to developing Vision Zero action plans to put more teeth behind their policies. Below are resources that the City of Piedmont could use as templates for adopting a Vision Zero policy.

- City of Alameda: City Council resolution establishing a Vision Zero policy (2019).
- City of Fremont (Alameda County): Webpage of the City's Vision Zero initiative.
- City of Monterey: Slide-show presentation on the City's Vision Zero policy, adopted in 2017.
- Sample resolution (for a fictional city) endorsing a Vision Zero policy.
- City of Watsonville (Monterey County): Vision Zero Action Plan 2020.

Promote and support community-based traffic safety campaigns

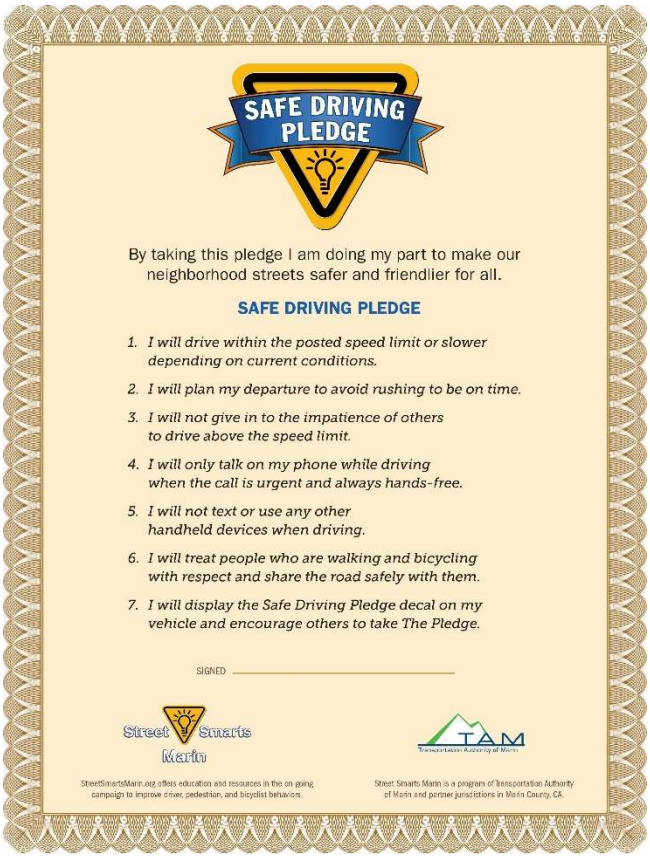
While engineering and enforcement are key to making streets safer, it is clear that those approaches have their limits and that new, different strategies are needed. Given Piedmont's strong civic culture, one possibility is for the City to promote and provide logistical and policy support for community-based traffic safety campaigns. Below are examples of such campaigns from around the country. In Piedmont, the campaigns could be managed and coordinated by residents, neighborhood groups or an appointed body like the Pedestrian and Bicycle Advisory Committee.

Street Smarts Marin safe-driving pledge

Safe-driving pledges are voluntary commitments by community members to drive safely and courteously. Typically, people pledge to adopt defensive-driving practices including but not limited to:

- Driving within the speed limit.
- Yielding to pedestrians.
- Passing cyclists safely.
- Avoiding distractions such as texting, talking on the phone and eating while driving.
- Using extra precaution when driving at night or in poor conditions.
- Never driving under the influence of alcohol or drugs.

The Street Smarts Marin pledge campaign, coordinated by the Transportation Authority of Marin, distributes "Safe Driving Pledge" certificates and cling decals that people can display on the rear window of their vehicles. For more information, visit www.streetsmartsmarin.org/pledge.html



"Safe Driving Pledge" certificate from the Street Smarts Marin campaign.

Clackamas County's "Drive to Zero" program

Clackamas County (Oregon) has a similar pledge campaign as part of its broader "Drive to Zero" traffic safety program (www.drivetozero.org). The campaign encourages pledge signers to share their safe-driving tips on social media by using the hashtag #DrivetoZero. Also, the program distributes yard signs with traffic safety messages to county households, and sponsors a contest among high school students to create artwork about safe driving for a chance to win prizes.

Similarly, the City of Santa Barbara has a safe-driving pledge campaign as part of its broader Vision Zero initiative (https://visionzero.santabarbaraca.gov, then click on "Take Pledge!").

Portland's "20 is Plenty" campaign

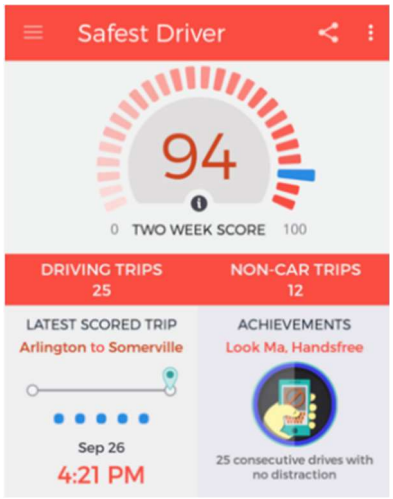
Three years ago, the City of Portland (Oregon) changed the speed limit on most residential streets from 25 mph to 20 mph. To inform residents about the new regulation, the City distributed free "20 is Plenty" yard signs and bumper stickers. Even if speed limits remained unchanged, a similar message would be useful in educating people that a pedestrian hit by a driver at 25 mph is nearly twice as likely to die compared to someone hit at 20 mph.

Safe-driving phone apps

Phone apps such as www.safe2save.org and www.zendrive.com reward users for safe driving. The apps monitor certain safety-related aspects of driving behavior and vehicle performance such as speeding, quick acceleration, hard braking and fast cornering. The programs quantify this information and "gamify" it by providing users with scores, rankings relative to other users of the program, prizes, merit badges and other features.

Safe 2 Save users, for example, earn points that can be redeemed for rewards at participating businesses. Through the app, users can organize safe-driving competitions among friends or can join existing competitions. The app has participation programs for employers and for high schools. Some of the apps partner with car insurance companies to reward good-driving behavior through lower insurance premiums.

Boston's Safest Driver Contest



In 2016 and again in 2019, the City of Boston organized contests to change driver behavior by offering incentives to participants who adopted safe-driving practices. Participants downloaded an app that used five performance evaluation metrics, including braking, acceleration, speeding, cornering and distraction. The app assessed and ranked the drivers by their overall safety scores. Cash and other prizes were given out weekly for various categories, including "most improved driver."

The types of campaigns outlined above should, of course, not be seen as replacements for engineering improvements, enforcement activities and other institutional efforts to improve safety. However, they are additional tools worth exploring that might make a contribution toward a safer-driving civic culture in Piedmont.

Create an online "fix-it" request form

Many safety issues of concern to pedestrians, bicyclists and drivers do not require a comprehensive plan but rather just a visit from a City maintenance person or crew. Examples include replacing a damaged street sign, filling in a pothole, trimming overgrown vegetation near an intersection, and repainting a worn crosswalk or bike lane.

The City of Piedmont, which prides itself on otherwise excellent customer service, does not have an online form for the public to request repair and maintenance of streets and other public infrastructure. The City could create its own form, made available on the City's website, or sign up with an online provider of such a service. Below are some options for the City to consider.

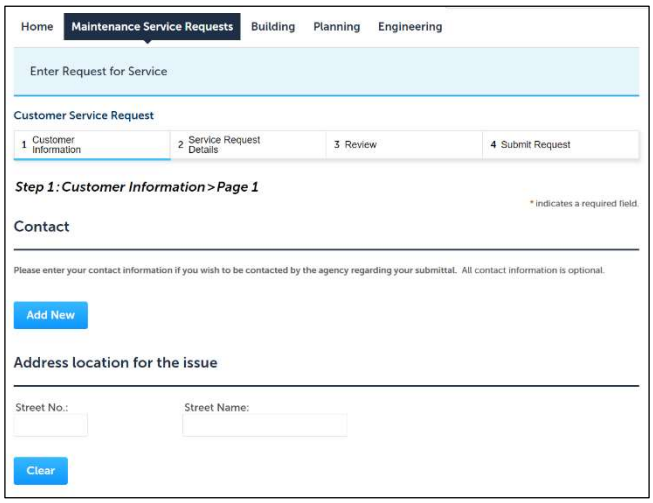
SeeClickFix

Using this web and mobile-app service (http://seeclickfix.com), residents can take a photo of an issue or location of concern; give the location; add a more detailed description; and submit, and track, a fix-it request to the City.

On the other end, City staff can assign the request (manually or automatically) to the right person or department; schedule the work; set due dates; and report to the public on the status of the request. The service is used by hundreds of cities across the country, including Alameda, Berkeley, Emeryville and Oakland in Alameda County.

City of Livermore

The Public Works Department of the City of Livermore (Alameda County) provides a maintenance request form on the City's website. Residents can use the form to report a safety concern or submit a request for maintenance. The form may be found through https://www.cityoflivermore.net/citygov/pw/public_works_divisions/maint/request.htm.



Screenshot of the City of Livermore's maintenance request form.

City of San Leandro

The City of San Leandro (also in Alameda County) provides an online "citizen request portal" allowing residents to submit work requests on a web-based, GIS-integrated map. The portal, which is run through a proprietary service called Mobile311, may be found at https://cityofsanleandro.mobile311.com/#/home.

Create a GIS data portal

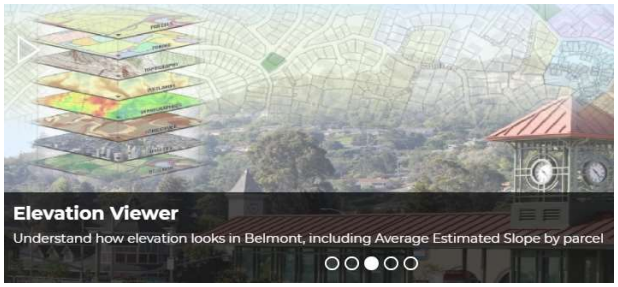
Some cities—especially more tech-savvy and customer-service-oriented ones—have creating publicly accessible geographic information system (GIS) data portals. City governments use these portals to share map- or geographic-based materials with their residents and to interact with them about this information.

Below are examples of information related to walking, biking and traffic safety that a City of Piedmont portal could contain. In addition, the portal could contain non-transportation-related material such as utility lines, land use and zoning designations, and parcel/lot/property information.

- Up-to-date citywide bikeway network.
- Location and status of proposed, planned, in-progress and recently completed projects.
- Location of footpaths and stairways.
- Public requests for service and maintenance (ideally this would be integrated with the online "fix-it" request form described earlier).

Below are examples of GIS data portals from other cities around the state:

- City of Belmont (San Mateo County)

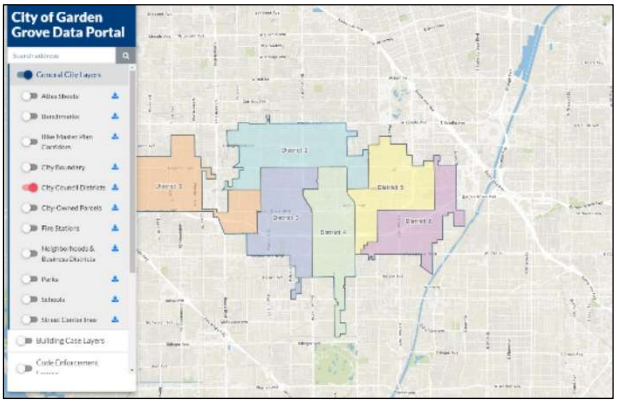


- City of Vista (San Diego County)

- City of Pleasanton (Alameda County)

- City of Oakland

- City of Garden Grove (Orange County)



Adopt a transportation demand management program

Transportation demand management (TDM) is a set of strategies used by governments or employers to encourage alternatives to solo driving, particularly during rush hour. These alternatives include public transit, walking, biking, carpooling, working from home and alternative work schedules. Many cities, including in the Bay Area, have TDM programs and requirements. Here is a link to the City of Berkeley's TDM program, for example: www.cityofberkeley.info/ptdm.

While this plan focuses on walking and biking (and traffic safety), the crucial role of public transit in reducing car trips, gas emissions and collisions should not be overlooked. Also, transit greatly expands pedestrians' and cyclists' reach by extending the distances that they can cover.

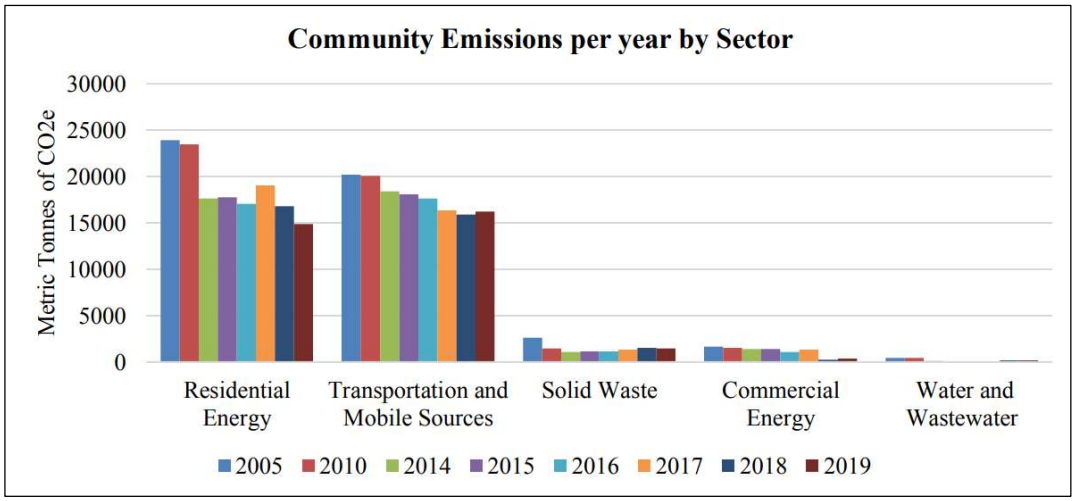
Piedmont's 2019 greenhouse gas (GHG) emissions inventory shows that "transportation and mobile sources" contributed almost half (49%) of the community's in-territory GHG emissions. To help address this situation, it is recommended that the City adopt a TDM program outlining guidelines to assist staff in implementing TDM strategies and actions. The program could include guidelines such as:

- Install a shower in City facilities to encourage more people to bike to work.
- Provide incentives to multi-family housing developments if they have a TDM plan in place.
- Provide bike-supportive amenities such as parking, repair stations and charging spots (for electric bikes) near parks, public facilities and commercial hubs.

Update the Piedmont Safer Streets plan

As mentioned in the introductory chapter, the Alameda County Transportation Commission (ACTC) requires that the county's municipalities—meaning the cities as well as the County of Alameda—update their pedestrian and bicycle plan(s) every five years, or else risk losing certain transportation funds. The requirement is flexible as to the scope of the update: ACTC is mostly interested in seeing cities make a meaningful effort in advancing the state of their local pedestrian and bicycle planning.

The requirement is also somewhat flexible as to the timeline: ACTC expects that cities will take initial steps toward the update process within five years of when the previous plan was adopted. It is recommended that by late 2026, City staff begin to create the work scope for an update to the Piedmont Safer Streets plan, and notify ACTC of having done so. As this plan did, the update should consider changes in the community's needs, concerns, expectations and priorities concerning walking and biking; revisit the recommendations in this plan and revise them as necessary; and incorporate additional recommendations to address new and emerging needs and concerns.



5 | Prioritization and implementation

Enhanced street crossings

The previous chapter recommended street-crossing enhancements at 21 locations around the City. These crossings already represent a significant winnowing down of the many locations where residents would like to see similar improvements. Even so, 21 locations would still be a significant burden for the City to undertake in the near future, given limited funds and staff resources. To prioritize these locations further, we evaluated them according to three highly relevant criteria, as shown on the next page. (The rubrics used to score the projects are outlined below the table.)

From experience, observation, public input and this evaluation, the ten intersections along Grand, Oakland and Moraga Avenues are considered to be a higher priority for purposes of the Piedmont Safer Streets plan. These are three of the four streets in Piedmont with the highest traffic volumes and speeds, as well as some of the highest numbers of pedestrians. (The fourth such street, Highland Avenue, is the subject of a separate recommendation; see the previous chapter.) The ten locations are listed below and are highlighted on the map on page 36:

- Four intersections along Grand Avenue: at Rose, Greenbank, Oakland and Linda.
- Four intersections along Oakland Avenue: at Jerome, El Cerrito, Hillside and Highland.
- Two intersections along Moraga Avenue: at Highland and at Mesa.

Quick-build projects

While this document has already mentioned several times that Piedmont, like any other city, has very limited funding for pedestrian and bicycle projects, the point cannot be overstated. The City receives approximately $60,000–70,000 in dedicated funds for such projects annually. (That said, it is possible that some funding will become available to Piedmont which could be used for pedestrian, bicycle and traffic safety improvements through the American Rescue Act, also known as the Covid-19 stimulus package, or a Federal infrastructure bill.)

In Piedmont, larger-scale projects for the construction, repair or rehabilitation of City facilities are "programmed" (budgeted and scheduled) through the Capital Improvement Project (CIP) process. Residents may suggest a capital project by completing a CIP request form. The CIP Review Committee—consisting of residents and City staff appointed by the City Council—review capital needs and suggestions and makes recommendations to the City Council for the use of funds from the capital projects budget.

Evaluating the locations for enhanced street crossings

For the map of locations, refer to Figure 4, in Chapter 4

Map key	*Cross street 1*	*Cross street 2*	*1*	*2*	*3*	*Score*
01	Moraga Avenue	Mesa Avenue	◗	○	○	0.5
02	Moraga Avenue	Highland Avenue	●	○	◗	1.5
03	Grand Avenue	Rose Avenue	◗	○	◗	1.0
04	Grand Avenue	Greenbank Avenue	◗	◗	◗	2.0
05	Grand Avenue	Oakland Avenue	●	●	●	3.0
06	Grand Avenue	Linda Avenue	●	●	●	3.0
07	Oakland Avenue	Jerome Avenue	◗	●	●	2.5
08	Oakland Avenue	El Cerrito Avenue	◗	●	●	2.5
09	Oakland Avenue	Hillside Avenue	●	●	●	3.0
10	Oakland Avenue	Highland Avenue	●	●	●	3.0
11	Magnolia Avenue	Hillside Avenue	◗	●	◗	2.0
12	Wildwood Avenue	Nova Drive	◗	◗	◗	1.5
13	Wildwood Avenue	Palm Avenue	○	●	○	1.0
14	Wildwood Avenue	Winsor Avenue	◗	●	◗	2.0
15	Wildwood Avenue	at Wildwood Elem.	○	●	○	1.0
16	Highland Avenue	Sheridan Avenue	◗	◗	◗	1.5
17	Highland Avenue	Wildwood Avenue	◗	◗	◗	1.5
18	Hampton Road	Crocker Avenue	◗	◗	◗	1.5
19	Hampton Road	Sea View Avenue	○	○	○	0.0
20	Hampton Road	St. James Drive	◗	○	◗	1.0
21	Hampton Road	La Salle Avenue	◗	○	◗	1.0

1. Arterials and collectors

- ● Crossing of two arterial streets; or of an arterial and a collector street.
- ◗ Crossing of an arterial and a neighborhood street; or of two collectors.
- ○ Crossing of a collector and a neighborhood street; or of two neighborhood streets.

2. Proximity to school

- ● Very near a school and on a key route to school.
- ◗ Very near a school; or on a key route to school.
- ○ Neither very near a school nor on a key route to school.

3. Bike and bus routes

- ● On a bus route.
- ◗ Crossing of two bike routes.
- ○ Neither a bus route nor a crossing of two bike routes.

It is clear that to make real progress on implementing even just the Piedmont Safer Streets plan's highest priorities, the City will need to rely on faster and lower-cost solutions. One possible answer is "quick-build" projects. Quick-build refers to street enhancements that can improve safety and access on a small budget and on a compressed timeline. They are designed to be installed quickly, and to be easily changed or even removed if necessary; and they use lower-cost materials such as paint, planters, bollards and plastic "soft posts." Quick-build projects let residents experience the benefits of improvements sooner, and build enthusiasm for more permanent infrastructure.

Since the City of Piedmont has only limited experience with quick-build projects, below is a list of guides and other resources on the topic:

- Quick-Build Guide: How to Build Safer Streets Quickly and Affordably (Alta and California Bicycle Coalition; 2020).
- Community Quick-Builds for Complete Streets (Capitol Region Council of Governments; 2020)
- Quick Builds for Better Streets: A New Project Delivery Model for U.S. Cities (People for Bikes; 2016).
- Tactical Urbanist's Guide to Materials and Design (The Street Plans Collaborative, 2016).
- Vision Zero Quick-Build (San Francisco Municipal Transportation Agency)
- Quick Build Design and Materials Standards (City of Burlington, VT, Public Works).

Below are examples of traffic calming and walking- and biking-related projects that can be installed relatively inexpensively.

Speed humps

Speed humps are rounded vertical devices intended to slow traffic speeds on low-volume streets. Depending on the target speed, speed humps are 3–4 inches high and 12–14 inches wide, with a ramp length of 3–6 feet.

Speed humps are different than speed bumps. Mainly, they have a lower and wider profile, which makes them gentler on traffic. Speed humps slow cars to 15–20 mph, whereas speed bumps slow cars to 5–10 mph (making bumps more appropriate for parking lots, for example).

Example of a speed hump on a residential street.

Speed humps are slightly more expensive than bumps but are generally preferred by both neighborhood residents and drivers because they are less disruptive. Speed bumps make drivers come almost to a halt, after which some drivers have the tendency to accelerate abruptly. Speed humps, on the other hand, still reduce speeds significantly but encourage more even traffic speeds than the stop-and-go associated with speed bumps.

Speed tables

These are midblock traffic calming devices that raise the entire wheel base of a vehicle to reduce its traffic speed. Speed tables are longer than speed humps and are flat-topped. Speed tables may be designed as raised midblock crossings.

Speed cushions

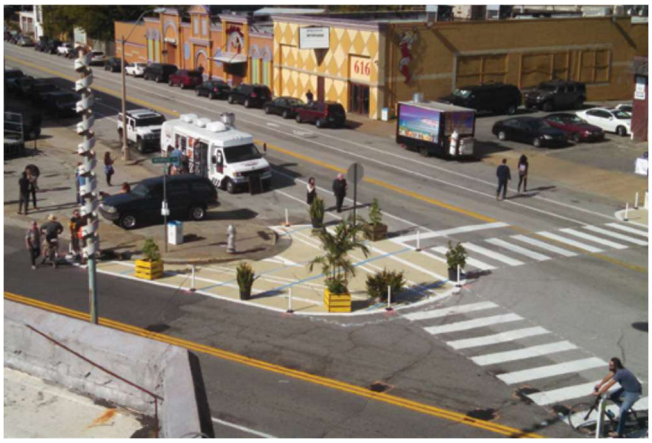
These are either speed humps or tables that include wheel cutouts to allow large vehicles to pass unaffected while reducing passenger car speeds. They are typically used on key emergency-response routes.

Tree wells in the parking lane

Tree wells interspersed in the parking lanes are an effective, attractive and relatively inexpensive traffic calming technique. They cause drivers to slow down by visually narrowing the width of the street and by subtly communicating that the street is for more than just traffic.

Painted bulbouts

Bulbouts, or sidewalk extensions, have several benefits: they slow turning cars; visually narrow drivers' perception of the street; shorten the crossing distance for pedestrians; and make pedestrians more visible to drivers. Bulbouts are typically permanent, three-dimensional constructions; however, the painted version is significantly less expensive, and it's also easy to modify or reverse.



Civic gateways

Besides marking a sense of place and being attractive additions to the streetscape, gateways have a subtle traffic calming effect. They signal to drivers that they are driving into a special place that is cared for by its residents. Piedmont already has a legacy of attractive street and neighborhood gateways from the first half of the last century (top image below, for example). Gateways are one type of improvement that residents are sometimes willing to pay for themselves.

Mini-roundabouts / neighborhood traffic circles

This treatment works for minor uncontrolled intersections; they lower speeds without fully stopping traffic. Shrubs or trees may be installed in the center of the roundabout to further the traffic calming effect and beautify the street. Quick-build versions of such projects can cost in the few thousands of dollars, though more permanent ones cost in the tens of thousands.

Chicanes

These are offset curb lines that introduce lateral shifts to travel lanes. They create a "slalom effect" that causes drivers to slow down. They provide an opportunity to introduce public art, trees, planters and other landscaping. Low-cost chicanes may be created along narrow streets with only one parking lane by alternating the location of the parking.

Citywide bikeway network

The City Council has expressed a desire that the proposed citywide bikeway network be implemented not segment by segment but rather as continuous corridors and logical connectors to key destinations within Piedmont and in Oakland. The map on the next page shows a possible approach for implementing the network as ten corridors. (One of the ten bikeway corridors, Grand Avenue, has already been implemented, with bike lanes the entire length of the street through Piedmont.)

The ten corridors encompass all the segments of the bikeway network. Half of the corridors converge on the Civic Center; from there, they provide connections to:

- Grand Avenue, along multiple streets (the corridor shown in orange on the map).
- Moraga Avenue, along Highland Avenue (yellow).
- Montclair, along Mountain, Caperton and Blair Avenues (red).
- Park Boulevard, primarily along Highland Avenue, Wildwood Avenue, Hampton Road and St. James Drive (light green).
- Wildwood Avenue near Grand Avenue, along Magnolia Avenue (turquoise).

The other five corridors fill in connections throughout the City:

- Moraga Avenue (dark green corridor).
- Oakland/Linda/Rose/Ronada Avenues (pink).
- Grand Avenue (purple; already implemented).
- Wildwood Avenue/Winsor Avenue (brown).
- La Salle Avenue/Indian Road (blue).

When implemented, every segment of the network should be equipped as appropriate with additional safety features. These include smoother pavement; non-slip surfaces; traffic mirrors; motion-activated flashing signs indicating the presence of a cyclist around a curve; flashing radar speed signs; center lines; and solid white lines demarcating the travel lane from the shoulder or parking lane (by visually narrowing the street, shoulder lines cause drivers to drive somewhat more slowly). Also, the City should ensure that there are sufficient parking racks for bicycles, and also scooters, at all key destinations in Piedmont. These include the Grand Avenue and Civic Center commercial areas, all parks, City Hall and bus stops. Racks at schools would need to be provided by the school district.

As an additional implementation tool, following the map of corridors are conceptual designs for three segments of the bikeway network that pose special issues. The designs originally appeared in the 2014 PBMP. Figure 7 is a satellite photo of Highland Avenue as it currently exists, while Figure 8 shows a potential design for a "road-dieted" Highland Avenue. (Some of the features shown in Figure 8 have been implemented, namely bulbouts at Highland and Craig.) As discussed in the previous chapter (see pages 42–43), it is recommended that a detailed study be conducted of the Highland Avenue corridor from Park Way to and around Piedmont Park.

Because Moraga Avenue is particularly challenging for cyclists (and pedestrians), the PBMP included concept drawings for improvements at two locations along that street. Figures 9 and 11 are existing images of Moraga Avenue at Monticello Avenue and at Red Rock Road, respectively. Figures 10 and 12 show conceptual designs for those two locations. (Bike lanes and sharrows have already been installed on segments of Moraga Avenue. Regarding Figure 12, additional sidewalks or footpaths would be needed to provide adequate pedestrian access between Blair Park and Coaches Field/Kennelly Skate Park.) The concepts will need a closer look and more detailed designs before any improvements are approved and implemented.

Incidentally, Moraga Avenue east of Highland is a good candidate for motion-activated flashing signs indicating the presence of cyclists on the road, particularly in the uphill direction, due to the segment's blind curves, narrow lanes and fast traffic. Perhaps more importantly, the City should also consider the feasibility of continuing uphill the existing eastbound bike lane on Moraga (which currently stops at Bonita) as far to the east as possible.

Fig. 6 | Bike corridors for implementation

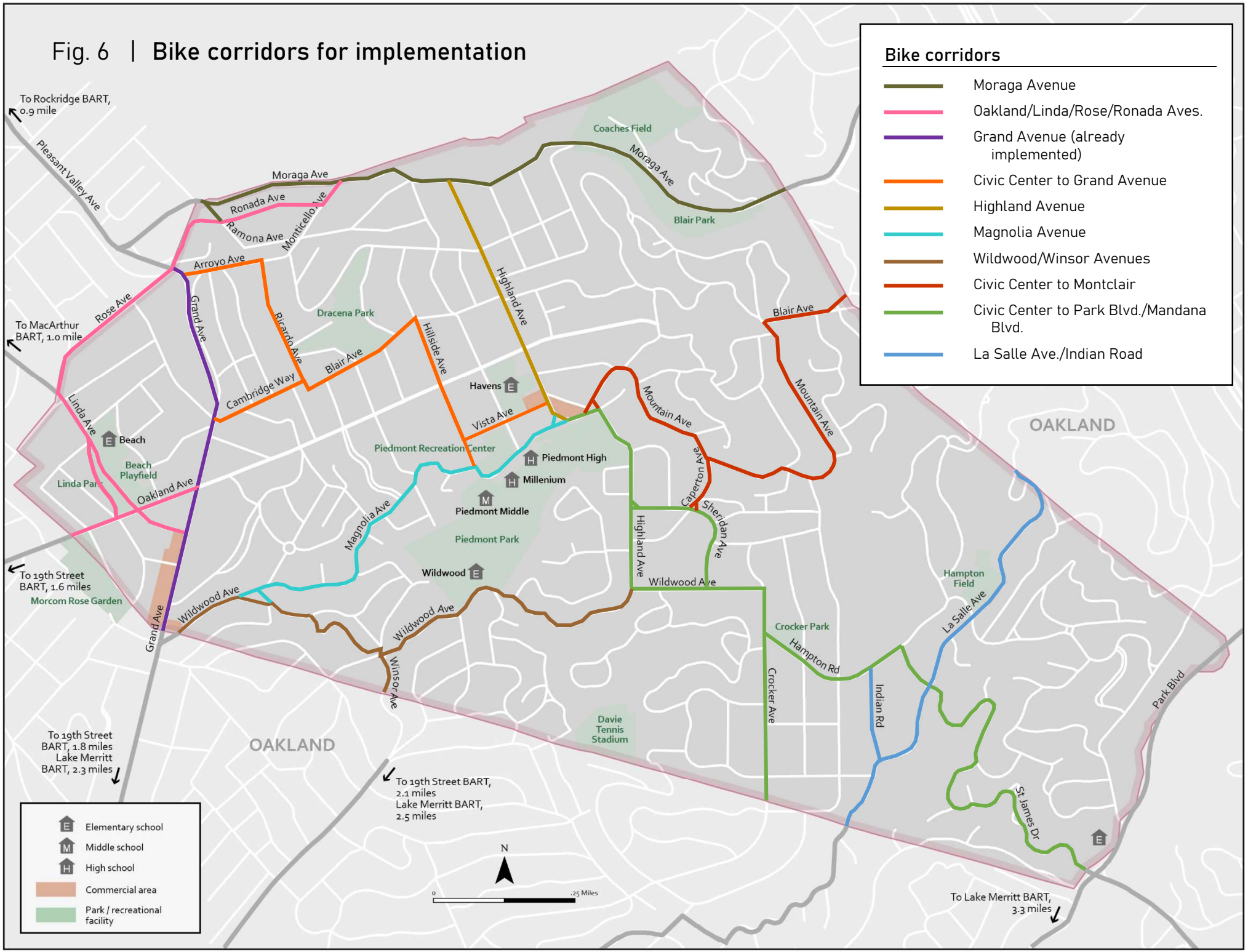


Figure 7 | **Highland Avenue—existing conditions**

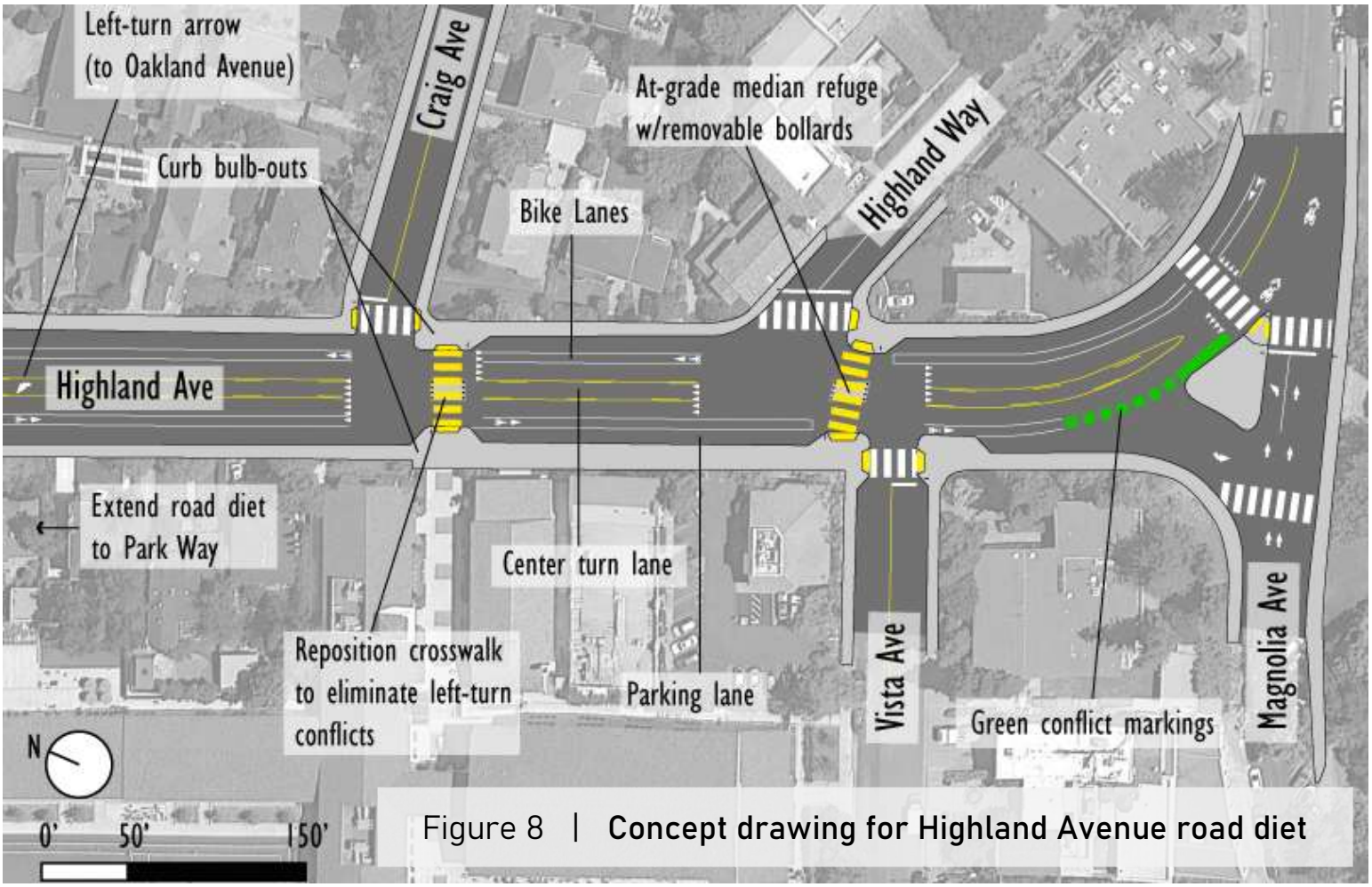


Figure 8 | **Concept drawing for Highland Avenue road diet**

Figure 9 | **Moraga Avenue at Monticello Avenue—existing conditions**

Figure 10 | **Concept drawing for Moraga Avenue at Monticello Avenue**

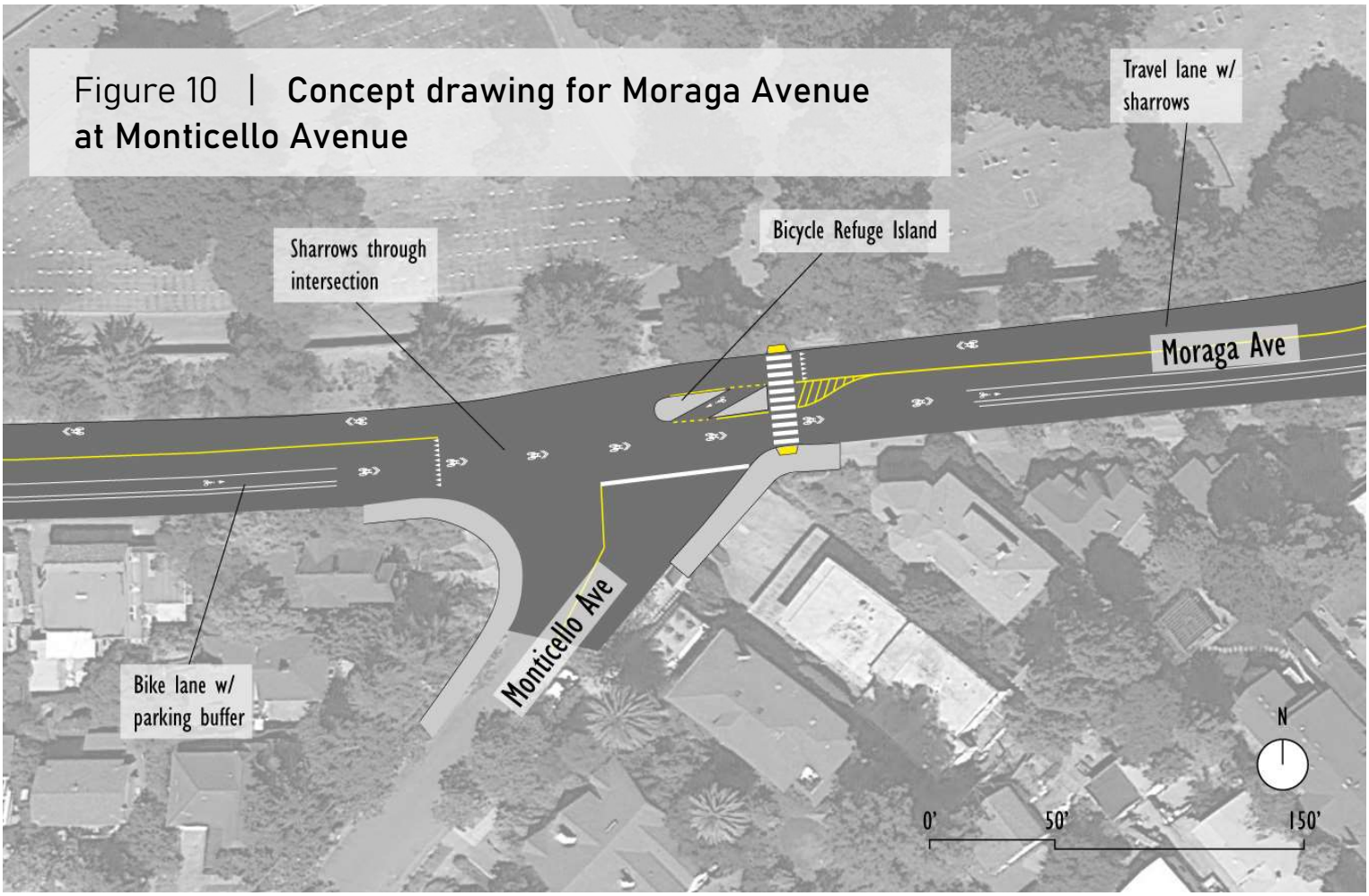


Figure 11 | **Moraga Avenue at Red Rock Road—existing conditions**

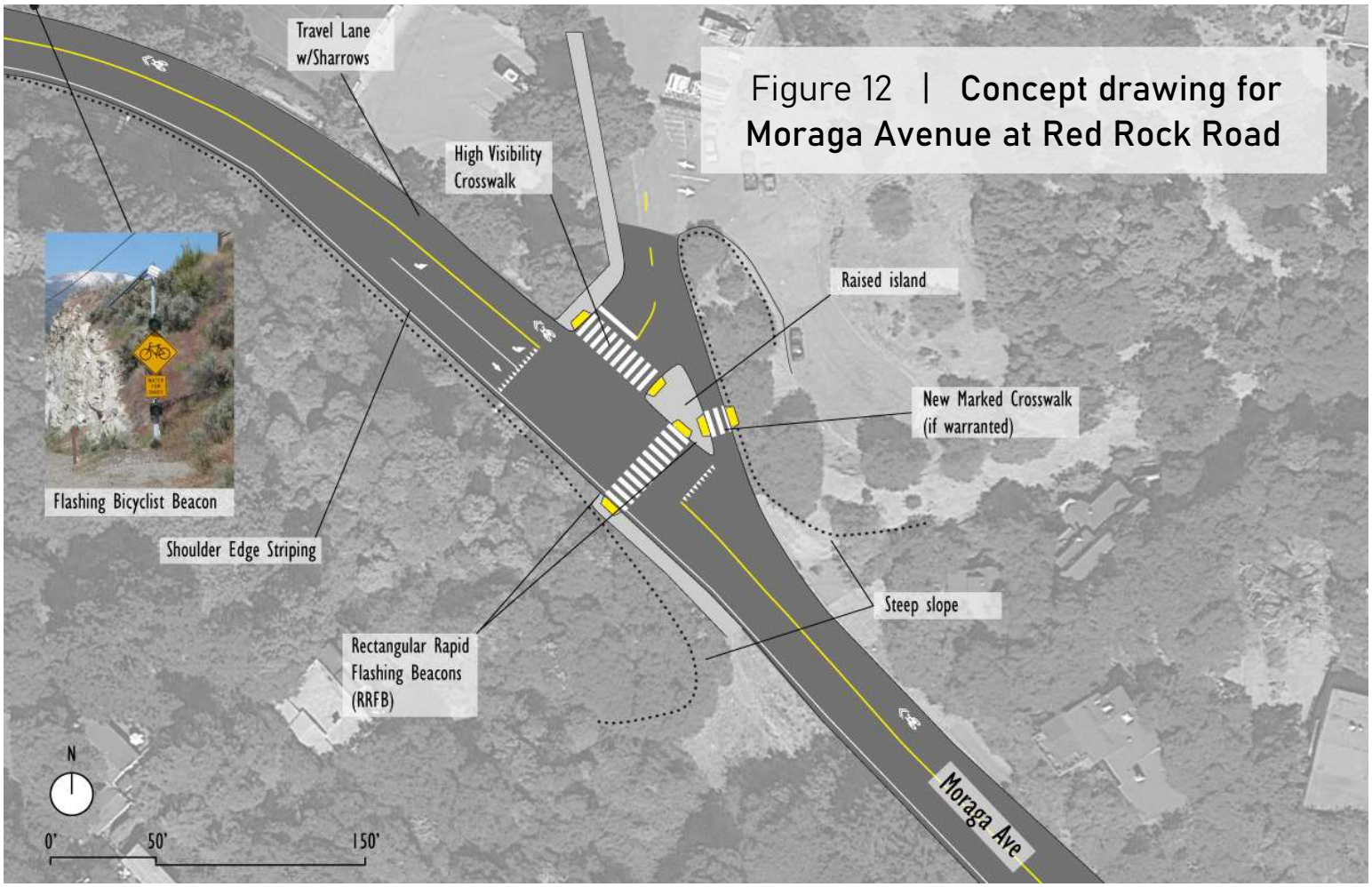


Figure 12 | **Concept drawing for Moraga Avenue at Red Rock Road**