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TRANSPORTATION MASTER PLAN

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Executive Summary

Menlo Park's General Plan includes a vision for meeting Menlo Park's transportation needs, calling for the development of transportation choices – driving, walking, biking, and transit – for residents, workers and visitors to the City. Through this Transportation Master Plan, or TMP, Menlo Park has identified and prioritized key projects and programs and developed an action strategy to guide the implementation of the TMP, to serve as a path forward to achieving the City's goals.

This document provides an overview of how the TMP was developed and its recommendations. The technical analysis and supporting materials are available as appendices.

GOALS

Based on the policies laid out in the City's General Plan, four goals were adopted by the City Council to guide the TMP:

-  Safety
-  Sustainability
-  Mobility Choice
-  Congestion Management

A multi-modal approach is critical to achieving each of the four TMP goals. By developing facilities and programs to make alternatives to driving more attractive and convenient, residents will have more travel choices to commute and reach local destinations.

DEVELOPING PROJECT RECOMMENDATIONS

Potential projects were identified by starting with the recommendations from previous plans, evaluating existing conditions, extensive engagement efforts with the local community, and ongoing consultation with key stakeholders representing a cross-section of the Menlo Park community. The TMP documents traffic congestion on key roadways, shares an analysis of collision hot spots, and identifies the needs to improve alternatives

to automobile travel – gaps in the bicycle network, the need for improved pedestrian facilities, and strategies for improving transit service.

LISTENING TO THE COMMUNITY

The TMP included two phases of wide-ranging activities to engage the public in 2017 and 2019. Each phase generated significant community participation, with over 1,000 participants during each phase. Key engagement methods included:



Online open houses where participants could indicate their priorities and provide comments on projects



Walking workshops to provide an on-the-ground experience of some of the key local issues



Tabling at community events such as the farmer's market to collect comments from a wide range of residents



Public meetings to engage participants in a more in-depth discussion about the TMP

IDENTIFYING TMP PRIORITIES

Putting together the City's policy goals, the analysis of conditions on the ground, and input collected from the public, key transportation issues were identified. These included:

- Improving transportation choices
- Reducing collisions
- Relieving congestion at hot spots

Executive Summary

A total of 190 projects were assembled for potential inclusion in the TMP. To effectively target the City's available funding and staff resources toward meeting the TMP's goals, these projects needed to be grouped and prioritized. The projects included:

1. Regional projects: While Menlo Park would not lead the implementation of these projects, these roadway and transit projects are significant both to Menlo Park and the regional transportation system. As Menlo Park would not be the lead agency, these projects were not prioritized.
2. Straightforward projects: These projects are expected to be less challenging and could therefore be implemented as part of the City's capital improvements budget and did not need prioritization.
3. Local and Citywide projects: All other projects were evaluated and prioritized based on the level that they address or serve one or more of the following criteria:
 - Safety
 - Transportation Sustainability
 - Greenhouse Gas Reduction
 - School Access
 - Congestion Relief/ Management
 - Sensitive Population
 - Green Stormwater Infrastructure

This analysis produced a list of 54 Tier 1 projects, which included the highest priority Local and Citywide projects. An additional 67 projects were identified as Tier 2 projects. Focusing on the TMP's high priority projects and seizing opportunities (such as available funding or linking projects to incoming development), the City will advance projects toward implementation.

THE TMP'S PATH FORWARD

The TMP projects are estimated to cost over \$150 million. Having an adopted plan in place will enable the City to compete for regional, state, and federal grant funds and to prioritize the specific grant funds to pursue. In addition to grants, revenues to complete TMP projects will come from sources such as incoming development transportation impact fees, and the City's capital improvement program. Once funding is allocated, each project would need to go through its own design, outreach and construction phase.

While the TMP reflects the City's priorities in 2020, local needs will continue to evolve as projects are completed and the City continues to grow and change. The TMP is a guide to the future, and a living document, a plan that must be regularly revisited and updated to keep Menlo Park on track for the future.

The TMP was developed prior to the COVID-19 pandemic, when economic growth was unprecedented and traffic levels were high. While the TMP framework is still applicable to help achieve City priorities, the implementation timing will undoubtedly change as the City recovers from the pandemic.



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Many others on staff contributed to the success of the community workshops, review and refinement of draft concepts, and the production of documents.

It is also recognized that many residents of Menlo Park contributed their time, energy, and wisdom to develop this TMP, a plan that will help guide Menlo Park to a future with strong neighborhoods, a vibrant economy, and increased sustainability. As the TMP advances and continues to evolve, it will be the ongoing commitment of the Menlo Park community that will help realize this vision for the benefit of future generations.

Acknowledgments

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INTRODUCTION

Introduction

The TMP was developed prior to the COVID-19 pandemic, when economic growth was unprecedented and traffic levels were high. While the TMP framework is still applicable to help achieve City priorities, the implementation timing will undoubtedly change as the City recovers from the pandemic.

HOW IS MENLO PARK'S TRANSPORTATION SYSTEM CHANGING?

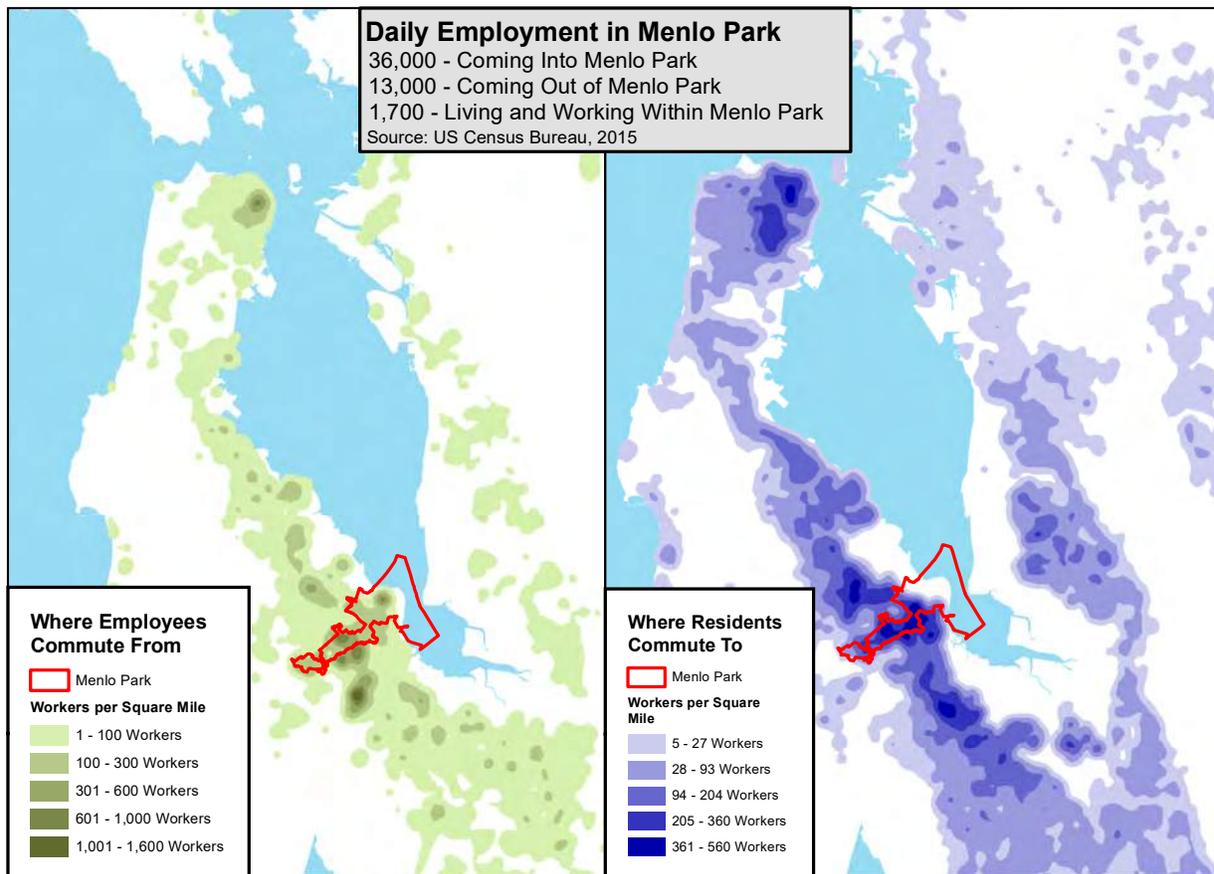
Located in eastern San Mateo County between San Francisco and San Jose, Menlo Park lies in the center of Silicon Valley, the major driver of the Bay Area economy. The City lies at the heart of the regional transportation network, bounded by two freeways and at the western terminus of the Dumbarton Bridge, a primary gateway to the Peninsula from the East Bay. Menlo Park's transportation issues are not just local but regional.

A city of 34,000 residents, Menlo Park is host to over 35,000 workers.

Most of those workers live outside Menlo Park, with the number of commuters heading into the City each day nearly three times higher than the number of local residents commuting to other destinations.

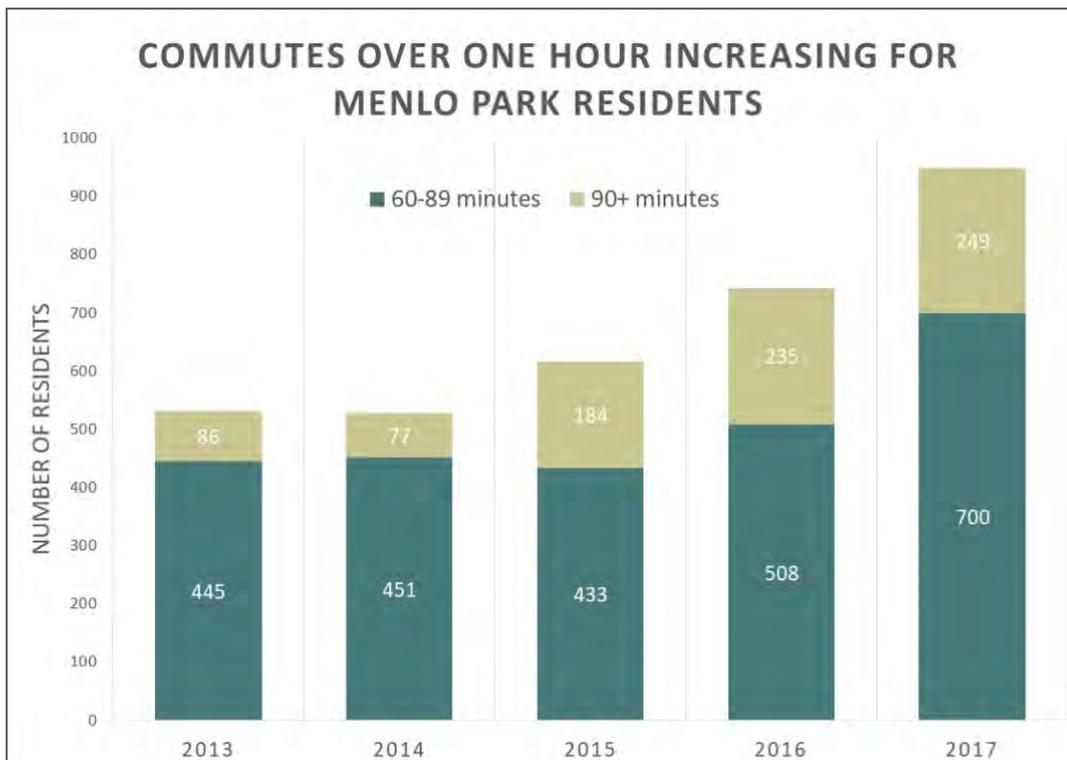
Menlo Park employers draw from communities throughout the Bay Area, as shown in the figure below. Recent growth throughout Silicon Valley has added to the time Menlo Park residents spend traveling to work each day – while 3.7 percent of residents had commutes over 60 minutes in 2013, by 2017 that number had increased to 6.5 percent.

While this regional context helps frame the analysis of Menlo Park's transportation needs, travel within the City presents its own challenges. Traffic congestion on local roadways, intersections that are a challenge for pedestrians to cross, a lack of a fully interconnected bicycle network – these are among the issues that Menlo Park residents, workers, and visitors face on a daily basis.



The number of commuters entering Menlo Park each day is three times the number of residents commuting to locations outside of Menlo Park.

Introduction



Menlo Park residents with commutes of 1 hour or more rose by 75 percent from 2013-2017.
Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

HOW DID THE NEED FOR A TMP COME ABOUT?

In 2016, the Menlo Park City Council adopted the update of the General Plan's Circulation Element. The new Circulation Element laid out a framework for a transportation system that would meet daily travel needs through multimodal travel options. In addition to easing the strain on transportation infrastructure, these options offer a lifeline to transportation-disadvantaged residents and others without access to a vehicle.

This TMP continues down the path established by the Circulation Element to prioritize multimodal travel. Based on the policies and themes from the Circulation Element and other efforts, the TMP sets Menlo Park on a course of action, identifying projects, priorities, and a strategy for moving forward.



GENERAL PLAN GUIDING PRINCIPLES

- Citywide Equity
- Healthy Community
- Competitive and Innovative Business Destination
- Corporate Contribution
- Youth Support and Education Excellence
- Great Transportation Options
- Complete Neighborhoods and Commercial Corridors
- Accessible Open Space and Recreation
- Sustainable Environmental Planning

To learn more about Menlo Park's General Plan, visit <https://www.menlopark.org/GeneralPlan>

Introduction



In keeping with the Menlo Park General Plan, the TMP prioritizes multimodal travel options such as biking and walking.



WHAT IS THE TRANSPORTATION MASTER PLAN?

The TMP is a planning document that:



Identifies a comprehensive set of citywide infrastructure projects and strategic programs to enhance the transportation system for all users.



Emphasizes a multimodal approach with a project list that addresses the needs of drivers, pedestrians, bicyclists, and transit users.



Prioritizes the individual projects and programs based on community-set goals and criteria.



Lays out an implementation strategy to advance key projects, using performance metrics to track their success.



Establishes a “living document” that will evolve so that it continues to reflect Menlo Park’s priorities.

City staff and elected officials will use the TMP as a guide for future transportation projects. Once funding is allocated, each project in the TMP will need to go through its own design, outreach and construction phase.

PURPOSE AND GOALS

Purpose and Goals

WHY DO WE NEED A TRANSPORTATION MASTER PLAN?

With adoption of the General Plan and Circulation Element update in 2016, Menlo Park took a significant step forward in creating a comprehensive policy framework and vision of a multimodal transportation system. The TMP advances what the Circulation Element started, developing a set of prioritized projects and an action plan to follow through on the vision identified in the Circulation Element.

WHAT IS THE TMP INTENDED TO ACHIEVE?

The TMP has established four goals that follow the priorities identified in the General Plan Circulation Element:



SAFETY

Eliminate traffic fatalities and reduce the number of non-fatal collisions by 50 percent by 2040.

This goal illustrates Menlo Park’s commitment to a “Vision Zero” policy. Between 2012 and 2017, there were 75 collisions in Menlo Park involving pedestrians, resulting in eight injuries and five fatalities. In that same period, there were also 179 collisions involving people biking, resulting in nine injuries and one fatality. Crossing improvements to increase the visibility of people walking or biking will be an important strategy in achieving Vision Zero.



WHAT IS MULTIMODAL TRANSPORTATION?



“Multimodal” refers to planning that considers multiple travel options (modes), such as walking, bicycling, driving, and taking public transit, as well as connections between modes.

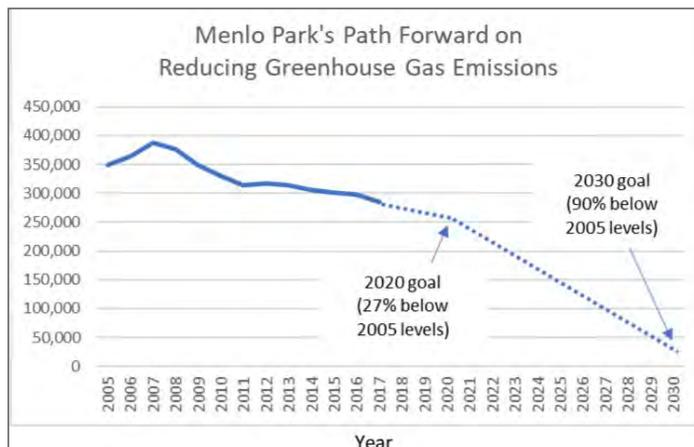


SUSTAINABILITY

Enable the City to meet the goals of the Climate Action Plan, including the goal of reaching carbon neutrality by 2030.

The state of California has established an ambitious greenhouse gas reduction goal of 80 percent below 1990 levels by 2050, and transportation strategies will be critical in achieving this goal.

In Menlo Park, gasoline emissions from vehicles is the largest source of GHG emissions, resulting in an estimated 56 percent of the total community emissions. Investing and providing opportunities for low- and non-polluting forms of transportation through infrastructure and/or services help reduce vehicle miles traveled (VMT) and will be an important part of the City’s effort to meet carbon neutrality by 2030.



The TMP will help the City achieve its greenhouse gas emission goal of becoming carbon neutral by 2030. Meeting these emissions targets will require us to change the way we travel. Source: City of Menlo Park Sustainability Division.

Transportation projects can also be used to improve water quality by designing projects with “green infrastructure” features.

Aside from the environmental benefits, curb extensions would reduce pedestrian crossing distances and landscape strips could act as a buffer for sidewalks by providing separation from vehicle traffic.



WHAT IS GREEN INFRASTRUCTURE?



Green infrastructure is a term for a cost-effective, resilient approach to managing stormwater by diverting it through design elements such as curb extensions and absorbing it in elements such as landscape strips.

Purpose and Goals



MOBILITY CHOICE

Design transportation projects to accommodate all modes and people of all abilities. Encourage the use of lower-emission modes such as walking, biking and transit.

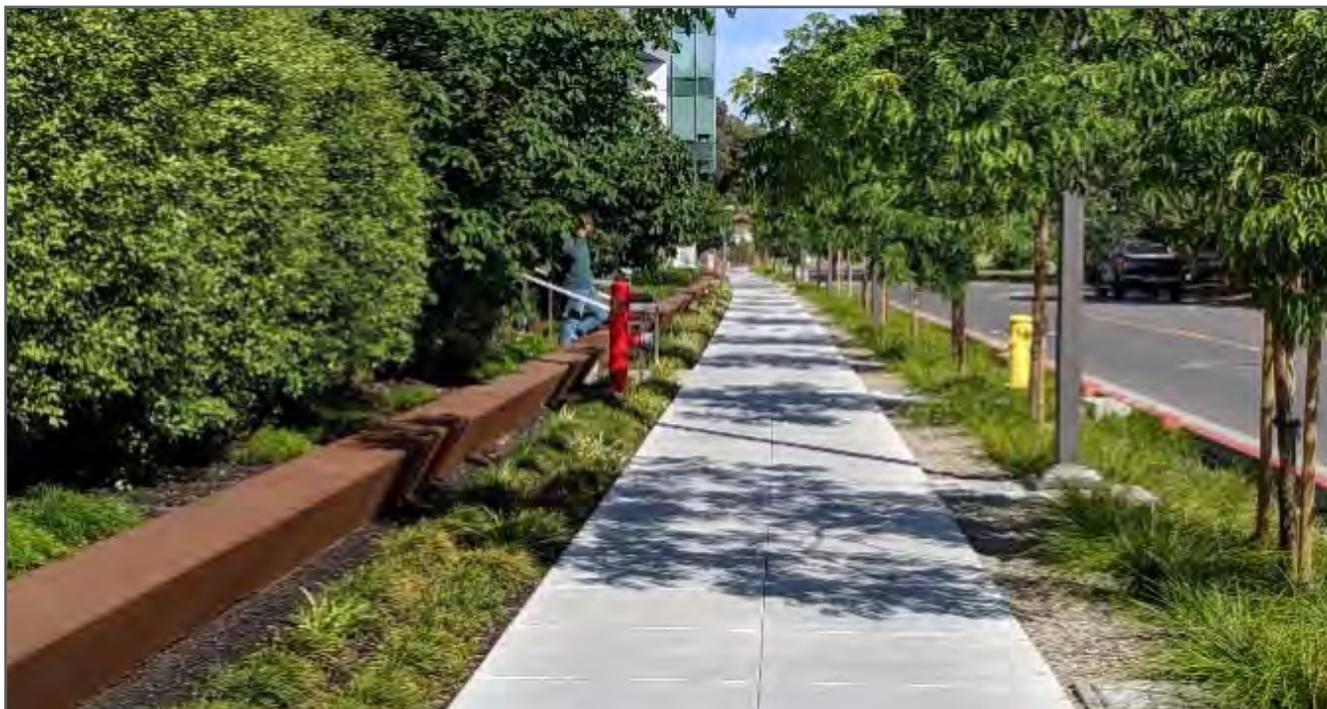
A “complete streets” approach considers the needs of all transportation users, including people who walk, bike, drive or take transit. The TMP includes a range of recommendations that address all travel options, with an emphasis on providing more opportunities for residents to walk, bike or take transit. Examples include adding bike lanes and enhancing pedestrian crossings on arterial streets originally designed to serve heavy vehicle traffic volumes. The Transportation Toolkit (Appendix I) and Complete Streets Examples (Appendix II) illustrate the application of these concepts.



CONGESTION MANAGEMENT

Manage traffic congestion to reduce travel time on City streets and minimize cut-through traffic on neighborhood streets, including the encouragement of the use of lower emission modes such as walking, biking and transit, and prioritizing the safety of children, seniors and the public.

Since Menlo Park is largely built out, the most efficient ways to accommodate growing demand on roadways are by reducing the number of vehicles on the road during peak travel times and more efficiently using the existing street network.



Green infrastructure, such as the bioswales along the Menlo Gateway site at Independence Drive, provides a cost effective approach to managing stormwater as part of roadway design.

Purpose and Goals



Using a Complete Streets approach like this one, the needs of all users are considered, including people who walk, bike, drive, and take transit. Source: National Association of City Transportation Officials, Urban Street Design Guide.



One goal of the TMP is to manage congestion on City streets like Willow Road while addressing the needs for users of other transportation modes.



Another goal is to improve safety, especially for people who walk or bike in Menlo Park.

EXISTING CONDITIONS, CHALLENGES AND OPPORTUNITIES

Existing Conditions, Challenges and Opportunities

Developing the TMP required an in-depth look at Menlo Park’s existing transportation system to document where it is now, how it could be improved, and the actions that will advance local priorities. This section describes the findings from the existing conditions analysis as they relate to the TMP goals of safety, sustainability, mobility choice and congestion management.

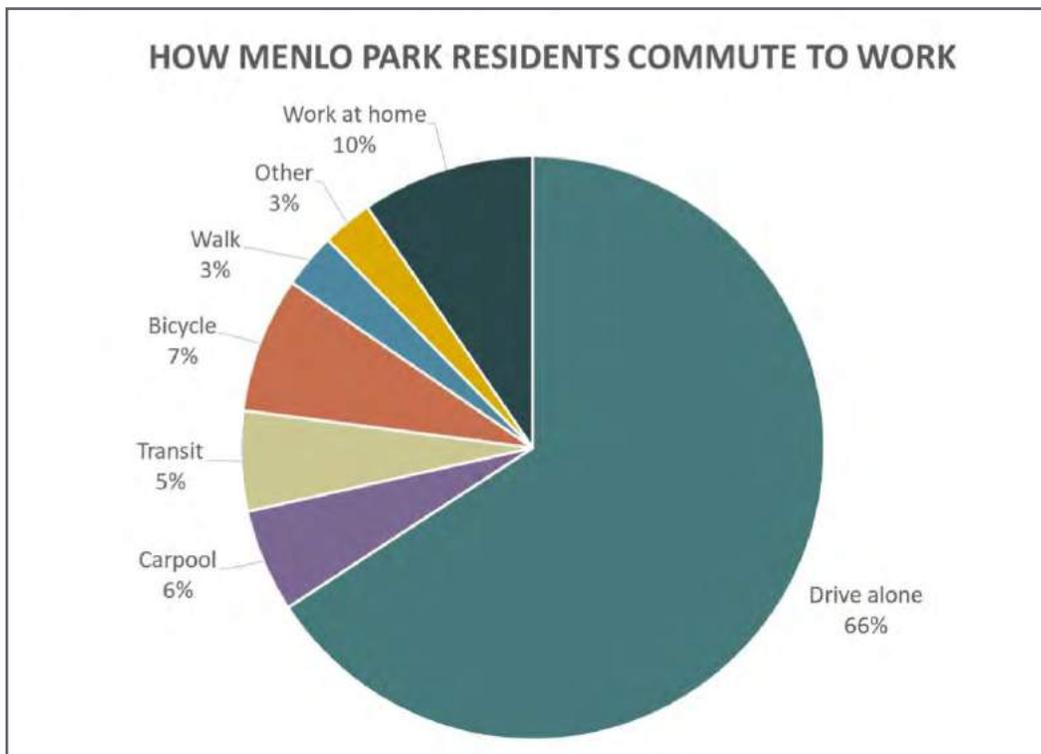
KEY TRANSPORTATION ISSUES IN MENLO PARK

Sixty-six percent of Menlo Park commuters drive to work alone, which is similar to San Mateo County as a whole. Aside from the share of commuters who drive, the commute transportation choices of Menlo Park residents differ from those of neighboring communities. Menlo Park residents are only about half as likely as County residents to take transit or carpool to work, but they are nearly six times more likely to bike as their primary travel mode to work. So while transportation investments have been largely oriented toward improving automobile travel, there is a demonstrated demand for other types of transportation.

A central challenge of the TMP is targeting investments to encourage more widespread use of non-driving travel modes. As described below, there are a number of significant challenges and opportunities associated with each of the TMP’s four goals.

SAFETY

The TMP envisions a safer transportation system for users of all travel modes. Among vehicle collisions, the highest occurring primary collision factors include unsafe speed and improper turning. This points to a need for engineering modifications, increased education, and enforcement to reduce the incidence and severity of collisions. The City’s Neighborhood Traffic Management Program offers engineering and infrastructure solutions to address speeding and circulation issues, such as cut-through traffic on local streets.



Sixty-six percent of Menlo Park residents drive to work alone, though there is demand for non-driving forms of transportation and a growing number of people who work from home. The TMP prioritizes multimodal transportation. In this chart, “other” includes motorcycle, taxi, and transportation network companies like Uber or Lyft. Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

Existing Conditions, Challenges and Opportunities

CHALLENGE: There are several “hot spots” in Menlo Park where most of the collisions involving people walking occur.

Menlo Park has implemented pedestrian improvements including flashing beacons and lighted crosswalks at 12 locations. However, some locations continue to be a significant concern. Over half of all pedestrian-involved collisions in the City occurred on El Camino Real, Santa Cruz Avenue, or Willow Road.

OPPORTUNITY: Improve safety for people who walk in Menlo Park, especially in the downtown area, through strategies including changing traffic signal phasing and implementing additional crossing improvements.

One approach the City has taken in the downtown area to reduce vehicle-pedestrian conflicts is to modify the traffic signal phasing. With early release pedestrian phasing, pedestrians crossing with the walk signal are protected, as the indication for vehicle traffic remains red until the walk phase is completed. These signal changes, combined with other improvements such as flashing beacons, curb extensions, and enhanced crosswalks, will help improve safety for people walking in Menlo Park.

The crash data for the most recent five years available reveals:



1 in 30

CRASHES WERE PEDESTRIAN RELATED

Lower than San Mateo County where 1 in 12 crashes are pedestrian related

Between mid-2012 and mid-2017 there were a total of



PEDESTRIAN-RELATED CRASHES

resulting in



8 injuries



5 fatalities

The crash data for the most recent five years available reveals:



1 in 13

CRASHES WERE BICYCLE RELATED

Lower than San Mateo County where 1 in 11 crashes are bicycle related

Between mid-2012 and mid-2017 there were a total of



BICYCLE-RELATED CRASHES

resulting in



9 injuries



1 fatality

CHALLENGE: Willow Road and El Camino Real are high “traffic stress” streets for people biking.

Willow Road and El Camino Real are two of Menlo Park’s major travel arteries for both bicycle and vehicle traffic. Willow Road includes bike lanes along much of its length; however, there has been a high rate of collisions involving bicyclists along the corridor. El Camino Real currently has no bicycle facilities.

OPPORTUNITY: Enhance safety along Willow Road and El Camino Real for people who bike by providing continuous bike lanes to increase separation from vehicle traffic where feasible.

The City has undertaken efforts to address concerns along both of these critical corridors, developing projects to eliminate some of the bike lane gaps on Willow Road and implement recommended improvements along El Camino Real. While these projects promise to be an important step forward, additional resources will be needed to complete this work.

Existing Conditions, Challenges and Opportunities



SUSTAINABILITY

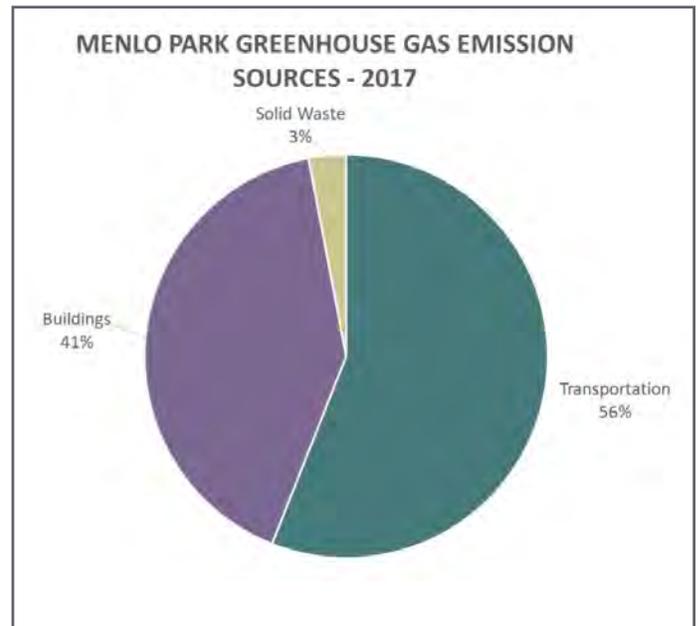
Transportation strategies can support a sustainable environment in numerous ways.

CHALLENGE: Transportation in Menlo Park is the largest single source of greenhouse gas emissions.

Fifty six percent of Menlo Park’s greenhouse gas (GHG) emissions result from using gasoline-powered vehicles. The problem is compounded by the fact that many people choose to drive alone due to needs or convenience.

OPPORTUNITY: Reduce greenhouse gas emissions by improving travel options that are alternatives to driving alone.

Projects including improvements to the sidewalk and bicycle network, particularly near major transit stations, are examples of how alternatives to driving can be made safer and more convenient, making them more viable to use on a day-to-day basis. As transportation is the largest category of GHG emissions, enhancing alternatives to driving will be critical in reducing vehicle miles traveled and achieving the City’s Climate Action Plan goal of carbon neutrality by 2030.



Changes to the way we travel can help us reduce the amount of greenhouse gas emissions from transportation sources. Source: City of Menlo Park Sustainability Division.

Existing Conditions, Challenges and Opportunities

CHALLENGE: Reduce the amount of pollutants added to waterways.

As rainwater flows across paved surfaces such as streets and sidewalks, it picks up pollutants –including motor oil, metals, and litter – and carries them into the City’s stormwater system untreated, ultimately flowing out to the Bay. This runoff threatens the health of the local ecosystem as well as public safety.

OPPORTUNITY: Integrate water filtration improvements into designs of roadways, sidewalks and other recommended transportation projects.

Including green infrastructure in transportation projects supports Menlo Park’s sustainability efforts by reducing runoff into streets, allowing water to be absorbed into the ground for greater filtration, reducing flooding, preventing pollution in the bay, and improving water quality. In addition to the water quality benefits, plant-based filtration can provide aesthetic benefits. More constrained locations might require subsurface filtration systems under the roadway.

CHALLENGE: Physical barriers and major intersections reduce safety and comfort for people walking in Menlo Park.

While Menlo Park’s sidewalk network is largely complete, there are a number of challenges that can make walking difficult for many residents. Crossing multi-lane, high traffic volume streets can be challenging for many pedestrians. Walking along streets with high speed traffic can be uncomfortable or unpleasant, especially if no landscape strip or other buffer separates traffic from the sidewalk. Some existing sidewalks are partially obstructed by utility poles, which can be difficult to navigate for people with disabilities.

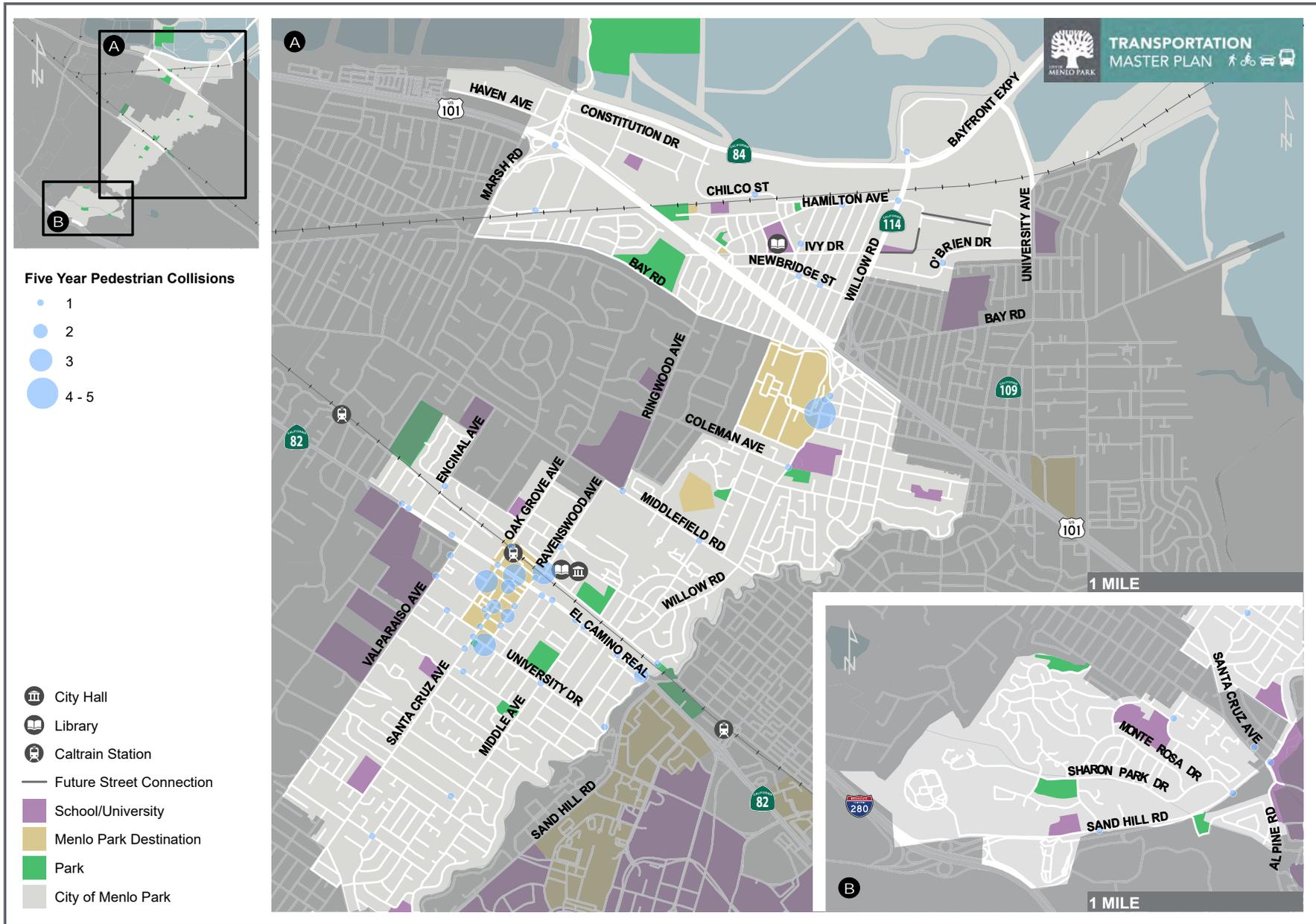
OPPORTUNITY: Implement roadway and streetscape improvements to make walking safer and more comfortable for people of all ages and abilities.

Intersection crossing improvements such as signs, pavement markings, and flashing beacons can help drivers become aware of pedestrians crossing the street. The addition of landscaping and buffers between sidewalks and roadways could increase the separation between pedestrians and vehicles and make walking a more pleasant experience.



Crossing signals such as this one, called a pedestrian hybrid or HAWK beacon, can help drivers become more aware of people walking.

Locations of Collisions Involving People Walking



This map shows the number and locations of collisions involving people walking that occurred between 2012 and 2017. Maps of collisions involving bicyclists as well as total collisions are included in Appendix III.

Existing Conditions, Challenges and Opportunities



MOBILITY CHOICES

Travel distance, time, cost, access and convenience are factors in people’s decisions on how to travel, and they can be barriers to getting people out of their cars. For some people, where they live and work may mean that automobile travel is their only viable commuting option. But, for trips that are two miles or less, walking, bicycling, and taking transit all have the potential to be viable alternatives.

1) PEDESTRIAN NEEDS

Menlo Park is already a pedestrian-friendly community, with an active downtown, neighborhood schools, institutions, parks, transit and employment centers. The goal of the Transportation Master Plan is to create a safer and more comfortable walking environment to connect people of all ages and abilities to commercial areas, schools, transit stops, places for recreation, civic buildings, and other places that commonly draw pedestrian traffic.

2) BICYCLE NETWORK NEEDS

An estimated 7.5 percent of employees living in Menlo Park primarily travel by bicycle to and from work, compared to only 1.3 percent in San Mateo County as a whole. Bicycling also has the potential for non-commute travel, such as shopping, accessing regional transit stations, and other trips.



Wayfinding signs can help people who are biking more easily get to their destinations.

CHALLENGE: Major streets in Menlo Park offer good connectivity but are not comfortable for people who bike.

The Bicycle Level of Traffic Stress (LTS) method estimates how comfortable people typically are when biking, based on street characteristics such as the number of lanes, traffic volumes, speeds, and presence of bike lanes. Menlo Park’s neighborhood streets score well, but major routes such as El Camino Real and Willow Road – routes which provide connectivity and serve major destinations – are rated as high traffic stress streets. For most people who bike, high-stress streets or intersections effectively form gaps in the network.

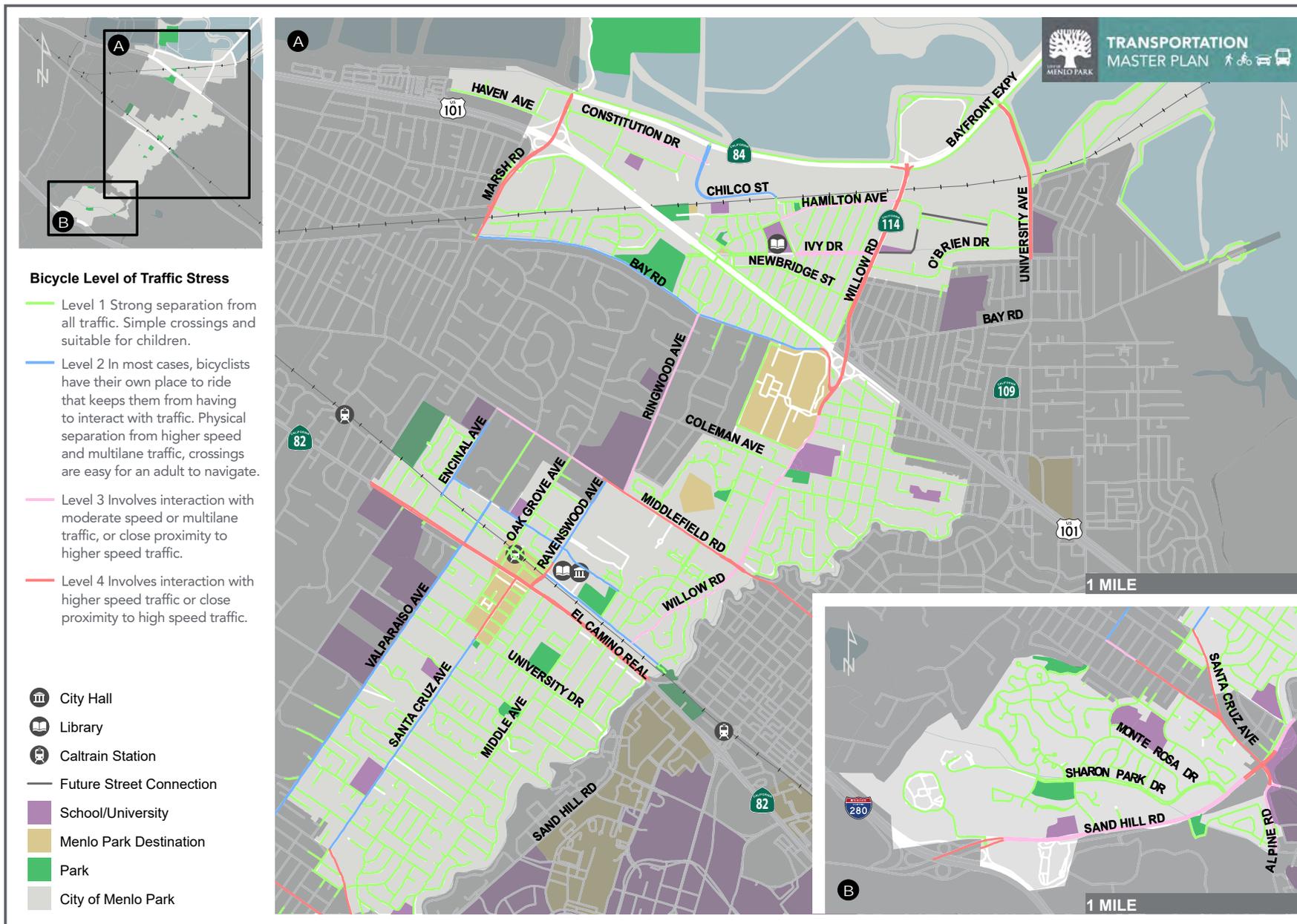
OPPORTUNITY: Provide bike-friendly connections between neighborhoods and common destinations, including along major streets.

Eliminating these gaps by improving high priority corridors could provide bike-friendly connections between neighborhoods and places where people work, shop, recreate, access regional transit, or go to school. It also includes eliminating gaps in major regional routes that provide connections to bike lanes or trails in neighboring communities.

3) TRANSIT NEEDS

Menlo Park residents have access to transit services that connect them to destinations within Menlo Park as well as cities throughout the Bay Area. For many non-drivers, these services are their primary travel option, and the reliability, frequency, and convenience of available services can affect access to job opportunities and other critical needs. In addition to the benefits to people who rely on transit out of necessity, improving services can provide a powerful incentive for commuters to or from Menlo Park to shift from driving to transit.

Bicyclist Comfort on Menlo Park Streets as Measured by Level of Traffic Stress (LTS)



This map shows the level of stress road segments in Menlo Park impose on people biking, ranging from low level of stress (level 1) to high level of stress (level 4).

Existing Conditions, Challenges and Opportunities



WHAT ARE THE PUBLIC TRANSIT OPTIONS FOR MENLO PARK RESIDENTS AND WORKERS?

Regional public transit

Residents and workers in Menlo Park have access to:

- Regional Caltrain transit service, serving the downtown area at least hourly and connecting to San Francisco in the north and San Jose or Gilroy to the south.
- Dumbarton Express, an express bus connecting Menlo Park to nearby communities of Newark and Fremont as well as the BART system.
- SamTrans bus service, which operates throughout San Mateo County and into Santa Clara County and San Francisco.

Local public transit

The City operates five local transit routes for free:

- Two commute connectors, providing connections between the Caltrain station and business parks in the eastern part of the city.
- Menlo Midday Shuttle, operating between Downtown and Sharon Heights.
- Belle Haven Shuttle, connecting the Menlo Park Senior Center in Belle Haven and Downtown.
- Shoppers Shuttle, primarily serving people with limited mobility, offering door to door service three days a week: one day to Redwood City and two days to the Menlo Park/Palo Alto area.

Stanford University provides additional local service to connect riders to the campus.

CHALLENGE: Local and regional bus services do not fully meet the demands of the community.

For residents who rely on transit for travel, the existing shuttle service within Menlo Park would provide more flexibility and convenience through more frequent service to more destinations. The Dumbarton Express service between Menlo Park and Union City is the only service with connections to the East Bay. It currently operates at irregular intervals ranging from 25 to 39 minutes, with less frequent midday service and no nighttime service. Since buses need to stop to pick up and drop off passengers, bus transit travel times are generally slower than driving. During times of peak traffic congestion, bus operations become even more challenging, making transit a less appealing option.

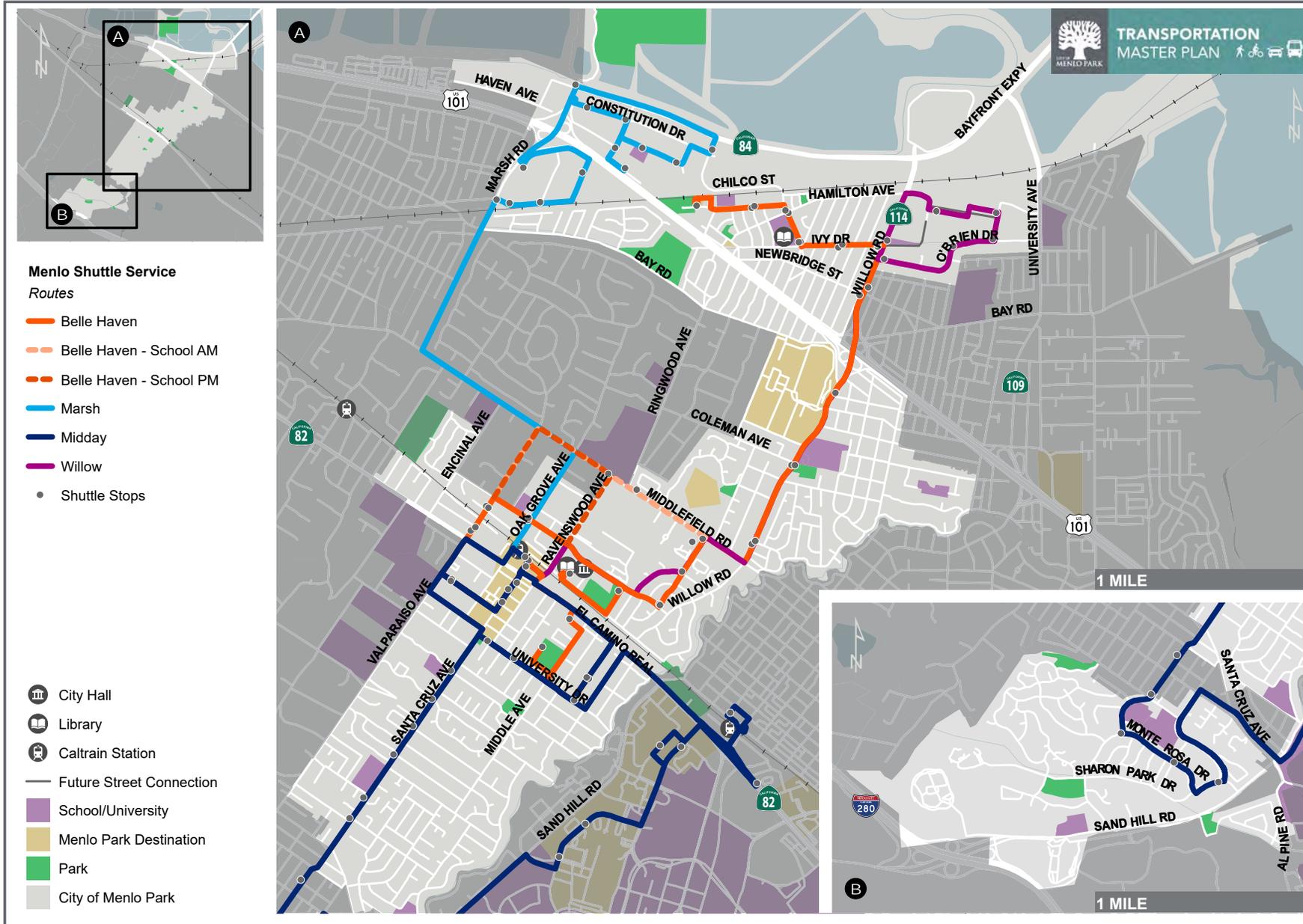
OPPORTUNITY: Expand local and regional transit service to connect people in currently underserved communities and improve connections to regional public transit.

Regional mobility between Menlo Park and the East Bay could be greatly enhanced through more frequent bus service and improved scheduling between Menlo Park and the East Bay or by the introduction of rail service along the currently inactive Dumbarton rail corridor. Transit-only lanes and transit signal priority – wherein green times can be extended or red lights shortened as needed – can help overcome the longer travel times that result from traffic congestion.



Caltrain connects downtown Menlo Park to destinations along the peninsula and south bay.

City of Menlo Park Shuttle Routes



The City of Menlo Park operates a variety of local shuttle routes to help people connect between their jobs, the senior center, and shopping centers.

Existing Conditions, Challenges and Opportunities

4) SHARED MOBILITY

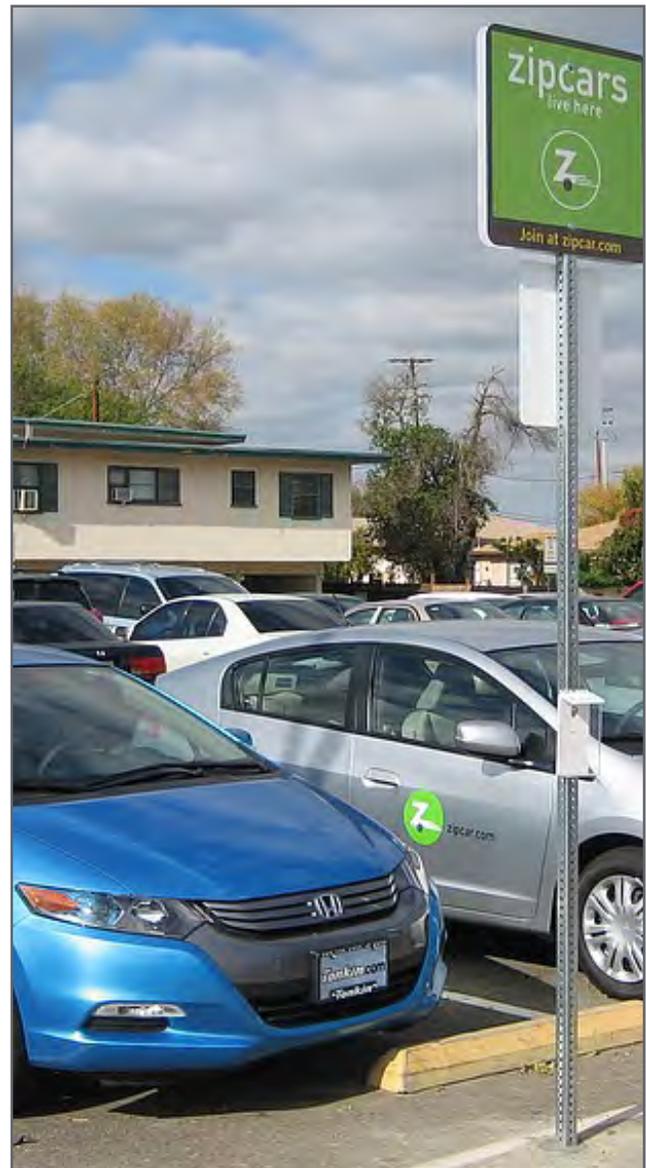
Most recently, the “shared mobility” model has emerged to occupy a growing niche in the local transportation system. The availability of car sharing and Transportation Network Companies (also known as TNCs, such as Uber and Lyft) may provide a useful service that could help reduce the need for vehicle ownership. Car sharing, such as Zipcar, has begun to gain a foothold in Menlo Park, with vehicles at the Facebook campus and Menlo College. Other shared mobility options, such as bike sharing and scooter sharing, have yet to arrive in Menlo Park, but have the potential to broaden the range of travel options, especially for local errands, travel to and from transit stations, and other short trips.

CHALLENGE: Shared mobility services are adding to Menlo Park’s travel options, but operations may conflict with other users of the sidewalk and curbside area.

TNCs provide convenient and readily available transportation but can add to congestion, that can negatively impact local circulation either along curbs or on roadways as drivers search for customers. Also, TNCs may discourage use of non-vehicle travel modes for some short trips. Bike and scooter sharing may pose challenges with other users on sidewalks and along the curb, for example with pedestrians, delivery vehicles, or sidewalk café seating.

OPPORTUNITY: Develop effective shared mobility solutions.

Menlo Park can learn from the experiences of nearby communities in managing shared mobility services and develop effective strategies to seamlessly integrate these travel options into the local transportation system.



Shared mobility offers both opportunities and challenges for integrating into the local transportation system.

Existing Conditions, Challenges and Opportunities

CHALLENGE: Traffic congestion on regional roadways and local streets in Menlo Park occurs regularly during the morning and afternoon commute hours.

The automobile is the dominant mode of travel for Menlo Park commuters, with 66 percent of residents driving alone to work, which is similar to the rate for the entire Bay Area. Traffic congestion is a daily occurrence along the major regional roadways in the area during the morning and afternoon peak periods, especially Bayshore Freeway (US 101), Bayfront Expressway (Route 84), Willow Road, El Camino Real, and Sand Hill Road.

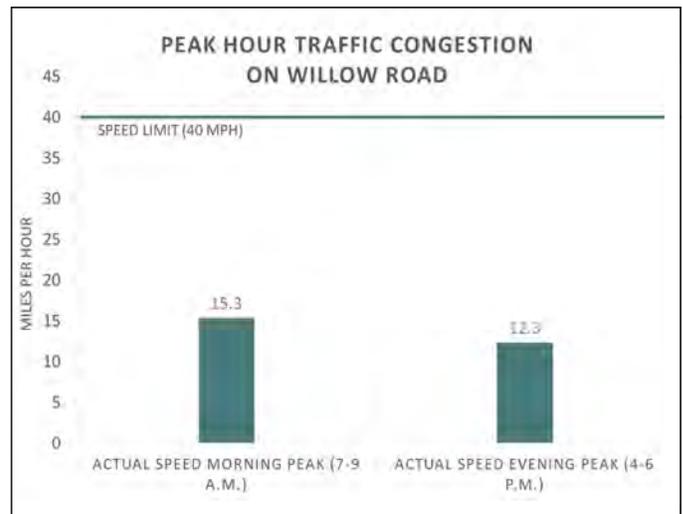
OPPORTUNITY: Deploy new technologies to more efficiently move vehicle traffic and transit, implement operational improvements, and support implementation of strategies outlined in the Neighborhood Traffic Management Program.

Improvements to traffic flow along major routes such as Bayfront Expressway could reduce delay and discourage drivers from rerouting onto streets in Menlo Park's residential neighborhoods; regional transit service upgrades could also discourage driving and lessen the impact of regional traffic on Menlo Park. The City can also take advantage of technology to move vehicles more efficiently along local streets through approaches such as upgrading signal timing. All congestion-related improvements will need to consider and address the potential negative impacts on users of other transportation modes.



CONGESTION MANAGEMENT

Menlo Park faces unique challenges that feed the growing traffic congestion, many of which are beyond the City's control. There are a large number of employment centers in the region, and many people travel through Menlo Park to access destinations in Santa Clara County, Alameda County, and elsewhere in San Mateo County. Not only does this result in congestion on major highways, but it can spill over onto local streets.



Traffic on Willow Road between Hamilton Avenue and Newbridge Street slows down significantly during both morning and evening commute hours. Source: City/County Association of Governments of San Mateo County (C/CAG) travel demand model.

Existing Conditions, Challenges and Opportunities

SUMMARY OF KEY TRANSPORTATION NEEDS IN MENLO PARK

TRANSPORTATION TOPIC	KEY ISSUES
Safety	<p>Vehicles – primary collision factors were speeding and improper turning</p> <p>Bicycles – high collision rates along Willow Road. and El Camino Real</p> <p>Pedestrians – over one-half of collisions were on El Camino Real, Santa Cruz Avenue, or Willow Road.; several collision hotspots in downtown area</p>
Safe Routes to School	Gaps in sidewalks, bike lanes and paths; challenging pedestrian crossings
Neighborhood Traffic Management Program	Proactive, strategic approach needed to identify priorities throughout the City to better manage resources; update the “toolkit” to include the most effective strategies to address speeding, safety, cut-through traffic and other local traffic issues.
Bicycle facilities	Gaps in bike lanes and paths act as barriers that limit bicycle access.
Pedestrian facilities	Challenging street crossings and sidewalk gaps limit pedestrian access.
Operational improvements	Congestion during peak commute times requires spot and corridor improvements.
Green infrastructure	Paved streets, sidewalks and other impermeable surfaces lead to untreated stormwater runoff that runs into the Bay.
Regional transit	Traffic congestion slows transit travel times; inadequate service along Dumbarton Corridor to the East Bay; more bus stops should be equipped with shelters, benches, and real-time travel information.
Local transit	Need to expand existing routes to enhance connectivity to Stanford and underserved neighborhoods.
Transportation Demand Management (TDM)	TDM programs are generally available to employees at large companies but a strategy should be developed to include small businesses. A Transportation Management Association (TMA) could be a cost-effective way to distribute information about travel options citywide.
Shared mobility	Limited access to carshare services, other services such as bike and scooter sharing are currently unavailable.

COMMUNITY ENGAGEMENT

Community Engagement

Input from the Menlo Park community was an essential component of the development of the TMP to ensure that the final recommendations reflect the stakeholders and their respective needs. The public engagement effort featured a multi-pronged approach which included online options as well as a chance to engage with the project team on a more informal level, including hands-on neighborhood walks. With the people who live, work, and visit Menlo Park contributing their experiences and insights, this effort provided rich material that informed the TMP process and provided a depth to the TMP that went beyond technical analysis.

OVERSIGHT AND OUTREACH COMMITTEE

The City Council appointed an Oversight and Outreach Committee (OOC) consisting of 11 members of City boards, commissions, other local organizations, and residents. The OOC provided feedback to the TMP project team at each stage of the planning process. The OOC met eight times during the development of the TMP. The role of the OOC was to:

- Provide advisory input and recommendations to the project team, including identifying candidate projects, evaluating and prioritizing projects, and developing strategies for engaging the broader community.
- Guide and keep the project process on track to meet key milestones.
- Actively participate in supporting the community engagement effort by distributing TMP materials and encouraging participation at workshops, events and online.

ENGAGING THE COMMUNITY

The project team also sought to engage Menlo Park residents, employees, business owners and other interested participants through a two-phased community engagement process.

PHASE 1 (2017): TRANSPORTATION NEEDS, CHALLENGES AND RECOMMENDED IMPROVEMENTS

Phase 1, which began in 2017, focused on having participants identify Menlo Park's primary transportation needs, challenges and recommended improvements. The project team then used this information as a key input to identify candidate TMP projects.

Phase 1 Outreach Activities



Online Open House



Menlo Park Block Party –
citywide event focused
on transportation



Table at Music in the Park



Walking Workshops in 3
Neighborhoods

Among a series of survey questions as part of the Phase 1 outreach, respondents were asked to rank their priorities among transportation improvements. The results, in order from highest to lower priority, were:



Safer bicycle and pedestrian crossings



Reduced delays and travel time



Safer and more convenient bicycle network
connectivity



Minimizing cut-through traffic on residential
streets



Better regional transit service coordination
with other providers (Caltrain, SamTrans)



Increased local transit service (Menlo Park
shuttle service)

Community Engagement

PHASE 2 (2019): RECOMMENDED STRATEGIES FOR THE TMP

In 2019, after the development of the draft TMP recommended strategies and infrastructure improvements, Phase 2 of the outreach effort was conducted to solicit feedback. To help attract a diverse group of participants in the TMP process, Phase 2 included both in-person and online outreach activities.

Phase 2 Outreach Activities



Online Open House



Public meeting



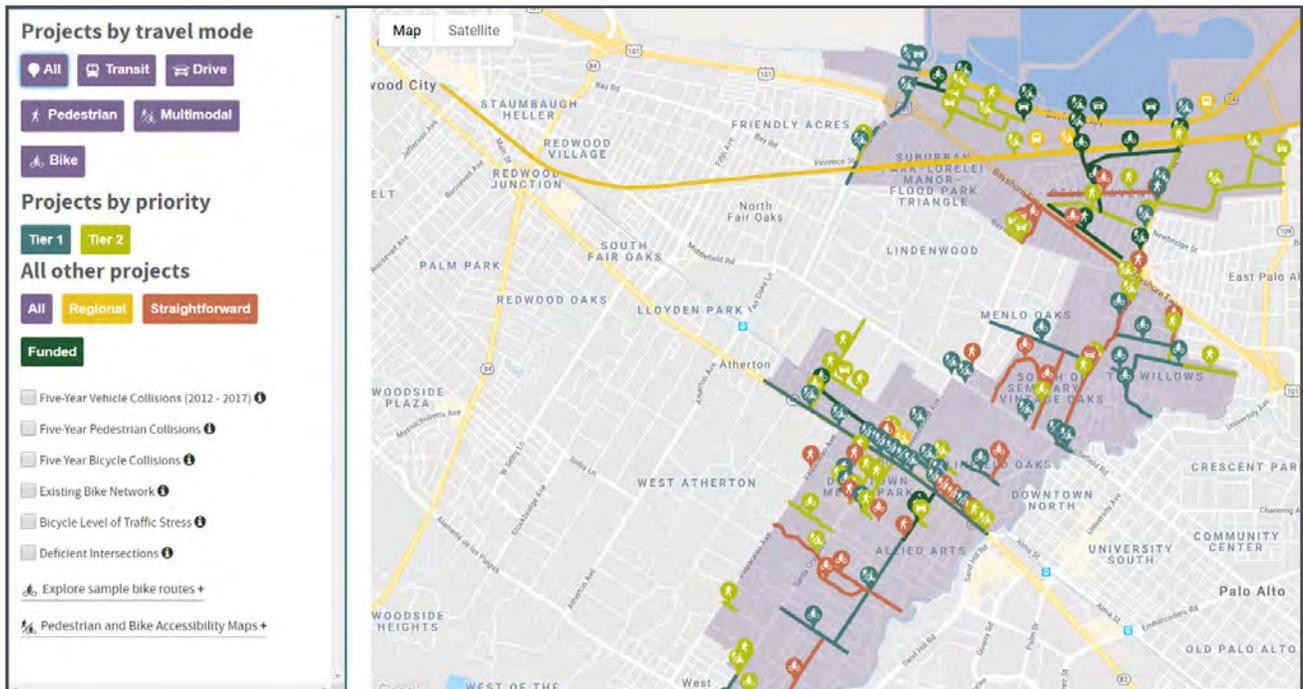
Table at the Menlo Park farmer's market



Table at Off the Grid food truck fair



Community meetings, such as this one the City hosted during Phase 2 outreach, provided an opportunity for one-on-one discussions between community members and project staff.



As part of the Online Open House conducted during Phase 2 outreach, visitors to the site could provide their input on projects recommended for the TMP through this interactive online map.

Community Engagement

LISTENING TO THE COMMUNITY

Both phases of the outreach effort attracted substantial interest from the community, with more than a combined 1,000 participants taking part in each of the two phases. The two online open houses were particularly successful at generating interest in the project, accounting for more than 90 percent of the comments collected throughout the process. Of the online participants, over 80 percent of respondents were Menlo Park residents, although there was also representation from people employed in Menlo Park as well as business owners and students.

Below are examples of typical comments that emerged during the various outreach activities, both online and in person. These comments echo the results from the technical analysis and point in the same direction as the goals identified in the Circulation Element. More detailed information about public input and the survey responses through the online open houses is provided through the outreach summaries in Appendix IV.



Tabling at community events made it easy for community members to participate in the project without taking time to attend a workshop or other project meeting.

MENLO RESIDENTS STATED

"More bike lanes and better connections for people biking is needed."

"Sidewalk improvements are needed, including both building new sidewalks and ensuring the existing sidewalks are maintained."

"The transit system does not meet people's needs. We need improved transit service."

"Menlo Park is a bottleneck for traffic; traffic is terrible and getting worse."

"The TMP does not do enough to address traffic congestion."

"Safety improvements are needed for people who walk and bike, especially along major streets and at intersections like El Camino Real and Willow Road."

"There is a lot of traffic on residential streets and cut-through traffic in local neighborhoods."



IDENTIFYING AND PRIORITIZING TMP PROJECTS

Identifying and Prioritizing TMP Projects

IDENTIFYING PROJECTS

Over 190 projects were considered for inclusion in the TMP. These projects originated from several sources – previous City plans, the TMP Oversight and Outreach Committee, Menlo Park City Council, City staff, project team, and community members.

As shown the table below candidate projects were directly linked to the needs identified in the analysis of the local transportation system and comments received from stakeholders. Each project, in turn, would also support one or more TMP goals.

RESPONDING TO COMMUNITY NEEDS

EXAMPLES OF PUBLIC COMMENTS	ASSOCIATED TECHNICAL ANALYSIS	EXAMPLES OF RELATED PROJECTS
Traffic congestion: general concerns that traffic is heavy in Menlo Park and it's hard to get around	Intersection delay (LOS)	Bayfront Expressway/Marsh Road intersection improvements
Traffic congestion: Observations of heavy congestion at specific locations, such as Willow Road, El Camino, and Downtown	Intersection delay (LOS)	Adaptive traffic control systems, operations and maintenance
Transit: service is inadequate	N/A	Dumbarton Rail Corridor
Biking and walking: Safety improvements are needed	Collision data	Enhanced bicycle and pedestrian detection at traffic signals
Biking: safety for people who bike is an issue due to traffic speeds, parking, narrow lanes, and gaps in bike facilities	Review of Existing Conditions	Separate bikeway on Willow Road from Hamilton Avenue to the US 101
Biking: safer routes are needed for kids to bike to school	N/A	The Willows bike boulevard and multi-use path to improve school access
Walking: safety is an issue, especially for crossing wide streets like El Camino, and in areas that don't have sidewalks	Collision data, review of existing conditions	New sidewalks on Santa Cruz Avenue. from Olive Street to Orange Avenue.

Identifying and Prioritizing TMP Projects

CATEGORIZING PROJECTS

Transportation projects vary considerably in terms of size, scale and complexity. To help prioritize the TMP projects and formulate an implementation strategy, projects were classified into one of the following four categories:

CATEGORIES OF PROPOSED PROJECTS

PROJECT TYPE	DESCRIPTION	NUMBER OF CANDIDATE PROJECTS
Local	Projects that would be led by the City and vary in size, cost, design, and outreach needs.	96
Straightforward	Projects that are relatively easy to implement and lower in cost. The City plans to implement these through their annual Capital Improvement Program and by integrating into other projects.	32
Regional	Projects of regional significance and involving multiple jurisdictions and/or agencies. The City would not lead the project but could partner with other agencies.	5
Citywide	Projects that are policy-oriented or would be implemented programmatically on a citywide scale, such as updating traffic signal infrastructure.	25
TOTAL		158

Identifying and Prioritizing TMP Projects

PRIORITIZING PROJECTS

Local and Citywide projects were evaluated based on whether they were in line with seven prioritization criteria, which are described below along with the policy objectives they support. In addition to these criteria, considerations included other factors such as estimated project cost, the potential to secure funding through grants, private development, or other sources, and whether any funding had been secured, but these were not included as part of the project scoring. A total of 121 projects - 96 Local and 25 Citywide - were prioritized and designated as Tier 1 or Tier 2 projects.

Regional projects were not prioritized as the City would not be the lead agency for those projects, and the City could need to work collaboratively with other agencies to implement them. The straightforward projects were also not prioritized because they are planned to be implemented through an annual program in the City’s operating budget in coordination with the Safe Routes to School and street resurfacing programs. Appendix V includes a complete list of prioritized TMP projects, including Local and Citywide projects, based on the seven prioritization criteria.

Project Scoring System Example

Tier	Project	Safety*	Congestion Management*	GHG Reduction/Person Throughput*	Transportation Sustainability*	School Nearby*	Sensitive Population	Green Infrastructure
1	Project A	●	◐			●		◐
1	Project B	◐	●		◐		◐	
2	Project C	◐		◐	◐			◐
2	Project D		◐			◐		
2	Project E	◐		◐			◐	

= Fully Met Criteria
 = Partially Met Criteria
 = Did Not Meet Criteria

*Key Criteria

Each project was evaluated based on how well it supported each of the criteria – fully met criteria, partially met criteria, or did not meet criteria, as indicated below. Based on their support for the criteria, the Local and Citywide projects were classified as either Tier 1 or Tier 2 projects.

Identifying and Prioritizing TMP Projects

TMP PROJECT PRIORITIZATION CRITERIA

CRITERIA	DESCRIPTION
Safety	Projects that improve safety and close gaps in the pedestrian and bicycle network. The safety benefit of each project was assessed based on the location-specific collision history and safety countermeasures identified as effective by the Federal Highway Administration.
Transportation Sustainability	Projects that promote bicycling, walking and public transit. Additional consideration was given to projects that promote the use of multiple transportation modes and non-single-occupant vehicle travel.
Greenhouse Gas Reduction	Projects that support environmentally beneficial transportation strategies to help achieve the City's Climate Action Plan goals. The projects were evaluated based on the anticipated reduction in vehicle miles traveled by shifting single-occupant vehicle trips made within Menlo Park to other transportation modes.
School Access	Projects that improve access and accommodate all travel modes to and from a school. Projects near schools were evaluated based on whether they are located within one-half mile of a school and the degree to which they improve access to schools as well as their proximity to a school campus.
Congestion Management	Projects that reduce travel time on City streets and minimize cut-through traffic on neighborhood streets. These projects were evaluated based on the anticipated magnitude of benefit to residents and drivers in Menlo Park. Congestion management projects include roadway geometry changes, traffic signal modifications, signalization of existing unsignalized intersections, grade separation at railway crossings, and grade separation of highways and intersections.
Sensitive Population	Considers location of a project near daycare or senior centers, and within a disadvantaged community ("Community of Concern"), based on factors such as high levels of low-income households, minority populations, people with disabilities, seniors, and people with limited English proficiency.
Green Stormwater Infrastructure	Projects that provide ways to incorporate design elements such as vegetation, soils, and natural processes to retain and manage stormwater runoff. The projects were assessed based on the anticipated potential to incorporate green infrastructure into existing and new transportation infrastructure projects.

Identifying and Prioritizing TMP Projects

TIER 1 – 54 HIGHEST PRIORITY PROJECTS

Tier 1 projects are anticipated to have the greatest impact in achieving the goals of the TMP and would significantly benefit transportation network users by fully meeting at least one of the key prioritization criteria – safety, congestion management, greenhouse gas reduction, transportation sustainability, and proximity to schools – and provide a transportation network connection or close gaps in the network. There are 54 Tier 1 projects, including 39 Local and 15 Citywide projects.

TIER 2 – 67 OPPORTUNITY PROJECTS

Tier 2 projects are also anticipated to help achieve the goals of the TMP but do not fully meet any of the prioritization criteria. Tier 2 projects would be implemented over time as opportunities arise to complete the projects as part of other work such as street repaving or an adjacent development project. The 67 Tier 2 projects include 57 Local and 10 Citywide projects.



REGIONAL PROJECTS

The City of Menlo Park identified five regional projects early in the TMP process as important and plans to help advance these projects in partnership with other agencies or jurisdictions. The City and local neighborhoods will be engaged in the development of these projects to ensure that local needs are addressed.

- **Bayfront Expressway Multimodal Corridor Project:** Install peak hour bus lane along shoulder on Bayfront Expressway and add Transit Signal Priority (TSP) at signalized intersections to improve transit travel times.
- **Dumbarton Corridor Project:** Set of improvements to enhance traffic flow, including pricing strategies and grade separations at University Avenue, Willow Road, Chilco Street, Chrysler Drive and Marsh Road. City preference is not to include flyovers at Willow Road and University Avenue and minimize access restrictions to City neighborhoods.
- **Dumbarton Rail:** Support reactivation of Dumbarton Rail Corridor to provide passenger service between East Bay and Peninsula.
- **Dumbarton Rail Corridor Trail:** Construct Class I Multi-Use Path from Marsh Road to University Avenue.
- **Caltrain Crossing Improvements:** Construct grade-separated crossings across the Caltrain railroad tracks by raising the tracks and lowering the roadways at Ravenswood Avenue, Oak Grove Avenue, and Glenwood Avenue, or other future alternative selected by the City Council.



The City of Menlo Park supports replacing at-grade Caltrain crossings with grade-separated crossings at Ravenswood, Oak Grove and Glenwood Avenues. This visualization shows the proposed grade separation looking east along Ravenswood Avenue.

RECOMMENDED TMP PROJECTS

Recommended TMP Projects

TIER 1

A list of the 54 Tier 1 Local projects is provided in the table starting on this page. A description, how it supports the goals of the TMP, and a planning-level cost estimate are provided for each project. Costs will be determined in greater detail as projects advance in the design process. Projects are generally listed in geographical order from north to south, followed by Citywide programs. The complete list of TMP projects - including Local, Straightforward, Regional, and Citywide projects - is included in Appendix V.

TIER 1 LOCAL PROJECTS



DRIVING IMPROVEMENT



PEDESTRIAN IMPROVEMENT



MULTIMODAL IMPROVEMENT



BIKING IMPROVEMENT

NO.	LOCATION	PROJECT	PROJECT DETAILS	COST
1. 	Haven Ave from Marsh Rd to Haven Court	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Construct Class I Multi-Use Path from Marsh Rd to Atherton Channel. Establish Class II Bicycle Lanes from Haven Court to Atherton Channel. Install Bicycle and Pedestrian crossing upgrades. 	\$2,866,000
2. 	Bayfront Expy & Marsh Rd	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Recommended Improvements: Modify southbound Haven Ave approach to reduce delay. Install Bicycle and Pedestrian crossing upgrades. Funded Improvements: Widen eastbound Marsh Rd and add additional right turn lanes. Install Class I Multi-Use Path along eastbound Marsh Rd. 	\$206,000
8. 	Bayfront Expy & Willow Rd	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Install bike signals, high-visibility crosswalks and cross-bike markings. Reconstruct eastbound Willow Rd right-turn channelizing island to improve pedestrian access. Remove southbound Bayfront Expy channelizing island to provide space for shoulder-running bus lane and implement a right-turn overlap phase. Modify traffic signal to accommodate channelized right turn modifications. Install Transit Signal Priority (TSP) for queue jumps by shoulder-running buses. 	\$1,757,000
14. 	Marsh Rd from Bay Rd to Scott Dr	Marsh Rd Bicycle Network Improvement	<ul style="list-style-type: none"> Bay Rd to Florence St: Establish Class II Buffered Bicycle Lanes in both directions (requires removal of parking on the north side of street). Florence St to Scott Dr: Establish Class II Buffered Bicycle Lanes in both directions. Remove or modify existing median at Scott Dr. 	\$1,491,000
39. 	Willow Rd & Ivy Dr	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install right-turn overlap on southbound Ivy Dr and restrict eastbound Willow Rd U-turns. Widen pedestrian refuge island to match crosswalk width on east Willow Rd leg. Convert existing crosswalks to high-visibility crosswalks. Extend pedestrian crossing time. 	\$268,000
40. 	Willow Rd & O'Brien Dr	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install curb ramps at all corners of intersection. Install high-visibility crosswalks on all legs and add pedestrian signals (including new crosswalks crossing Willow Rd). Install bulb-outs into O'Brien Dr on northeast and southeast corners. 	\$195,000
41. 	Willow Rd & Newbridge St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Convert existing crosswalks to high-visibility crosswalks. Modify signal timing to lead-lag operation on Newbridge St with the leading left-turn phase on the southbound Newbridge St approach and lagging left-turn phase on the northbound Newbridge St approach. 	\$221,000
44. 	Willow Rd from Bay Rd to O'Keefe St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Bicycle Lane on eastbound Willow Rd from O'Keefe St to Bay Rd, connecting to US 101 Willow Rd interchange bicycle facilities. Establish Class II Bicycle Lane on westbound Willow Rd from Bay Rd to Durham St. Remove or reconstruct existing median to allow for Class II Bicycle Lanes where right-of-way is insufficient. 	\$2,191,000

Recommended TMP Projects

TIER 1 LOCAL PROJECTS



DRIVING IMPROVEMENT



PEDESTRIAN IMPROVEMENT



MULTIMODAL IMPROVEMENT



BIKING IMPROVEMENT

NO.	LOCATION	PROJECT	PROJECT DETAILS	COST
47.	Willow Rd & Middlefield Rd	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Remove westbound Willow Rd channelized right turn, and modify signal to include westbound right-turn overlap. Modify traffic signal to include protected northbound and southbound left-turn phasing. Restripe northbound Middlefield Rd approach to include one left-turn lane, one through lane, one bike lane, and one right-turn lane. Restripe southbound Middlefield Rd approach to include one left-turn lane, one through lane, one through-right turn lane, and one bike lane. Extend bike box on northbound Middlefield Rd approach to encompass both the left-turn lane and the through lane. Install bike boxes on the eastbound and westbound Willow Rd approaches. Construct pedestrian facilities on east side of Middlefield Rd between Woodland Ave and Willow Rd. 	\$1,416,000
59.	The Willows	The Willows Bicycle Network Improvement Project	<ul style="list-style-type: none"> Designate Class III Bicycle Route. Implement Bicycle Boulevard design features on Gilbert Ave, Pope St, Walnut/O'Connor streets, O'Keefe St, and O'Connor St. Construct Class I Multi-Use Path from Willow Oaks Park to Pope Street (coordinate with Ravenswood School District). 	\$1,089,000
61.	Coleman Ave from Ringwood Ave to Willow Rd	Menlo Oaks Bicycle Network Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes from Willow Rd to City Limits (requires removal of parking on one side of the street). Coordinate with San Mateo County between City Limits and Ringwood Ave regarding bicycle facilities. 	\$224,000
63.	Middlefield Rd & Ravenswood Ave	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Remove eastbound Ravenswood Ave channelized right-turn lane, install right-turn overlap phase, modify signal timing. Install crosswalk and cross-bike markings on north Middlefield Rd leg, install bike signal. Construct "jughandle" bicycle left-turn on east side of Middlefield Road to allow bicycle left-turns onto Ravenswood Ave. Install "bicycle leaning rail" with push button for bicycles to initiate crossing phase on "jughandle" left-turn. Coordinate with Town of Atherton. 	\$297,000
64.	Middlefield Rd & Ringwood Ave-D St	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Remove southbound Middlefield Rd channelized right turn. Reconstruct curb ramp and reduce curb radius on northwest corner. Replace crosswalks on north and west legs. Install Two-Stage Left-Turn Queue Boxes for cyclists traveling from Middlefield Rd to Ringwood Ave. 	\$145,000
65.	Middlefield Rd & Linfield Dr-Santa Monica Ave	Middlefield Rd Safety Improvements	<ul style="list-style-type: none"> Install Pedestrian Hybrid Beacon (HAWK) or traffic signal with emergency pre-emption on Middlefield Rd at Linfield Dr-Santa Monica Ave. Install "Keep Clear" striping at Menlo Fire Protection District Station No. 1. Close sidewalk/pathway gap on eastern side of Middlefield Rd between Linfield Dr and Santa Monica Ave. Coordinate with Menlo Fire Protection District. 	\$544,000
69.	Middlefield Rd from Willow Rd to Palo Alto Ave	Middlefield Rd Multimodal Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (City has a plan line to allow for widening as properties are redeveloped). Coordinate with future potential Peninsula Bikeway planning efforts. 	\$201,000
70.	Middlefield Rd & Woodland Ave	Middlefield Rd Multimodal Improvements	<ul style="list-style-type: none"> Install a traffic signal. Install crosswalks on all intersection approaches. Install bicycle crossing improvements to connect Woodland Ave, Middlefield Rd, and Palo Alto Ave. 	\$994,000
74.	Ravenswood Ave & Laurel St	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Recommended Improvements: Remove parking south of Ravenswood Ave on west side of Laurel St for approximately 150 feet and shift northbound lanes to establish a Class II Bicycle Lane. Widen and modify eastbound Ravenswood Ave to shared thru-left lane and a right turn lane. Upgrade existing crosswalks to high-visibility. Funded Improvements: Modify southbound Laurel St to a left-turn lane and a shared thru-right lane. Maintain existing Class II Bicycle Lanes. Remove parking on west side of Laurel St north of Ravenswood Ave for approximately 100 feet. 	\$245,000

Recommended TMP Projects

TIER 1 LOCAL PROJECTS



DRIVING IMPROVEMENT



PEDESTRIAN IMPROVEMENT



MULTIMODAL IMPROVEMENT



BIKING IMPROVEMENT

NO.	LOCATION	PROJECT	PROJECT DETAILS	COST
75.	Laurel St from Burgess to Willow	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking on both sides of the street). 	\$125,000
79.	Alma St from Ravenswood Ave to Burgess Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install sidewalk on the east side of Alma St to connect to Burgess Park path. Upgrade crosswalks to high-visibility. 	\$169,000
81.	Middle Ave Caltrain Crossing	Downtown Mobility Improvements	<ul style="list-style-type: none"> Construct pedestrian and bicycle crossing at El Camino Real/Middle Ave intersection. Connect to future plaza, to be funded and constructed via private development (Middle Plaza). Install pedestrian crossing improvements across Alma St from Caltrain Crossing to Burgess Park. 	\$18,000,000
84.	El Camino Real within City Limits	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Buffered Bicycle Lanes (requires removal of parking, reconstruction of median, and intersection configuration changes). 	\$9,211,000
85.	El Camino Real & Encinal Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Transition bicycle lane into bicycle route and install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane. Install crosswalk on south El Camino Real leg. Upgrade all crosswalks to high-visibility. Replace existing southbound El Camino Real shared thru-right turn lane with right-turn lane. 	\$379,000
86.	El Camino Real & Glenwood Ave - Valparaiso Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Restripe crosswalk on south El Camino Real leg to straighten. Upgrade all crosswalks to high visibility. Transition bicycle lane into bicycle route and install green-backed sharrows in right-turn lane and green conflict striping approaching the right-turn lane on northbound El Camino Real. Remove median on north El Camino Real leg for a distance of approximately 300 feet. Install bicycle lane line extensions through intersection in the eastbound Valparaiso Ave and westbound Glenwood Ave directions. 	\$548,000
87.	El Camino Real & Oak Grove Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Lengthen existing medians to install pedestrian refuge islands on El Camino Real legs. Upgrade crosswalks on all legs to high-visibility. Transition bicycle lane into bicycle route and install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane on northbound and southbound El Camino Real. 	\$237,000
88.	El Camino Real & Santa Cruz Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Transition bicycle lane into bicycle route; install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane on southbound El Camino Real 	\$51,000
89.	El Camino Real & Ravenswood Ave - Menlo Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Widen sidewalk facility to 15 feet to provide a Class I Multi-Use Path on east side of El Camino Real. Install northbound El Camino Real right-turn overlap and bike signal; prohibit right-turn on red movements. Remove median on south leg of El Camino Real and install an additional northbound El Camino Real right-turn lane. Transition bicycle lane into bicycle route and install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane on southbound El Camino Real. Establish Class II Bicycle Lanes on westbound Ravenswood Ave approach (requires fire hydrant relocation and widening). 	\$1,537,000
90.	El Camino Real & Live Oak Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install bicycle lane line extensions through intersection in the southbound El Camino Real directions. Install high-visibility crosswalk across Live Oak Ave. 	\$115,000
91.	El Camino Real & Roble Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install bicycle lane line extensions through intersection in the northbound and southbound El Camino Real directions. Install high-visibility crosswalk on north El Camino Real leg. 	\$114,000

Recommended TMP Projects

TIER 1 LOCAL PROJECTS



DRIVING IMPROVEMENT



PEDESTRIAN IMPROVEMENT



MULTIMODAL IMPROVEMENT



BIKING IMPROVEMENT

NO.	LOCATION	PROJECT	PROJECT DETAILS	COST
92.	El Camino Real & Middle Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Recommended Improvements: Continue buffered bicycle lane striping through intersection. Install bicycle crossing improvements in the eastbound and westbound Middle Ave directions. Funded Improvements: Lengthen existing median on north leg of El Camino Real to install pedestrian refuge island. Install high-visibility crosswalk on south El Camino Real leg. Upgrade all crosswalks to high visibility. Install southbound left-turn lane. Install median on south El Camino Real leg. 	\$20,000
95.	El Camino Real & Cambridge Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Recommended Improvement: Continue buffered bicycle lane striping through intersection. Funded Improvements: Lengthen existing medians to install pedestrian refuge islands on north and south El Camino Real legs. Install crosswalk on south El Camino Real leg. Upgrade all crosswalks to high-visibility. 	\$20,000
107.	Oak Grove Ave from Middlefield Rd to Crane St	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on Oak Grove Ave between Crane St and University Dr (requires parking removal on the north side of the street). 	\$54,000
113.	University Dr & Menlo Ave (South)	Downtown Mobility Improvements	<ul style="list-style-type: none"> Remove westbound Menlo Ave right turn lane. Install bulb-out at northeast corner into Menlo Ave. Replace crosswalk with straightened crossing. 	\$131,000
118.	Middle Ave from University Dr to Olive St	Middle Ave Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of on-street parking on one side of the street). Install new sidewalk or replace existing asphalt pathway on both sides of Middle Ave, to be completed in phases as properties are redeveloped. 	\$315,000
129.	Olive St from Oak Ave to Santa Cruz Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes between Santa Cruz Ave and Middle Ave (requires parking removal on at least one side of the street). Designate Class III Bicycle Route between Middle Ave and Oak Ave. Implement Bicycle Boulevard design features. 	\$315,000
134.	Avy Ave from Santa Cruz Ave to Monte Rosa Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (parking removal required). Coordinate with County on bicycle facility connectivity. 	\$166,000
144.	Sand Hill Rd & Santa Cruz Ave	Sand Hill Rd Corridor Project	<ul style="list-style-type: none"> Install high-visibility crosswalks. Install LED sign for southbound Santa Cruz Ave right-turn on red restriction (requires coordination with San Mateo County). 	\$151,245
146.	Sand Hill Rd & Sharon Park Dr	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Upgrade existing crosswalks to high-visibility. Install high-visibility crosswalk and pedestrian signal heads on west leg of Sand Hill Rd. Reconstruct nose in front of traffic signal on east Sand Hill Rd leg to provide clear crosswalk. 	\$153,000
178.	Marsh Rd between Independence Dr to Scott Dr	Marsh Road Corridor Mobility Project	<ul style="list-style-type: none"> Establish Class II Bike Lanes. Implement Caltrans District 4 Bike Plan Project Number SM-101-X14 that calls for the construction of an additional bicycle and pedestrian bridge over US 101 north of Marsh Road. 	\$30,341,000
189.	University Dr between Oak Grove Ave and Santa Cruz Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on University Dr (requires removal of parking on at least one side of University Dr). 	\$103,000

Recommended TMP Projects

TIER 1 CITYWIDE PROJECTS



DRIVING IMPROVEMENT



PEDESTRIAN IMPROVEMENT



MULTIMODAL IMPROVEMENT



BIKING IMPROVEMENT

NO.	LOCATION	PROJECT	PROJECT DETAILS	COST
153.	Citywide	Prepare Citywide Bicycle Map	<ul style="list-style-type: none"> Prepare citywide bike map to provide residents and visitors with a big picture look of prioritized bicycle routes characterized by low to moderate stress levels throughout the City 	\$5000
157.	Citywide	Enhanced Bicycle and Pedestrian Detection	<ul style="list-style-type: none"> Install bicycle and pedestrian detection at intersections to efficiently serve residents and visitors traveling via alternative modes 	\$875,000
158.	Citywide	Adaptive Traffic Control System Operations & Maintenance	<ul style="list-style-type: none"> Adaptive Traffic Control System O&M to better serve residents and guests traveling throughout the city. Adaptive signaling utilizes real-time data at signalized intersections rather than conventional pre-programmed, daily signal timing schedules. 	\$1,250,000
159.	Citywide	Automated Traffic Signal Performance Measurement	<ul style="list-style-type: none"> Automated Traffic Signal Performance Measurement (ATSPM), provides way to collect data for use in evaluating performance measures. Data from the ATSPM software is used to provide more efficient signal timing plans, targeted repairs and maintenance resulting in increased safety and improved traffic operations. 	\$ 500,000
160.	Citywide	Create Policy Advocating for Variable Pricing on the Dumbarton Bridge	<ul style="list-style-type: none"> Create policy to advocate congestion/variable pricing on the Dumbarton Bridge. Congestion/variable pricing would incorporate a pricing scheme which would charge higher prices during periods of higher traffic demand, and lower prices during periods of less traffic demand. Pricing schemes as such have the potential to encourage motorists to use alternative modes during peak periods. 	\$500,000
165.	Citywide	Update NTMP Guidelines	<ul style="list-style-type: none"> Update Neighborhood Traffic Management Program guidelines to make resident requests for traffic calming more streamlined 	\$250,000
166.	Citywide	Progressive Safety Enforcement	<ul style="list-style-type: none"> Work with local law enforcement agencies to establish a program to increase spot specific enforcement of potentially unsafe behavior 	\$50,000
167.	Citywide	Establish Shared Mobility Program	<ul style="list-style-type: none"> Adopt an ordinance and permitting process for dockless bikeshare providers and other rolling modes, building on processes put in place by other mid-peninsula cities 	\$50,000
170.	Citywide	Establish Voucher Program for Shared Mobility Services from Transit	<ul style="list-style-type: none"> Explore voucher system for first-mile/last-mile connections to transit, including shared mobility (car share, bike share, ride share, other roller share) 	\$100,000
176.	Citywide	Willow Road Relinquishment	<ul style="list-style-type: none"> Evaluate relinquishment of Willow Road by Caltrans from Bayfront Expressway to Bay Road 	\$500,000
177.	Citywide	Update street lights	<ul style="list-style-type: none"> Evaluate lighting levels at crosswalks and update street lights as necessary 	\$150,000
195.	Citywide	Radar Speed Feedback Signs	<ul style="list-style-type: none"> Establish Policies to identify locations and best practices for radar speed feedback sign installation 	\$25,000
196.	Citywide	Update Crosswalk Policy	<ul style="list-style-type: none"> Update crosswalk policy to identify potential RRFB locations and priority 	\$25,000
197.	Citywide	Update Sharrow Policy	<ul style="list-style-type: none"> Update sharrow policy to include toolkit and best practices for signage 	\$25,000
198.	Citywide	Safe Routes to School walk audits	<ul style="list-style-type: none"> Evaluate pedestrian environment and identify potential improvements near all Menlo Park Schools 	\$100,000

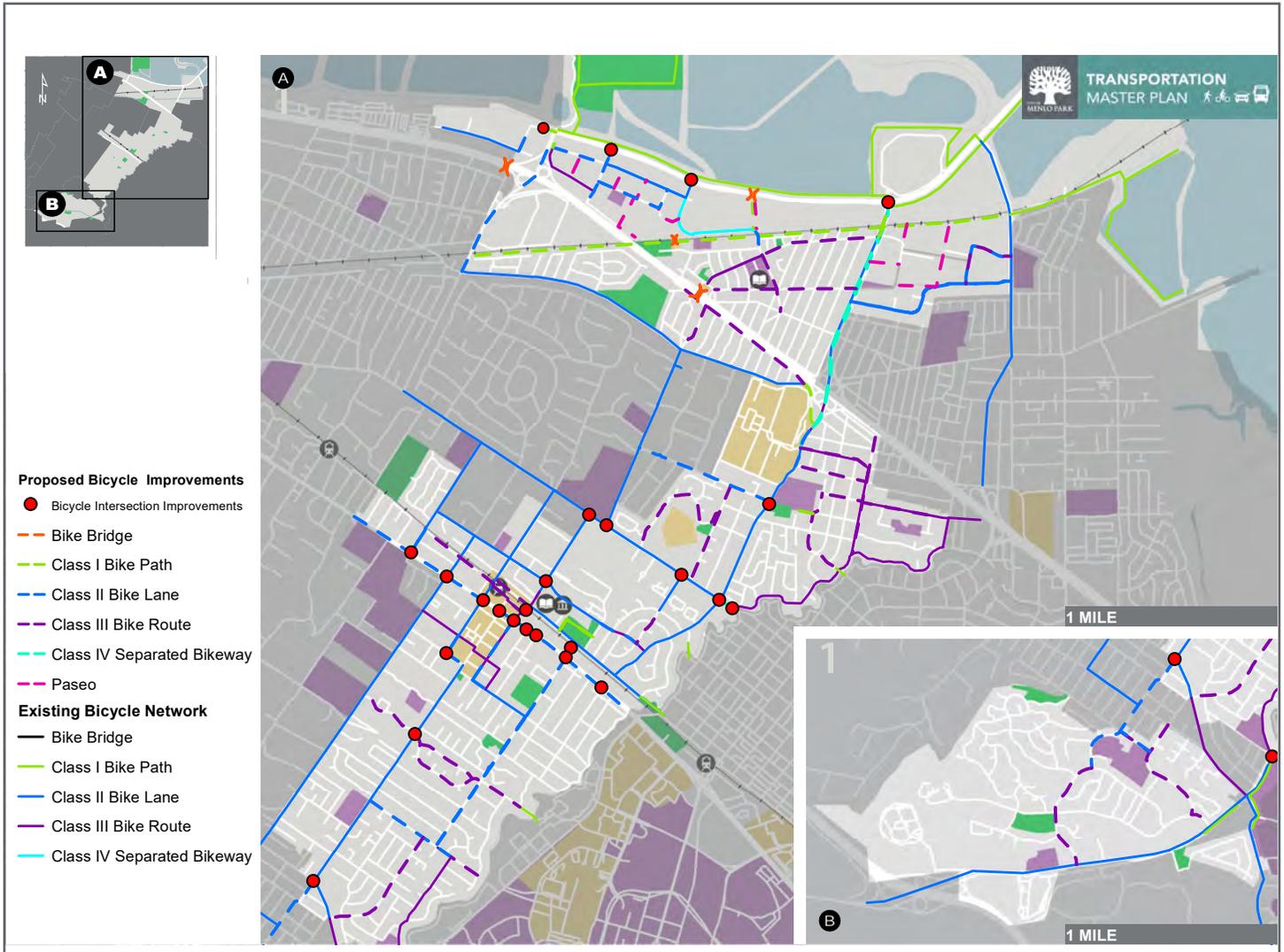
RECOMMENDED TIER 2 PROJECTS



This map shows the locations of the Local and Citywide recommended Tier 2 projects.

Recommended TMP Projects

EXISTING BIKE NETWORK AND RECOMMENDATIONS



Recommendations for people biking at various locations throughout Menlo Park will help improve safety and connections to the existing bicycle network.

Recommended TMP Projects

The table below summarizes how the Tier 1 projects prioritized through the TMP will support the multimodal vision laid out in Menlo Park’s General Plan. Projects were grouped together to illustrate the total number of each project type in the TMP and the overall pattern of the City’s planned investment strategy. Since some projects can be classified under more than one type of improvement, the number of projects exceeds 100 percent.

TRAVEL MODES SUPPORTED BY TMP

TYPE OF IMPROVEMENT	NUMBER OF PROJECTS	PERCENT OF TOTAL PROJECTS*
Pedestrian projects such as sidewalks, crosswalks, curb extension, ped signal phase, ped refuge islands, and flashing beacons	93	53%
Bicycle facilities such as striped bike lanes and signed bike routes	89	50%
Corridor-wide improvements, such as along El Camino Real	22	45%
Multimodal (emphasize more than one of the above)	59	33%
Intersection operation such as traffic signal enhancements	51	29%
Transit such as signal priority or queue jump lanes	7	4%

* Total exceeds 100 percent as some projects include more than one type of improvement.



Safe Routes to School projects and programs play an important role in increasing the number of students that walk or bike to school.

IMPLEMENTING TMP PROJECTS AND PROGRAMS

Implementing TMP Projects and Programs

The Circulation Element established a clear transportation vision for Menlo Park, and the identification of priority investments through the TMP brings the City one step closer to achieving that vision. However, completing construction of these projects is a complex process, and each project will have its own unique path forward. A number of questions will need to be answered in implementing each project, including:



Funding opportunities: Are there federal, state, regional, or county funds – including competitive grants – that would be a good fit for the project? What share of the project costs should be paid for by new residential, commercial, and other development projects?



Interagency involvement: What other agencies or jurisdictions will need to be involved in project implementation?



Community engagement: How do Menlo Park residents feel about the project? What role can residents play in project planning and design?



Project status: What level of planning and design has already been completed?



Unique challenges: Will the project require the City to address complex issues, such as right-of-way acquisition, utility impacts, or environmental impacts?



Potential to gain efficiencies and leverage non-City resources: Can the City take advantage of opportunities to link the project to other infrastructure work or development projects in the area?



City resources: Does the City have the staffing capacity to implement the project during the proposed time frame?



Need for ongoing funding: Will resources be available to pay for ongoing operations and maintenance?

The answers to these questions will impact the order in which projects are undertaken, how they are phased, and the overall timeline of each project. As a result, while TMP projects were assigned a designation of Tier 1 or Tier 2 based on priority level, it is likely that in some cases Tier 2 projects will be

constructed prior to higher priority projects. Since project implementation is not always predictable, and unforeseen opportunities may arise – such as grant funding – the TMP implementation strategy will need to be a flexible one.

PROJECT PHASING

Once infrastructure projects are initiated, they can take several years to complete. Menlo Park advances projects toward implementation each year as part of the City's annual Capital Improvements Program (CIP). The CIP is a 5-year document that demonstrates the City's commitment to complete one or more phases of a project. Projects in the TMP will be added to the CIP based on their priority level, project readiness, and the availability of resources (including staff and funding) to complete at least one phase of the project. The CIP is revised every year to reflect progress made during the prior year as well as any changes to the City's short-term priorities.



WHAT ARE THE PHASES TO COMPLETE A CONSTRUCTION PROJECT?

1. Planning
 - Develop project concept(s)
 - Initiate public engagement
2. Preliminary engineering
 - Continue public engagement
 - Select final alternative
 - Continue alternative design
 - Prepare cost estimates
 - Conduct environmental analysis
3. Final design
 - Continue public engagement
 - Complete design
 - Acquire right-of-way
 - Acquire permits
4. Construction

Implementing TMP Projects and Programs

HOW WILL THE TMP BE FUNDED?

The TMP will be funded through a combination of numerous sources, including federal, state, regional, and local funds, as well as contributions from development projects.

Transportation Impact Fee (TIF)

A portion of the TMP could be paid for through funds collected from the City’s Transportation Impact Fee (TIF), should full buildout of the Land Use Element occur. Updated in 2019, Menlo Park’s TIF includes formulas that assign costs to development projects.

The costs are based on the impacts that traffic from the new development is expected to have on the transportation network.

Fees are assessed when there is new construction, an increase in square footage in an existing building, or intensification of use of an existing building, such as converting a warehouse to offices. The amount of the required fee is based on the project’s estimated p.m. peak hour trips, as that is the time of day that most strains the transportation network capacity. Using this approach, new development will pay its “proportional share” without overly taxing the City’s General Fund revenues.

OTHER FUNDING SOURCES

Menlo Park relies on several other important transportation funding sources, including:

- **County:** San Mateo County Measures A and W are administered by the San Mateo County Transportation Authority. These measures are voter-approved initiatives that created a half-cent sales tax in San Mateo County to provide revenue for transportation projects. Menlo Park receives an annual allocation from these funding sources to be spent on local transportation priorities, consistent with the program guidelines.
- **State:** Transportation Development Act (TDA) funds are collected through a statewide sales tax of one-quarter-cent which can be used to finance transit operations, bus and rail projects, paratransit services,

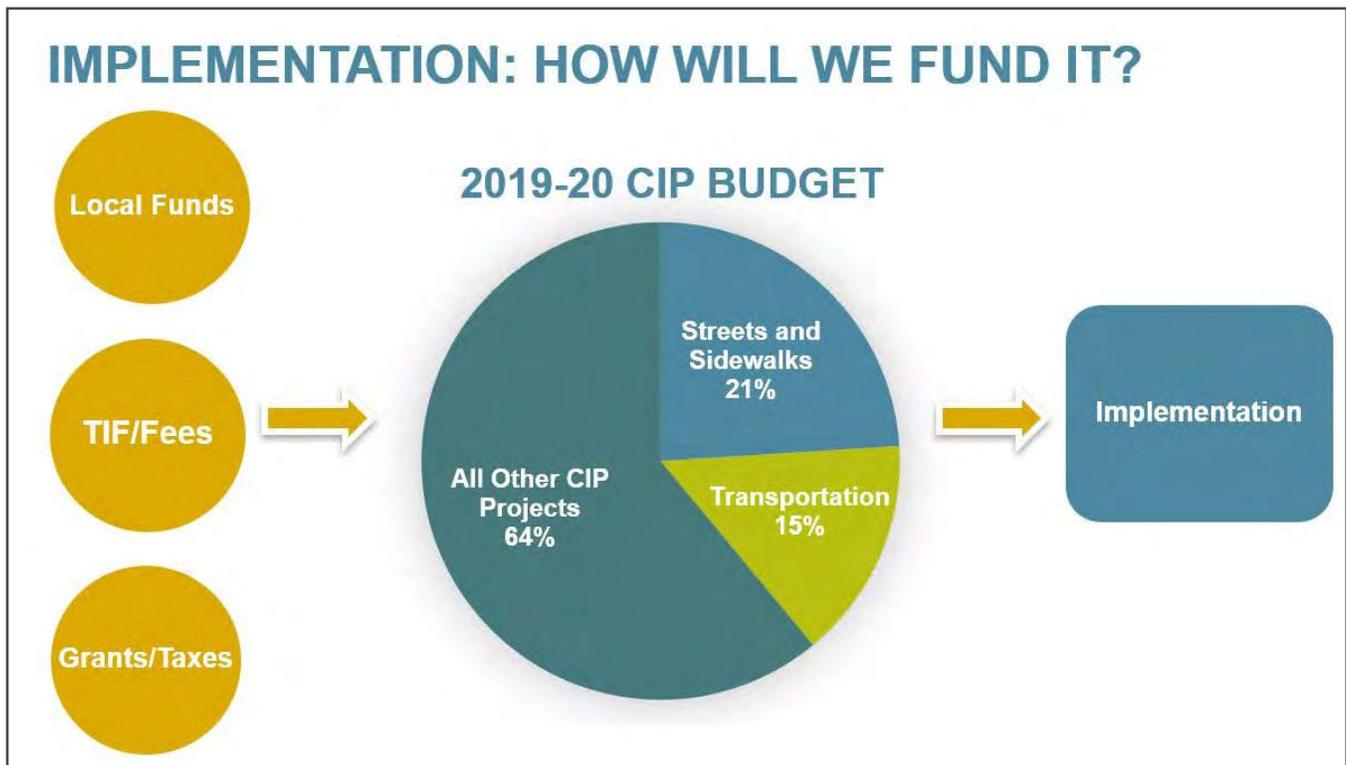
and bicycle and pedestrian projects. The City receives an annual allocation, which can be used to complete small projects or as matching funds to pursue grant funding.

- **Federal/State/County:** Competitive grants are available for a wide variety of project types. Examples include the Highway Safety Improvement Program (HSIP) for safety-related improvements, the Active Transportation Program (ATP) for bicycle and pedestrian projects, and Sustainable Communities Transportation Planning Grants for planning and conceptual design work for projects such multimodal corridor studies.

TRANSPORTATION MASTER PLAN PROJECTS – ESTIMATED COSTS AND TIF FUNDING

TMP IMPLEMENTATION GROUP	ESTIMATED COST	DEVELOPER SHARE
Tier 1 Projects	\$77.3 million	\$43.3 million
Tier 2 Projects	\$48.3 million	\$14.6 million
Regional Projects	\$10.8 million	\$10.8 million
Straightforward Projects	\$3.0 million	\$0.9 million
Citywide Projects	\$18.6 million	\$3.5 million
Subtotal	\$158 million	\$73.1 million

Implementing TMP Projects and Programs



As funds are identified and budgeted as part of Menlo Park’s Capital Improvement Program, the City will develop a plan for implementing the projects.

TRACKING THE PERFORMANCE OF TMP INVESTMENTS

The TMP will be a living document, guiding the City’s project priorities into the future. To evaluate how well the TMP is advancing its four goals – safety, mobility choice, sustainability, and congestion management – the City will use performance metrics such as those presented in the table on the next page. The TMP will need to be updated frequently – approximately every 5 years – so that the City’s investment strategies continue to respond to current conditions.



Implementing TMP Projects and Programs

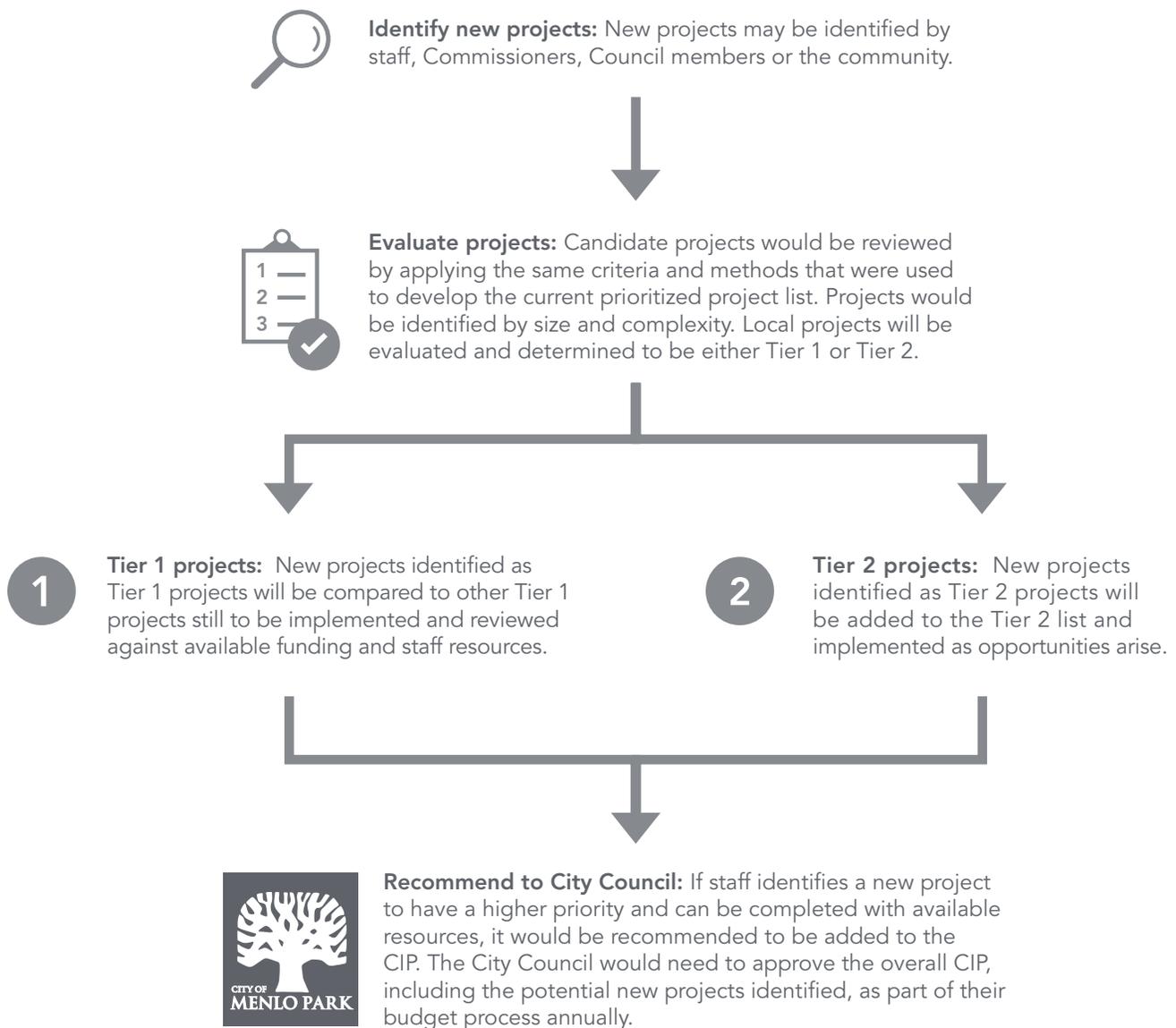
TMP PERFORMANCE METRICS

PERFORMANCE METRIC	MEASURE OF SUCCESS
SAFETY	
Collisions	
Safety for all users	Reduction in number of collisions for each mode of travel
Traffic fatalities	Elimination of collisions resulting in one or more fatalities
MOBILITY CHOICE	
Pedestrian Facility Quality and Connectivity	
Sidewalk gap closure	Completeness of sidewalk network in high priority areas
Community access projects	Completed number of projects that help pedestrians overcome barriers
Bicycle Facility Quality And Connectivity	
Level of Traffic Stress	Quality of street network based on bicyclist comfort level
Transit Access	
First-mile/last-mile projects completed	Number of pedestrian and bicycle projects completed within ½ mile of the Caltrain station and major bus stops
SUSTAINABILITY	
VMT Reduction	
Reduced Vehicle Miles Traveled (VMT)	Decrease in VMT per capita and VMT per worker.
Green Infrastructure	
Inclusion of green infrastructure in transportation projects	Number of projects that include features such as stormwater treatment and groundwater recharge systems, pervious pavement and gutters, and trash capture elements.
CONGESTION MANAGEMENT	
Traffic Operations	
Circulation enhancements	Reduction in vehicle and transit travel time, or other measure of traffic operations (to be determined by facility)

PROJECTS NOT INCLUDED IN THE TMP

Projects not Included in the TMP

The Circulation Element includes a recommendation to update the TMP every five years, or as necessary, to ensure that it accurately reflects the City's current priorities. However, there may be times when projects not identified in the TMP may need to be considered outside of a full TMP update due to safety concerns or changes in travel patterns. As the CIP is updated annually along with City's budget, these projects would be evaluated at that time through a multi-step process:



APPENDIX I. TRANSPORTATION TOOLKIT

CITY OF MENLO PARK

TRANSPORTATION TOOLKIT



DRAFT August 2018

Prepared by:



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INTRODUCTION

The City of Menlo Park is preparing a Transportation Master Plan (TMP) to envision the future of transportation in Menlo Park, with a goal of improving safety and operations for all modes and roadway users. The TMP will provide the ability to identify appropriate projects to enhance the transportation network, conduct community engagement to ensure such projects meet the communities' goals and values, and prioritize projects based on need for implementation. The Transportation Master Plan, when completed, would provide a detailed vision, set goals and performance metrics for network performance, and outline an implementation strategy for both improvements to be implemented locally and for local contributions towards regional improvements.

This toolkit is one of several TMP background documents. The toolkit defines typical improvements that relate to the recommendations from the Strategies and Recommendations working paper as part of the TMP process. This toolkit provides examples of common treatments and guidelines for their implementation. Types of treatments include improvements to pedestrian and bicycle infrastructure, roadway capacity, intelligent transportation systems (ITS) implementation, and stormwater management. Each individual treatment is provided with typical applications, design features, points for further consideration, and a high-level construction cost estimate.

As part of the TMP process, several other background documents have been prepared, including the Transportation Information Summary Memorandum, Public Outreach Summary, Performance Metrics Memorandum, and Strategies and Recommendations Working Paper. Along with the toolkit, these documents create a framework for the TMP, document concerns and comments of the City's constituents, and details possible metrics on which to critique the TMP's strategies, respectively.

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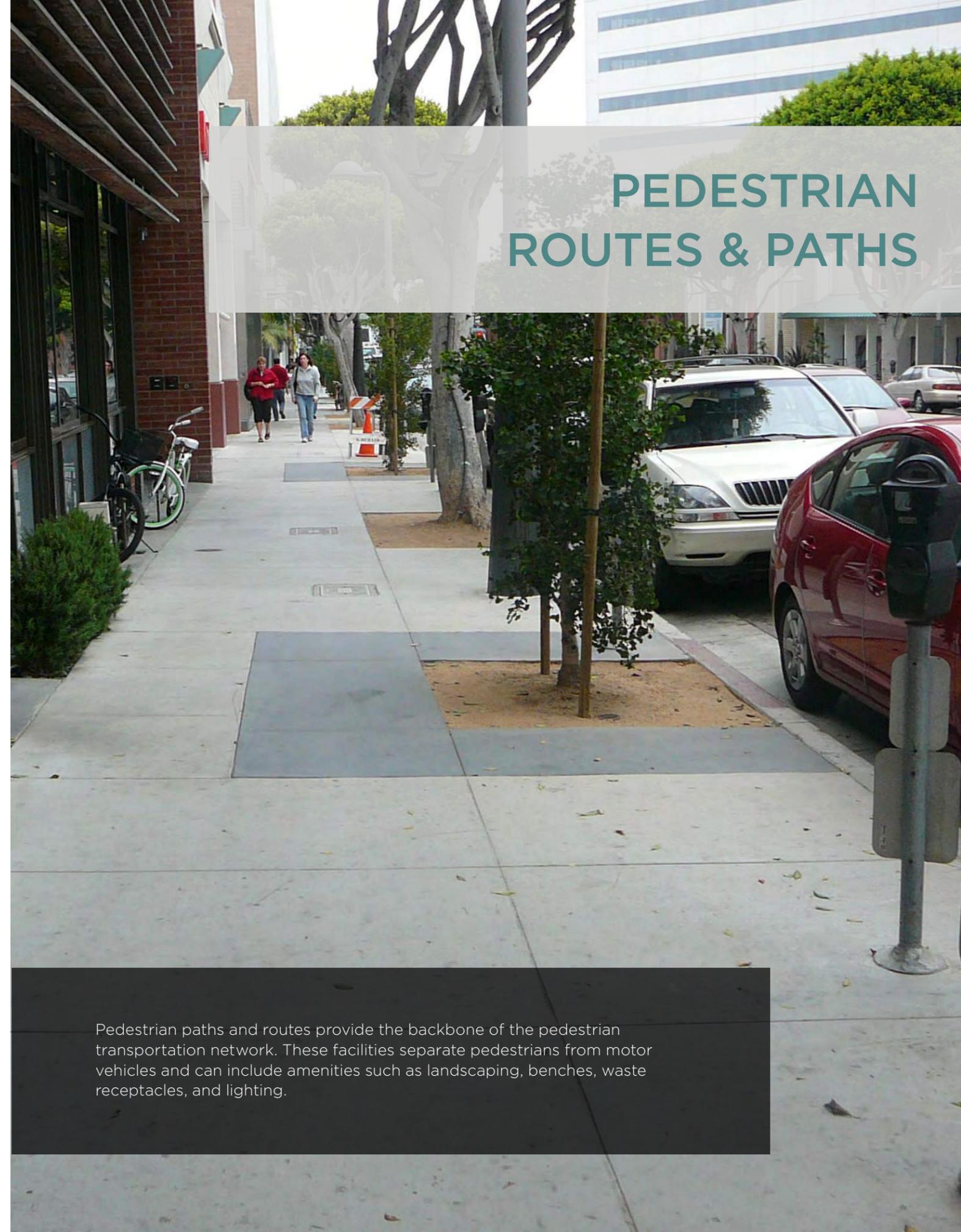
PEDESTRIAN TOOLS



While walking is the least expensive mode of transportation, building and maintaining a high-quality pedestrian infrastructure network requires comprehensive planning and long term funding. Providing this network encourages Menlo Park community members to walk more, making the community healthier overall.

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PEDESTRIAN ROUTES & PATHS



Pedestrian paths and routes provide the backbone of the pedestrian transportation network. These facilities separate pedestrians from motor vehicles and can include amenities such as landscaping, benches, waste receptacles, and lighting.

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PEDESTRIAN ROUTES & PATHS

PEDESTRIAN ZONES

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved safety, and the creation of social space.

Community character and the pedestrian environment vary throughout Menlo Park. This means that a unique, flexible approach is needed to improve the pedestrian network. Some neighborhoods do not have sidewalks and want to retain their rural character. Other areas have high pedestrian demand and should be a priority for sidewalk improvements and gap closures.

Because of these variables, pedestrian zones are created within the community, each with associated guidelines to facilitate the implementation of a complete and safe pedestrian network.

Pedestrian Priority Zones

Pedestrian Priority Zones are designated areas where high quality, connected pedestrian facilities should be provided. These areas provide pedestrian connections within downtown, to schools within Menlo Park, and to a majority of the senior housing facilities in the community. Projects within these zones should:

- Prioritize closing sidewalk gaps and removing obstacles
- Include wider sidewalks with pedestrian amenities
- Improve intersections and crossings

Neighborhood Streets Zones

Neighborhood Streets Zones are broken down into three categories based on the unique context of the neighborhood:

- Sidewalk Zones - These include areas that currently have sidewalks, areas of new development, or key network connections within residential communities. Projects in these areas should provide sidewalks that meet minimum width requirements and improve crossings.
- Sidepath Zones - These include areas that do not currently have sidewalks, but the community desires a path or network connection. Projects in these areas should provide walkways that meet ADA standards but preserve the rural character of the neighborhood, as an alternative to concrete sidewalks, curbs, and gutters.
- Shared Zones - These include residential areas that do not currently have sidewalks, are not priority network connections, and where residents do not desire sidewalks or paths. Projects in these areas should focus on traffic calming measures to reduce vehicle speeds, and signage to increase awareness that pedestrians may be walking in the roadway.

PEDESTRIAN ROUTES & PATHS

PEDESTRIAN PRIORITY SIDEWALKS

In Priority Pedestrian Zones, sidewalks should be designed to accommodate the higher pedestrian volumes expected in downtown areas, as well as amenities that improve the quality of the pedestrian experience.



PARKING LANE/ ENHANCEMENT ZONE	FURNISHING ZONE (OPTIONAL)	PEDESTRIAN THROUGH ZONE	FRONTAGE ZONE
<p>The parking lane can act as a flexible space to further buffer the sidewalk from moving traffic. Curb extensions and bike corrals may occupy this space where appropriate.</p> <p>In the edge zone there should be a 6-inch-wide curb.</p>	<p>This zone should be 2-6 feet wide.</p> <p>The furnishing zone buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.</p> <p>Space constraints may preclude providing this pace in some locations.</p>	<p>This zone should be 6-12 feet wide.</p> <p>The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects.</p> <p>Wide through zones are needed in downtown areas or where pedestrian flows are high.</p> <p>In constrained conditions, a minimum through zone of 6 feet should be maintained, with other zones narrowed to meet needs.</p>	<p>This zone should be 2.5-10 feet wide.</p> <p>The Frontage Zone allows pedestrians a comfortable "shy" distance from the building fronts. It provides opportunities for window shopping, to place signs, planters, or chairs.</p> <p>Not applicable if adjacent to a landscaped space.</p>

Typical Application

- Sidewalks should be provided on both sides of streets in Pedestrian Priority Zones.
- All gaps in the sidewalk network within the Pedestrian Priority Zone should be prioritized.
- Sidewalks should be free of obstructions and provide a clear path of travel.

Design Features

- It is important to provide adequate width along a sidewalk corridor. A pedestrian through zone width of six feet enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably.
- Appropriate placement of street trees in the furnishing zone (minimum width 4 feet) helps buffer pedestrians from the travel lane and increases facility comfort.

Further Considerations

- The Americans with Disabilities Act requires a 3 foot clear width in the pedestrian zone plus 5 foot passing areas every 200 feet. Wider sidewalks are recommended for Pedestrian Priority Zones.
- Providing a 6 foot clear width across the full corridor for all new sidewalks (and up to 12 feet in downtown and pedestrian-priority areas) meets requirements for passing and maneuverability.
- Existing deficient-width sidewalks should be retrofitted to meet citywide standards.
- The number and width of driveways should be minimized in Pedestrian Priority Zones. Sidewalks should be kept level (no sloping) at driveways.

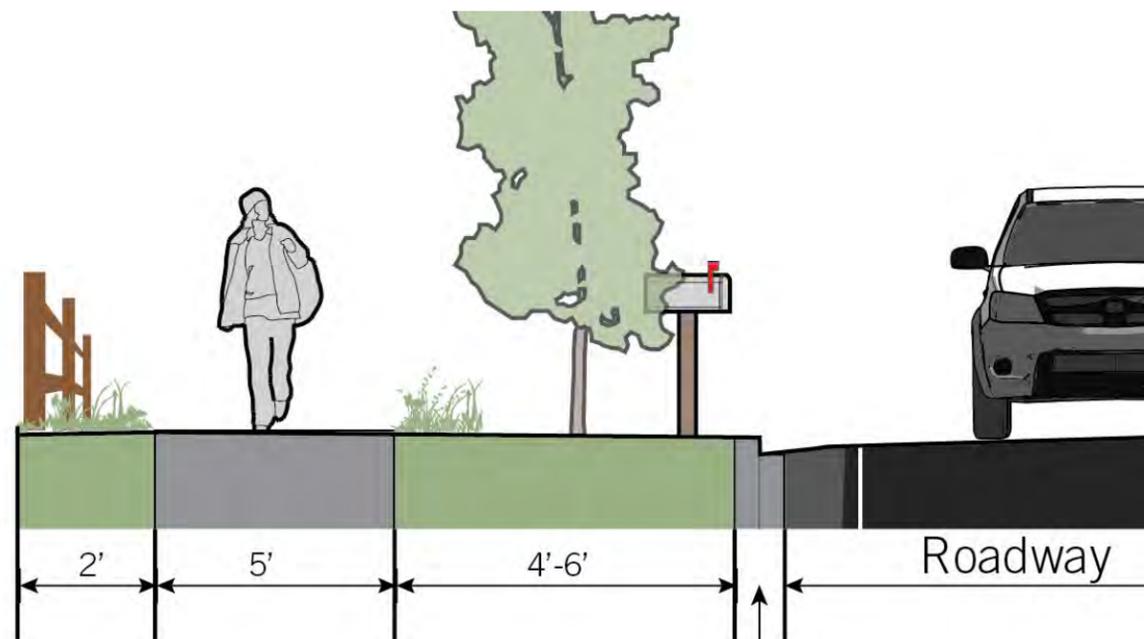
Construction Costs

The cost of building sidewalks vary based on the location, type of material, the scale, and whether it is part of a broader street construction project. A five-foot concrete sidewalk is approximately \$32 per linear foot on average, with the additional cost of new curbs and drainage likely to be substantially higher.

PEDESTRIAN ROUTES & PATHS

STANDARD SIDEWALKS

Standard sidewalks are appropriate for Neighborhood Zones. In Neighborhood Zones, pedestrian demand is generally somewhat lower and surrounding land uses are residential. As a result, sidewalks and landscaped zones may be narrower than appropriate for Pedestrian Priority Zones. The Standard Sidewalks guidelines ensure adequate width for pedestrians and a landscape zone to create a comfortable pedestrian environment.



FRONTAGE ZONE

PEDESTRIAN THROUGH ZONE

This zone should be 4-6 feet wide.

The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects.

LANDSCAPE ZONE

This zone should be 2-5 feet wide (5' is ideal to accommodate trees).

The landscape zone buffers pedestrians from the adjacent roadway, and is also the area where elements such as signal poles, utilities, and landscaping such as street trees or grass are properly located.

In some areas, no landscape zone may be provided.

PARKING LANE/ ROADWAY

Curb and Gutter

The parking lane can act as a flexible space to further buffer the sidewalk from moving traffic. Curb extensions may occupy this space where appropriate.

In the **edge zone** there should be a 6-inch-wide curb.

Typical Application

- Sidewalks should be provided on both sides of streets.
- When retrofitting gaps in the sidewalk network, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

Design Features

- It is important to provide adequate width along a sidewalk corridor. A pedestrian through zone width of six feet enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably.
- The landscape zone helps buffer pedestrians from the travel lane and increases facility comfort.

Further Considerations

- The Americans with Disabilities Act requires a 3 foot clear width in the pedestrian zone plus 5 foot passing areas every 200 feet. Wider sidewalks are recommended for Pedestrian Priority Zones.
- The clear width may be reduced to a minimum of 32 inches for short, constrained segments of up to 24 inches long, provided that constrained segments are separated by regular clear width segments that are a minimum of 48 inches long and 36 inches wide.
- Providing a 4-6 foot clear width for all new sidewalks will provide adequate maneuverability standards for neighborhood streets.
- Existing deficient-width sidewalks are to be retrofitted to meet citywide standards.
- Menlo Park has guidelines for street tree planting setbacks. This toolbox is supplemental and all designs should also follow existing planting guidelines adopted by the city.

Construction Costs

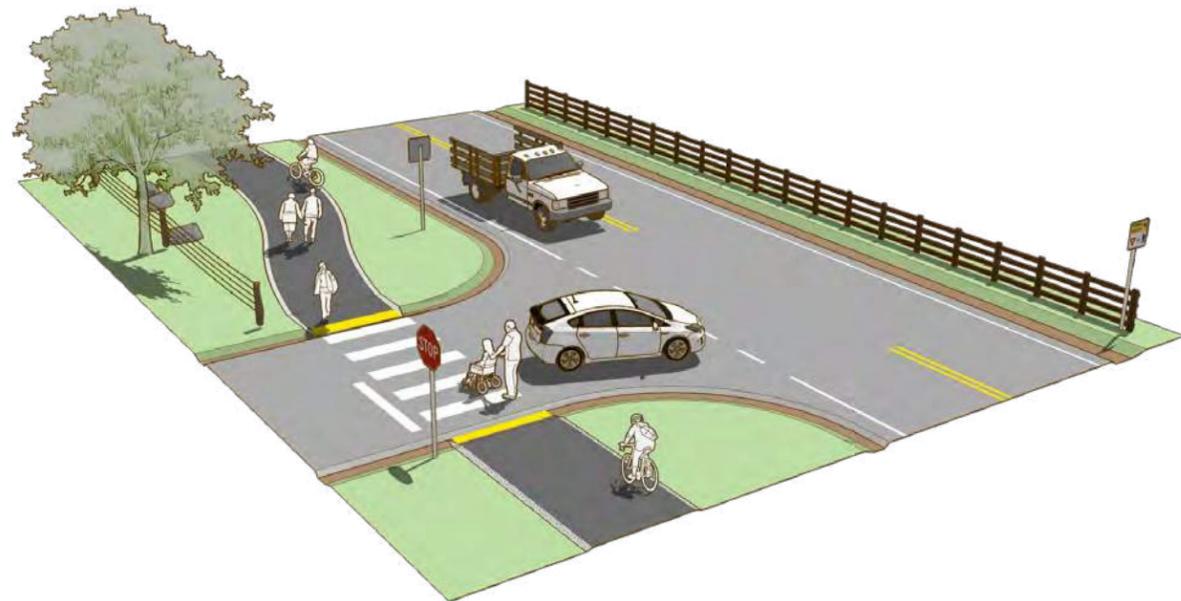
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PEDESTRIAN ROUTES & PATHS

SIDEPATH

FROM THE FHWA SMALL TOWN AND RURAL DESIGN GUIDE

A sidepath is a bidirectional shared use or pedestrian only path located immediately adjacent and parallel to a roadway. Sidepaths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, allow for reduced roadway crossing distances, and maintain rural and small town community character.



Typical Application

Sidepaths are used on roadways without sidewalk, curb, and gutter, but where additional separation from traffic is desired.

Design Considerations

- Sidepath width impacts user comfort and path capacity. As user volumes or the mix of modes increases, additional path width is necessary to maintain comfort and functionality.
- Minimum recommended pathway width is 6 ft (2 m). In low-volume and constrained situations, the absolute minimum width is 4 ft (1.2 m), and the path should be marked for pedestrians only.
- Provide a minimum of 2 ft (0.6 m) clearance to any sign posts or vertical elements.



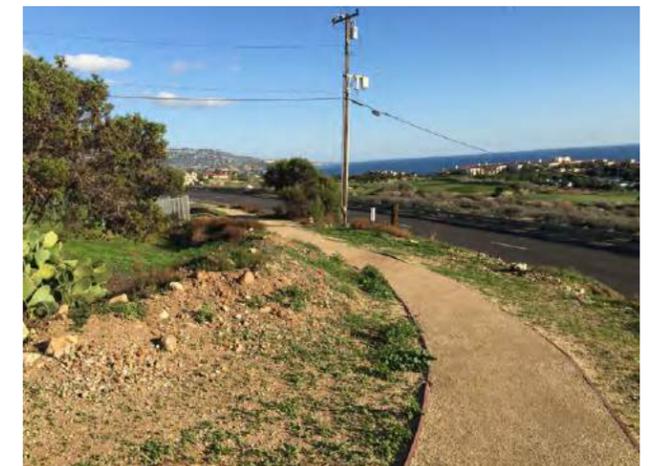
Sidepath in Seattle with Green Stormwater Infrastructure integrated.



Sidepath with gravel separation.



Decomposed granite on San Francisco Bay Trail as an alternative to paved paths.



Natural surface as an alternative to paved paths.

Design Considerations (continued)

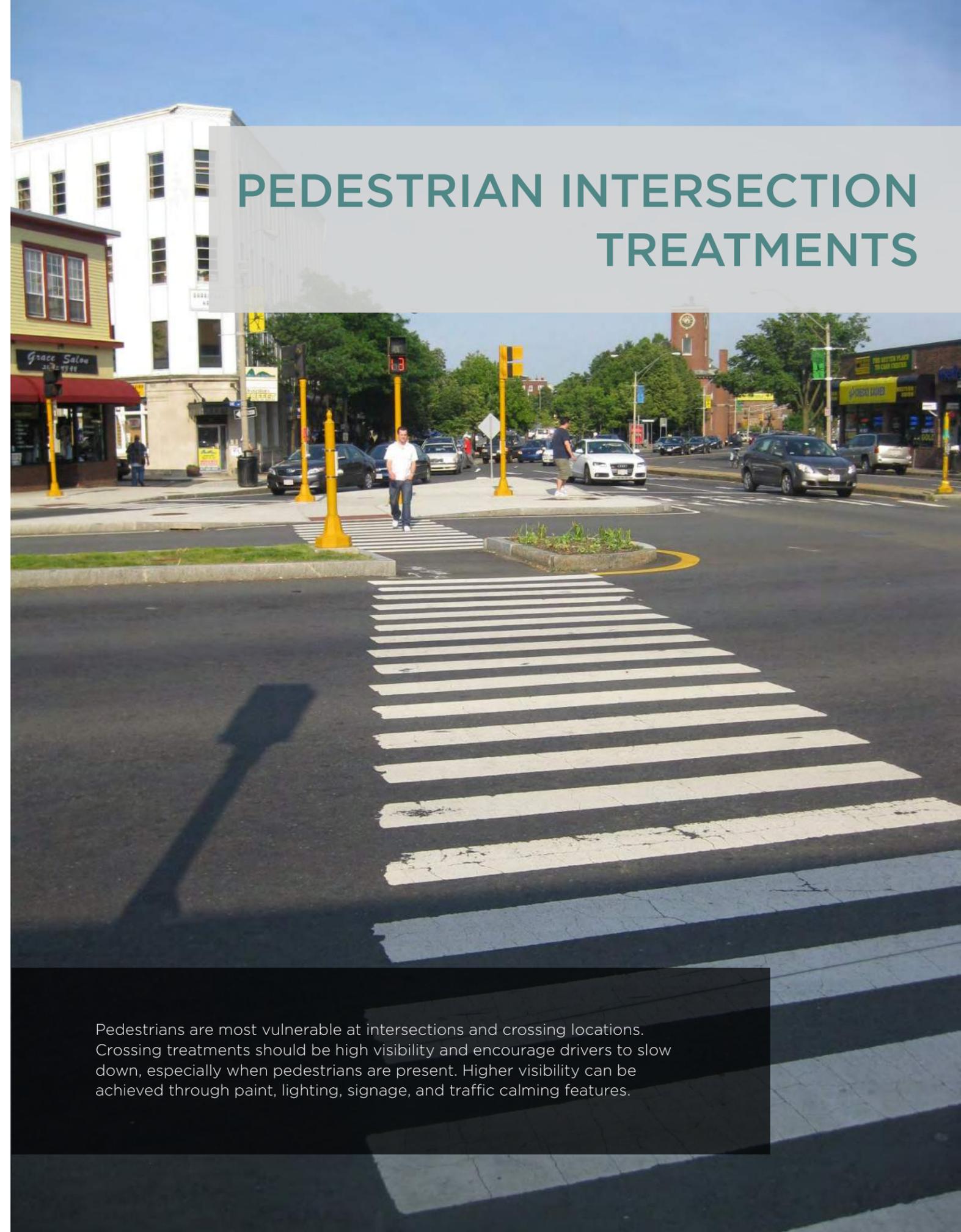
- Separation from the roadway should be informed by the speed and configuration of the adjacent roadway and by available right-of-way.
- Separation narrower than 5 ft is not recommended, although may be accommodated with the use of a physical barrier between the sidepath and the roadway.

Further Considerations

- Green Stormwater Infrastructure can be incorporated in the buffer area between the path and the roadway in the form of rain gardens or bioswales. These features can both help manage stormwater and beautify the buffer.
- Use structural soils to support paved surfaces.
- Porous surfaces (pavers, porous concrete, decomposed granite, etc.) can help better support trees and minimize root conflict

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PEDESTRIAN INTERSECTION TREATMENTS



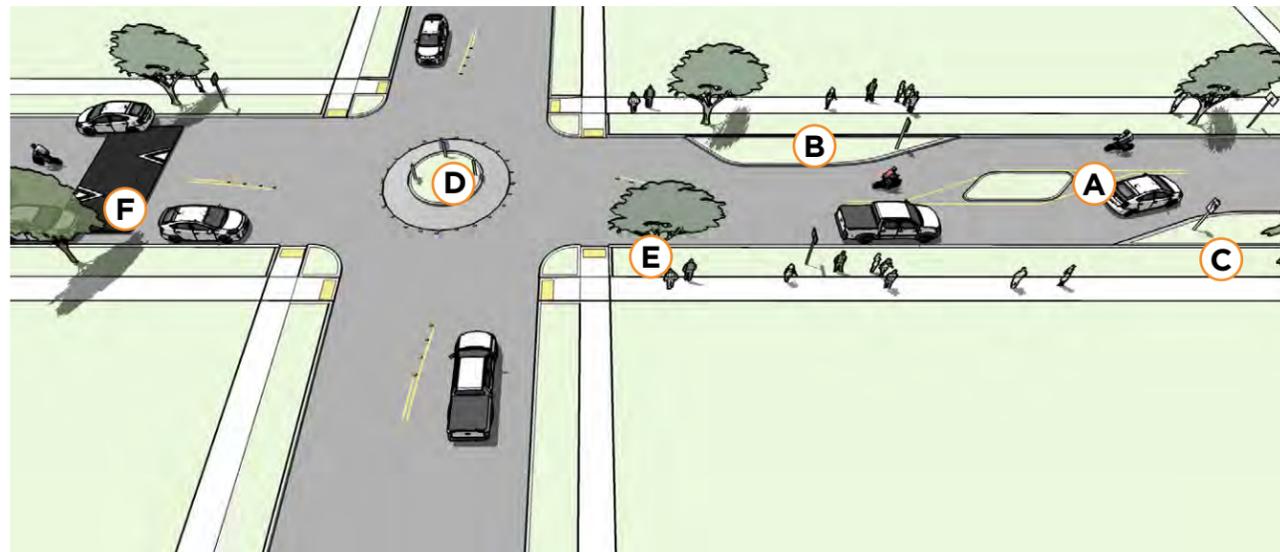
Pedestrians are most vulnerable at intersections and crossing locations. Crossing treatments should be high visibility and encourage drivers to slow down, especially when pedestrians are present. Higher visibility can be achieved through paint, lighting, signage, and traffic calming features.

PEDESTRIAN INTERSECTION TREATMENTS
TRAFFIC CALMING

Traffic calming may include elements intended to reduce the speeds of motor vehicle traffic to be closer to bicycling and walking speeds, or may include design elements that restrict certain movements for motorized travel to discourage the use of shared roadways for through travel by automobiles.

Traffic calming treatments can cause drivers to slow down by constricting the roadway space or by requiring careful maneuvering. Such measures may reduce the design speed of a street, and can be used in conjunction with reduced speed limits to reinforce the expectation of lowered speeds. They can also lower vehicle volumes by physically or operationally reconfiguring corridors and intersections along the route.

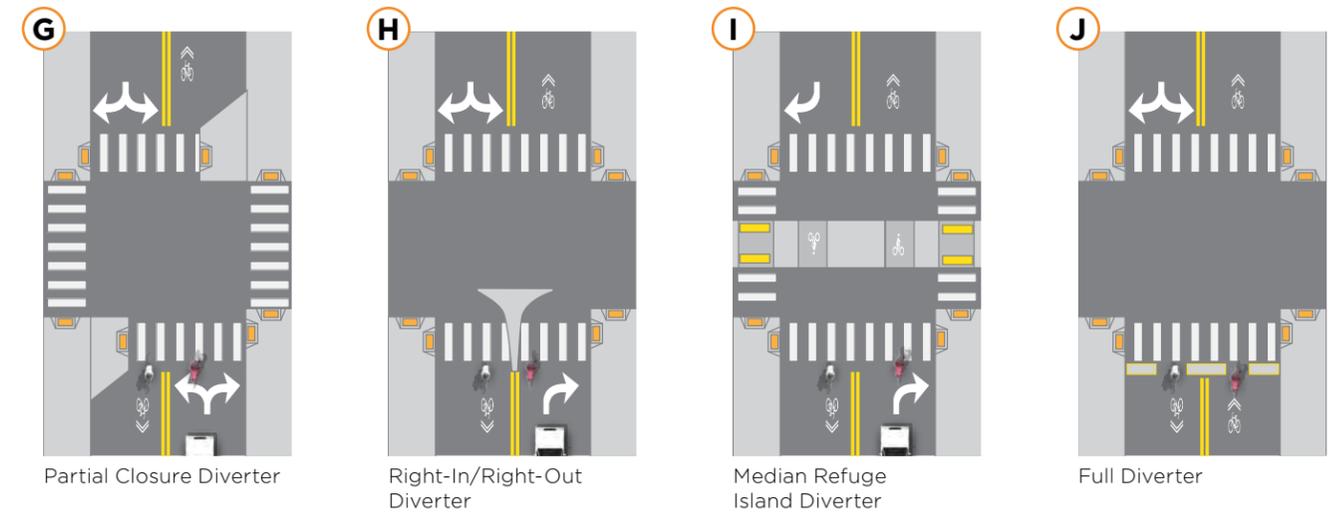
Traffic Calming Treatments to Reduce Motor Vehicle Speeds



Typical Application

- Shared roadways should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 20 mph (25 mph maximum). Roadways with average speeds above this limit should be considered for traffic calming measures.
- Maintain a minimum clear width of 14 feet with a constricted length of at least 20 feet in the direction of travel.
- Bring traffic volumes down to 1,500 cars per day (4,000 cars per day maximum). Roadways with daily volumes above this limit should be considered for traffic calming measures.

Traffic Calming Treatments to Reduce Motor Vehicle Volumes



Design Features (Speed Reduction)

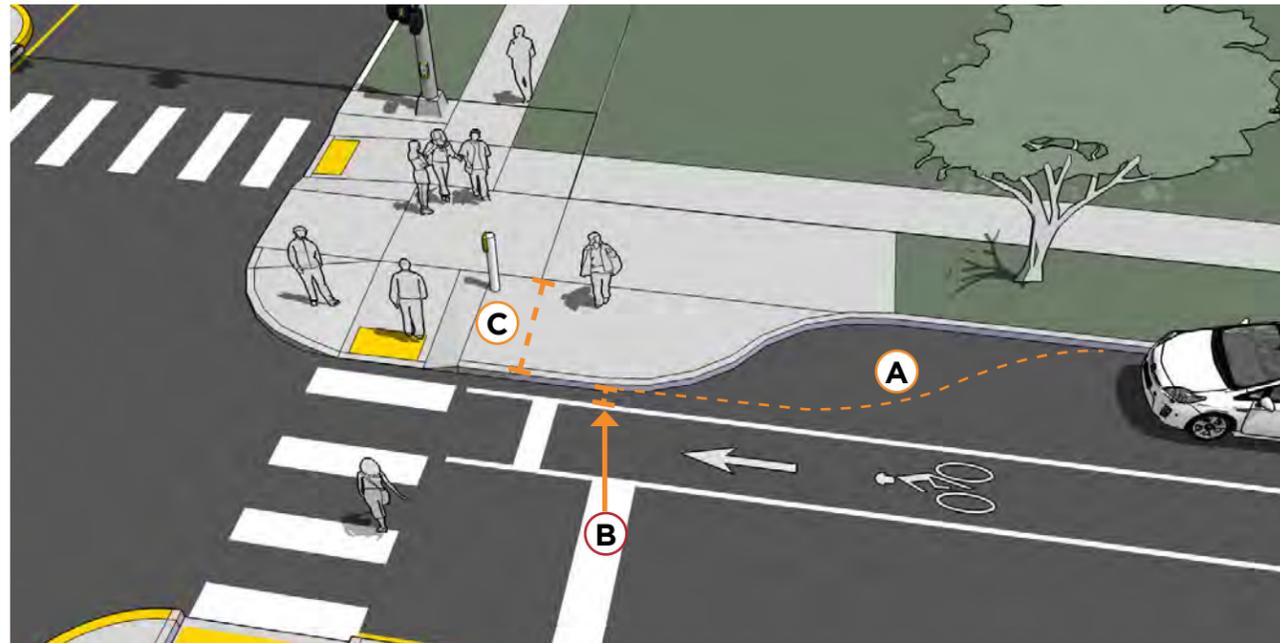
- A** Median islands create pinch point for traffic in the center of the roadway and offers shorter crossing distances for pedestrians when used in tandem with a marked crossing.
- B** Chicanes slow drivers by requiring vehicles to shift laterally through narrowed lanes and which avoids uninterrupted sightlines.
- C** Pinch points, chokers, or curb extensions restrict motorists from operating at high speeds on local streets by visually narrowing the roadway.
- D** Neighborhood traffic circles reduce speed of traffic at intersections by requiring motorists to move cautiously through conflict points.
- E** Street trees narrow a driver's visual field and creates a consistent rhythm and canopy along the street, which provides a unified character and facilitates place recognition.
- F** Speed humps slow drivers through vertical deflection. To minimize impacts to bicycles, use a sinusoidal profile and leave a gap along curb so that bicyclists may bypass the hump when appropriate. Speed cushions operate in a similar fashion to speed humps, but allow for unimpeded travel by emergency vehicles and is required by Fire District.

Design Features (Volume Reduction)

- G** Partial closure diverters allows bicyclists to proceed straight across the intersection but forces motorists to turn left or right. All turns from the major street onto the bikeway are prohibited. Can incorporate curb extensions with stormwater management features and/or a mountable island.
- H** Right-in/right-out diverters force motorists to turn right while bicyclists can continue straight through the intersection. The island can provide a through bike lane or bicycle access to reduce conflicts with right-turning vehicles. Left turns from the major street onto the bikeway are prohibited, while right turns are still allowed.
- I** Median refuge island diverters restrict through and left-turn vehicle movements along the bikeway while providing refuge for bicyclists to cross one direction of traffic at a time. This treatment prohibits left turns from the major street onto the bikeway, while right turns are still allowed.
- J** Full diverters block all motor vehicles from continuing on a neighborhood bikeway, while bicyclists can continue unrestricted. Full closures can be constructed to be permeable to emergency vehicles.

PEDESTRIAN INTERSECTION TREATMENTS
CURB EXTENSIONS

Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing.



Typical Application

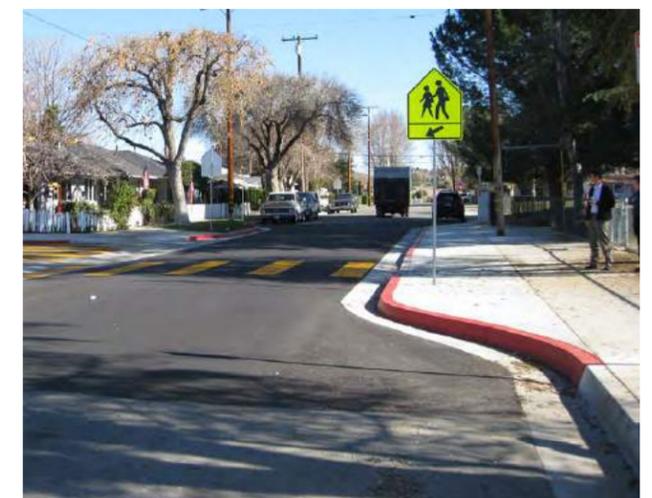
- Within parking lanes appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.
- May be possible within non-travel areas on roadways with excess space.
- Particularly helpful at midblock crossing locations.
- Curb extensions should not impede bicycle travel in the absence of a bike lane.

Design Features

- A** For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.
- B** When a bike lane is present, the curb extensions should terminate one foot short of the parking lane to maximize bicyclist safety.
- C** Reduces pedestrian crossing distance by 6-8 ft.
 - Planted curb extensions may be designed as a bioswale for stormwater management.



Example of a curb extension with a rain garden.



Example of a midblock curb extension.

Further Considerations

- Green Stormwater Infrastructure can be incorporated in the buffer area between the path and the roadway in the form of rain gardens or bioswales. These features can both help manage stormwater and beautify the buffer.
- Strategies for incorporating street tree planting with streetscape design to maximize rooting space and minimize root conflicts:
 - Suspend walkways over planting areas
 - Ramp over existing roots
 - Use of curb extensions/bulbouts
 - Cluster plantings
 - Structural soil as base
 - Flexible pavers/porous pavers

Construction Costs

The cost of a curb extension can range from \$2,000 to \$20,000 depending on the design and site condition, with the typical cost approximately \$12,000. Green/vegetated curb extensions cost between \$10,000 to \$40,000.

PEDESTRIAN INTERSECTION TREATMENTS
MARKED CROSSWALKS

A marked crosswalk signals to motorists that they must stop for pedestrians and encourages pedestrians to cross at designated locations. Generally, high visibility markings should be used in the Pedestrian Priority Zone, within 600 feet of a school, or in areas where additional visibility is desired. Parallel markings are generally appropriate in the Neighborhood Street Zones. At mid-block locations, crosswalks can be marked where there is a demand for crossing and there are no nearby marked crosswalks.



Typical Application

All crosswalks should be marked at signalized intersections. At unsignalized intersections, crosswalks may be marked under the following conditions:

- At a complex intersection, to orient pedestrians in finding their way across and to help make vehicles aware of pedestrians.
- At an offset intersection, to show pedestrians the shortest route across traffic with the least exposure to vehicular traffic and traffic conflicts.
- At an intersection with visibility constraints, to position pedestrians where they can best be seen by oncoming traffic.
- At an intersection that serves a walking route to a school or senior center, or within downtown Menlo Park.

Design Features

- The crosswalk should be located to align as closely as possible with the through pedestrian zone of the sidewalk corridor
- The landing at the top of a ramp shall be at least 4 feet long and at least the same width as the ramp itself.
- The ramp shall slope no more than 8.33%, with a maximum cross slope of 2.0%.
- If the ramp runs directly into a crosswalk, the landing at the bottom will be in the roadway.
- If the ramp lands on a dropped landing within the sidewalk or corner area where someone in a wheelchair may have to change direction, the landing must be a minimum of 5'-0" long and at least as wide as the ramp itself.

Marked Crosswalks



Marked crosswalks are used to raise driver awareness of pedestrian and pathway crossings and help direct users to preferred crossing locations.



Further Considerations

High visibility or ladder crosswalk markings should be used at crossings with high pedestrian use or where vulnerable pedestrians are expected, including: school crossings, across arterial streets for pedestrian-only signals, at mid-block crosswalks, and at intersections where there is expected high pedestrian use and the crossing is not controlled by signals or stop signs. High-visibility crosswalks are not appropriate for all locations. See intersection signalization for a discussion of enhancing pedestrian crossings.

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority. Thermoplastic markings offer increased durability than conventional paint.

At midblock locations, additional design features may be desired to increase visibility and motorist yielding. Beacons actuated by pedestrians can alert motorists to a crossing. Raised crosswalks can reduce vehicle speeds while also improving visibility of pedestrians, especially where high volumes of children are expected to cross. Decorative crosswalk markings can also be used to express the character of the community.

Crash Reduction

At an unsignalized four-leg intersection with no marked crosswalks and stop control for the minor street, installing markings to facilitate crossing of a major street reduced crash likelihood by 65% (CMF ID: 3019). The number of travel lanes for the major street ranged from two to eight.

Construction Costs

Marked crosswalks range from approximately \$100 to 2,100 each, or around \$800 on average. High-visibility crosswalks, such as ladder or Continental-style crossings, can range from \$600 to \$5,700 each, or around \$2,500 on average.

PEDESTRIAN INTERSECTION TREATMENTS

MEDIAN REFUGE ISLAND

Median refuge islands are located at the mid-point of a marked crossing and help improve pedestrian safety by allowing pedestrians to cross one direction of traffic at a time. Refuge islands minimize pedestrian exposure by shortening crossing distance and increasing the number of available gaps for crossing.



Typical Application

- Can be applied on any roadway with a left turn center lane or median that is at least 6' wide.
- May be appropriate on multi-lane roadways depending on speeds and volumes. Consider configuration with active warning beacons for improved yielding compliance.
- Appropriate at signalized or unsignalized crosswalks. Where unsignalized, Caltrans encourages refuge areas where pedestrians cross 2 or more through traffic lanes in one direction (HDM).

Crash Reduction

Based on a comparison of crash rates on arterials with 3 to 8 lanes and minimum 15,000 ADT, median refuge islands were found to reduce vehicle/pedestrian collisions by 46% at marked crosswalks (CMF ID: 75). This test controlled for pedestrian and vehicular traffic volumes.

Construction Costs

The cost to install median refuge islands range from \$535 to \$1,065 per foot for a typical total cost range from \$3,500 to \$40,000, depending on the design, site conditions, landscaping and whether the median can be added as part of a larger street rebuild or utility upgrade.

Design Features

- The island must be accessible, preferably with at-grade passage through the island rather than ramps and landings. Detectable warning surfaces must be full-width and 3' deep to warn blind pedestrians (DIB 82-05, 2013).
- Requires 6' width between travel lanes (8-10' preferred to accommodate bikes with trailers and wheelchair users) and 20' length (40' preferred). Clear width of 4' required, but preferably same width as crosswalk.
- On streets with speeds higher than 25 mph, there should also be double centerline marking, reflectors, and "KEEP RIGHT" signage.

PEDESTRIAN INTERSECTION TREATMENTS

BEACONS

Beacons enhance uncontrolled crosswalks through flashing lights and other devices that call attention to pedestrians crossing the roadway. Beacons may be actuated by pedestrians wishing to cross at a crosswalk, or may flash on a continuous basis to warn motorists of potential pedestrian activity at the location.

Standard beacons use a round yellow light that flashes at regular intervals. Over time, motorists have become complacent with this type of beacon, resulting in lower yielding rates. New beacon designs incorporate high-visibility elements that increase compliance.

PEDESTRIAN HYBRID BEACON

Sometimes called a “HAWK” signal, pedestrian hybrid beacons use yellow warning and red stop lights similar to a traffic signal. After pedestrian actuation, the yellow light will flash and then turn solid to warn motorists to slow for a queued pedestrian phase. A solid red light follows, requiring motorists to come to a full stop, and a pedestrian WALK phase is triggered. When the crossing phase has expired, the beacon flashes red and then goes dark.

**PEDESTRIAN SIGNS WITH LEDS**

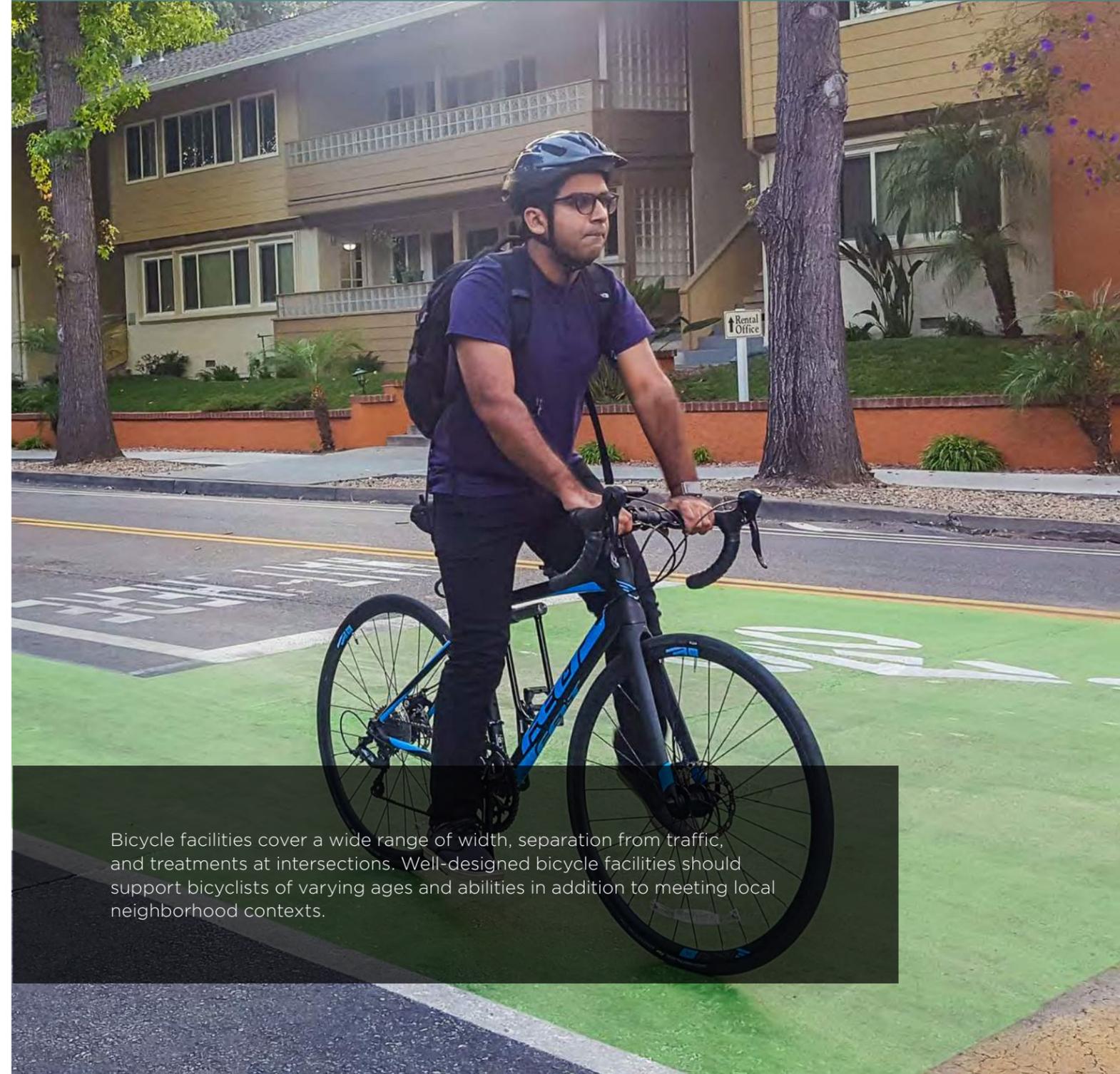
Pedestrian crosswalk signs can be enhanced with perimeter LED lights, such as Rectangular Rapid Flashing Beacons (RRFB), that are activated by a pedestrian push-button. When actuated, the LED lights flash to alert motorists to a pedestrian crossing.

**Design Considerations**

- Beacons must be placed at least 100 ft from the nearest controlled intersection.
- Beacons are not required to meet warrants for a traffic signal, but implementation should consider vehicle volumes, street and lane widths, and traffic gaps in conjunction with pedestrian volumes, walking speeds, and delay.
- Pedestrian actuation is preferred to continuous flashing, as it reduces motorist complacency with the beacon and increases yielding compliance.

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BICYCLE TOOLS



Bicycle facilities cover a wide range of width, separation from traffic, and treatments at intersections. Well-designed bicycle facilities should support bicyclists of varying ages and abilities in addition to meeting local neighborhood contexts.

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CLASS I: SHARED USE PATHS



A shared use path allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. Path facilities can also include amenities such as lighting, signage, and fencing.

CLASS I: SHARED USE PATHS

SHARED USE PATHS

A shared use path can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. Bicycle paths should generally provide directional travel opportunities not provided by existing roadways.



Typical Application

- Commonly established in natural greenway corridors, utility corridors, or along abandoned rail corridors.
- May be established as short accessways through neighborhoods or to connect to cul-de-sacs.
- May be established along roadways as an alternative to on-street riding. This configuration is called a sidepath.
- When possible, designs can also include designated lanes separating pedestrians from bicyclists.

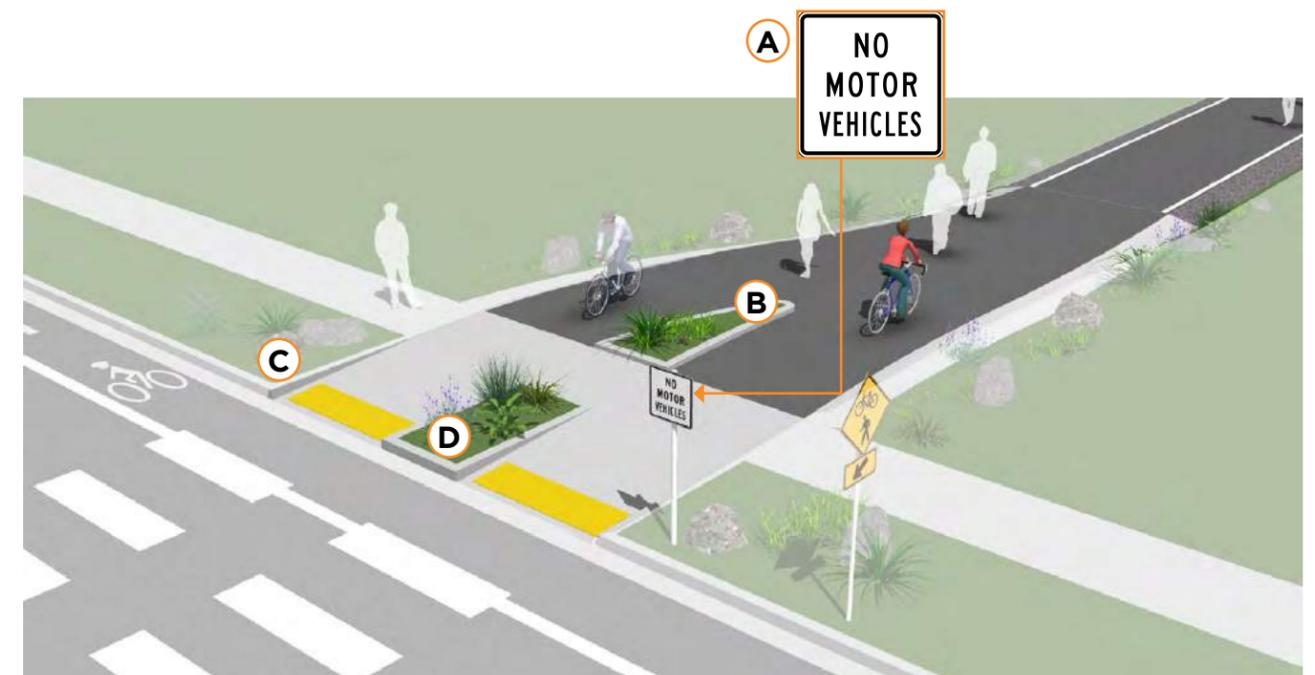
Design Features

- A** Recommended 10' width to accommodate moderate usage (14' preferred for heavy use). Minimum 8' width for low traffic situations only.
 - Minimum 2' shoulder width on both sides of the path, with an additional foot of lateral clearance as required by the MUTCD for the installation of signage or other furnishings.
 - Recommended 10' clearance to overhead obstructions (8' minimum).
 - When striping is required, use a 4" dashed yellow centerline stripe with 4" solid white edge lines. Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.

CLASS I: SHARED USE PATHS

BOLLARD ALTERNATIVES

Bollards are physical barriers designed to restrict motor vehicle access to the multi-use path. Unfortunately, physical barriers are often ineffective at preventing access, and create obstacles to legitimate trail users. Alternative design strategies use signage, landscaping and curb cut design to reduce the likelihood of motor vehicle access.



Typical Application

- Bollards or other barriers should not be used unless there is a documented history of unauthorized intrusion by motor vehicles.
- If unauthorized use persists, assess whether the problems posed by unauthorized access exceed the risks and issues posed by bollards and other barriers.

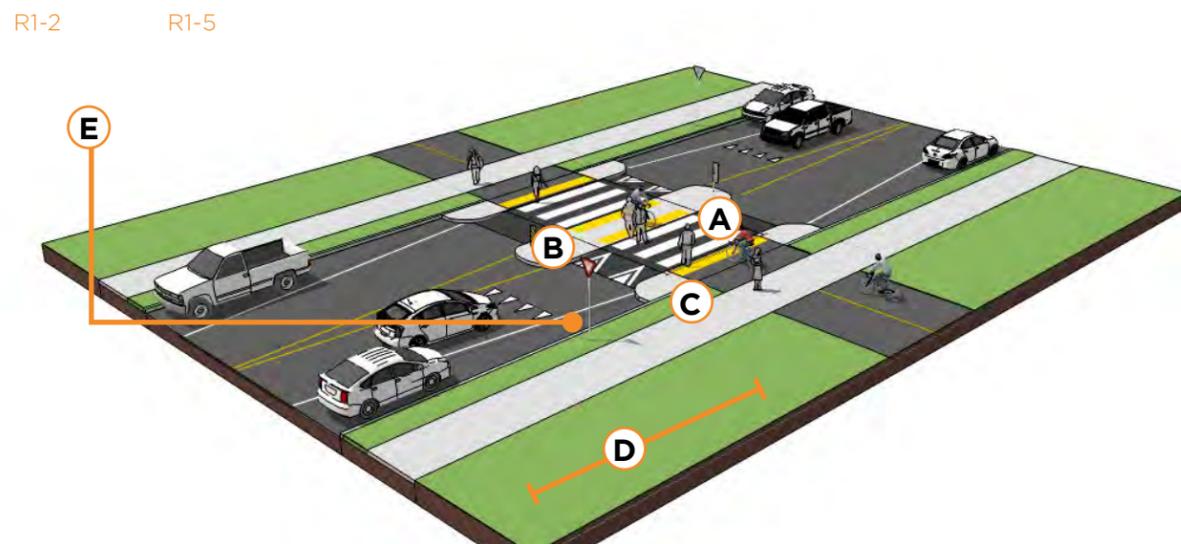
Design Features

- A** "No Motor Vehicles" signage (MUTCD R5-3) may be used to reinforce access rules.
- B** At intersections, split the path tread into two sections separated by low landscaping.
- C** Vertical curb cuts should be used to discourage motor vehicle access.
- D** Low landscaping preserves visibility and emergency access.

CLASS I: SHARED USE PATHS

RAISED PATH CROSSINGS

The California Vehicle Code requires that motorists yield right-of-way to pedestrians within crosswalks. This requirement for motorists to yield is not explicitly extended to bicyclists, and the rights and responsibilities for bicyclists within crosswalks is ambiguous. Where shared-use paths intersect with minor streets, design solutions such as raised crossings help resolve this ambiguity where possible by giving people on bicycles priority within the crossing.



Typical Application

- Where highly utilized shared-use paths cross minor streets.
- Where safety and comfort of path users at crossings is prioritized over vehicular traffic.

Design Features

- A** Raised crossing creates vertical deflection that slows drivers and prepares them to yield to path users, while high-visibility crosswalk markings establish a legal crosswalk away from intersections.
- B** Median refuge island creates horizontal deflection to draw driver attention to changed conditions at the crossing.
- C** Bulbouts shorten crossing distance and position users in a visible location.
- D** Parking should be prohibited 20 feet in advance of the crosswalk.
- E** Path priority signing (CAMUTCD R1-5 or R1-2 section 3b.16) and stop or yield markings are placed 20 to 50 feet in advance of the crossing and function best when path user volumes are high.

Raised Path Crossings



This raised path crossing encourages drivers to yield to pedestrians and allows bicyclists to cross traffic one lane at a time.

Further Considerations

- Geometric design should promote a high degree of yielding to path users through raised crossings, horizontal deflection, signing, and striping.
- The approach to designing path crossings of streets depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.
- Raised crossings should raise 4 inches above the roadway with a steep 1:6 (16%) ramp. Advisory speed signs may be used to indicate the required slow crossing speed.
- A median safety island should allow path users to cross one lane of traffic at a time. The bicycle waiting area should be 8 feet wide or wider to allow for a variety of bicycle types.

Crash Reduction

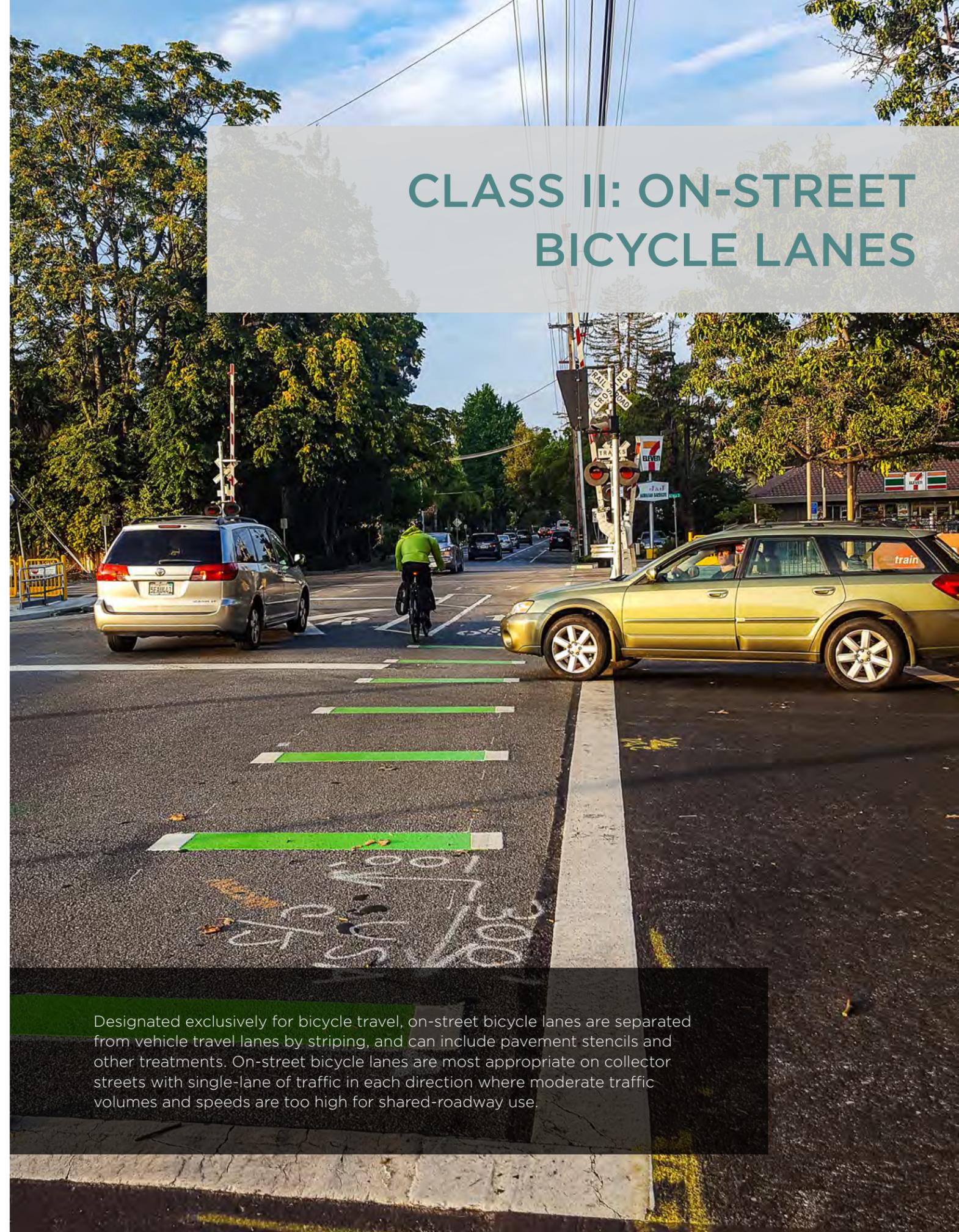
Studies have shown a 45% decrease in vehicle/pedestrian crashes after a raised crosswalk is installed where none existed previously. (CMF ID: 136)

Construction Costs

- Striped crosswalks costs range from approximately \$100 to 2,100 each.
- Curb extension costs can range from \$2,000 to \$20,000, depending on the design and site condition.
- Median refuge islands costs range from \$3,500 to \$40,000, depending on the design, site conditions, and landscaping.

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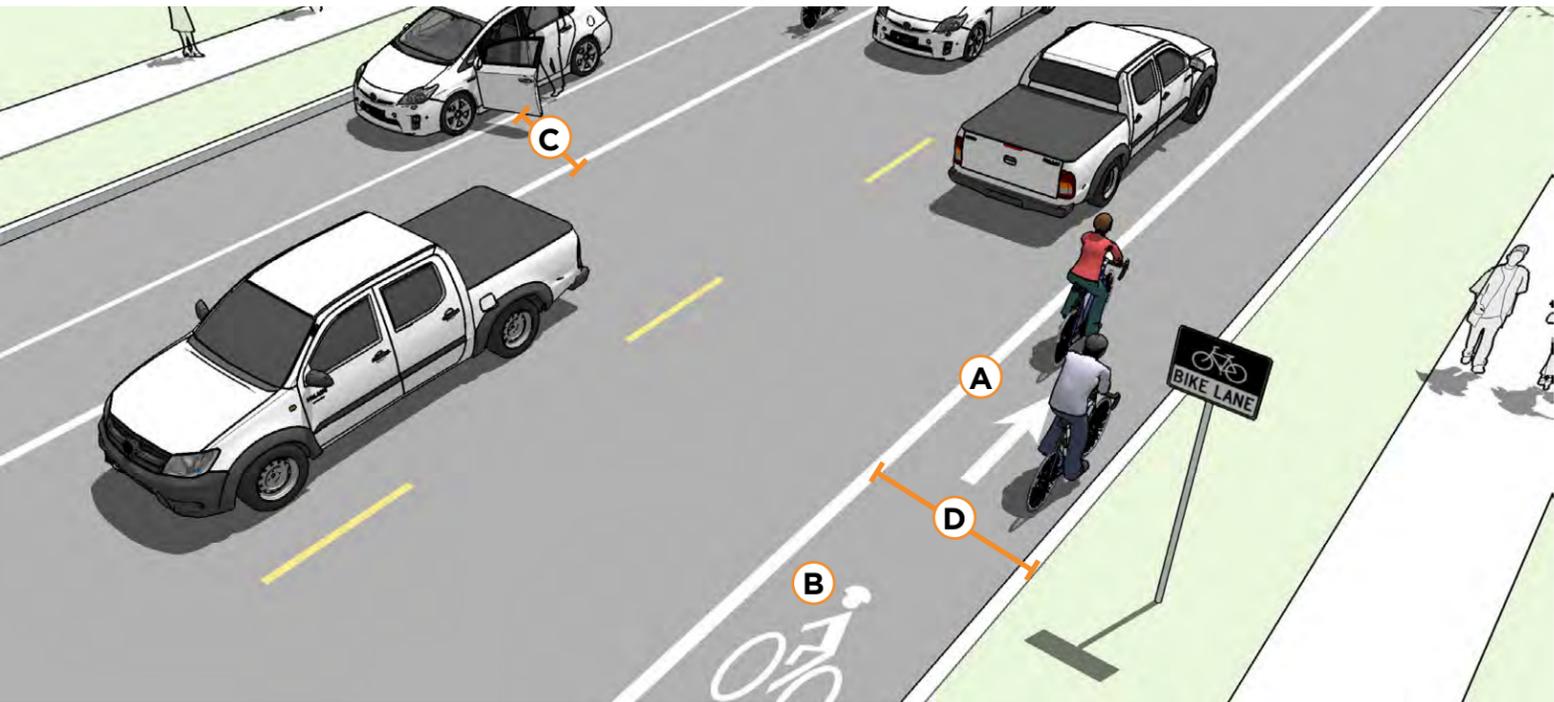
CLASS II: ON-STREET BICYCLE LANES



Designated exclusively for bicycle travel, on-street bicycle lanes are separated from vehicle travel lanes by striping, and can include pavement stencils and other treatments. On-street bicycle lanes are most appropriate on collector streets with single-lane of traffic in each direction where moderate traffic volumes and speeds are too high for shared-roadway use.

CLASS II: ON-STREET BICYCLE LANES
BICYCLE LANES

On-street bike lanes (Class II Bikeways) designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located directly adjacent to motor vehicle travel lanes and is used in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge or parking lane.



Typical Application

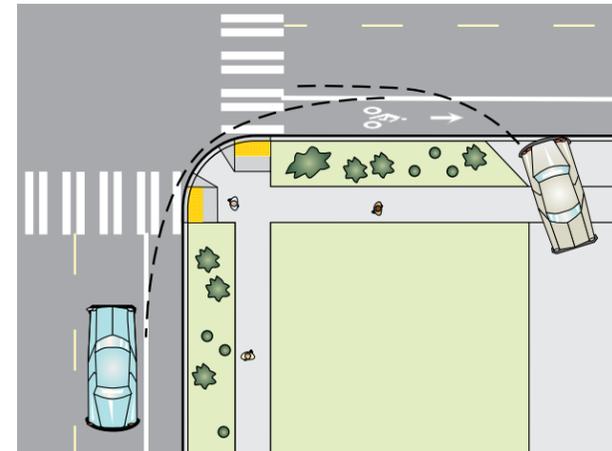
- Streets with moderate volumes $\geq 6,000$ ADT ($\geq 3,000$ preferred).
- Streets with moderate speeds ≥ 25 mph.
- Appropriate for skilled adult riders on most streets.
- May be appropriate for children when configured as 6+ ft wide lanes on lower-speed, lower-volume streets with one lane in each.

Design Features

- A** Mark inside line with 6" stripe. (CAMUTCD 9C.04) Mark 4" parking lane line or "T" markings for stalls.*
- B** Include a bicycle lane marking (CAMUTCD Figure 9C-3) at the beginning of blocks and at regular intervals along the route. (CAMUTCD 9C.04)
- C** 6 foot width preferred adjacent to on-street parking, (5 foot min.) (HDM)
- D** 5-6 foot preferred adjacent to curb and gutter. (4 foot min.) or 3 feet more than the gutter pan width. (HDM)

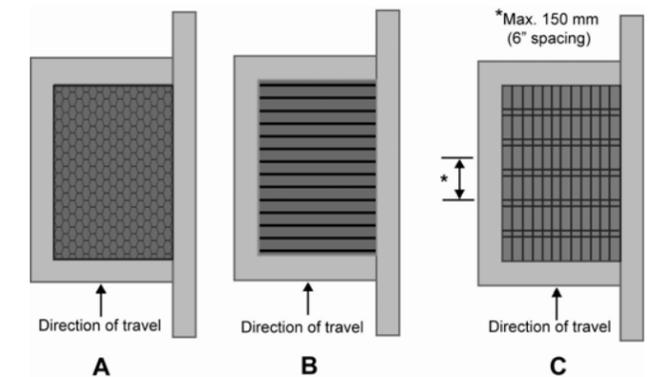
* Studies have shown that marking the parking lane encourages people to park closer to the curb. FHWA. Bicycle Countermeasure Selection System. 2006.

Place Bike Lane Symbols to Reduce Wear



Bike lane word, symbol, and/or arrow markings (MUTCD Figure 9C-3) shall be placed outside of the motor vehicle tread path in order to minimize wear from the motor vehicle path. (NACTO 2012)

Drainage Grates



Utility infrastructure, such as manholes, water valve covers, and drain inlets within the roadway can present significant hazards to bicyclists, potentially causing a collision. Every effort should be made to avoid placing hazards within the likely travel path of bicyclists on new roadway construction.

Further Considerations

- On high speed streets (posted speed limit ≥ 40 mph) the minimum bike lane should be 6 feet. (HDM 301.2)
- On streets where bicyclists passing each other is to be expected, where high volumes of bicyclists are present, or where added comfort is desired, consider providing extra wide bike lanes up to 7 feet wide, or configure as a buffered bicycle lane.
- It may be desirable to reduce the width of general purpose travel lanes in order to add or widen bicycle lanes. (HDM 301.2 3)
- On multi-lane streets, the most appropriate bicycle facility to provide for user comfort may be buffered bicycle lanes or physically separated bicycle lanes.

Crash Reduction

Before and after studies of bicycle lane installations show a wide range of crash reduction factors. Some studies show a crash reduction of 35% (CMF ID: 1719) for vehicle/bicycle collisions, other show a crash *increase* of 28% (CMF ID: 4659). Due to a lack of bicyclist volume data, these studies did not account for the potential for increased ridership.

Construction Costs

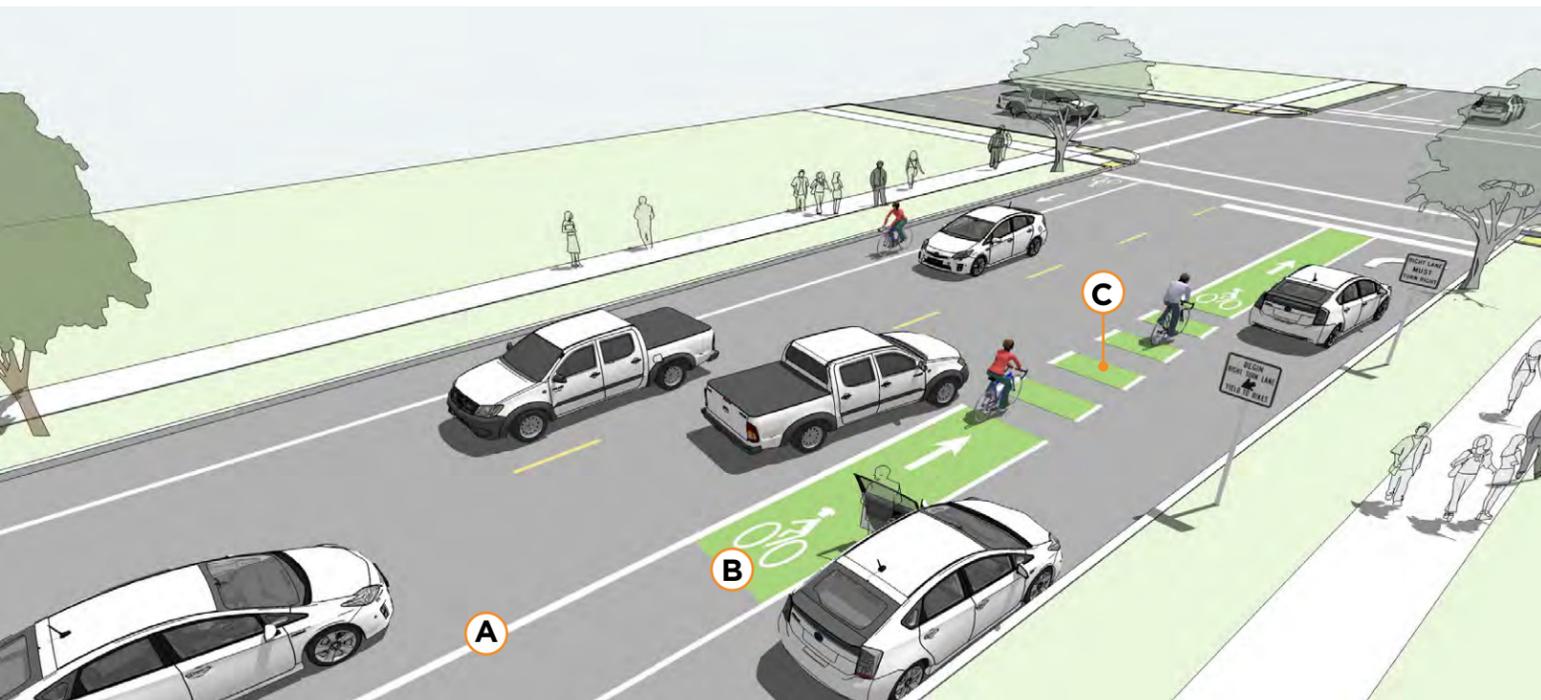
The cost for installing bicycle lanes will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Typical costs are \$16,000 per mile for restriping.

CLASS II: ON-STREET BICYCLE LANES

COLORED BICYCLE LANES

Colored pavement within a bicycle lane may be used to increase the visibility of the bicycle facility, raise awareness of the potential to encounter bicyclists and reinforce priority of bicyclists in conflict areas.



Typical Application

- Within a weaving or conflict area to identify the potential for bicyclist and motorist interactions and assert bicyclist priority.
- Across intersections, driveways and Stop or Yield-controlled cross-streets.

Design Features

- A** Typical white bike lanes (solid or dotted 6" stripe) are used to outline the green colored pavement.
- B** In exclusive use areas, color application should be solid green.
- C** In weaving or turning conflict areas, preferred striping is dashed, to match the bicycle lane line extensions.
- The colored surface should be skid resistant and retro-reflective. (CAMUTCD 9C.02.02)

Colored Bicycle Lane



The use of colored pavement helps denote conflict zones where motorists crossing the bike lane must yield.

Further Considerations

- Green colored pavement shall be used in compliance with FHWA Interim Approval. (CAMUTCD 1A.10) (FHWA IA-14.10)*
- FHWA allows for flexibility in the use of green pavement coloring within bike lanes. Local communities should identify a consistent practice for their application to promote common understanding among road users.
- Green colored pavement may be appropriate to identify driveway conflict zones in high-volume, auto-oriented driveway locations.

* FHWA. Interim Approval for Optional Use of Green Colored Pavement for Bike Lanes (IA-14). 2011.

Crash Reduction

Before and after studies of colored bicycle lane installations have found a reduction in bicycle/vehicle collisions by 38% and a reduction in serious injuries and fatalities of bicyclists by 71%.** A study in Portland, OR found a 38% decrease in the rate of conflict between bicyclists and motorists after colored lanes were installed.***

** Jensen, S.U., et. al., "The Marking of Bicycle Crossings at Signalized Intersections," Nordic Road and Transport Research No. 1, 1997, pg. 27.

*** Hunter, W. W., et. al., Evaluation of the Blue Bike-Lane Treatment Used in Bicycle/Motor Vehicle Conflict Areas in Portland, Oregon, McLean, VA: FHWA, 2000, pg. 25.

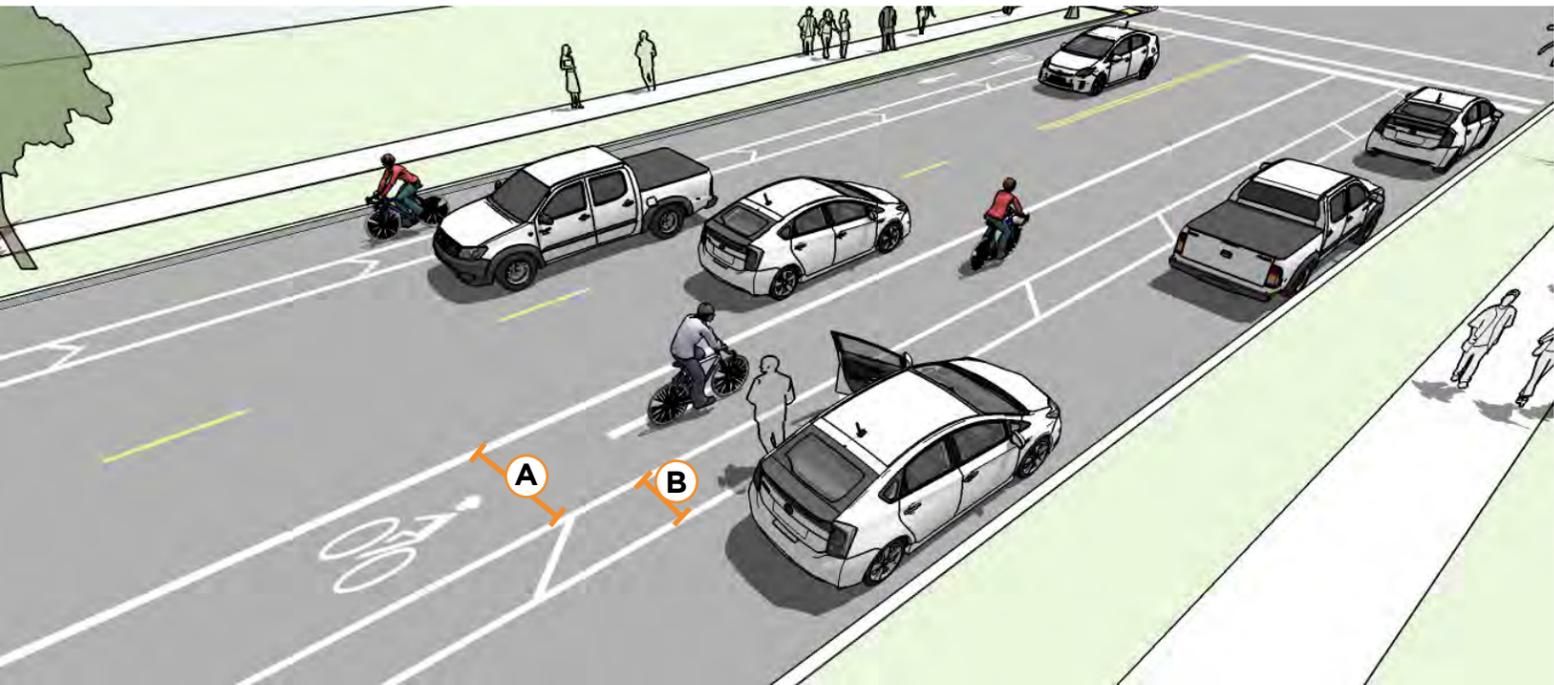
Construction Costs

The cost for installing colored bicycle lanes will depend on the materials selected and implementation approach. Typical costs range from \$1.20/sq. ft. installed for paint to \$14/sq. ft. installed for Thermoplastic. Colored pavement is more expensive than standard asphalt installation, costing 30-50% more than non-colored asphalt.

CLASS II: ON-STREET BICYCLE LANES

BUFFERED BICYCLE LANES

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



Typical Application

- Anywhere a conventional bike lane is being considered.
- On streets with high speeds and high volumes or high truck volumes.
- On streets with extra lanes or lane width.
- Appropriate for skilled adult riders on most streets.

Design Features

- A** The minimum bicycle travel area (not including buffer) is 5 feet wide.
- B** Buffers should be at least 2 feet wide. If buffer area is 4 feet or wider, white chevron or diagonal markings should be used. (CAMUTCD 9C-104)
 - For clarity at driveways or minor street crossings, consider a dotted line.
 - There is no standard for whether the buffer is configured on the parking side, the travel side, or a combination of both.

Buffered Bicycle Lane



The use of pavement markings delineates space for cyclists to ride in a comfortable facility.

Buffered Bicycle Lane



The use of pavement markings delineates space for cyclists to ride in a comfortable facility.

Further Considerations

- Color may be used within the lane to discourage motorists from entering the buffered lane.
- A study of buffered bicycle lanes found that, in order to make the facilities successful, there needs to also be driver education, improved signage and proper pavement markings.*
- On multi-lane streets with high vehicles speeds, the most appropriate bicycle facility to provide for user comfort may be physically separated bike lanes.
- NCHRP Report #766 recommends, when space is limited, installing a buffer space between the parking lane and bicycle lane where on-street parking is permitted rather than between the bicycle lane and vehicle travel lane.**

* Monsere, C.; McNeil, N.; and Dill, J., "Evaluation of Innovative Bicycle Facilities: SW Broadway Cycle Track and SW Stark/Oak Street Buffered Bike Lanes. Final Report" (2011). Urban Studies and Planning Faculty Publications and Presentations.

** National Cooperative Highway Research Program. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.

Crash Reduction

A before and after study of buffered bicycle lane installation in Portland, OR found an overwhelmingly positive response from bicyclists, with 89% of bicyclists feeling safer riding after installation and 91% expressing that the facility made bicycling easier.***

*** National Cooperative Highway Research Program. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.

Construction Costs

The cost for installing buffered bicycle lanes will depend on the implementation approach. Typical costs are \$16,000 per mile for restriping. However, the cost of large-scale bicycle treatments will vary greatly due to differences in project specifications and the scale and length of the treatment.

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CLASS III: SHARED ROADWAYS

On shared roadways, bicyclists and motor vehicles use the same roadway space. These facilities are typically used on roads with low speeds and traffic volumes, however they can be used on higher volume roads with wide outside lanes or shoulders. A motor vehicle driver will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

CLASS III: SHARED ROADWAYS

BICYCLE BOULEVARDS

Bicycle boulevards are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.



Typical Application

- Parallel with and in close proximity to major thoroughfares (1/4 mile or less).
- Follow a desire line for bicycle travel that is ideally long and relatively continuous (2-5 miles).
- Avoid alignments with excessive zigzag or circuitous routing. The bikeway should have less than 10% out of direction travel compared to shortest path of primary corridor.
- Streets with travel speeds at 25 mph or less and with traffic volumes of fewer than 3,000 vehicles per day. These conditions should either exist or be established with traffic calming measures.

Design Features

- Signs and pavement markings are the minimum treatments necessary to designate a street as a bicycle boulevard.
- Bicycle boulevards should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 22 mph.
- Implement volume control treatments based on the context of the bicycle boulevard, using engineering judgment. Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day.
- Intersection crossings should be designed to enhance safety and minimize delay for bicyclists.

Bicycle Boulevards



Bicycle boulevards are established on streets that improve connectivity to key destinations and provide a direct, low-stress route for bicyclists, with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority over other modes.

Traffic Calming



Streets along classified neighborhood bikeways may require additional traffic calming measures to discourage through trips by motor vehicles.

Further Considerations

Bicycle boulevard retrofits to local streets are typically located on streets without existing signaled accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists, these intersections can become major barriers along the bicycle boulevard and compromise safety.

Traffic calming can deter motorists from driving on a street. Anticipate and monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis.

Crash Reduction

In a comparison of vehicle/cyclist collision rates on traffic-calmed side streets signed and improved for cyclist use, compared to parallel and adjacent arterials with higher speeds and volumes, the bicycle boulevard was found to have a crash reduction factor of 63 percent, with rates two to eight times lower when controlling for volume (CMF ID: 3092).

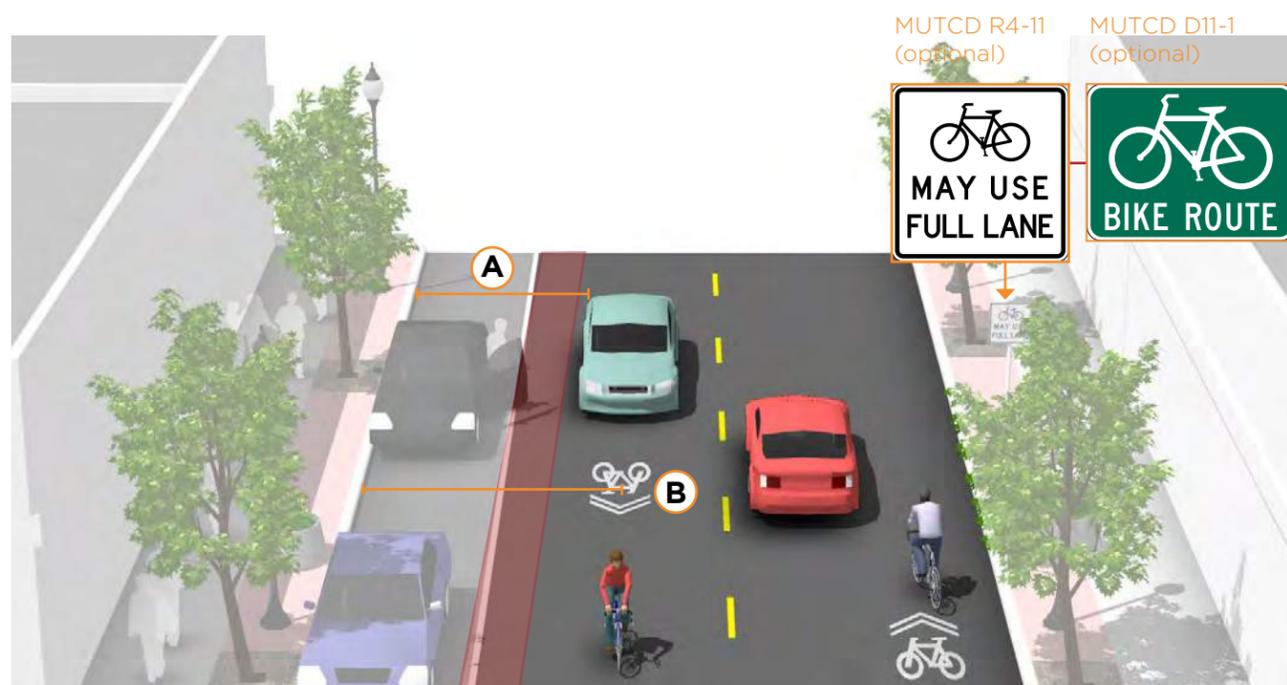
Construction Costs

Costs vary depending on the type of treatments proposed for the corridor. Simple treatments such as wayfinding signage and markings are most cost-effective, but more intensive treatments will have greater impact at lowering speeds and volumes, at higher cost.

CLASS III: SHARED ROADWAYS

SHARED LANE MARKINGS

Shared Lane Marking stencils are used in California as an additional treatment for Bike Route facilities and are currently approved in conjunction with on-street parking. The stencil can serve a number of purposes, such as making motorists aware of the need to share the road with bicyclists, showing bicyclists the direction of travel, and, with proper placement, reminding bicyclists to bike further from parked cars to prevent “dooring” collisions.



Typical Application

- Shared lane markings are not appropriate on paved shoulders or in bike lanes, and should not be used on roadways that have a speed limit above 35 mph.
- Shared Lane Markings pair well with Bikes May Use Full Lane signs.

Design Features

- When placed adjacent to parking, sharrows should be outside of the “door zone”. Minimum placement is 11’ from curb.
- Placement in center of the travel lane is preferred in constrained conditions.
- Markings should be placed immediately after intersections and spaced at 250 ft intervals thereafter.

Shared Lane Markings



Sharrows can be used on higher-traffic streets as positional guidance and raise bicycle awareness where there isn't space to accommodate a full-width bike lane.

Further Considerations

- Consider modifications to signal timing to induce a bicycle-friendly travel speed for all users.
- Though not always possible, placing the markings outside of vehicle tire tracks will increase the life of the markings and the long-term cost of the treatment.
- All installations of shared lane markings should comply with the City's standards

Crash Reduction

A study that compared injury crashes per year per 100 bicycle commuters on facilities in Chicago built between 2008 and 2010 found that sharrows had a significantly weaker effect in reducing injury crashes compared the no-build condition by about 20 percent in contrast to bicycle lanes which saw a 42 percent reduction.*

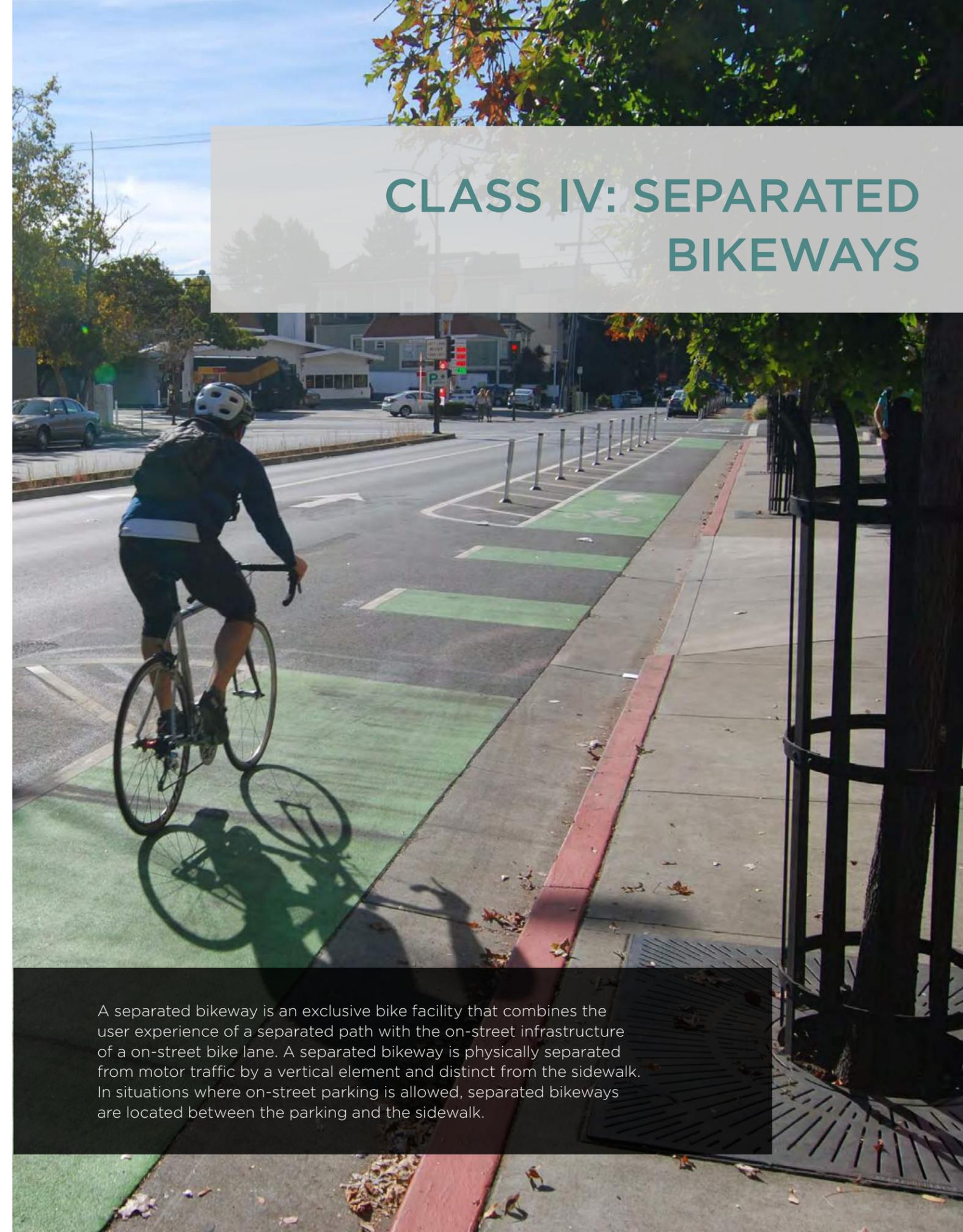
Construction Costs

Sharrows typically cost \$200 per each marker for a lane-mile cost of \$4,200, assuming the CAMUTCD guidance of sharrow placement every 250 feet.

* The Relative (In)Effectiveness of Bicycle Sharrows on Ridership and Safety Outcomes. Ferenchak, N and W. Marshall. 2015. Transportation Research Board 2016 Annual Meeting.

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CLASS IV: SEPARATED BIKEWAYS

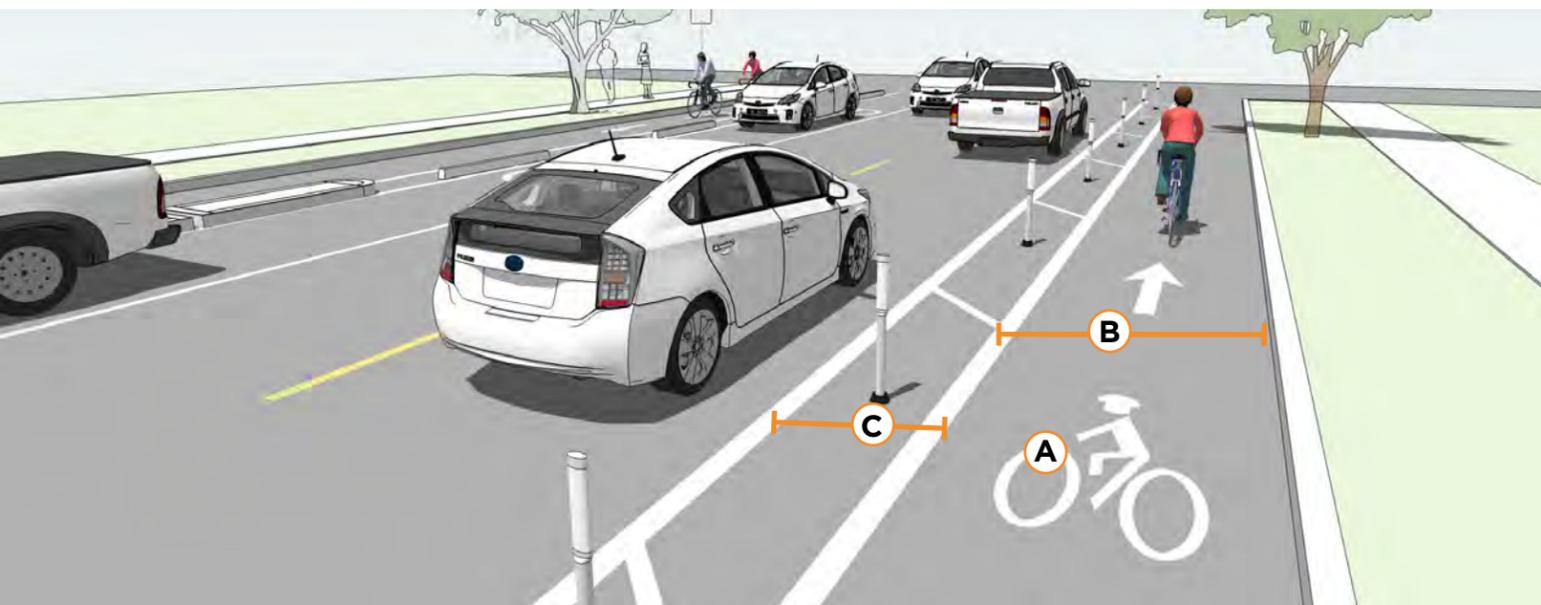


A separated bikeway is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a on-street bike lane. A separated bikeway is physically separated from motor traffic by a vertical element and distinct from the sidewalk. In situations where on-street parking is allowed, separated bikeways are located between the parking and the sidewalk.

CLASS IV: SEPARATED BIKEWAYS

ONE-WAY SEPARATED BIKEWAY

One-way protected bikeways are on-street facilities that are separated from vehicle traffic. Separation for protected bikeways is provided through physical barriers between the bike lane and the vehicular travel lane. These barriers can include bollards, parking, planter strips, extruded curbs, or on-street parking. Protected bikeways using these barrier elements typically share the same elevation as adjacent travel lanes, but the bike lane could also be raised above street level, either below or equivalent to sidewalk level.



Typical Application

- Along streets on which conventional bicycle lanes would cause many bicyclists to feel stress because of factors such as multiple lanes, high bicycle volumes, high motor traffic volumes (9,000-30,000 ADT), higher traffic speeds (25+ mph), high incidence of double parking, higher truck traffic (10% of total ADT) and high parking turnover.
- Along streets for which conflicts at intersections can be effectively mitigated using parking lane setbacks, bicycle markings through the intersection, and other signalized intersection treatments.

Design Features

- A** Pavement markings, symbols and/or arrow markings must be placed at the beginning of the separated bikeway and at intervals along the facility based on engineering judgment to define the bike direction. (CAMUTCD 9C.04)
- B** 7 foot width preferred in areas with high bicycle volumes or uphill sections to facilitate safe passing behavior (5 foot minimum). (HDM 1003.1(1))
- C** 3 foot minimum buffer width adjacent to parking lines (18 inch minimum adjacent to travel lanes), marked with 2 solid white lines (NACTO, 2012).

Street Level Separated Bicycle Lanes



Street Level Separated Bikeways can be separated from the street with parking, planters, bollards or other design elements.

Further Considerations

- Separated bikeway buffers and barriers are covered in the CAMUTCD as preferential lane markings (section 3D.01) and channelizing devices (section 3H.01). If buffer area is 4 feet or wider, white chevron or diagonal markings should be used (section 9C.04). Curbs may be used as a channeling device; see the section on islands (section 3I.01).
- Where possible, locate physical barriers such as tubular markings or removable curbs towards the inside edge of the buffer. This preserves as much extra width as possible for bicycle use.
- A retrofit separated bikeway has a relatively low implementation cost compared to road reconstruction by making use of existing pavement and drainage and by using parking lane as a barrier.
- Gutters, drainage outlets and utility covers should be designed and configured as not to impact bicycle travel.
- For clarity at driveways or minor street crossings, consider a dotted line for the buffer boundary where cars are expected to cross
- Special consideration should be given at transit stops to manage bicycle & pedestrian interactions.

Crash Reduction

A before and after study in Montreal of physically separated bicycle lanes shows that this type of facility can result in a crash reduction of 74% for collisions between bicyclists and vehicles. (CMF ID: 4097) In this study, there was a parking buffer between the bike facility and vehicle travel lanes. Other studies have found a range in crash reductions due to SBL, from 8% (CMF ID: 4094) to 94% (CMF ID: 4101).

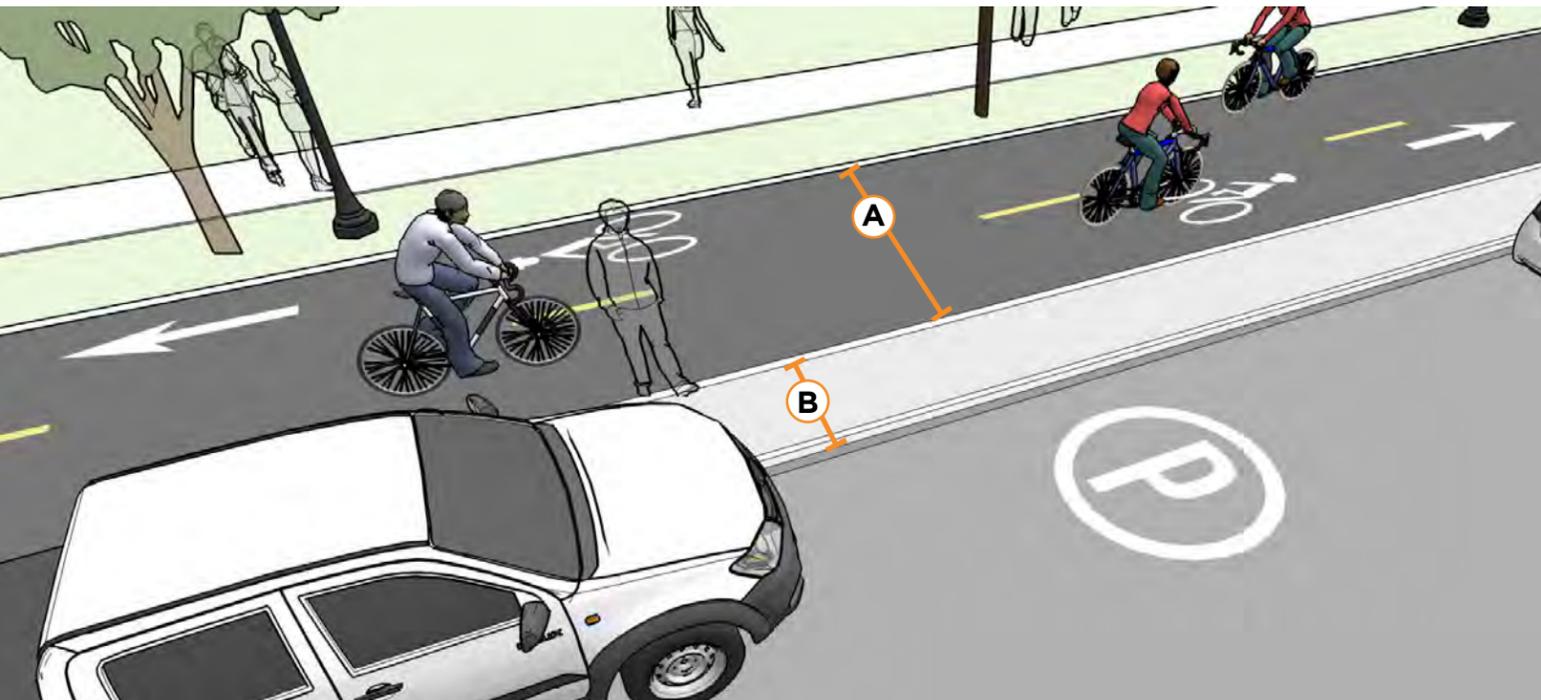
Construction Costs

The implementation cost is low if the project uses existing pavement and drainage, but the cost significantly increases if curb lines need to be moved. A parking lane is the low-cost option for providing a barrier. Other barriers might include concrete medians, bollards, tubular markers, or planters.

CLASS IV: SEPARATED BIKEWAYS

TWO-WAY SEPARATED BIKEWAY

Two-Way Separated Bikeways are bicycle facilities that allow bicycle movement in both directions on one side of the road. Two-way separated bikeways share some of the same design characteristics as one-way separated bikeways, but may require additional considerations at driveway and side-street crossings.



Typical Application

- Works best on the left side of one-way streets.
- Streets with high motor vehicle volumes and/or speeds.
- Streets with high bicycle volumes.
- Streets with a high incidence of wrong-way bicycle riding.
- Streets with few conflicts such as driveways or cross-streets on one side of the street.
- Streets that connect to shared use paths.

Design Features

- A** 12 foot operating width preferred (10 ft minimum) width for two-way facility. In constrained an 8 foot minimum operating width may be considered. (HDM 1003.1(1))
- B** Adjacent to on-street parking a 3 foot minimum width channelized buffer or island shall be provided to accommodate opening doors. (NACTO, 2012) . (CAMUTCD 3H.01, 3I.01)
 - Separation may be narrower than 5 feet if physical barrier separation is present. (AASHTO, 2013)

Two-Way Separated Bikeways



A two-way facility can accommodate cyclists in two directions of travel.

Further Considerations

- Two-way bikeways introduce additional complexities at intersections and driveways. Additional signalization and signs may be necessary to manage conflicts.
- On-street bikeway buffers and barriers are covered in the CAMUTCD as preferential lane markings (section 3D.01) and channelizing devices, including flexible delineators (section 3H.01). Curbs may be used as a channeling device, see the section on islands (section 3I.01).
- A two-way separated bikeway on a one way street should be located on the left side where possible.
- A two-way protected bikeway may be configured at street level or as a raised separated bikeway with vertical separation from the adjacent travel lane.
- Two-way separated bikeways should ideally be placed along streets with long blocks and few driveways or mid-block access points for motor vehicles.
- Consult Caltrans DIB 89; Class IV Bikeway Guidance for more information.

Crash Reduction

A study of bicyclists in two-way separated facilities found that accident probability decreased by 45% at intersections where the separated facility approach could be seen between 2-5 meters from the side of the main road and when bicyclists had crossing priority at intersections. (CMF ID: 3034) Installation of a two-way separated bikeway 0-2 meters from the side of the main road resulted in an increase in collisions at intersections by 3% (CMF ID: 4033).

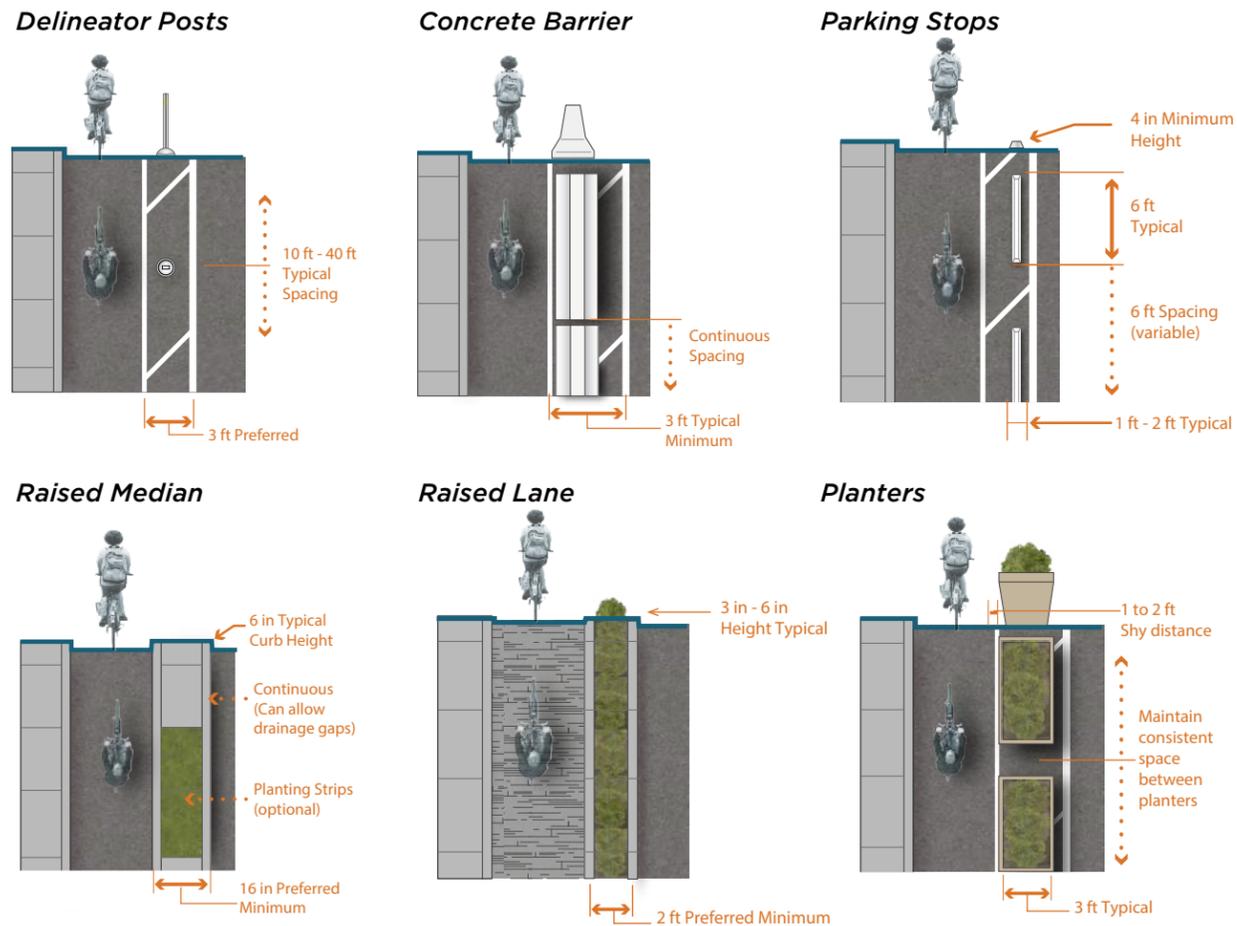
Construction Costs

The implementation cost is low if the project uses existing pavement and drainage, but the cost significantly increases if curb lines need to be moved. A parking lane is the low-cost option for providing a barrier. Other barriers might include concrete medians, bollards, tubular markers, or planters.

CLASS IV: SEPARATED BIKEWAYS

SEPARATED BIKEWAY BARRIERS

Separated bikeways may use a variety of vertical elements to physically separate the bikeway from adjacent travel lanes. Barriers may be robust constructed elements such as curbs, or may be more interim in nature, such as flexible delineator posts.



Typical Application

Appropriate barriers for retrofit projects:

- Parked cars
- Flexible delineator posts
- Bollards
- Planters
- Parking stops

Appropriate barriers for reconstruction projects:

- Curb separation
- Raised medians
- Landscaped medians
- Raised protected bike lane with vertical or mountable curb
- Pedestrian Safety Islands

Bikeway Separation Methods



Raised separated bikeways are bicycle facilities that are vertically separated from motor vehicle traffic.

Design Features

- Maximize effective operating space by placing curbs or delineator posts as far from the through bikeway space as practicable.
- Allow for adequate shy distance of 1 to 2 feet from vertical elements to maximize useful space.
- When next to parking allow for 3 feet of space in the buffer space to allow for opening doors and passenger unloading.
- The presences of landscaping in medians, planters and safety islands increases comfort for users and enhances the streetscape environment.

Further Considerations

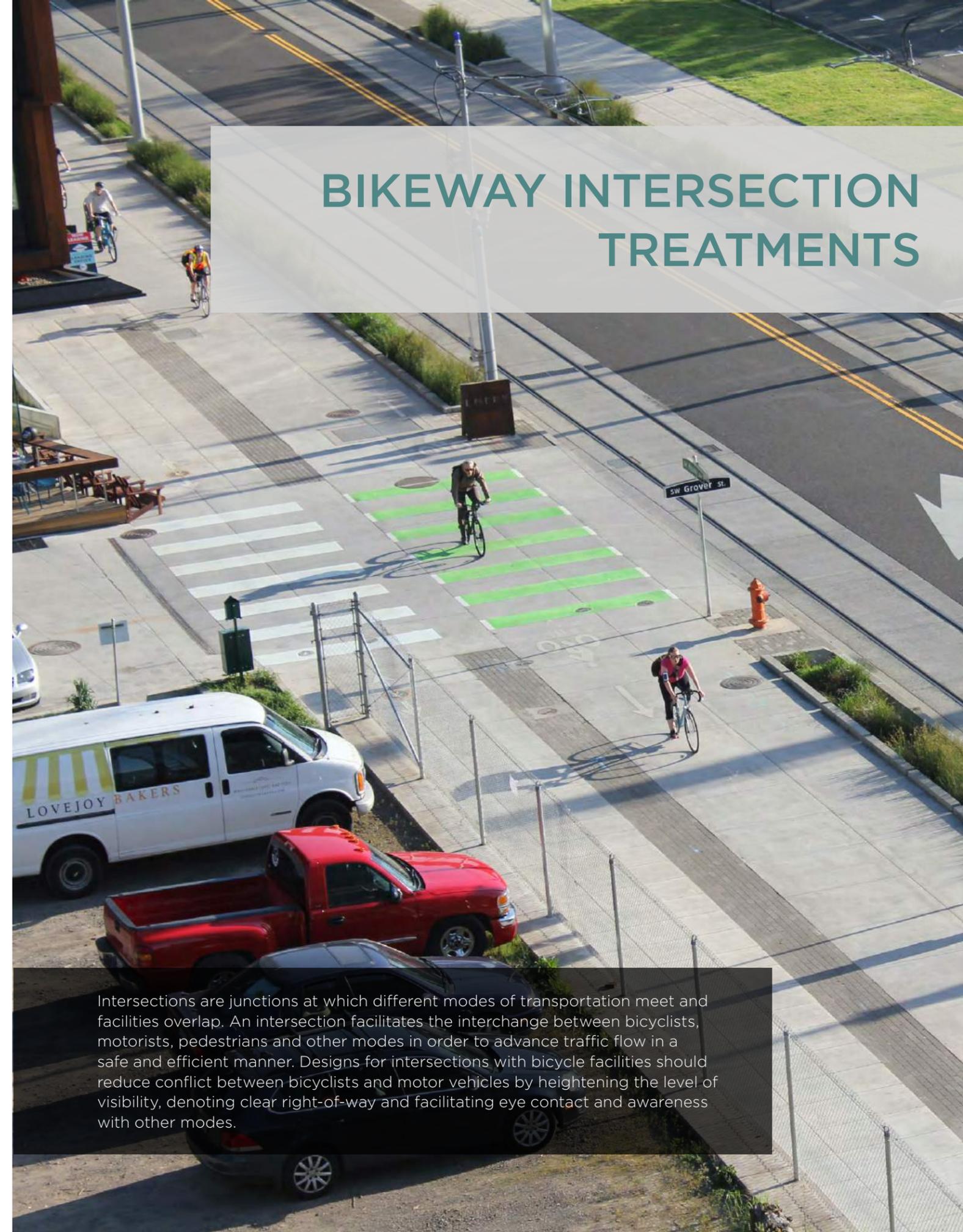
- Separated bikeway buffers and barriers are covered in the CAMUTCD as preferential lane markings (section 3D.01) and channelizing devices (section 3H.01). Curbs may be used as a channeling device, see the section on islands (section 3I.01).
- With new roadway construction a raised separated bikeway can be less expensive to construct than a wide or buffered bicycle lane because of shallower trenching and sub base requirements.
- Parking should be prohibited within 30 feet of the intersection to improve visibility.

Crash Reduction

A before and after study in Montreal of separated bikeways shows that this type of facility can result in a crash reduction of 74% for collisions between bicyclists and vehicles. (CMF ID: 4097) In this study, there was a parking buffer between the bike facility and vehicle travel lanes. Other studies have found a range in crash reductions due to SBL, from 8% (CMF ID: 4094) to 94% (CMF ID: 4101).

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BIKEWAY INTERSECTION TREATMENTS

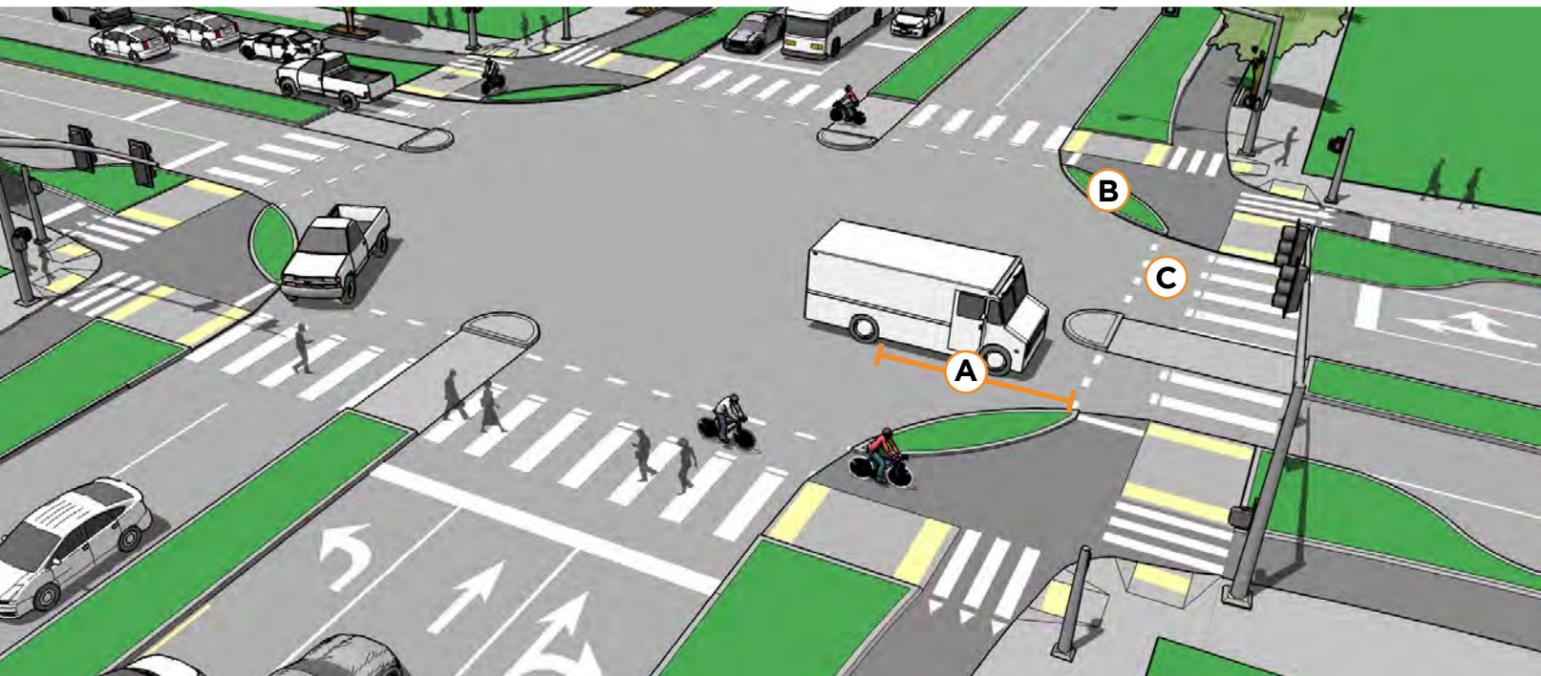


Intersections are junctions at which different modes of transportation meet and facilities overlap. An intersection facilitates the interchange between bicyclists, motorists, pedestrians and other modes in order to advance traffic flow in a safe and efficient manner. Designs for intersections with bicycle facilities should reduce conflict between bicyclists and motor vehicles by heightening the level of visibility, denoting clear right-of-way and facilitating eye contact and awareness with other modes.

BIKEWAY INTERSECTION TREATMENTS

PROTECTED INTERSECTION

A protected intersection uses a collection of intersection design elements to maximize user comfort within the intersection and promote a high rate of motorists yielding to people bicycling. The design maintains a physical separation within the intersection to define the turning paths of motor vehicles, slow vehicle turning speed, and offer a comfortable place for people bicycling to wait at a red signal.



Typical Application

- Streets with separated bicycle lanes protected by wide buffer or on-street parking.
- Where two separated bicycle lanes intersect and two-stage left-turn movements can be provided for bicycle riders.
- Helps reduce conflicts between right-turning motorists and bicycle riders by reducing turning speeds and providing a forward stop bar for bicycles.
- Where it is desirable to create a curb extension at intersections to reduce pedestrian crossing distance.

Design Features

- A** Setback bicycle crossing of 16.5 feet allows for one passenger car to queue while yielding. Smaller setback distance is possible in slow-speed, space constrained conditions.
- B** Corner safety island with a 15-20 foot corner radius slows motor vehicle speeds. Larger radius designs may be possible when paired with a deeper setback or a protected signal phase, or small mountable aprons. Two-stage turning boxes are provided for queuing bicyclists adjacent to corner islands.
- C** Use intersection crossing markings.

Protected Intersection



Protected intersections feature a corner safety island and intersection crossing markings, and can be used by bicyclists to queue for two-stage left turns.

Further Considerations

- Pedestrian crosswalks may need to be further set back from intersections in order to make room for two-stage turning queue boxes.
- Wayfinding and directional signage should be provided to help bicycle riders navigate through the intersection.
- Colored pavement may be used within the corner refuge area to clarify use by people bicycling and discourage use by people walking or driving.
- Intersection approaches with high volumes of right turning vehicles should provide a dedicated right turn only lane paired with a protected signal phase. Protected signal phasing may allow different design dimensions than are described here.

Crash Reduction

Studies of “bend out” intersection approaches find that separation distance of 6.5 - 16.5 ft offer the greatest safety benefit, with a better safety record than conventional bike lane designs. (Schepers 2011).

Schepers et al. Road factors and Bicycle-Motor vehicle crashes at unsignalized priority intersections. 2011.

Construction Costs

- Reconstruction costs comparable to a full intersection.
- Retrofit implementation may be possible at lower costs if existing curbs and drainage are maintained.

BIKEWAY INTERSECTION TREATMENTS

TWO-STAGE TURN BOXES

Two-stage turn boxes offer bicyclists a safe way to make turns at multi-lane signalized intersections from a physically separated or conventional bike lane.

On separated bike lanes, bicyclists are often unable to merge into traffic to turn due to physical separation, making the provision of two-stage turn boxes critical.



Two-stage Turn Box



A two-stage turn box in Menlo Park.

Typical Application

- Streets with high vehicle speeds and/or traffic volumes.
- At intersections of multi-lane roads with signalized intersections.
- At signalized intersections with a high number of bicyclists making a left turn from a right side facility.
- Preferred treatment to assist turning maneuvers on bike lanes, instead of requiring bicyclists to merge to make a vehicular left turn.
- Required for protected bikeways to assist left turns from a right side facility, or right turns from a left side facility.

Design Features

- The two-stage turn box shall be placed in a protected area. Typically this is within the shadow of an on-street parking lane or protected bike lane buffer area and should be placed in front of the crosswalk to avoid conflict with pedestrians.
- 8 foot x 6 foot preferred dimensions of bicycle storage area (6 foot x 3 foot minimum).
- Bicycle stencil and turn arrow pavement markings shall be used to indicate proper bicycle direction and positioning. (NACTO, 2012)

Further Considerations

- Consider providing a “No Turn on Red” (MUTCD R10-11) on the cross street to prevent motor vehicles from entering the turn box.
- This design formalizes a maneuver called a “box turn” or “pedestrian style turn.”
- Some two-stage turn box designs are considered experimental by FHWA and is not currently under experiment in California.
- Design guidance for two-stage turns apply to both bike lanes and separated bike lanes.
- Two-stage turn boxes reduce conflicts in multiple ways; from keeping bicyclists from queuing in a bike lane or crosswalk and by separating turning bicyclists from through bicyclists.
- Bicyclist capacity of a two-stage turn box is influenced by physical dimension (how many bicyclists it can contain) and signal phasing (how frequently the box clears.)

Crash Reduction

There are no Crash Modification Factors (CMFs) available for this treatment

Construction Costs

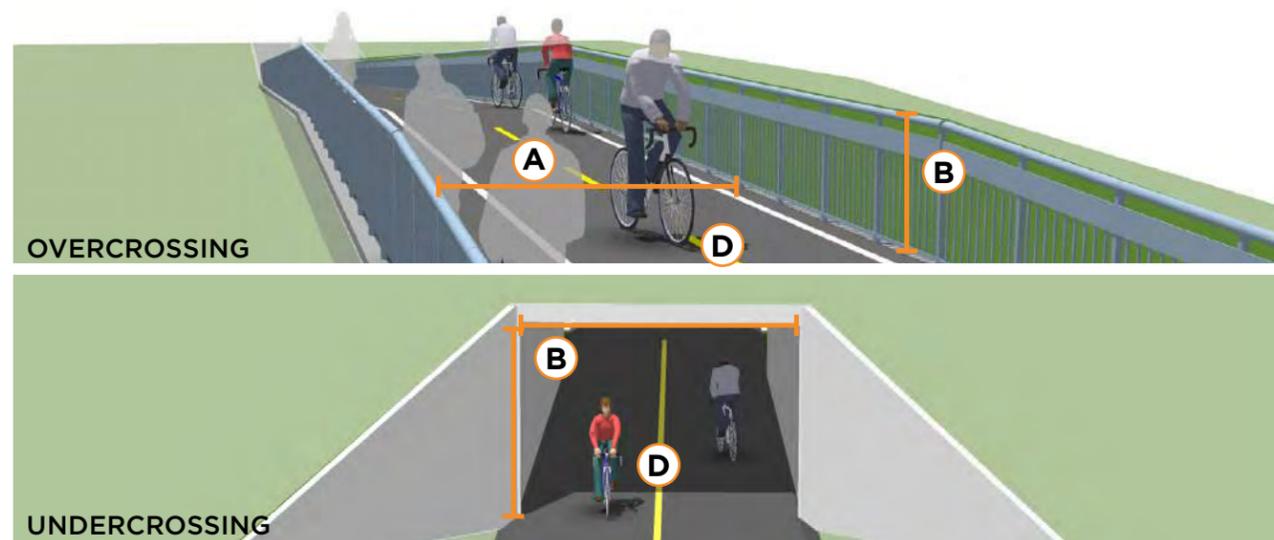
Costs will vary due to the type of paint used and the size of the two-stage turn box, as well as whether the treatment is added at the same time as other road treatments.

The typical cost for painting a two-stage turn box is \$11.50 per square foot.

BIKEWAY INTERSECTION TREATMENTS

GRADE-SEPARATED CROSSINGS

Grade-separated crossings provide critical non-motorized system links by joining areas separated by barriers such as railroads, waterways and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist. There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group, grade separation may be considered in many types of projects.



Typical Application

- Where shared-use paths cross high-speed and high-volume roadways where an at-grade signalized crossing is not feasible or desired, or where crossing railways or waterways.
- Where barriers exist to access parks, recreational facilities, or other community resource, grade-separated crossings are desirable.

Design Features

- A** Overcrossings should be at least 8 feet wide with 14 feet preferred and additional width provided at scenic viewpoints.
- B** Railing height must be a minimum of 42 inches for overcrossings.
- C** Undercrossings should be designed at minimum 10 feet height and 14 feet width, with greater widths preferred for lengths over 60 feet.
- D** Centerline stripe is recommended for grade-separated facility.

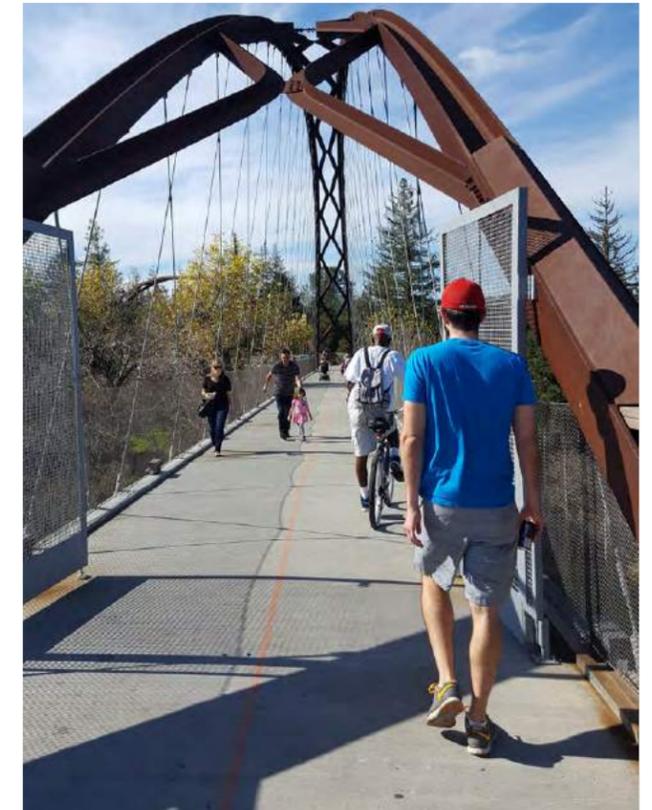
Further Considerations

- Overcrossings require a minimum of 17 feet of vertical clearance to the roadway below versus a minimum elevation differential of around 12 feet for an undercrossing. This can result in greater elevation differences and much longer ramps for bicycles and pedestrians to negotiate.
- Overcrossings for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 feet.
- Overcrossings pose potential concerns about visual impact and functional appeal, as well as space requirements necessary to meet ADA guidelines for slope.
- To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, equipped with emergency cell phones at each end and completely visible for its entire length from end to end.

Crash Reduction

Grade separated crossings, when used, eliminate conflicts between users that would be present at at-grade crossing locations.

Overcrossings



Undercrossings



Grade-separated crossings help people walking or biking cross barriers such as freeways, railroads, and rivers.

BIKEWAY INTERSECTION TREATMENTS

BIKEWAY DETECTION AND ACTUATION

Proper bicycle detection should meet two primary criteria: 1) accurately detects bicyclists and 2) provides clear guidance to bicyclists on how to actuate detection (e.g., what button to push, where to stand). Bicycle loops and other detection mechanisms can also provide bicyclists with an extended green time before the light turns yellow so that bicyclists of all abilities can reach the far side of the intersection.



Typical Application

- All new or modified traffic signals in California must be equipped for bicyclist detection, or be placed on permanent recall or fixed time operation. (Caltrans Traffic Operations Policy Directive (TOPD) 09-06.
- Detection shall be placed where bicyclists are intended to travel and/or wait.
- On bicycle priority corridors with on-street bike lanes or separated bikeways, consider the use of advance detection placed 100-200' upstream of the intersection to provide an early trigger to the signal system and reduce bicyclist delay.

Design Features

TOPD 09-06 requires push button, in-pavement detectors or video detection systems.

Push Button Actuation

User-activated button mounted on a pole facing the street. Device location should not require bicyclists to dismount or be rerouted out of the way or onto the sidewalk to activate the phase.

In Pavement Detection (Type D inductive loop)

Bicycle-activated loop detectors are installed within the roadway to allow the presence of a bicycle to trigger a change in the traffic signal. This allows the bicyclist to stay within the lane of travel without having to maneuver to the side of the road to trigger a push button. Loops should be supplemented with pavement markings to instruct bicyclists how to trip them.

Push Button Actuation

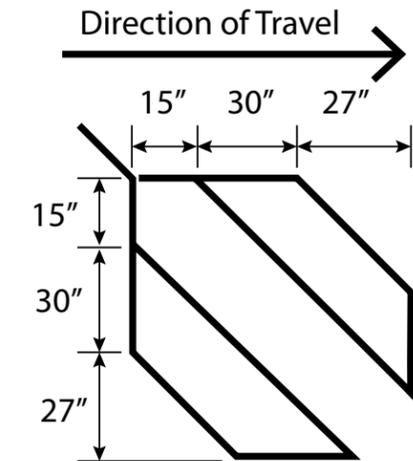


Bicycle push button actuators are positioned to allow bicycle riders in roadway to stop traffic on busy cross-streets.

Further Considerations

- Video detection systems use digital image processing to detect a change in the image at a location. These systems can be calibrated to detect bicycles, although some video detection systems may have problems detecting bicyclists under poor lighting or poor weather conditions.
- It is important for signal timing to account for the differing bicycle start up and clearance time through the intersection. The sum of the minimum green time, plus the yellow change interval plus any red clearance interval should allow a 6 ft bicyclist to clear the last conflicting lane at a speed of 14.7 ft/sec plus an additional start up time of 6 seconds.
- Signal detection and actuation for bicyclists should be maintained with other traffic signal detection and roadway pavement markings. In street detection markings are often placed within the wheel tread of motor vehicles and may be susceptible to early wear.

Type D Loop Detector



Type D loop detector have been shown to most reliably detect bicyclists at all points over their surface.

- Studies have shown limited comprehension of the bicycle detection pavement marking by bicyclists. The MUTCD R10-22 sign may be used to help educate and inform road users.

Crash Reduction

Properly designed bicycle detection can help deter red light running and unsafe behaviors by reducing delay at signalized intersections.

Construction Costs

Costs vary depending on the type of technology used. Embedded in pavement loop detectors have an average cost of \$1,900. Video camera system costs range from \$20,000 to \$25,000 per intersection.

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BIKEWAY SIGNING AND AMENITIES



The ability to navigate through a city is informed by landmarks, natural features and other visual cues. Bicycle wayfinding can assist in navigation to guide bicyclists to their destinations along preferred bicycle routes. Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.

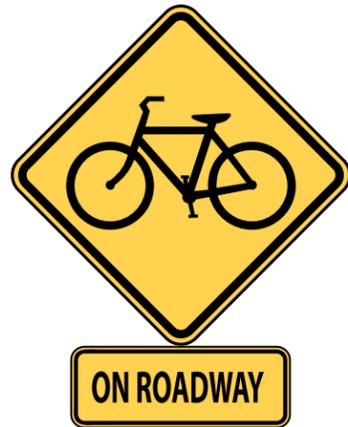
BIKEWAY SIGNING AND AMENITIES

SAFETY AND WARNING SIGNS

Signs may be used to raise awareness of the presence of bikes on the roadway beyond that of the conventional “Bike Route” sign. These signs are intended to reduce motor vehicle/bicyclist conflict and are appropriate to be placed on routes that lack paved shoulders or other bicycle facilities.



R117 (CA)



W11-1 with custom “ON ROADWAY” legend plaque



R4-11

Typical Application

- In higher speed rural contexts, a bicycle warning sign (W11-1) paired with a legend plaque reading “ON ROADWAY” may clarify to motor vehicle drivers to expect bicyclists.
- In more developed areas, “Bikes May Use Full Lane” (BMUFL) (R4-11) signs encourage bicyclists to take the lane when the lane is too narrow. They typically work best when placed near activity centers such as schools, shopping centers and other destinations that attract bicycle traffic.
- The “SHARE THE ROAD” (W16-1P) plaque is discouraged for use due to a lack of shared understanding among road users.
- In California, the state-specific “PASS Bicycle (symbol) 3FT MIN” symbol (R117) can be used to remind motorists to provide adequate space when passing.

Design Features

- Use with travel lanes less than 14 feet wide, which are too narrow for safe passing within the lane.
- Signs should be placed at regular intervals along routes with no designated bicycle facilities.
- Dedicated bicycle facilities are recommended for roadways with speed limits above 35 mph where the need for bicycle access exists.

BIKEWAY SIGNING AND AMENITIES

SHARED USE PATH SIGNAGE

Signs may be used to raise awareness of trail etiquette. Bicyclists should alert other users when approaching from behind. Pedestrians should move to the side of the trail as to not block joggers or bicyclists.



Typical Application

- Shared Use Path courtesy signs can be placed at trail heads, trail entrances, in parking lots, and before bridges, curves, or other narrow trail segments with low visibility.

Design Features

- Use graphics to supplement text.
- Include “Slow to the Right” or other appropriate language on signs during sign development.
- Use speed limit signs at regular intervals with accompanying “Use Courtesy When Passing” language.

BIKEWAY SIGNING AND AMENITIES

COMMUNITY WAYFINDING SIGNS

Community wayfinding guide signs are part of a coordinated and continuous system of signs that direct tourists and other road users to key civic, cultural, visitor, and recreational attractions and other destinations within a city or a local urbanized or downtown area.



Typical Application

- Within a downtown or neighborhood district area to provide a cohesive local wayfinding system to road users, including pedestrians.
- Community wayfinding guide signs should not be used on a regional or statewide basis. For wayfinding systems at these scales, conventional MUTCD destination and guide signing should be used.
- The use of community wayfinding guide signs is limited to conventional roads, and should not be used on limited access highways.

Design Features

- A** Except for the informational guide sign posted at the boundary of the wayfinding guide sign area, community wayfinding guide signs may use background colors other than green in order to provide a color identification for the wayfinding destinations by geographical area within the overall wayfinding guide signing system
- B** Other graphics that specifically identify the wayfinding system, including identification enhancement markers, may be used on the overall sign assembly and sign supports.
- C** Non-conventional designs that adhere to CAMUTCD signage regulations can be used in areas with unique historic character.

Further Considerations

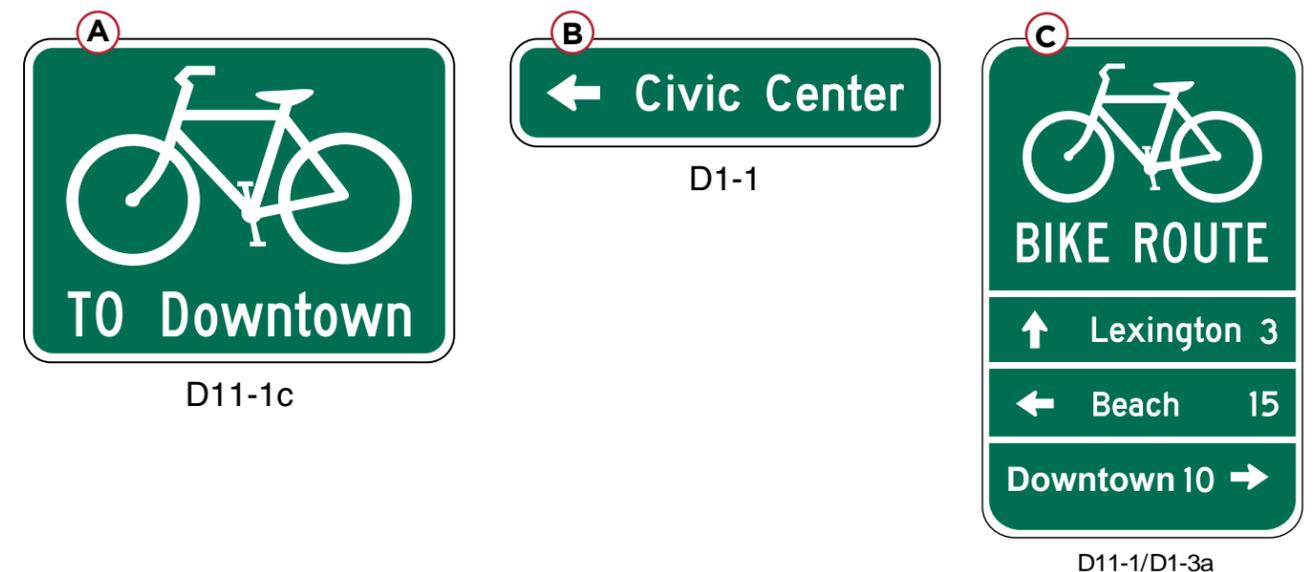
The standard colors of red, orange, yellow, purple, or the fluorescent versions thereof, fluorescent yellow-green, and fluorescent pink shall not be used as background colors for community wayfinding guide signs, in order to minimize possible confusion with critical, higher-priority regulatory and warning sign color meanings readily understood by road users.



BIKEWAY SIGNING AND AMENITIES

WAYFINDING SIGN TYPES

The ability to navigate through a city is informed by landmarks, natural features and other visual cues. Signs throughout the city should indicate to bicyclists the direction of travel, the locations of destinations and the travel time/distance to those destinations. A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes.



Typical Application

- Wayfinding signs will increase users' comfort and accessibility to the bicycle systems.
- Signage can serve both wayfinding and safety purposes including:
 - Helping to familiarize users with the bicycle network
 - Helping users identify the best routes to destinations
 - Helping to address misconceptions about time and distance
 - Helping overcome a "barrier to entry" for people who are not frequent bicyclists (e.g., "interested but concerned" bicyclists)

Design Features

- A** Confirmation signs indicate to bicyclists that they are on a designated bikeway. Make motorists aware of the bicycle route. Can include destinations and distance/time but do not include arrows.
- B** Turn signs indicate where a bikeway turns from one street onto another street. These can be used with pavement markings and include destinations and arrows.
- C** Decisions signs indicate the junction of two or more bikeways and inform bicyclists of the designated bike route to access key destinations. These include destinations, arrows and distances. Travel times are optional but recommended.

Community Logos on Signs



Wayfinding signs can include a local community identification logo, as this example from Oakland, CA.

Custom Street Signs (Berkeley, CA)



Custom street signs can also act as a type of confirmation sign, to let all users know the street is prioritized for bicyclists.

Further Considerations

- Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes.
- Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists rather than per vehicle signage standards.
- A community-wide bicycle wayfinding signage plan would identify:
 - Sign locations
 - Sign type – what information should be included and design features
 - Destinations to be highlighted on each sign – key destinations for bicyclists
 - Approximate distance and travel time to each destination
- Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US, including those in the CAMUTCD.
- Check wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear and replace signage along the bikeway network as-needed.

Crash Reduction

There is no evidence that wayfinding signs have any impact on crash reduction or user safety.

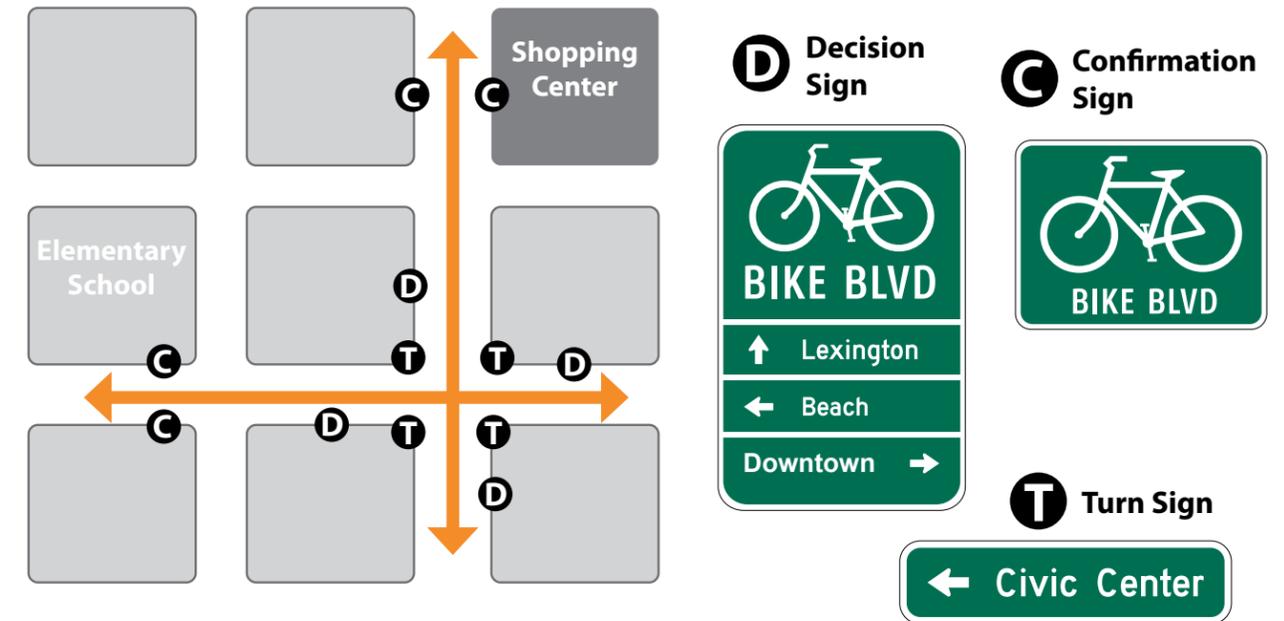
Construction Costs

Trail wayfinding signs range from \$500-\$2000.

BIKEWAY SIGNING AND AMENITIES

WAYFINDING SIGN PLACEMENT

Signs are placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.



Typical Application

Confirmation Signs

- Placed every 1/4 to 1/2 mile on off-street facilities and every 2 to 3 blocks along on-street bicycle facilities, unless another type of sign is used (e.g., within 150 ft of a turn or decision sign).
- Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

Turn Signs

- Near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through).
- Pavement markings can also indicate the need to turn to the bicyclist.

Decision Signs

- Near-side of intersections in advance of a junction with another bicycle route.
- Along a route to indicate a nearby destination.

Design Features

- CAMUTCD guidelines should be followed for wayfinding sign placement, which includes mounting height and lateral placement from edge of path or roadway.
- Pavement markings can be used to reinforce routes and directional signage.

Wayfinding Pavement Markings



Some cities use pavement markings to indicate required turns or jogs along the bicycle route.

Further Considerations

It can be useful to classify a list of destinations for inclusion on the signs based on their relative importance to users throughout the area. A particular destination's ranking in the hierarchy can be used to determine the physical distance from which the locations are signed. For example, primary destinations (such as the downtown area) may be included on signage up to five miles away. Secondary destinations (such as a transit station) may be included on signage up to two miles away. Tertiary destinations (such as a park) may be included on signage up to one mile away.

Crash Reduction

There is no evidence that wayfinding signs have any impact on crash reduction or user safety.

Construction Costs

The cost of a wayfinding sign placement plan depends on the scale and scope of the approach. Trail wayfinding signage range from \$500-\$2000.



BIKE PARKING

Safe and easy access to bicycle parking facilities is necessary to encourage commuters to access transit via bicycle. Short and long term parking should be provided at transit centers and other destinations.

BIKE PARKING

Bicyclists expect a safe, convenient place to secure their bicycle when they reach their destination. This may be short-term parking of 2 hours or less, or long-term parking for employees, students, residents, and commuters.



Typical Application

- Bike racks provide short-term bicycle parking and are meant to accommodate visitors, customers, and others expected to depart within two hours. Short-term parking should consist of approved standard racks, with appropriate location and placement to serve nearby uses. Bike racks can also incorporate a canopy for weather protection.
- Bike corrals consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking, or on the sidewalk within the furnishing zone as space allows. Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking, or as part of a curb extension for off-street bicycle

parking. Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces. Bike corrals can also incorporate a canopy for weather protection.

- Bicycle lockers are intended to provide long-term bicycle storage for employees, students, residents, commuters, and others expected to park more than two hours. Long-term facilities protect the entire bicycle, its components and accessories against theft and against inclement weather, including snow and wind-driven rain. Lockers should be placed in visible, easily accessible locations while maintaining security.

Design Features

Bike Racks

- A** 2 feet minimum from the curb face to avoid 'dooring.'
- B** 4 feet between racks to provide maneuvering room.
- C** Locate close to destinations; 50 feet maximum distance from main building entrance.
- D** Minimum clear distance of 6 feet should be provided between the bicycle rack and the property line.

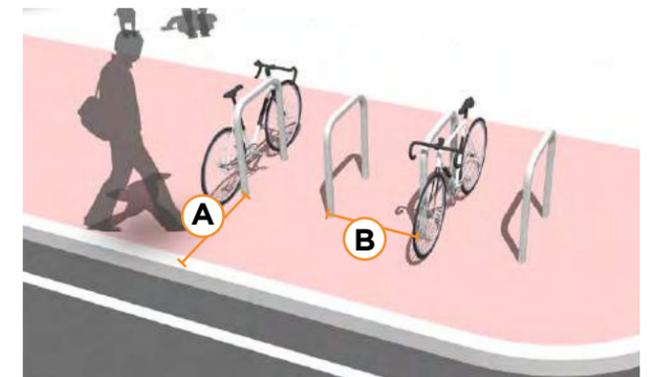
Bike Corrals

- Bicyclists should have an entrance width from the roadway of 5-6 feet for on-street corrals.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for on-street bicycle corrals since the concrete extension serves as delimitation on one side.
- Off-street bike corrals are appropriate where there is a wide sidewalk furnishing zone (7 feet or greater), or as part of a curb extension.

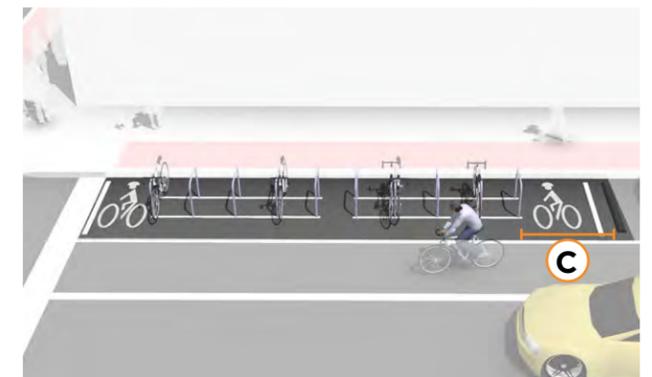
Bike Lockers

- Minimum dimensions: width (opening) 2.5 feet; height 4 feet; depth 6 feet.
- 4 foot side clearance and 6 foot end clearance.
- 7 foot minimum distance between facing lockers.

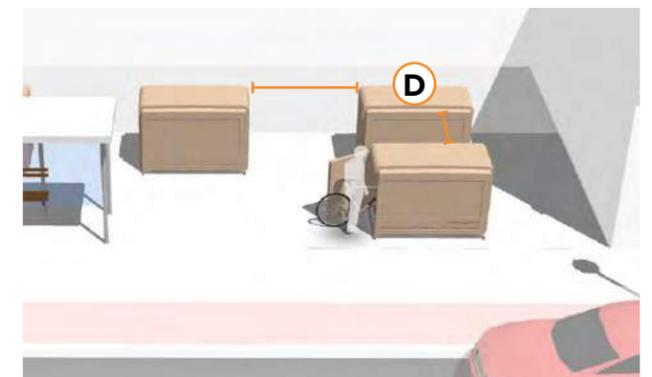
Perpendicular Bike Racks



Bike Corral



Bike Locker



Construction Costs

Costs can vary based on the design and materials used. Bicycle rack costs can range from approximately \$60 to \$3,600, depending on design and materials used. On average the cost is approximately \$660. Bicycle locker costs range from \$1,280 to \$2,680.

Further Considerations

Minimum Specifications for Required Bicycle Parking

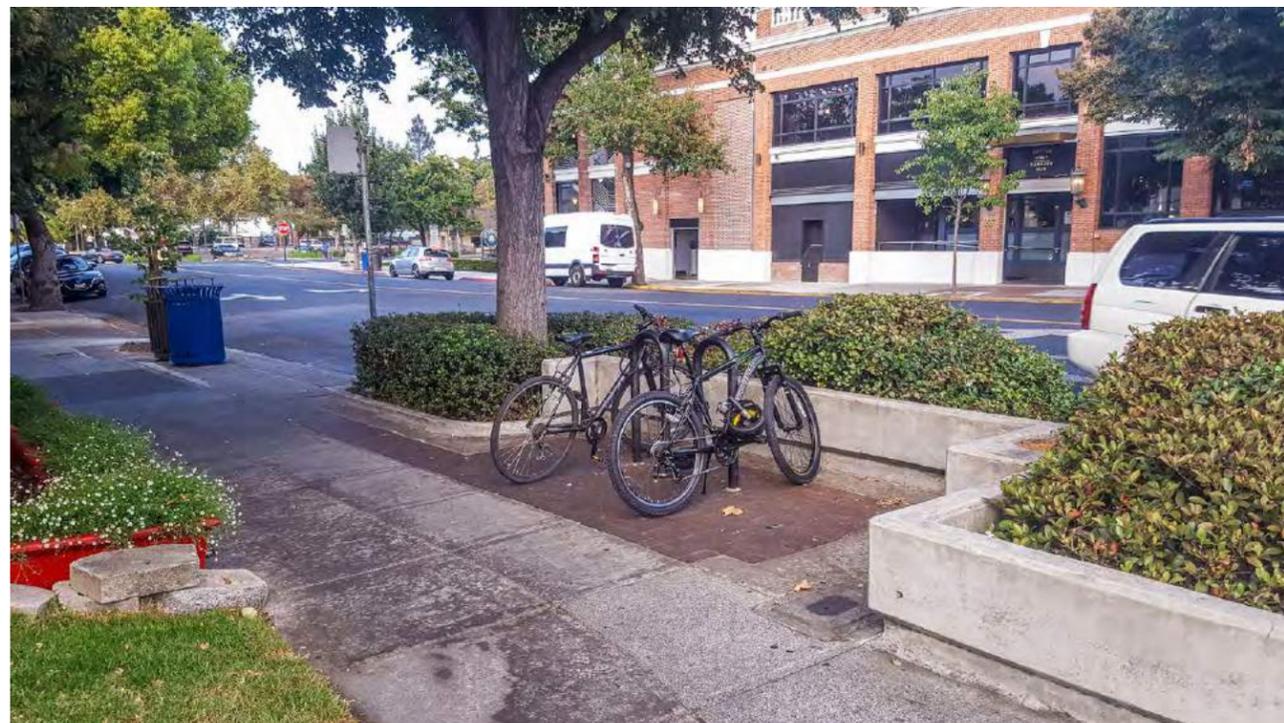
- All bicycle parking facilities shall be dedicated for the exclusive use of bicycle parking and shall not be intended for the use of motorized two-wheeled or similar vehicles.
- All required short-term bicycle parking spaces shall permit the locking of the bicycle frame and one (1) wheel with a

U-type lock; support the bicycle in a stable horizontal position without damage to wheels, frame, or components; and provide two (2) points of contact with the bicycle's frame. Art racks are subject to review by the City.

- All required long-term bicycle parking spaces, with the exception of individual bicycle lockers, shall permit the locking of the bicycle frame and one (1) wheel with a U-type lock and support the bicycle in a stable position without damage to wheels, frame, or components.
- Bicycle parking facilities shall be securely anchored so they cannot be easily removed and shall be of sufficient strength and design to resist vandalism and theft.

Location and Design of Required Bicycle Parking

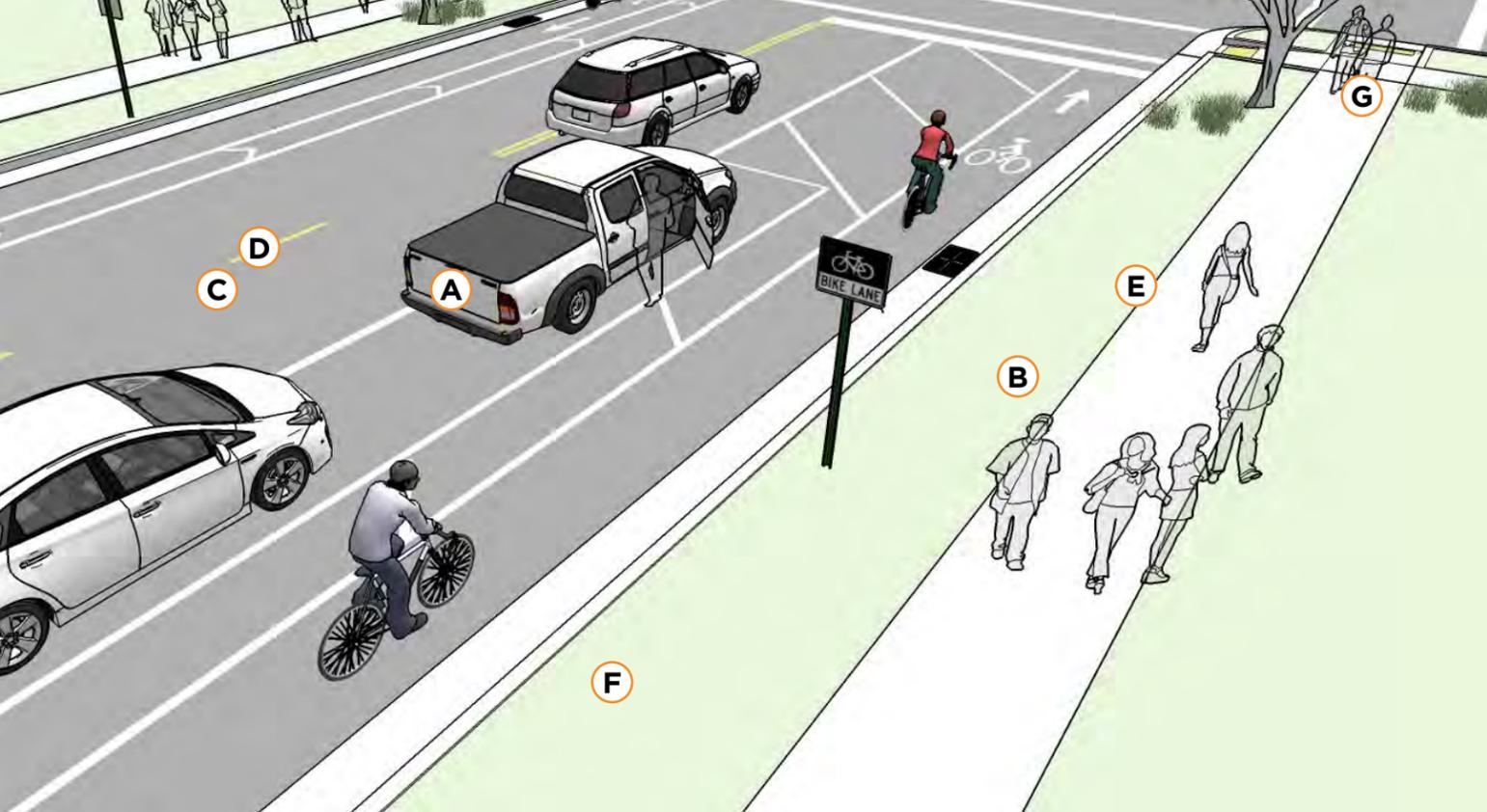
- A short-term bicycle parking space shall be at least two and one-half (2.5) feet in width by six (6) feet in length to allow sufficient space between parked bicycles.



- Bicycle parking facilities shall not impede pedestrian or vehicular circulation. Bicycle parking racks located on sidewalks should be kept clear of the pedestrian through zone.
- Short-term bicycle racks shall be located with at least 30 inches clearance in all directions from any obstruction, including but not limited to other racks, walls, and landscaping. Large retail uses, supermarkets, and grocery stores are encouraged to locate racks with a 36-inch clearance in all directions from any vertical obstruction, including but not limited to other racks, walls, and landscaping.
- All bicycle facilities shall provide a minimum four (4) foot aisle to allow for unobstructed access to the designated bicycle parking area.
- Bicycle parking facilities within auto parking facilities shall be protected from damage by cars by a physical barrier such as curbs, wheel stops, poles, bollards, or other similar features capable of preventing automobiles from entering the designated bicycle parking area.
- Short-term bicycle parking facilities serving community activity centers such as libraries and community centers should incorporate weather-protective enclosures shielding the designated bicycle area from typical inclement weather when feasible.
- Bicycle parking facilities shall be located in highly visible well-lighted areas. In order to maximize security, whenever possible short-term bicycle parking facilities shall be located in areas highly visible from the street and from the interior of the building they serve (i.e., placed adjacent to windows).
- Long-term bicycle parking shall be covered and shall be located on site or within 200 feet of the main building entrance. The main building entrance is defined as publicly accessible entrances and shall exclude gated private garage entrances, trash room entrances, and other building entrances that are not publicly accessible.



- Short-term bicycle parking must be along project frontage and within 50 feet of the main entrance to the building or commercial use or up to 100 feet where existing conditions do not allow placement within 50 feet. It should be in a well-trafficked location visible from the entrance. The main building entrance excludes garage entrances, trash room entrances, and other building entrances that are not publicly accessible.
- In non-commercial areas, like parks and recreational areas, bicycle parking should be located close to points of interests and be in highly visible, well-trafficked areas.
- If required bicycle parking is not visible from the street or main building entrance, a sign must be posted at the main building entrance indicating the location of the bicycle parking.



BIKE PARKING

FACILITY MAINTENANCE

Regular bicycle facility maintenance includes sweeping, maintaining a smooth roadway, ensuring that the gutter-to-pavement transition remains relatively flush, and installing bicycle friendly grates. Pavement overlays are a good opportunity to improve bicycling facilities. The following recommendations provide a menu of options to consider to enhance a maintenance regimen.

A Sweeping

- Establish a seasonal sweeping schedule that prioritizes roadways with major bicycle routes.
- Sweep walkways and bikeways whenever there is an accumulation of debris on the facility.
- In curbed sections, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders

B Signage

- Check regulatory and wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear.
- Replace signage along the bikeway network as-needed.
- Perform a regularly-scheduled check on the status of the signage with follow-up as necessary.
- Create a Maintenance Management Plan.

C Roadway Surface

- Maintain a smooth pothole-free surface.
- Ensure that on new roadway construction, the finished surface on bikeways does not vary more than 1/4".
- Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.

D Pavement Overlays

- Extend the overlay over the entire roadway surface to avoid leaving an abrupt edge.
- If the shoulder or bikeway pavement is of good quality, it may be appropriate to end the overlay at the shoulder or bikeway stripe provided no abrupt edge remains.
- Ensure that inlet grates, manhole and valve covers are within 1/4 inch of the finished pavement surface and are made or treated with slip resistant materials.

E Drainage grates

- Require all new drainage grates be bicycle-friendly. Grates should have horizontal slats on them so that bicycle tires and assistive devices do not fall through any vertical slats.
- Create a program to inventory all existing drainage grates, and replace hazardous grates as necessary - temporary modifications such as installing rebar horizontally across the grate should not be an acceptable alternative to replacement.

F Gutter-to-pavement transition

- Ensure that gutter-to-pavement transitions have no more than a 1/4" vertical transition.
- Examine pavement transitions during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.

G Landscaping

- Ensure that shoulder plants do not hang into or impede passage along bikeways.
- After major damage incidents, remove fallen trees or other debris from bikeways as quickly as possible.

Maintenance Management Plan

- Provide fire and police departments with map of bikeway system, along with access points to gates/ bollards.
- Enforce speed limits and other rules of the road.
- Enforce all trespassing laws for people attempting to enter adjacent private properties.

RECOMMENDED WALKWAY AND BIKEWAY MAINTENANCE ACTIVITIES

Maintenance Activity	Frequency
Inspections	Seasonal – at beginning and end of Summer
Pavement sweeping/ blowing	As needed, with higher frequency in the early Spring and Fall
Pavement sealing	5 - 15 years
Pothole repair	1 week - 1 month after report
Culvert and drainage grate inspection	Before Winter and after major storms
Pavement markings replacement	As needed
Signage replacement	As needed
Shoulder plant trimming (weeds, trees, brambles)	Twice a year; middle of growing season and early Fall
Tree and shrub plantings, trimming	1 - 3 years
Major damage response (washouts, fallen trees, flooding)	As soon as possible

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CAPACITY TOOLS



CAPACITY TOOLS

TRAFFIC SIGNALS

Traffic Signals are a tool used to safely and efficiently manage vehicle, bicycle and pedestrian traffic.



Typical Applications

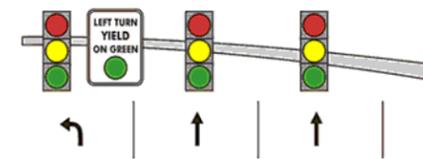
- Traffic signals are typically applied in locations with high vehicle, bicycle, or pedestrian volumes, areas with safety concerns, near schools or railroad crossings, or when it would benefit operations along a corridor.
- Traffic signals can improve safety and operations by directly controlling right-of-way, eliminating the need for each driver to stop and for through or protected turn drivers to yield right-of-way.
- Coordinated signals can further improve operations by creating a “green wave” that allows drivers to progress through

successive signals without stopping.

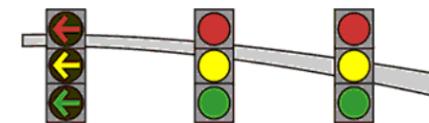
Design Features

- “Permissive-only” (also known as “permitted-only”) left-turn phasing allows two opposing approaches to move concurrently, with left turns allowed after yielding to conflicting traffic and pedestrians. For most high-volume intersections, “permissive-only” left-turn phasing is generally not practical for major street movements given the high volume of the intersections. Minor side street movements, however, may function acceptably using “permissive-only” left-turn phasing, provided that traffic volumes are low enough to operate adequately

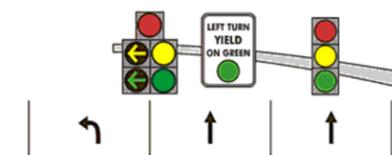
and safely without additional left-turn protection.



- “Protected-only” left-turn phasing consists of providing a separate phase for left-turning traffic and allowing left turns to be made only on a green left arrow signal indication, with no pedestrian movement or vehicular traffic conflicting with the left turn. As a result, left-turn movements with “protected-only” phasing have a higher capacity than those with “permissive-only” phasing due to fewer conflicts.

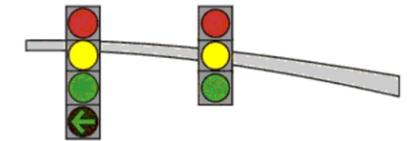


- A combination of protected and permissive left-turn phasing is referred to as protected-permissive left-turn (PPLT) operation. Advantages associated with both protected-permissive and lead-lag operation include a reduction in average delay per left-turn vehicle, the potential to omit a protected left-turn phase, and improvements to arterial progression. Some disadvantages include the permissive phase increasing the potential for vehicle-vehicle and vehicle-pedestrian conflicts, and the limited ability to use lead-lag phase sequences unless special signal head treatments are used.

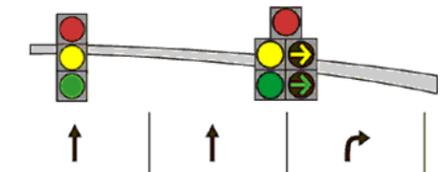


- Split phasing consists of having two opposing approaches time consecutively rather than concurrently (e.g., all movements originating from the west

followed by all movements from the east). Split phase can be implemented in a variety of ways depending on signal controller capabilities and how pedestrian movements are treated.



- Right-turn phasing may be controlled in a permissive or protected manner with different configurations depending on the presence of pedestrians and lane configuration at the intersections. Right turns have been operated on overlap phases to increase efficiency for the traffic signal. An overlap is a set of outputs associated with two or more phase combinations. As described earlier, various movements can be assigned to a particular phase. In some instances, right-turn movements operating in exclusive lanes can be assigned to more than one phase that is not conflicting.



- Lead pedestrian intervals activate the pedestrian “walk” beacon before the corresponding vehicle phase. This provides pedestrians with a few seconds to enter the crosswalk and increase their visibility before the drivers are permitted to enter the intersection. This has been shown to increase turning driver awareness of potential conflicting pedestrians, and reinforce the pedestrian right-of-way in the crosswalk.
- Bicycle signals are specialized signal heads that enable a dedicated bicycle phase. This has been deployed in areas with significant bicycle traffic, such as areas where bicycle

paths run adjacent to the road, or where a significant volume of cyclists are turning through an intersection and would benefit from a dedicated phase.

- Pedestrian-exclusive phases (or “ped scrambles”) are phases where all pedestrian “walk” beacons activate simultaneously, allowing pedestrians to cross all crosswalks or even diagonally across the intersection. This phasing is most practical in intersections with high pedestrian volumes, and in particular, high demand to cross diagonally.
- Advance yield markings are sometimes added to channelized right turns to reiterate to right-turn drivers that they must yield to pedestrians in the crosswalk and drivers on the cross street if there is not a protected right-turn phase.

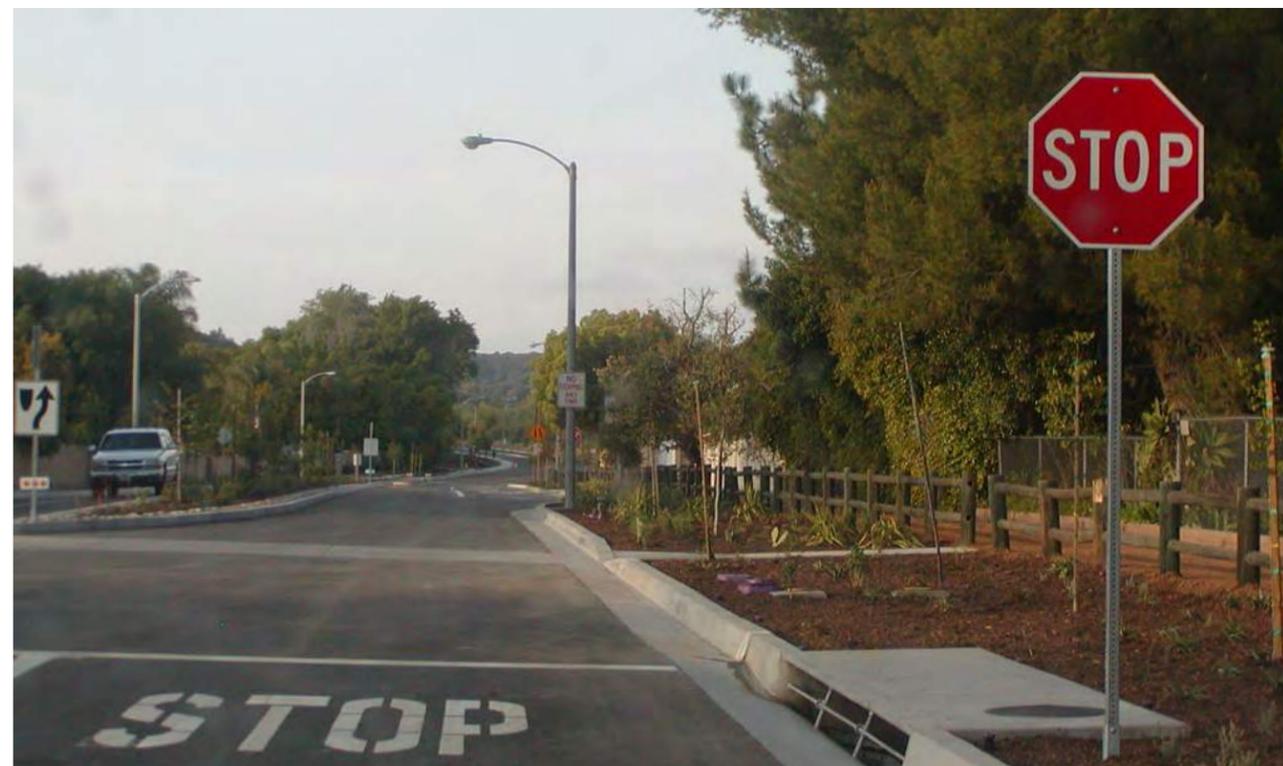
Source: <https://www.fhwa.dot.gov/publications/research/safety/04091/04.cfm#chp42>, FHWA-HRT-04-091, August 2004

Further Considerations

- To achieve optimum efficiency, traffic signals must be monitored and adjusted to serve changing traffic patterns.
- Traffic engineers collect detailed information about traffic patterns, volumes, and speeds. Once this data is analyzed, new timing plans are developed and field adjustments are implemented as required.
- Traffic signals must be installed pursuant to local, state, and federal standards, most notably from the Manual on Uniform Traffic Control Devices (MUTCD).

Construction Costs

New traffic signals typically cost \$400,000 to \$500,000, while modifications and retimings usually cost significantly less.



CAPACITY TOOLS

STOP CONTROL

Stop control refers to an intersection approach with traffic controlled by a stop sign. Two-way stop-controlled intersections have stop signs controlling traffic on the minor approach or approaches, and traffic is free-flow on the major approaches. All-way stop-controlled intersections have stop signs controlling traffic on all approaches.

Typical Applications

- Two-way stop control is applied where one street should have priority over the other. This is indicated by conditions where the main street has a sufficiently large volume, the minor street has restricted sight lines, or there is a history of crashes at the intersection that might be alleviated by the installation of two-way stop control.
- All-way stop control is applied where all entering traffic should stop before proceeding. This is indicated by conditions where a traffic signal is justified and all-way stop control is an interim measure, where there is a history of crashes at the intersection that might be alleviated by the installation of all-way stop control, or where the entering vehicle, pedestrian, and cyclist traffic is sufficient to warrant all-way stop control.

Design Features

- Stop sign facing approaching traffic that shall stop before entry
- Left-side stop signs on sufficiently wide roadways with medians
- Stop bar and pavement markings to increase visibility of the stop control

Further Consideration

- Stop control must be installed pursuant to local, state, and federal standards, most notably from the Manual on Uniform Traffic Control Devices (MUTCD).
- Two-way yield control may be appropriate in place of two-way stop control at low volume intersections with sufficient sight lines.
- Stop signs with embedded rapid flashing lights may be used at intersections with low compliance to raise the visibility of the stop control.

Cost

- Installation of stop control typically costs \$10,000 for signs and pavement markings at a four-legged intersection.

CAPACITY TOOLS

RADAR FEEDBACK SIGNS

Radar feedback signs are traffic calming devices designed to slow speeders down by alerting them of their speed.

**Typical Applications**

- These feedback signs have been shown to be effective at reducing speeding and increasing compliance with posted speed limits.
- Radar feedback signs can be installed permanently and solar-powered or hard-wired, or can be attached to a trailer for portable installations.
- Radar feedback signs are often employed to emphasize school zone speed limits.

Design Features

- Radar detection of speed of approaching cars
- Dynamic feedback sign alerting drivers of their speed
- Flashing or other form of alert for drivers over the speed limit
- Posted speed limit sign near speed feedback sign

Further Consideration

- The location of the sign is critical to maximizing benefit while minimizing distraction.
- Many signs are simply appended to existing streetlight or power poles.
- Connecting the sign to the power grid increases reliability, but hard-wiring a connection is often costlier than powering the sign through a solar panel.
- Radar feedback signs should be programmed with an upper limit, typically five or ten miles per hour over the speed limit, to avoid encouraging speeding for “high scores.”
- Mobile radar feedback signs provide greater flexibility and can help target problem areas, but have a higher initial cost and must be parked on the side of the road, which can be an issue on streets with no shoulder.

Cost

- A self-contained radar feedback sign and solar panel unit typically costs around \$18,000.

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INTELLIGENT TRANSPORTATION SYSTEMS (ITS) TOOLS



INTELLIGENT TRANSPORTATION SYSTEMS (ITS) TOOLS

WHAT IS ITS?

The Federal Highway Administration (FHWA) defines ITS as the electronics, communications, and information processing used singly or in combination to improve the efficiency or safety of a surface transportation system. Many people have little knowledge of “formal” ITS, yet they benefit from its existence every day. ITS technology shows up in the phone application that tells you how long it will take you to get to work. It is the technology that allows you to pay tolls while driving at highway speeds. It is the technology that emergency vehicles use to safely travel through arterial intersections without stopping and transit vehicles to receive extended green time when falling behind schedule.



At a high level, ITS technologies make transportation safer and more efficient. The benefits of ITS are wide reaching and applicable to urban and rural populations, commuters and commercial truck drivers; as well as pedestrians, bicyclists and public transportation patrons.

INTELLIGENT TRANSPORTATION SYSTEM (ITS) TOOLS

TRAFFIC SIGNAL SYNCHRONIZATION

Traffic Signal Synchronization is a traffic engineering technique of matching green light times for a series of intersections to enable the maximum number of vehicles to pass through, thereby reducing stops and delays for motorists. Synchronizing traffic signals ensures a better flow of traffic and minimizes gas consumption and pollutant emissions.

Typical Applications

Traffic signal synchronization is often applied along a series of traffic signals that experience similar traffic patterns. These are often grouped into corridors.

Design Features

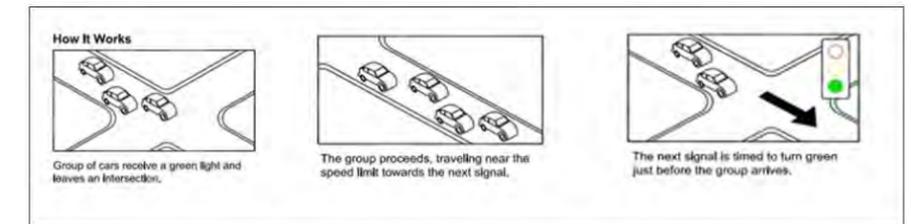
Traffic signals with coordinated timing require a common time source. This can be accomplished through communications to a centrally located server or through GPS clocks.

Further Considerations

- While coordinated timing can improve major street flow, it can cause undue delay to side streets if not implemented properly.
- Bidirectional corridors and grid systems can suffer conflicting coordination plans.
- Signals must be connected to each other and ideally to a city traffic management center to enable communication between signals.

Construction Costs

The cost of signal coordination can vary greatly depending on the length of the corridor, complexity of the system, and readiness of the existing signal hardware for synchronization.



INTELLIGENT TRANSPORTATION SYSTEM (ITS) TOOLS

ADAPTIVE TRAFFIC CONTROL

Adaptive Traffic Control utilizes intersection sensors to evaluate and improve signal timing every couple of minutes, as opposed to traditional time-of-day signal timing that can take three to five years per update cycle.

Typical Applications

Adaptive traffic control is best suited for arterials that experience highly variable or unpredictable traffic demand for which multiple signal timing plans are necessary during a typical time-of-day period. In Menlo Park, adaptive traffic control has been deployed along El Camino Real and Sand Hill Road for years. Plans are underway to expand this technology to other corridors.

Further Considerations

- Adaptive traffic control systems are typically deployed on specific corridors or areas of a City.
- Most adaptive traffic control systems require constant communications with the central server. While the overall network bandwidth is low, the latency requirements are stringent.

Design Features

- Virtually all adaptive traffic control systems require a server located at a central location with communications to each traffic signal.
- Each adaptive traffic control system has its own vehicle detection location and technology requirements.

Construction Costs

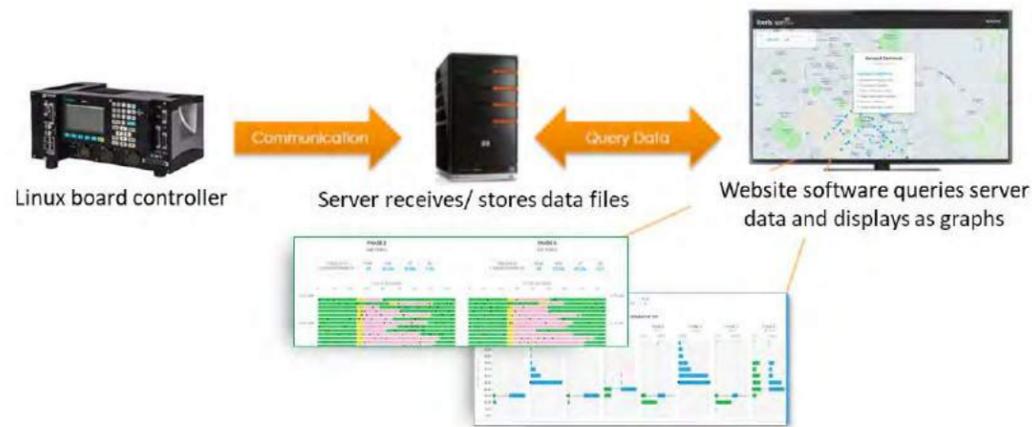
Overall adaptive traffic control costs can vary considerably depending on the specific system selected and vehicle detection and communications infrastructure requirements. On the other hand, traditional Time-of-Day traffic signal timing costs between \$2,500 and \$3,500 per intersection.

INTELLIGENT TRANSPORTATION SYSTEM (ITS) TOOLS

AUTOMATED TRAFFIC SIGNAL PERFORMANCE MEASUREMENT (ATSPM)

ATSPM software analyzes data retrieved from traffic signal devices, visualizes it, and sends alerts about unsafe or inefficient operations. Advancements in traffic controller technology and standardization of controller output messages have paved the way for the development of ATSPM tools.

How Does SPM Work?



HOW DOES SPM WORK?

Traffic signal controllers don't necessarily have a "big picture" view of an intersection. They're limited to knowing and reacting to the last thing that happened. Perhaps a car ran over a sensor, an emergency vehicle preempted the normal program, or a pedestrian push button was activated. Controllers are great at reacting, but they aren't good at planning.

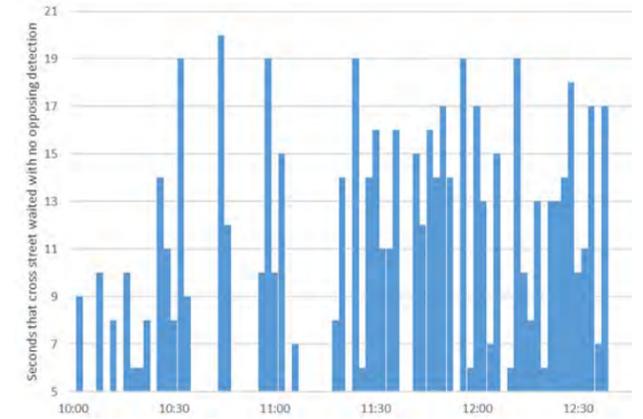
Collecting and storing traffic signal data allows ATSPM to show trends and visualize information in ways that help traffic engineers develop

efficient signal timing plans. For agencies like the City of Menlo Park that have a central traffic control system, some basic reports are available. Simply put, ATSPM combines detector data and signal controller data to tell a more complete picture. For example, knowing that a vehicle arrived on green or entered the intersection on red is much more valuable than just knowing that a vehicle was at an intersection.

Typical Applications

ATSPM systems can provide the following information:

- Faulty pedestrian push-buttons.
- Available green time to shift between signal phases.
- Impacts of emergency vehicle preemption on traffic signal operations.
- Number of vehicles that arrive on green, yellow and red.
- Frequency of red-light runners.
- Amount of time vehicles on a cross street wait with no one traveling on the main street.



Design Features

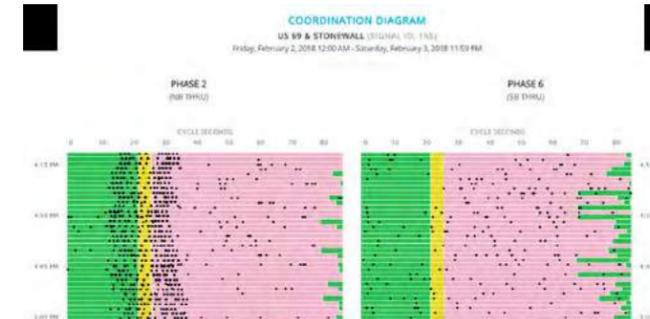
- Traffic signal controllers capable of providing high resolution signal data.
- Ethernet communications between the traffic controller and the ATSPM server.
- Vehicle detection in each lane of an approach located at the stop bar and past the end of the expected queue.

Further Considerations

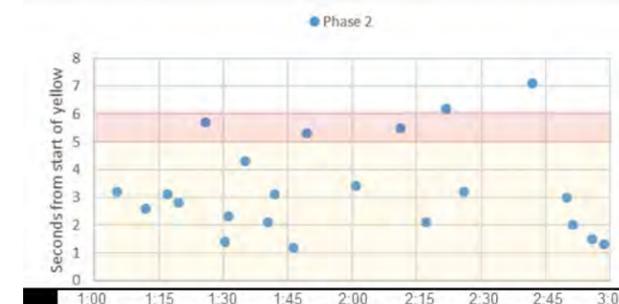
- There are a number of ATSPM solutions available. Some are software modules of a central traffic control system while others are a separate solution.
- Cloud-based ATSPM solutions are becoming more prevalent.

Construction Costs

ATSPM prices can vary widely. Most are priced on a per intersection basis of several hundred dollars per intersection per year plus one-time set up fees.



CLEARANCE INTERVAL ACTIVITY



INTELLIGENT TRANSPORTATION SYSTEM (ITS) TOOLS

TRANSIT SIGNAL PRIORITY

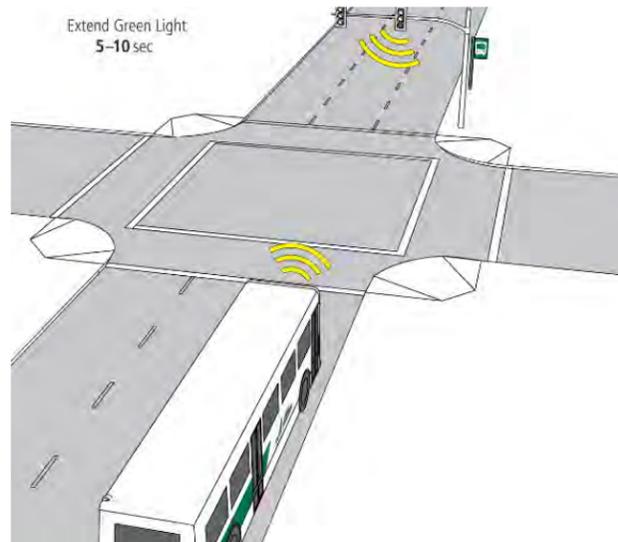
Transit Signal Priority (TSP) is simply the idea of giving special treatment to transit vehicles at signalized intersections. Since transit vehicles can hold many people, giving priority to transit can potentially increase the person throughput of an intersection.

PRIORITY TYPES

A passive priority strategy seeks to favor roads with significant transit use in the area-wide traffic signal timing scheme. Timing coordinated signals at the average bus speed instead of the average vehicle speed can also favor transit vehicles.

By contrast, an active priority strategy involves detecting the presence of a transit vehicle and, depending on the system logic and the traffic situation then existing, giving the transit vehicle special treatment. The system can give an early green signal or hold a green signal that is already displaying. An active system must be able to both detect the presence of a bus and predict its arrival time at the intersection. Near-side stops can complicate the prediction of intersection arrival times. Real-time control strategies can consider not only the presence of a bus but the bus adherence to schedule and the volume of other traffic. One common strategy is to give priority only to late buses (compared to the scheduled time) but not to early buses. This strategy optimizes schedule adherence (and therefore waiting time) rather than running time.

There are many different options for signal priority logic. Real-time, adaptive systems can incorporate information on traffic flow, flow coordination, bus schedule adherence, and prior bus arrival times.



QUEUE JUMPS

A queue jump lane is a short stretch of bus lane combined with traffic signal priority. The idea is to enable buses to by-pass waiting queues of traffic and to cut out in front by getting an early green signal. A special bus-only signal may be required. The queue jump lane can be a right-turn only lane, permitting straight-through movements for buses only. A queue jump lane can also be installed between right-turn and straight-through lanes. A similar arrangement can be used to permit a bus to cross traffic lanes to make a left turn immediately after serving a curb-side stop.

Typical Applications

- TSP and queue jumps are applied typically along major transit corridors, especially those with reliability issues due to congestion.
- Queue jumps can also enable buses to skip past known congestion points, such as ramp meters.

Design Features

- Roadway geometry and surrounding land development directly impacts the number of traffic signals and transit stops in the area which affects the overall utility of TSP in an area.
- Selecting traffic signal hardware and software that are support TSP operations.

Further Considerations

- TSP is best suited for agencies with a philosophy of minimizing total person delay instead of total vehicle delay. Total person delay can be reduced by improving transit schedule reliability and performance.
- Pedestrians have a great influence on TSP operations. In most instances the time required for a pedestrian to cross the street limits the time available for TSP.
- Queue jumps need to be as long or longer than the queue they are bypassing. Otherwise, a bus might become stuck in the queue until it dissipates, negating the benefit of the queue jump lane.

Construction Costs

TSP prices can vary widely based on infrastructure readiness for TSP hardware and operations, but may cost around \$8,000 to \$35,000. Queue jumps are significantly more expensive at \$500,000 to \$2,000,000, depending on right-of-way needs, roadway widening, restriping, and other physical modifications.

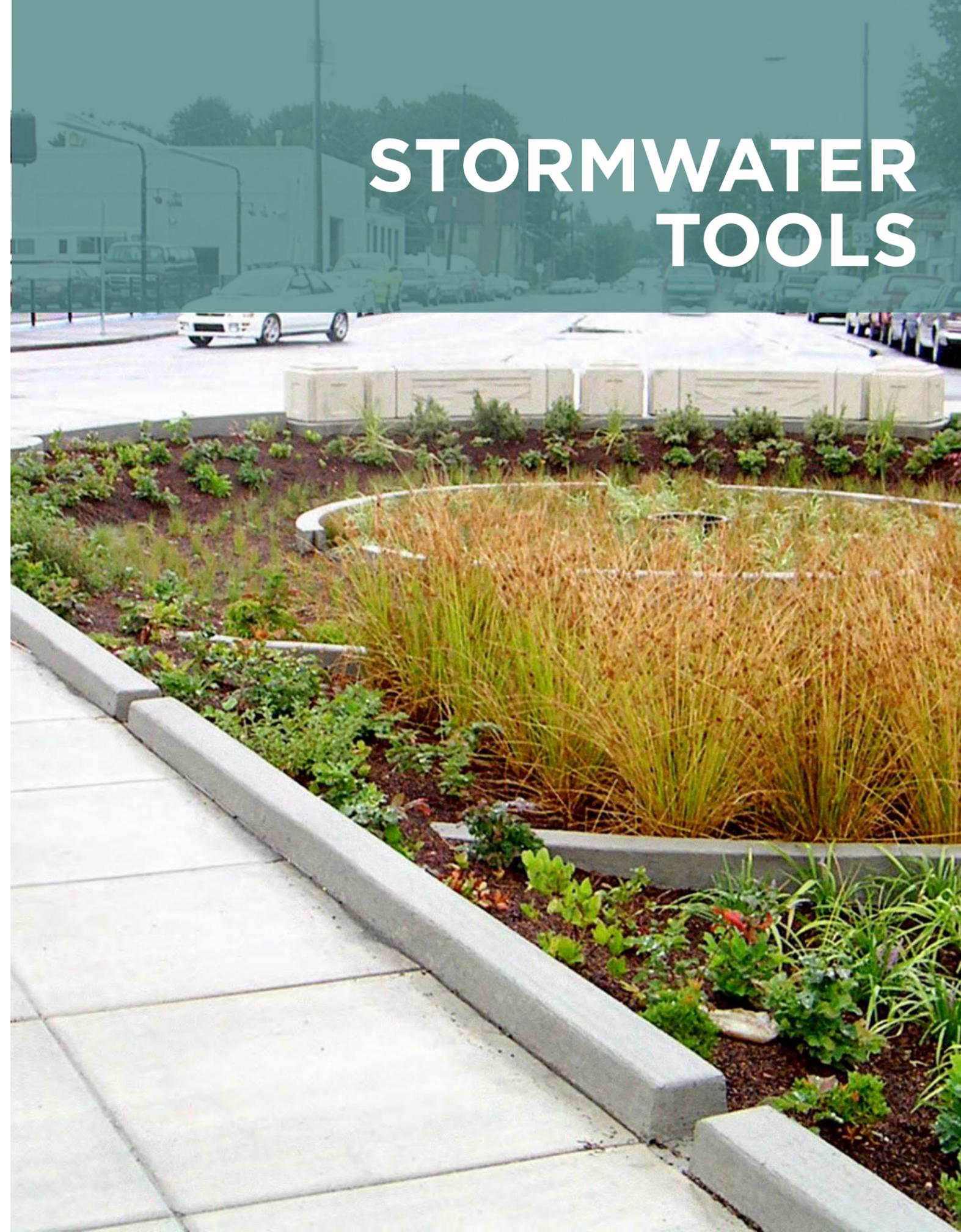
INTELLIGENT TRANSPORTATION SYSTEM (ITS) TOOLS

COMMUNICATIONS INFRASTRUCTURE

Robust and reliable communications between each ITS field device and a central system (cloud-based or local data center based) or between a vehicle and an ITS field device is to the successful deployment of every ITS strategy. ITS communications have evolved over the last 25 years from serial data communications and analog video transmission to Ethernet based communications protocols that can support up to Gigabit speeds (1,000 Mbps) over a wide variety of physical media including twisted copper pair cable, fiber optic cable and wireless. Public agencies such as the City of Menlo Park have the ability to either lease communications bandwidth from private sector providers or build and operate their own infrastructure.

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STORMWATER TOOLS



STORMWATER TOOLS

Stormwater control is the practice of lessening the impact human construction and development has on the natural environment by reducing, redirecting, storing, and filtering stormwater runoff. This includes methods to prevent erosion and particle build up, allow water to seep into the ground, and treat the water in natural or manmade ways.

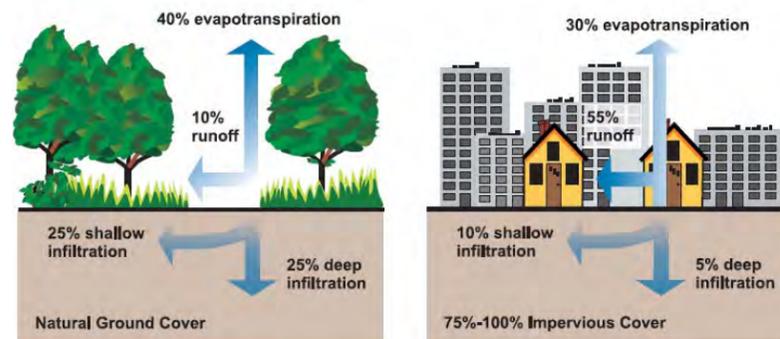
Stormwater runoff is any rainwater that flows over the surface. In a natural setting, most stormwater seeps into the ground, in a process called infiltration. This process removes impurities from the water and refills the natural water table.

Stormwater runoff is a leading source of water pollutants. Although stormwater runoff is a natural process, human developments can negatively change natural draining and introduce pollutants to the natural environment.

Human development creates “impervious surfaces”, areas like concrete or asphalt which prevent water from infiltrating into the soil. This increases the amount of runoff which carries litter, chemicals, oil, fertilizers, and other pollutants straight into storm drains that flow directly into streams, lakes, and oceans. This increased runoff travels at a faster speed and in greater amounts which also causes creek channels to erode.

Considering this, road constructions projects are sometimes required to use stormwater treatment methods as mandated by certain provisions of the Municipal Regional Stormwater NPDES Permit (MRP). Specifically, the City is required by the MRP to establish protocols to evaluate roadway projects relative to factors such as funding, feasibility, and pollutant reductions. While a Citywide Green Stormwater Master Plan is underway, this section provides information about the benefits of Green Infrastructure and examples of treatments that can be integrated into roadway projects.

Construction costs of Green Infrastructure treatments can vary widely based on tributary area, utility conflicts, availability of nearby storm drain infrastructure, and other site-specific constraints. The construction costs identified for each of the following treatments are intended to be used for comparison purposes only. These costs are for similarly sized typical installations with little-to-no complications.



STORMWATER TOOLS

BIORETENTION AREA

Bioretention areas are concave landscaped areas that filter water through soil and plant treatment processes.



Typical Applications

- Any development
- Landscape design element
- Drainage area up to 2 acres

Design Features:

- Normally consists of a ponding area, mulch, plants and specialized treatment soil (also known as bio-soils mix), and a rock layer with underdrain connected to the municipal storm drain system.
- Can maximize infiltration or prevent infiltration based on project conditions such as utility placement conflicts or a high groundwater table.
- Creates a landscaped open area

Further Considerations

- Bioretention areas can clog and need irrigation as they are landscape features.
- They need low sideslopes and a generally flat area.
- Soil needs a high rate of permeability to avoid flooding.
- Walls add cost, but allow greater flexibility by reducing the minimum width from 21 feet to three feet.

Construction Cost

Bioretention areas typically cost \$15,000 to \$20,000 with walls, and \$12,000 to \$15,000 without walls.

STORMWATER TOOLS

FLOW-THROUGH PLANTERS

Similar to bioretention areas, flow-through planters treat water by receiving runoff, filtering pollutants as the runoff passes through the soil layer, and collecting the water into an underdrain. Generally, they are hard-edged stormwater management facilities with an impermeable base.



Typical Applications

- Flow-through planters can be a great way for dense urban areas to increase permeability and reduce runoff.
- They can be next to buildings and roadways to capture roadway pollutants and increase urban vegetation.

Design Features

- Flow-through planters are versatile and low maintenance.
- Permeable surface allows for the percolation of runoff and capture of pollutants. This reduces peak discharge flows as well as roadway pollutants entering local waterways.

Further Considerations

- The plant species need to be carefully chosen to maximize impact and minimize maintenance.
- Planters can clog if not maintained or oversaturated.

Construction Cost

A flow-through planter treatment typically costs \$15,000 to \$20,000.

STORMWATER TOOLS

SILVA CELL

Silva Cells are patented underground bioretention systems that provides space for stormwater detention and additional uncompacted soil volume for tree root growth. They work in tandem with trees to intercept and absorb stormwater



Typical Applications

Silva cells can be applied to sidewalks, roadways, and plazas to increase stormwater retention.

Design Features

- Underground chamber to collect and retain stormwater
- Street trees to absorb stormwater
- Pervious surface or other form of stormwater inlet

Further Considerations:

- Silva cells need to be judiciously applied, as they can be expensive.
- Silva cells work best in tandem with trees.
- A width of at least four feet must be provided to ensure effectiveness.

Construction Cost

A silva cell application typically costs around \$5,000 to \$10,000.

STORMWATER TOOLS

VEGETATED SWALE

Vegetated swales are shallow channels lined with vegetation on the sides and bottom.



Typical Applications

- Vegetated swales are usually found on roadway medians and shoulders in places of low flow
- Useful for redirecting runoff and promoting infiltration of stormwater and capture of roadway pollutants.

Design Features

- Shallow channel along roadsides and medians
- Typically filled with low- or no-maintenance vegetation to aid in runoff capture

Further Considerations

- Vegetated swales are not effective in areas of high flows
- As they are ultimately a stormwater channel, either flat or steep grades can reduce effectiveness and present other problems.
- Typically, a minimum of 15 feet is needed.

Construction Cost

A vegetated swale treatment typically costs \$8,000 to \$10,000.

STORMWATER TOOLS

INFILTRATION TRENCH

Infiltration trenches are long trenches filled with rocks and lined with filter fabric.



Typical Applications

- Areas with well-drained native soils
- Places with limited space (too narrow for a vegetated swale or other wide treatment)
- Can be used as a landscape buffer

Design Features

- Pervious rocks increases groundwater recharge
- Filter fabric removes suspended solids
- Runoff infiltration reduces peak stormwater discharge into nearby bodies of water.

Further Considerations

- Frequent maintenance is needed as trenches can clog
- It can often be hard to remove excessive coarse sediments.
- Drainage areas larger than five acres or with steep slopes should be avoided
- Retained water should drain within five days to avoid bacterial growth
- An observation area should be provided to monitor conditions.

Construction Cost

An infiltration trench typically costs \$3,000 to \$6,000.

STORMWATER TOOLS

SUBSURFACE INFILTRATION SYSTEM

Subsurface infiltration systems (or “infiltration galleries”) are underground vaults or pipes that infiltrate and store stormwater.



Typical Applications

- Storage can be large diameter perforated pipes, vaults, or chambers with open bottoms
- Systems allow infiltration while preserving the land surface for parking lots, parks etc.
- Can be used in large common areas or parking lots

Design Features

- These systems are flexible as they can match almost any shape and size needed
- As they can be placed under features, there is no visual or other negative surface impact

Further Considerations

- Water to be infiltrated needs pretreatment to remove sediments and pollutants, which makes them ill suited for highly contaminated areas or industrial sites.
- Infiltration systems do not work well with steep areas.
- Maintenance and monitoring are needed to avoid standing water.

Construction Cost

A subsurface infiltration system can cost \$10,000 to \$20,000.

STORMWATER TOOLS

PERVIOUS/PERMEABLE PAVEMENT

Pervious pavement are surface layers that allow water to pass through it. The water is stored and allowed to infiltrate into the ground.



Typical Applications

- Types: porous asphalt, pervious concrete, permeable interlocking concrete pavers, permeable concrete pavers. Permeable pavers allow infiltration across the entire surface while permeable interlocking concrete pavers use the joint space between pavers to infiltrate.
- Types: porous asphalt, pervious concrete, permeable interlocking concrete pavers, permeable concrete pavers. Permeable pavers allow infiltration across the entire surface while permeable interlocking concrete pavers use the joint space between pavers to infiltrate.
- Locations include roadways, parking lots, sidewalks, plazas, and other spaces that are too limited for biotreatment.

Design Features

- They have a relatively high flow capacity, which reduces runoff volume substantially.
- Filtration action can remove fine particles and reduce the need for treatment.

Further Considerations

- Can be expensive to install and maintain.
- Maintenance required to avoid clogs and potholing.
- High traffic areas should be avoided as permeable pavements tend to be weaker than traditional pavements.

Construction Cost

Permeable pavements typically cost around \$5,000 to \$8,000.

STORMWATER TOOLS

TREE WELL FILTER

Tree well filters are pits filled with biotreatment mix, planted with a tree (or other), and underlain with drainage. They can be designed as open or closed bottom systems to promote or prevent infiltration.



Typical Applications

- As tree well filters are small, they are well suited to areas with limited space
- They can be placed next to roadways or sidewalks

Design Features

- Small size allows for great versatility
- Combinable with vegetation to increase infiltration and bioretention

Considerations

- Can be expensive to install and requires maintenance to prevent clogs.
- While versatile in location within a project, tree well filters are limited by types of projects.
- Tree well filters need at least four feet of curb space, along with enough depth for effective vegetation.

Construction Cost

A typical cost for a tree well filter is \$10,000.

STORMWATER TOOLS

MEDIA FILTER

Media filters are flow through treatment systems located in manholes or catch basins that screen and absorb contaminants.

Typical Applications:

Media filters can be used in areas of limited space, such as urban areas.

Design Features

- Media filters are installed underground as a pre-treatment before a surface project is constructed.
- They are versatile and flexible in use.
- As they are underground, they present minimal impact to surface features.

Further Consideration

- Media filters are typically allowed only for special projects
- As they are buried underground, there is little chance for trash removal
- They are best installed with new projects
- Media filters can be expensive to construct and maintain

Construction Cost

A new media filter typically costs \$10,000.





APPENDIX II. COMPLETE STREETS EXAMPLES



Boulevard

Bicycle

1. Buffered or protected bike lanes with colored conflict areas and intersection crossing markings (if no appropriate parallel bike corridors exist).

Pedestrian

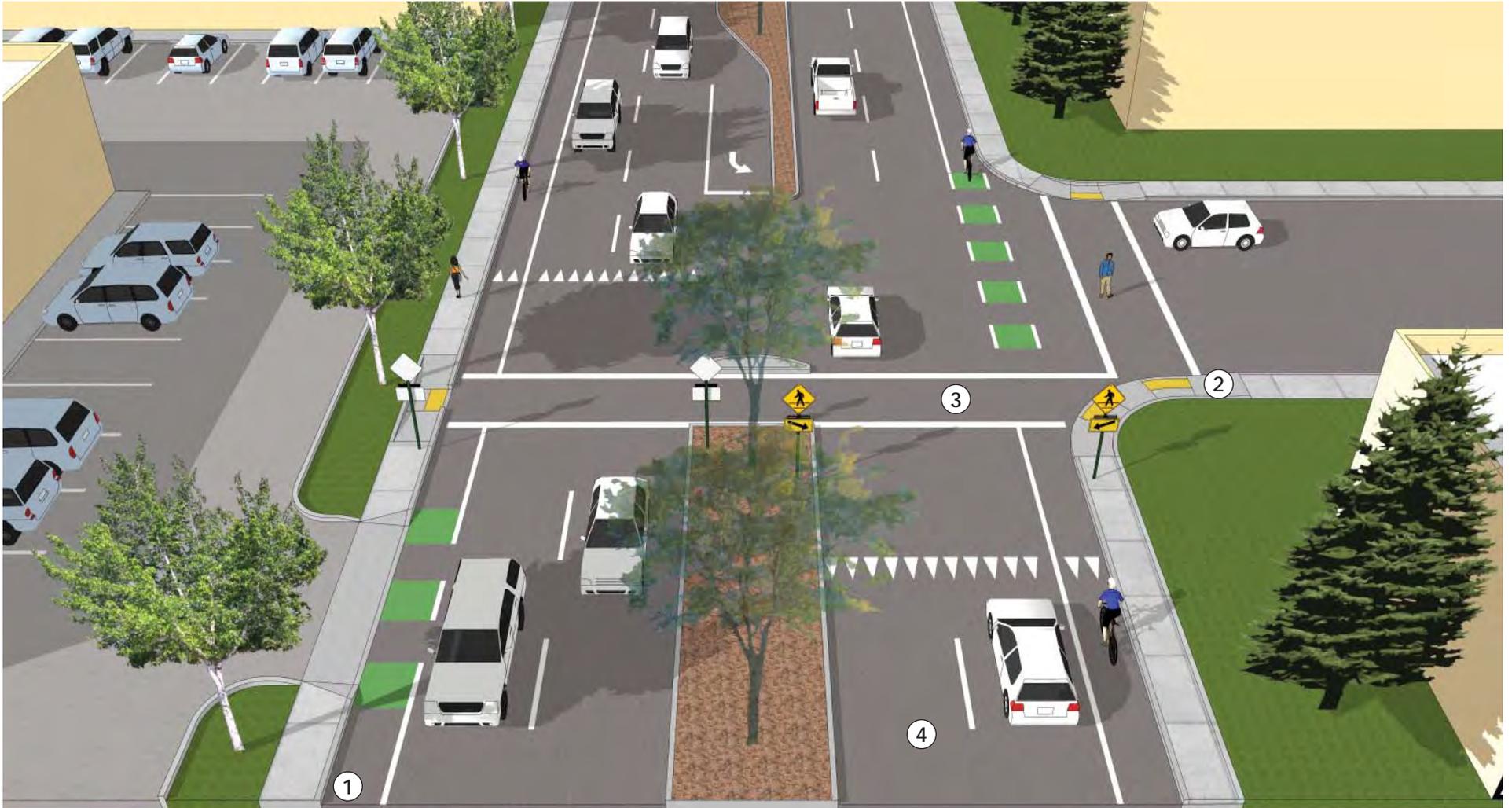
2. Street trees
3. Pedestrian-oriented street lights
4. New develop. set back to allow for wider sidewalk
5. High-visibility crosswalks with median and enhanced crossing treatments
6. Minimize driveway curb cuts, reduce apron for level sidewalk
7. Continuous sidewalks with ADA directional ramps on both sides of street

Transit

8. Improved bus stop with shelter, bench, map, lighting, trash receptacle
9. Bus stop located at far side of intersection to allow pedestrians to cross behind the bus. In-line bus stops or bus pullouts where appropriate as to not conflict with bicycle infrastructure

Vehicle

10. Multiple 11-foot travel lanes in each direction to accommodate emergency vehicles, trucks and buses.
11. Parking as space allows, but not to supersede medians or bike lanes on part of bike network (not pictured)



Thoroughfare

1 Bicycle

1. Conventional bike lanes with colored conflict areas and intersection crossing markings

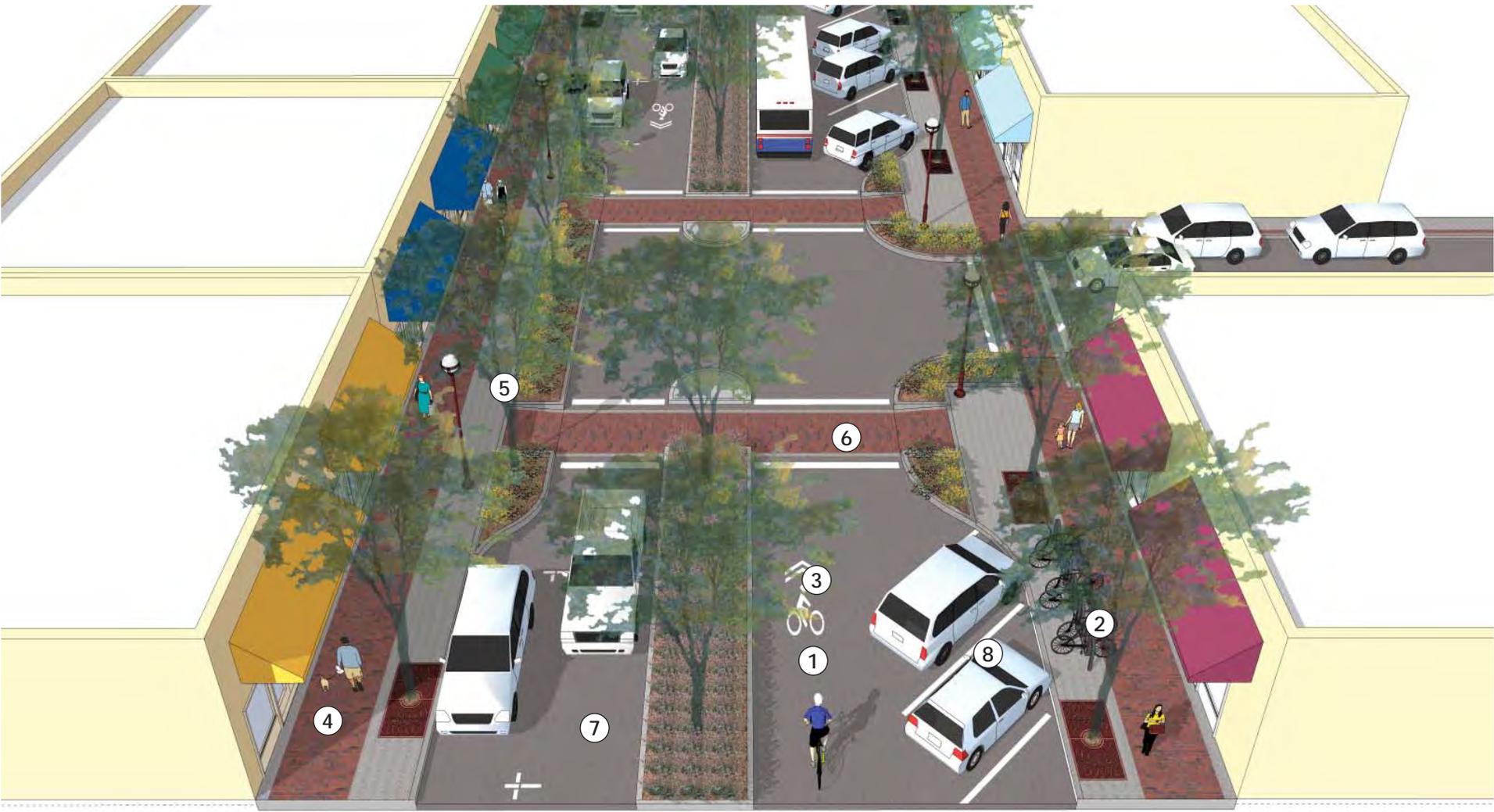
2 Pedestrian

2. Continuous sidewalks with ADA directional ramps on both sides of street
3. Crosswalks with median and enhanced crossing treatments

3 Transit

4 Vehicle

4. Multiple 11-foot travel lanes in each direction to accommodate emergency vehicles and trucks with dedicated left-turn lane.



Main Street

🚲 Bicycle

- 1. Shared lane markings
- 2. Bike Parking at regular intervals
- 3. Bicycle priority may be lower where appropriate parallel bicycle corridors exist

🚶 Pedestrian

- 4. Wide sidewalks with distinctive paving
- 5. Street trees and pedestrian-oriented street lights
- 6. Crosswalks with bulb-outs, refuges, and distinctive paving

🚌 Transit

- 7. Travel lane width to accommodate transit vehicles

🚗 Vehicle

- 8. On-street parking; time-limited to manage supply



Avenue - Mixed Use

● Bicycle

1. Buffered bike lane with color conflict area and intersection crossing markings (conventional bike lane if buffered bike lane not feasible)

● Pedestrian

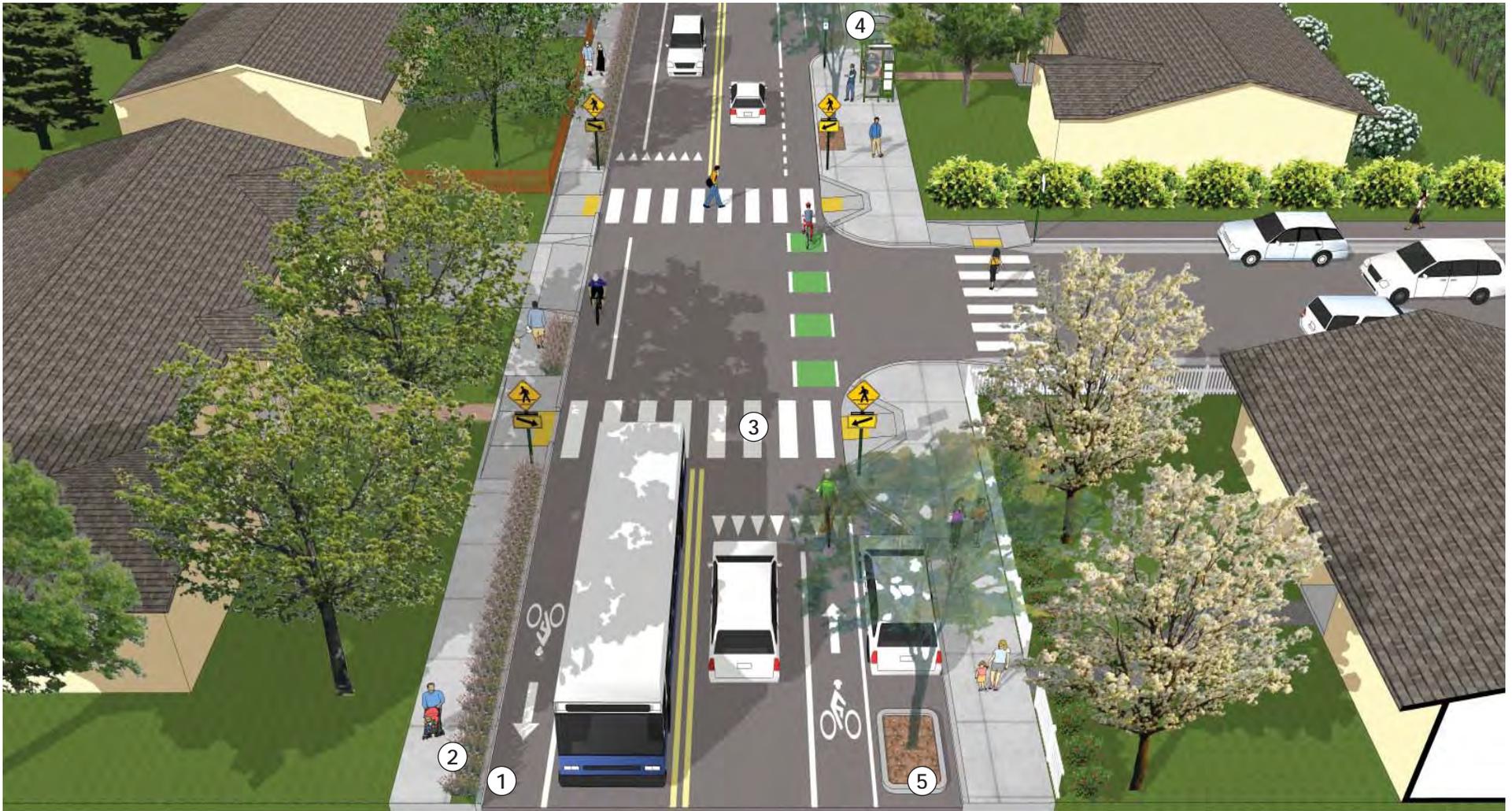
2. Planting strip with street trees
3. New development set back from right-of-way to allow for wider sidewalk
4. High-visibility crosswalks with medians and enhanced crossing treatments

● Transit

5. Bus stop with shelter per Sam-Trans policies and requirements.

● Vehicle

6. Two-way left-turn lane or left-turn pockets with raised median where appropriate
7. Provide parking if space allows (not pictured)



Avenue - Neighborhood

● Bicycle

1. Buffered bike lane with color conflict area and intersection crossing markings (conventional bike lane if buffered bike lane not feasible)

● Pedestrian

2. Planting strip (with street trees if space allows)
3. High-visibility crosswalks with bulb-outs and enhanced crossing treatments

● Transit

4. Bus bulb-out with shelter per SamTrans policies and requirements.

● Vehicle

5. Parallel parking on one side with street trees in parking strip (remove parking if space doesn't allow)
6. Two-way left-turn lane or left-turn pockets if needed (not pictured)



Mixed-Use Collector

● Bicycle

1. Conventional bike lane with colored conflict area and intersection crossing markings (buffered bike lane if space allows)

● Pedestrian

2. Planting strip with street trees

● Transit

1. Transit lane with white arrow and bicycle symbol

● Vehicle

3. Parallel parking on one side (remove parking if space doesn't allow)



Neighborhood Collector

● Bicycle

1. Conventional bike lane with colored conflict area and intersection crossing markings (buffered bike lane if space allows)

● Pedestrian

2. Sidewalks with planting strip and street trees (pathways if conventional sidewalks are not feasible)
3. High-visibility crosswalks with bulb-outs and enhanced crossing treatments if needed (not pictured)

● Transit

● Vehicle

4. Optional traffic calming elements where necessary and supported by residents to achieve traffic calming goals
5. Parking on one side of street (if space allows)



Neighborhood Connector

● Bicycle

1. Sharrow markings

● Pedestrian

2. Sidewalks with planting strip and street trees (pathways if conventional sidewalks are not feasible)
3. Sidewalks with street trees in tree wells

○ Transit

● Vehicle

4. Optional traffic calming elements where necessary and supported by residents to achieve traffic calming goals
5. Parking on one side of street (if space allows)



Bicycle Boulevard

● Bicycle

1. Bike boulevard street markings and wayfinding signage
2. Consider volume management measures such as diverters or partial/full closures at intersections (not pictured)

● Pedestrian

3. "No parking" pavement markings and striping direct parked cars to leave minimum 5' unencumbered walkway space

○ Transit

● Vehicle

4. Speed management measures such as speed bumps and short center island narrowings
5. Parking allowed on both sides of street



Local Access

● Bicycle

1. Low-traffic, low-speed street creates low-stress environment for bicyclists

● Pedestrian

2. "No parking" pavement markings and striping direct parked cars to leave minimum 5' unencumbered sidewalk space

○ Transit

● Vehicle

3. Optional traffic calming elements where necessary and supported by residents to achieve traffic calming goals
4. Parking allowed on both sides of street



Multi-Use Pathway/Paseo

● Bicycle

● Pedestrian

○ Transit

○ Vehicle

1. Provides access to bicyclists, walkers, wheelchair users, push-scooters users, pedestrians, and electric motorized forms of transportation as permitted such as Class 1 E-bikes
2. Bikes yield to pedestrians
3. High-quality street crossings include high-visibility crosswalks and warranted stop signs for vehicles at minor crossings; major crossings could include mid-block crossing improvements such as curb extensions, medians and other crossing enhancements according to the speed and volume of the roadway

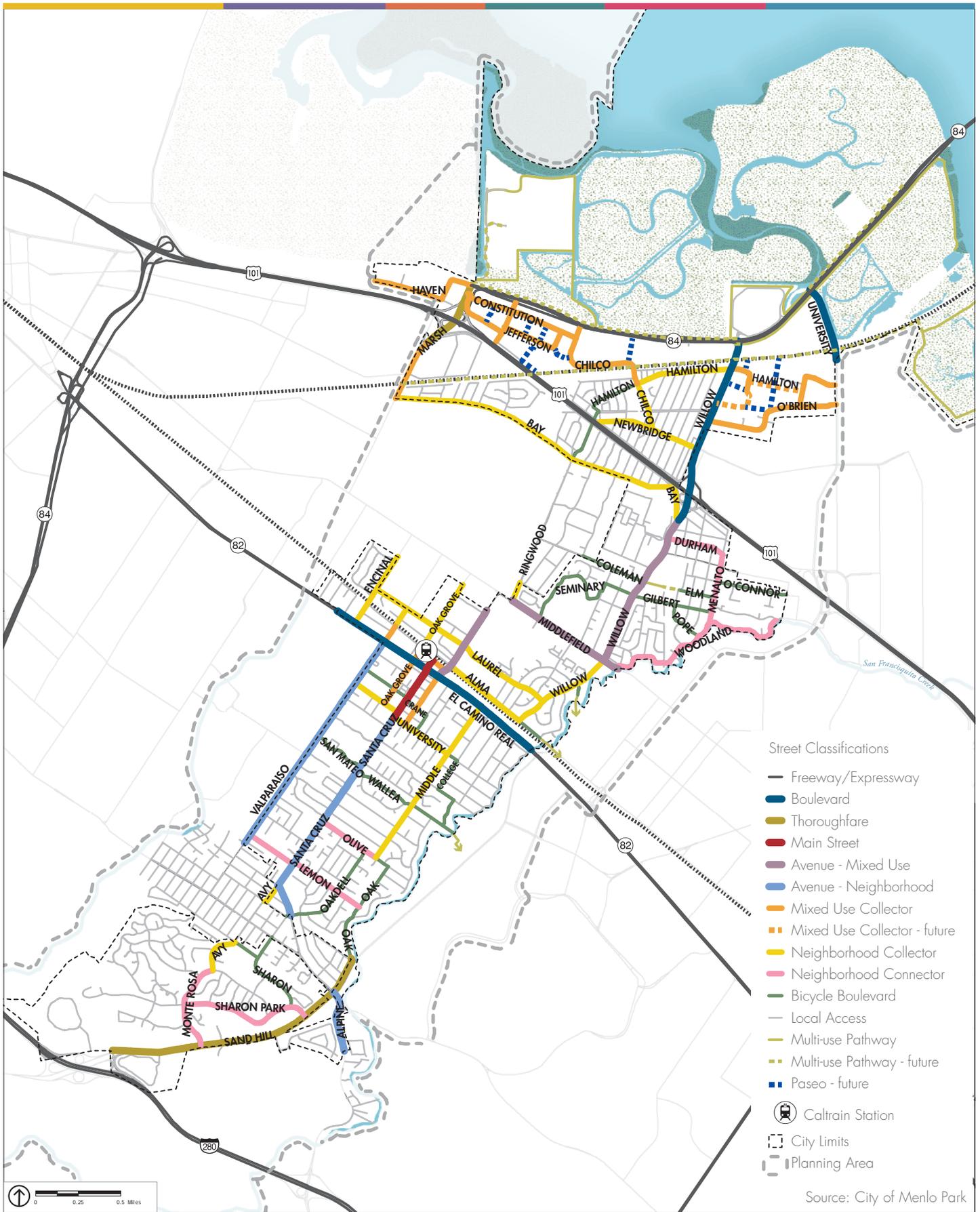
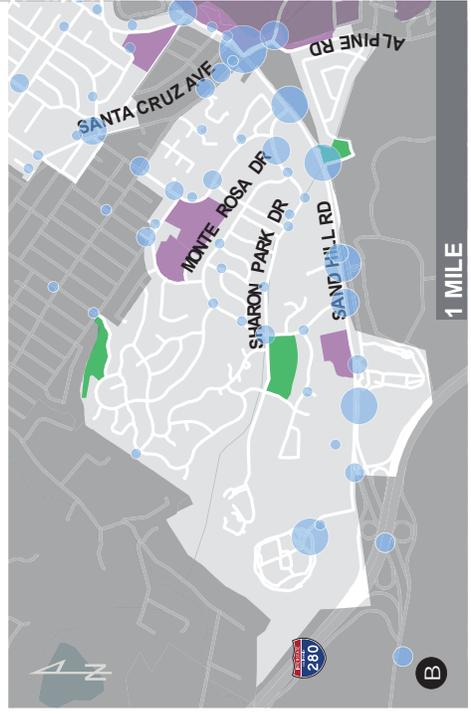
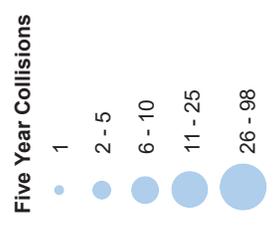
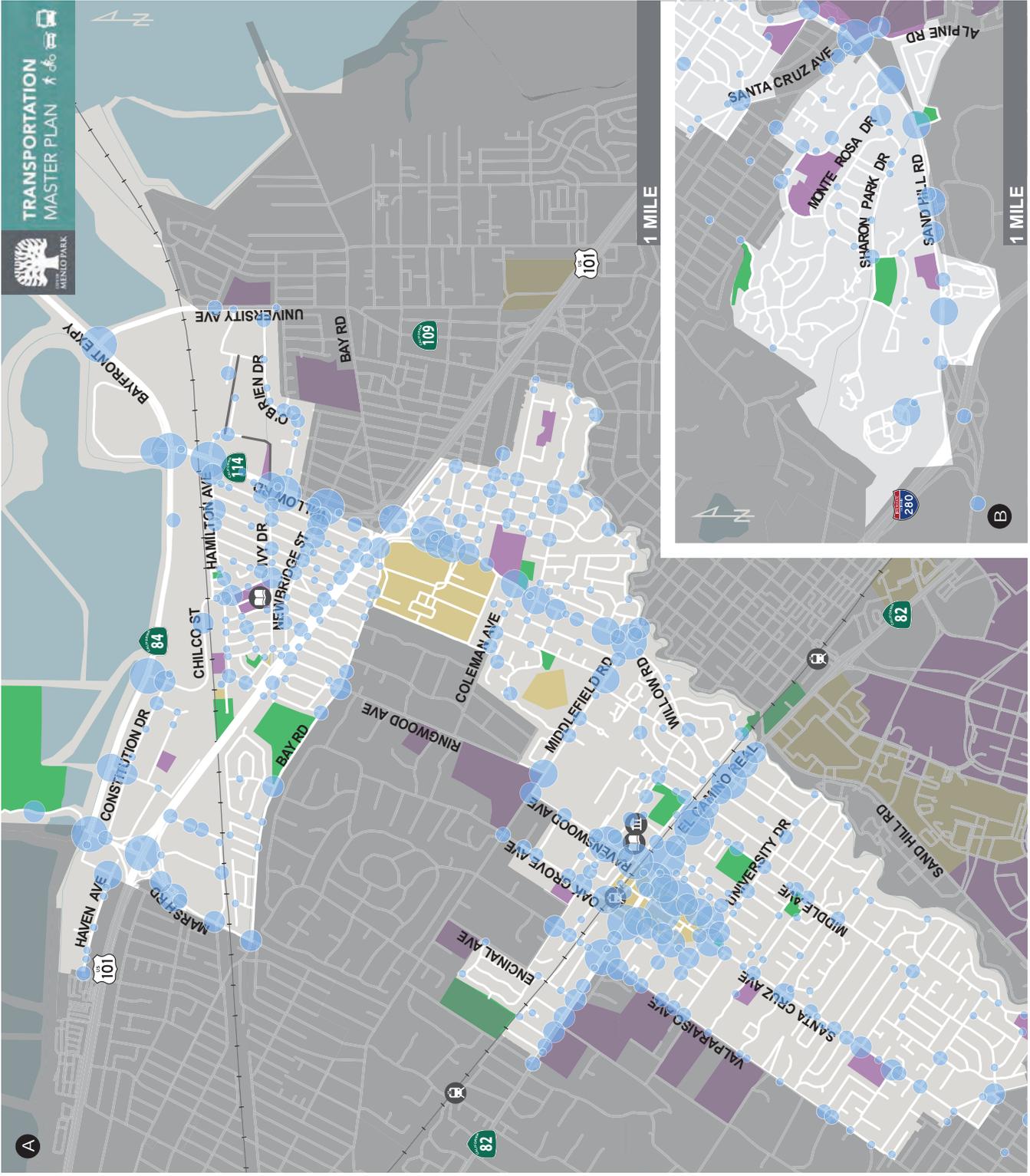
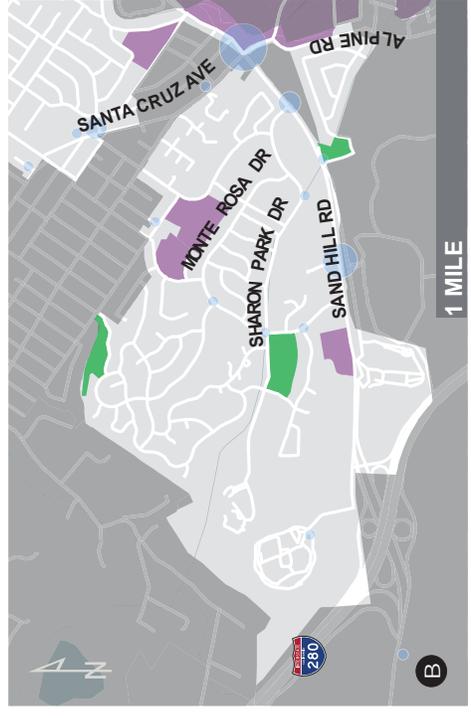
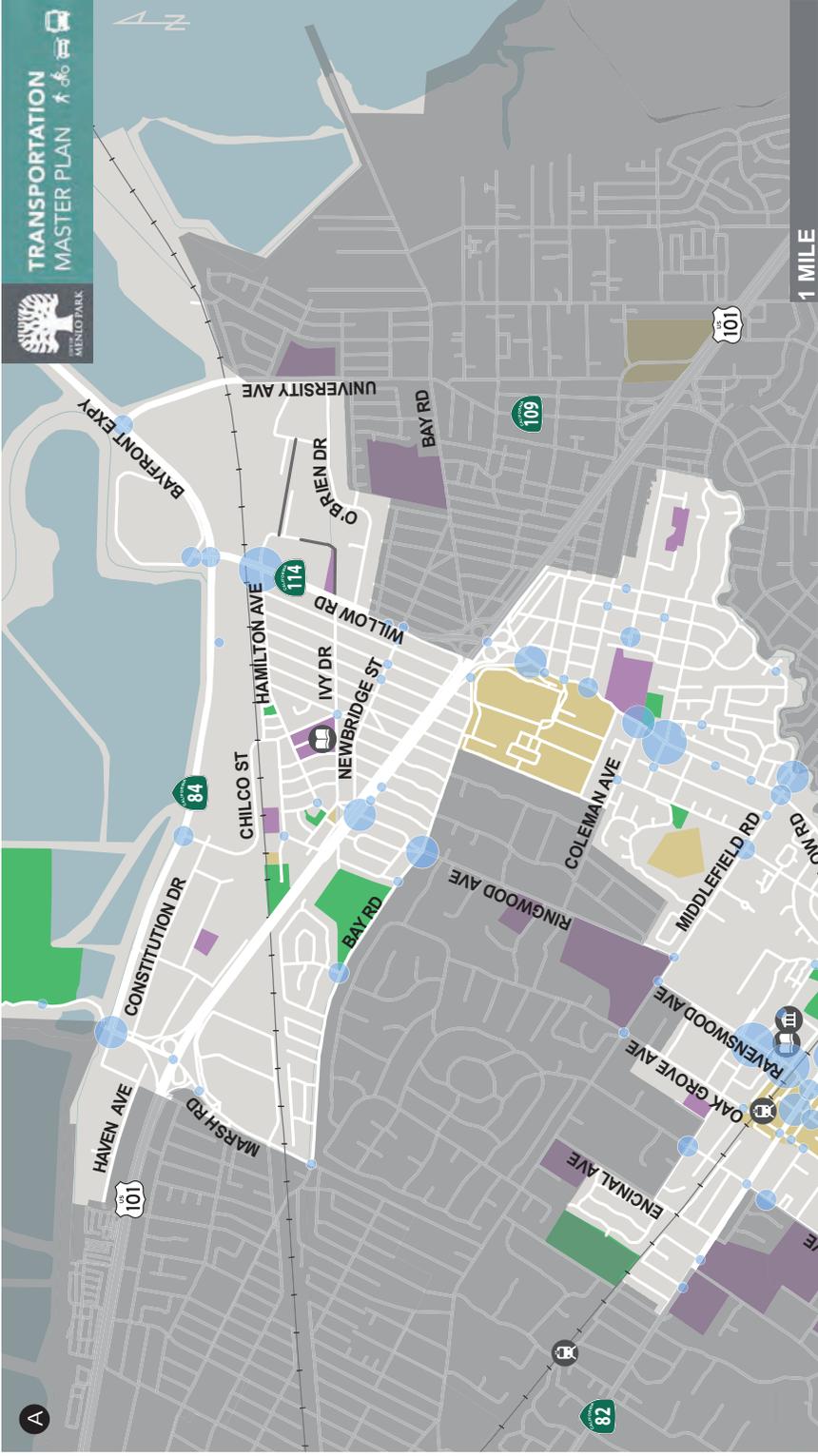


FIGURE 2: STREET CLASSIFICATIONS

APPENDIX III. MAPS OF TOTAL COLLISIONS AND COLLISIONS INVOLVING BICYCLISTS



Citywide Collisions



Five Year Bicycle Collisions

- 1
- 2
- 3 - 4
- 5 - 6

- City Hall
- Library
- Caltrain Station
- Future Street Connection
- School/University
- Menlo Park Destination
- Park
- City of Menlo Park

Bicycle Collisions



1 MILE

1 MILE

A

B

B

APPENDIX IV. COMMUNITY ENGAGEMENT



Memorandum

Date: December 4, 2017
Project: MPA022
To: Ms. Kristiann Choy
Senior Transportation Engineer
City of Menlo Park
From: Mark Spencer
[mspencer@w-trans.com](mailto:m Spencer@w-trans.com)
Subject: Community Engagement: Defining the Vision and Goals Memorandum

W-Trans has been tasked to complete two phases of public engagement as part of the Transportation Master Plan (TMP) project. Phase I of the public engagement process intended to define the vision and goals of the community, through a series of outreach events and community engagement tools, in order to solicit feedback from City residents, business owners, and other stakeholders in the following areas:

- opportunities and challenges with the existing transportation system;
- their vision for Menlo Park's near- and long-term transportation system, and;
- specific policies, goals, or actions they would like to see advanced through the TMP.

Community engagement was conducted through the following activities, and are described in further detail within this memorandum:

- Online Engagement
- Block Party
- Music in the Park
- Walking Workshops

Online Engagement

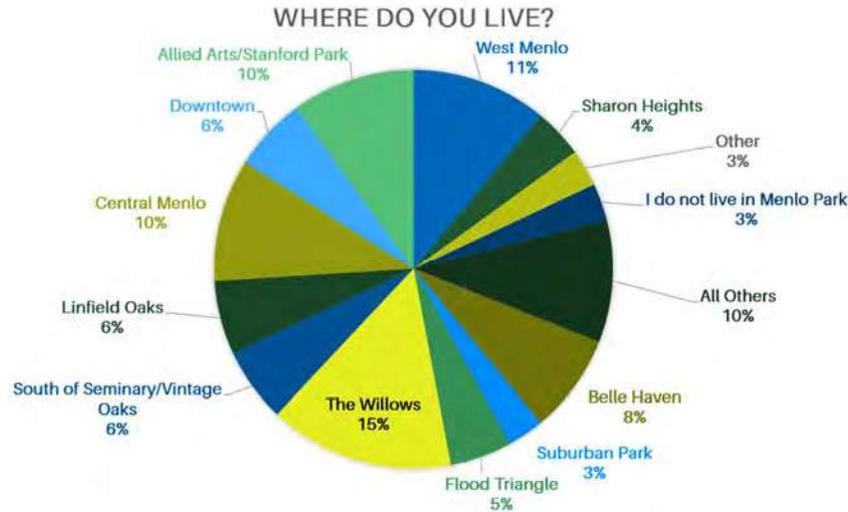
W-Trans worked with subconsultant Envirolssues to develop an online "open house", which solicited feedback on ideas, priorities, and vision relating to transportation within Menlo Park. The online open house was hosted from August 8 to September 30, 2017 and allowed anyone to respond. These stakeholders were asked to reflect and comment on the current state of transportation conditions in Menlo Park. The following summarizes the results from the online open house, and the full summary of the online engagement effort is attached.

Site analytics indicate that there were 1,177 sessions, with 812 unique users that visited the website.

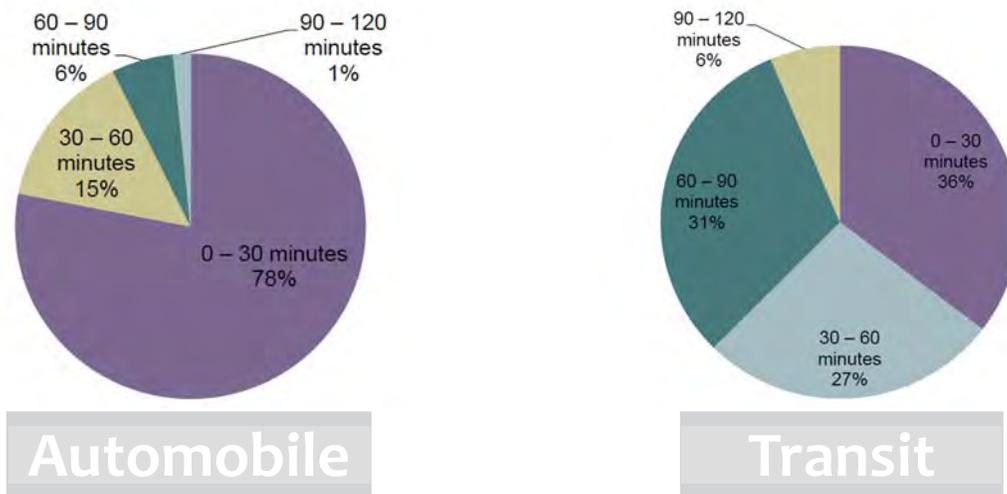
Responding stakeholders indicated the following (more than one representation could be selected):

- 86.8 percent residents
- 22.7 percent employed in the City
- 6.6 percent business owners
- 20.5 percent go to school or have children that go to school in Menlo Park

Respondents indicated where they live, whether in Menlo Park or outside of the City. Based on responses, a seemingly cross-section of residents participated in the online survey. Other and All Others live in Menlo Park but did not designate a neighborhood.



As shown in the figure below, door-to-door commute travel times were reported for those travelling via automobile and transit. The travel times are indicative that those who are commuting via automobile that live in the City either also work in the City, or work in a nearby City on the Peninsula. Transit users are split fairly evenly, and are likely headed toward, or from, other parts of the Peninsula, San Jose, or San Francisco.



Respondents ranked the importance of transportation improvements, and the list below was determined based on the weighted ranking of choices by respondents. This is indicative that a focus on connected active mode infrastructure should be prioritized, while balancing the need to address vehicle congestion.

1. Safer bike and pedestrian crossings
2. Reduced delays and travel time
3. Safe and convenient bicycle connectivity

4. Minimizing cut-through traffic on residential streets
5. Better regional transit service connectivity with other providers (Caltrain, SamTrans)
6. Increased local transit service (Menlo Park shuttle service)

The following sections summarize the events attended and feedback obtained at each. This information will be used to develop improvement recommendations, program strategies, and next steps in the TMP development process.

Block Party

W-Trans, along with City staff, and subconsultant Dyett & Bhatia, attended the Menlo Park Block Party, which was held on August 16, 2017. The event is held annually, and this year's theme was focused on transportation, which drew an audience with interest in the topic and potential engagement on the TMP. At the event, a booth was set up with the intent to inform the TMP planning process and provide opportunities to participate while also gathering initial comments on community members' experiences with the City's transportation system. Staff and consultants shared details of the concurrent online open house and survey and upcoming walking workshops, and answered questions related to the TMP. Attendees were asked to leave general comments on a whiteboard, butcher paper, or a city map and to view what other community members had written. Informational flyers were handed out with a call to action to participate in providing feedback for the TMP project, with a link to the online engagement tools, and dates and times for the walking workshops. A copy of a detailed Block Party Engagement Summary is attached.



The following is a summary of the most common comments and/or concerns that emerged at the event:

Bicycle and Pedestrian Network

- Pleased with expansion of bicycle network
- Requested expansion of bike facilities, safe connections to local schools
- Desired safety improvements to pedestrian network and safe routes to schools
- Requested improved bicycle and pedestrian crossings at Caltrain tracks and across El Camino Real

Public Transit

- Wanted expanded bus service in Menlo Park
- Requested increased shuttle services and work with Stanford on commuter options
- Desired improvements to rail crossings
- Mixed reactions to Dumbarton Rail: some community members were enthusiastic about having this project move forward, while others were less so.

Motorized Transportation

- Desired reductions in congestion
- Need to improve signal timing

Parking

- Need more parking
- Need to replace parking that has been removed

Music in the Park

W-Trans, along with City staff, attended the Menlo Park Music in the Park event on August 22, 2017 from 6:00 to 8:00 p.m. At the event, a booth was set up that was similar to the Block Party, with the intent to collect feedback on transportation issues and concerns in the City. However, the event was not well-attended, and little community feedback was collected.



Walking Workshops

Walking workshops or “walkshops” were organized for three neighborhoods in the City, and included Downtown/El Camino Real, Belle Haven/Willow Road, and West Menlo Park/Sand Hill Road. The routes were selected based on collision history and the overarching goal to conduct walkshops in neighborhoods in the east, west, and central parts of the City. The walkshops were intended to assess and discuss concerns along the routes and in the neighborhood related to safety, walkability, bicycle safety and infrastructure, and vehicle congestion. The walkshops were attended by City staff, consultants, and residents. An overview of the walkshops is detailed in the attached document.

The Downtown/El Camino Real walkshop was held on Thursday, September 7, 2017 from 6:00 to 7:30 p.m. Issues that were emphasized by residents include:

- Safety and convenience of bikes accessing Downtown
- Intersections difficult for pedestrians and bicyclists
- Gaps in bike lanes and narrow sidewalks
- Intersections prioritize vehicles
- Vehicle congestion and capacity on El Camino Real



The Belle Haven/Willow Road walkshop was held on Saturday, September 9, 2017 at 9:30 a.m. Issues that were brought up by residents include:

- Missing sidewalks on Willow Road
- Commuter cut-through traffic, congestion in and around the neighborhood making it difficult for residents to access their homes
- Narrow sidewalks and no marked crosswalks on Ivy Drive
- Pedestrian crossing time is not long enough at Willow Road/Ivy Drive



The West Menlo Park/Sand Hill Road walkshop was held on Saturday, September 9, 2017 at 1:30 p.m. Issues that were brought up by residents include:

- Pedestrian and bicycle safety west side of Sand Hill Road
- Safe connections across Sand Hill Road
- Lack of sidewalk and faded crossings along Oak Ave, near Oak Knoll Elementary
- Speeding vehicles and distracted drivers looking for points of interest
- Cut-through traffic in neighborhood

Next Steps

The feedback received from the community will be used, in addition to the City's transportation vision and the assessment of existing and future conditions, to guide the initial transportation strategies and recommendations. Another phase of community outreach will be scheduled to solicit feedback on the initial transportation strategies and recommendations.

MES/sab/MPA022.M2

Attachments: Online Open House Survey Report
Summary Block Party Engagement Summary
Walkshop Summary





City of Menlo Park Transportation Master Plan ONLINE OPEN HOUSE SURVEY REPORT



October 2017

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Introduction

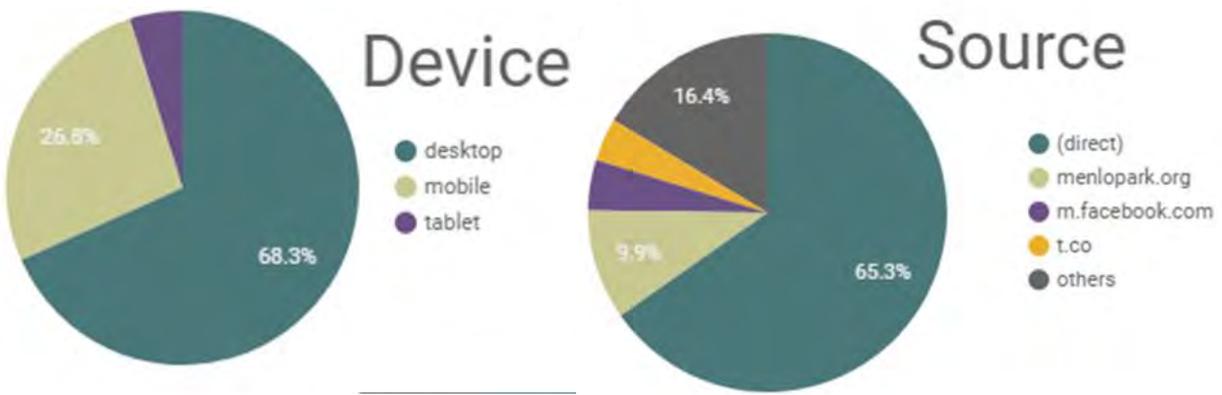
From Aug. 8 to Sept. 30, the city of Menlo Park hosted an online open house for residents, business owners and workers to reflect and comment on the state of transportation in Menlo Park and help inform the city's Transportation Master Plan. This document provides an overview of the site analytics and summary of survey results, followed by a comprehensive list of comments provided through the survey. Respondents' comments are verbatim and have not been corrected for typographical or grammatical errors.

Site Analytics

- Pages of online open house visited per session: 4.08
- Average session duration: 5.12 minutes
- Sessions: 1,177
- Unique users: 812

Device and source:

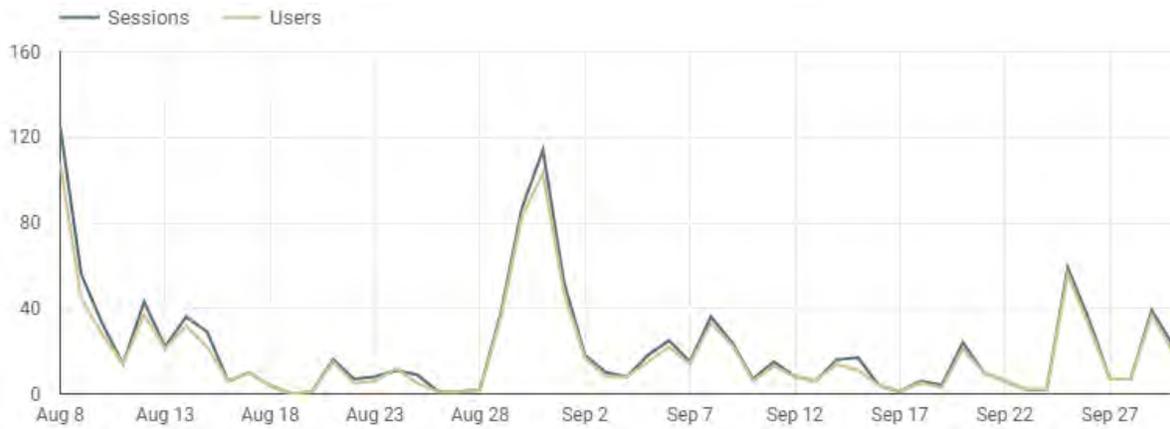
The device being used to access the site and the way users are accessing the site. Direct means typing the URL directly into a web browser; t.co is via Twitter.



Page views by title:

	Page Title	Pageviews
1.	Menlo Park Transportation Master Plan - Welcome	1,646
2.	Menlo Park Transportation Master Plan - Background	608
3.	Menlo Park Transportation Master Plan - General	519
4.	Menlo Park Transportation Master Plan - Comment	435
5.	Menlo Park Transportation Master Plan - Process	367
6.	Menlo Park Transportation Master Plan - Driving	330
7.	Menlo Park Transportation Master Plan - Transit	308
8.	Menlo Park Transportation Master Plan - Biking	296
9.	Menlo Park Transportation Master Plan - Walking	278

Sessions and users:

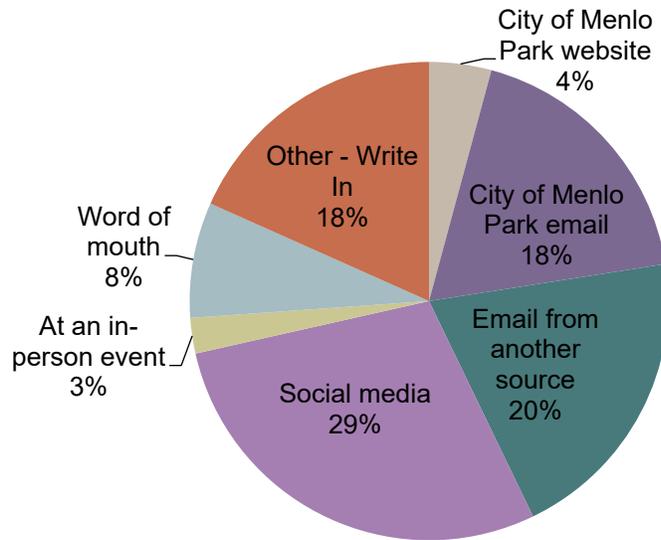


Welcome

209 respondents provided their names and email addresses; to maintain confidentiality, these were provided to the City of Menlo Park in a separate document for future outreach purposes.

How did you hear about this online open house?

409 responses



Other – write in responses:

- Nextdoor – 54 responses
- Parents for safe routes – 3 responses
- Mid-Peninsula High School Email – 2 responses
- Laurel School
- Co-worker
- Email
- Google alert
- LinkedIn
- Katie Behroozi, Associate Director of Academics & Project Management, Stanford Graduate School of Business
- My husband
- Neighbor
- Several of the above
- The Almanac
- News source
- new.google.com
- Transportation tribe
- No write in – 3 responses

What is your home zip code?

407 responses

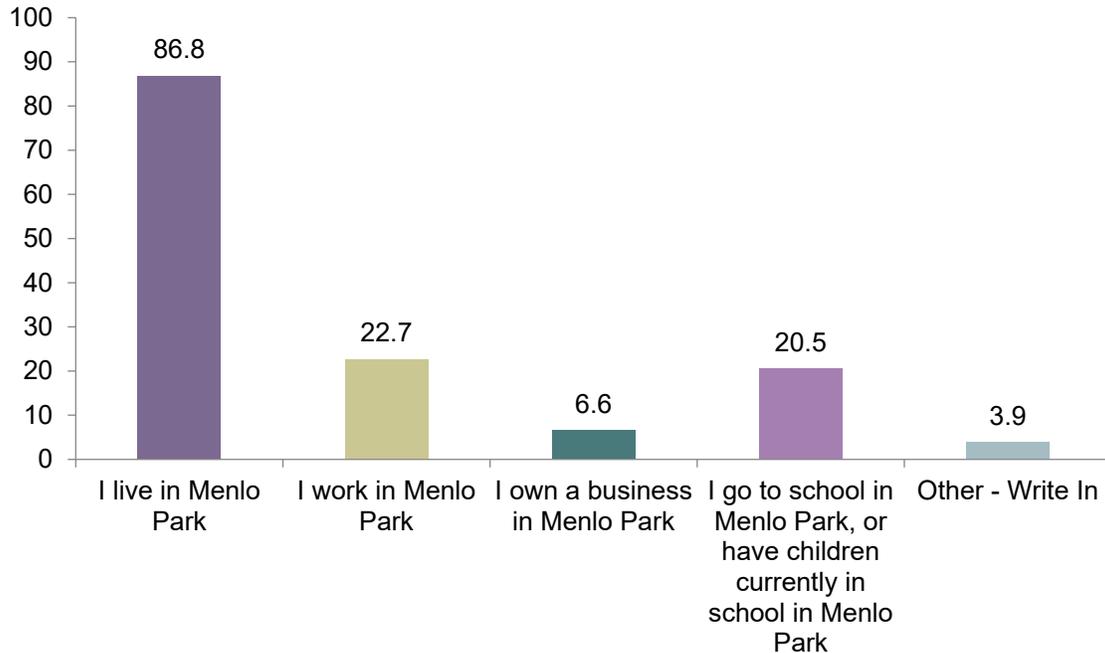
Zip code	Count
94025	354
94303	8
94301	5
94040	4
94027	3
94041	2
94043	2
94070	2
94086	2
94087	2
93619	1

Zip code	Count
94002	1
94022	1
94024	1
94035	1
94061	1
94063	1
94080	1
94105	1
94107	1
94402	1
94403	1

Zip code	Count
94523	1
94536	1
94587	1
94708	1
94903	1
95014	1
95032	1
95110	1
95113	1
95322	1
95928	1

What brings you to Menlo Park?

Shown in percentages; respondents could select more than one response.



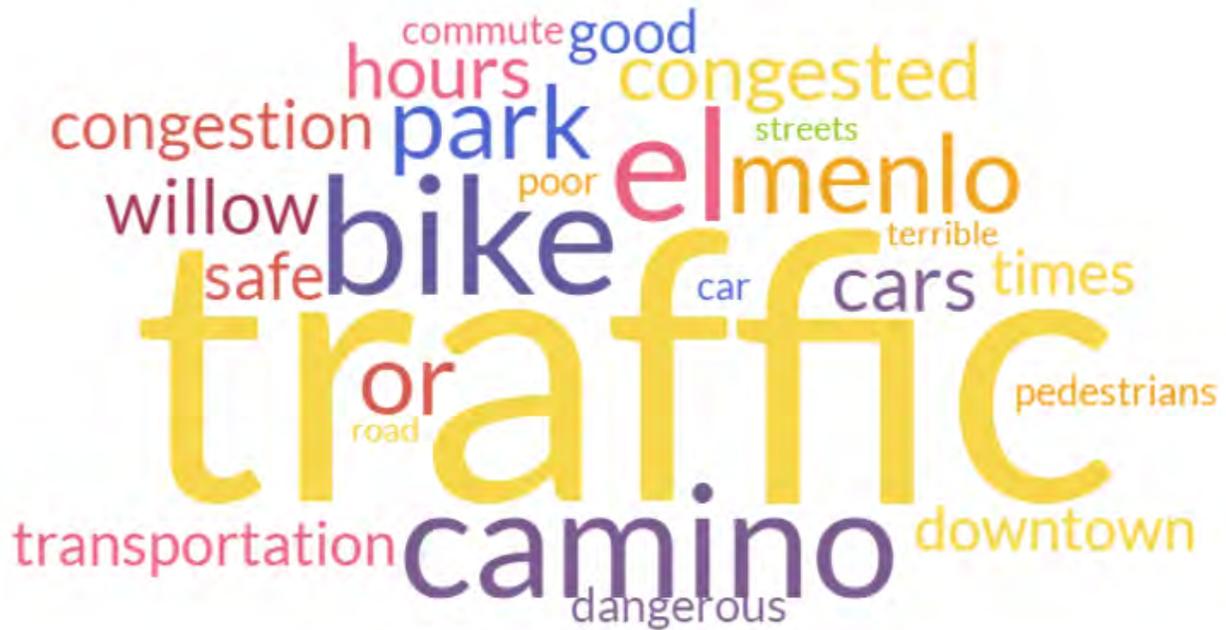
Other – write in responses:

- Attend Church
- I have to drive through Menlo Park and the Willow Facebook campus will also affect my neighborhood
- I live in *unincorporated* Menlo Park and I shop and take trains and buses in the City of Menlo Park
- I live in Palo Alto and often ride my bike to downtown Menlo Park.
- I live on Kavanaugh and the O'Brien business park / Willow Facebook campus / Dumbarton - Willow corridor affects my community
- I own a rental house in Menlo Park
- I work and commute by bicycle through Menlo Park
- It's been home my entire life ~ 55 years!!
- Journalist
- Live in East Palo Alto, and constantly drive/walk/bike through Menlo Park areas
- Live on the boarder of East Palo Alto and Menlo Park
- My children are in daycare in MP
- Own rental property in MP
- Shop in Menlo.h
- We protect Menlo Park
- Shopping

General

How would you describe the current state of transportation in Menlo Park?

161 responses; full list provided in [appendix A](#)



As you think about the way you travel in, and around, Menlo Park, please select the frequency you use each mode of transportation, noted below.

	Daily Mon-Fri commuter	Daily traveler for non-commute trips	Occasional trips during the week	Occasional trips during the weekend	Do not use this mode
Drive in a vehicle Count	65	60	46	18	0
Take a local Menlo Park shuttle Count	1	0	3	0	155
Use regional transit service (Caltrain, SamTrans) Count	11	0	31	44	76
Ride a bike Count	40	19	37	31	48
Walk Count	14	49	60	36	18
Drive commercially (cab, Uber, Lyft, truck) Count	0	2	25	25	107

Transportation planning involves many modes of travel. Understanding how you value different options will help guide the City of Menlo Park in the development of the Transportation Master Plan. Please rank the items below in order of priority, 1 being the highest and 6 being the lowest

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Safer bike and pedestrian crossings	1		724	173
Reduced delays and travel time	2		674	173
Safe and convenient bicycle connectivity	3		661	162
Minimizing cut-through traffic on residential streets	4		633	182
Better regional transit service connectivity with other providers (Caltrain, SamTrans)	5		529	164
Increased local transit service (Menlo Park shuttle service)	6		417	172



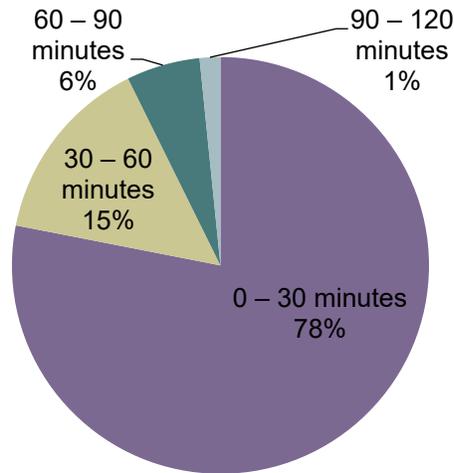
How do you think the City of Menlo Park should prioritize investing transportation dollars in the future?

	Very low priority	Low priority	Medium priority	High priority	Highest priority
Bike share Count	46	64	42	21	7
Car share Count	42	65	46	19	4
Connected vehicle technology Count	51	46	42	17	4
Enhance or improve existing bike paths/lanes Count	4	14	46	59	57
New bike paths or lanes Count	7	19	33	44	76
New sidewalks or pathways Count	3	27	42	45	58
Roadway maintenance Count	1	14	56	62	47
Self-driving car (autonomous) Count	78	57	20	16	4
Sidewalk maintenance Count	7	23	61	58	28
Supporting regional transportation projects Count	7	13	37	61	66

Driving

If you commute to or from Menlo Park in a car, how long is your commute one-way door-to-door?

112 responses



Respondents drive to:

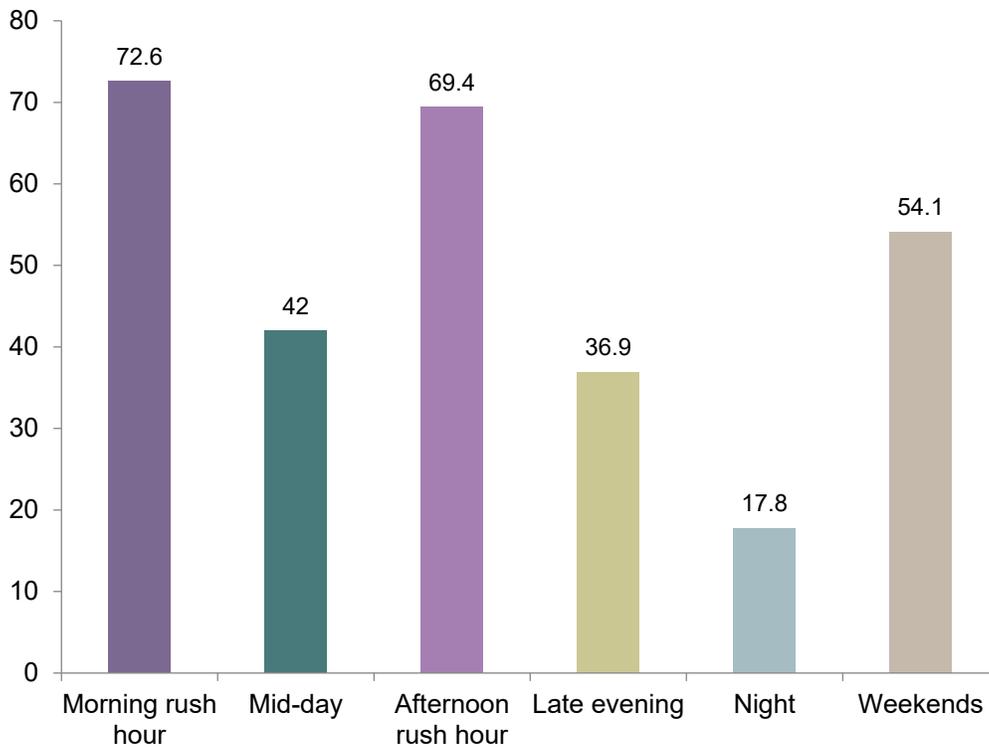
Menlo Park	24	East Menlo Park	1
Palo Alto	11	Emeryville	1
Redwood City	8	Encinal Elementary School	1
Mountain View	4	Foster City of Mountain View, depending on day	1
Palo Alto	4	Fremont	1
San Francisco	5	Heads up preschool	1
Facebook	3	Hiiview Middle School	1
Mid-Peninsula High School	3	Hiiview Middle School	1
San Mateo	3	I take my E bike for most commute/errands, but have to drive to San Mateo 1 x a week	1
South San Francisco	3	Marsh and 101 area	1
Sevier Avenue, Menlo Park	2	Menlo College	1
Downtown	3	Menlo Park City Hall	1
Haven Avenue	2	Milpitas	1
San Carlos	2	Oak Knoll Elementary	1
San Jose	2	Palo Alto High School	1
Sand Hill Road	2	San Leandro	1
Stanford	2	Santa Clara	1
Sunnyvale	2	St. Raymond School	1
Willow Rd, Menlo Park	1	Stanford Graduate School of Business	1
Bay Rd, Menlo Park	1	Stanford Research Park	1
Bayshore	1	West of 280	1
Belle Haven (Jefferson Ave)	1	Woodside	1
Cupertino	1		

Respondents drive from:

Menlo Park	57	Castro Valley	1
Palo Alto	5	Central Menlo	1
Mountain View	4	Downtown Menlo Park	1
The Willows	4	East Menlo Park	1
Allied Arts	3	East Palo Alto	1
Atherton	2	El Camino and Encinal	1
Belle Haven (Menlo Park east of Hwy 101)	2	Flood Park area	1
Constitution Drive, Menlo Park	2	Gilbert & Willow	1
Fremont Street	2	Kavanaugh Drive	1
Menlo Oaks	2	O'Brien Drive	1
Redwood City	2	San Jose	1
University Dr	2	San Rafael	1
Alameda and Valparaiso	1	Sharon Heights (Menlo park)	1
Belle Haven Elementary School	1	Sunnyvale	1
Belmont (ECR&R;Ralston)	1	Terminal Ave Menlo Park	1
Berkeley	1	Trinity Drive	1
Bryant st. Palo alto	1	West Menlo Park	1

What time of day do you typically drive in, and around Menlo Park?

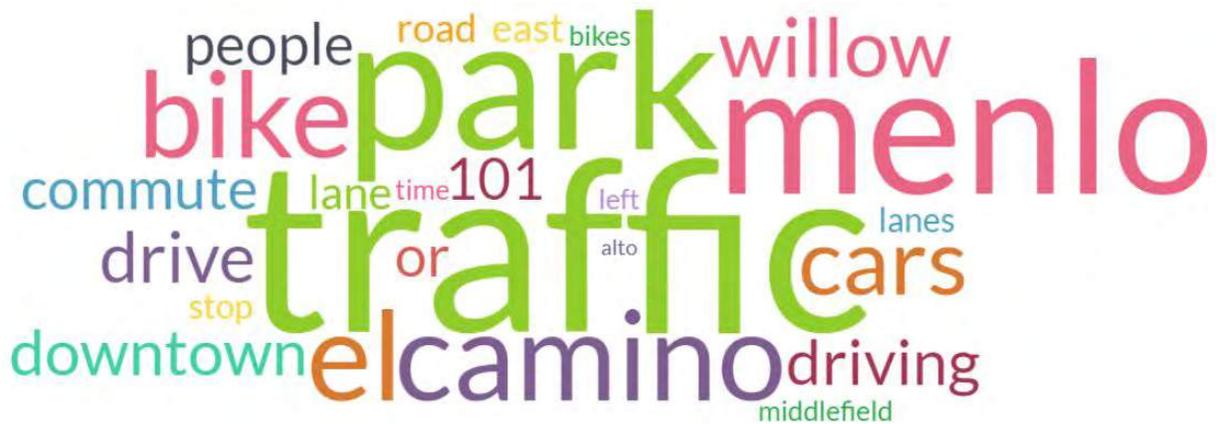
Shown in percentages; respondents could select more than one response.



What have you experienced at specific locations while driving in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box. 112 responses; word cloud is shown below; interactive map with comments associated with each pin can be viewed [online](#); full list provided in [appendix B](#).



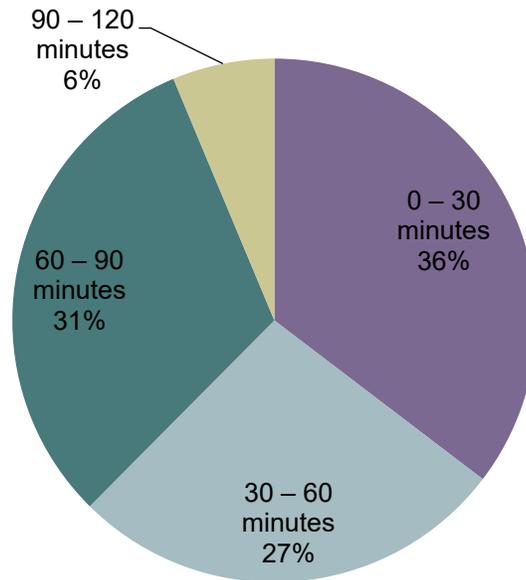
Is there anything else you would like to add about your experience driving in Menlo Park? 100 responses; full list provided in [appendix B](#).



Transit

If you commute to or from Menlo Park by transit, how long is your commute one-way door-to-door?

48 responses



Respondents are taking transit to:

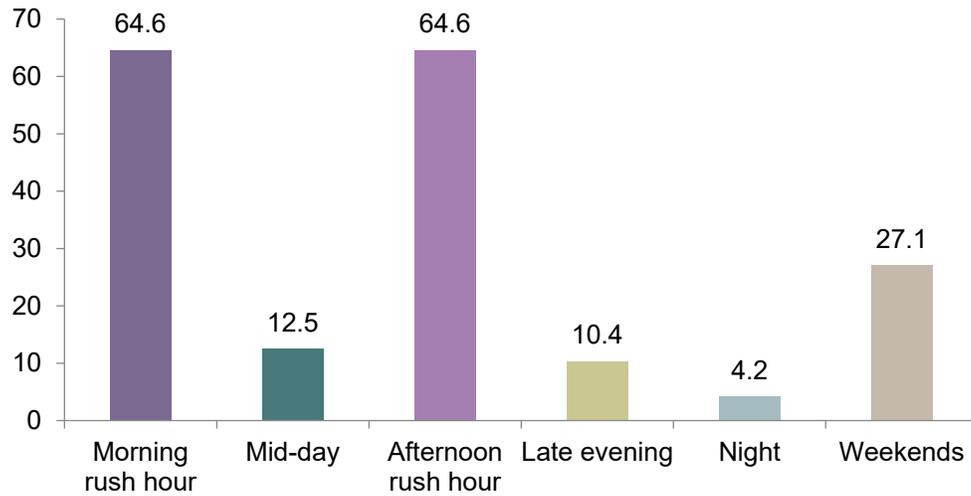
San Francisco	12	Cupertino	1
Menlo Park	7	Facebook	1
Mountain View	3	Redwood City	1
Downtown Menlo Park	3	San Mateo	1
Caltrain	2	Santa Clara	1
Belle Haven - Jefferson Avenue	1	South San Francisco	1
Cal Ave, Palo Alto	1	Stanford Hospital	1

Respondents are taking transit from:

Menlo Park	17	Los Gatos	1
Mountain View	4	Menlo Park Caltrain	1
Willows neighborhood	2	North Fair Oaks	1
Castro Valley	2	Palo Alto	1
Approx. Sand Hill & Santa Cruz (~NO pub trans now!)	1	San Francisco	1
College Av	1	San Jose	1
El Camino and Encinal	1	Santa Cruz Ave, Menlo Park	1
Home	1	South San Francisco	1
JobTrain	1	South of Market district, San Francisco	1

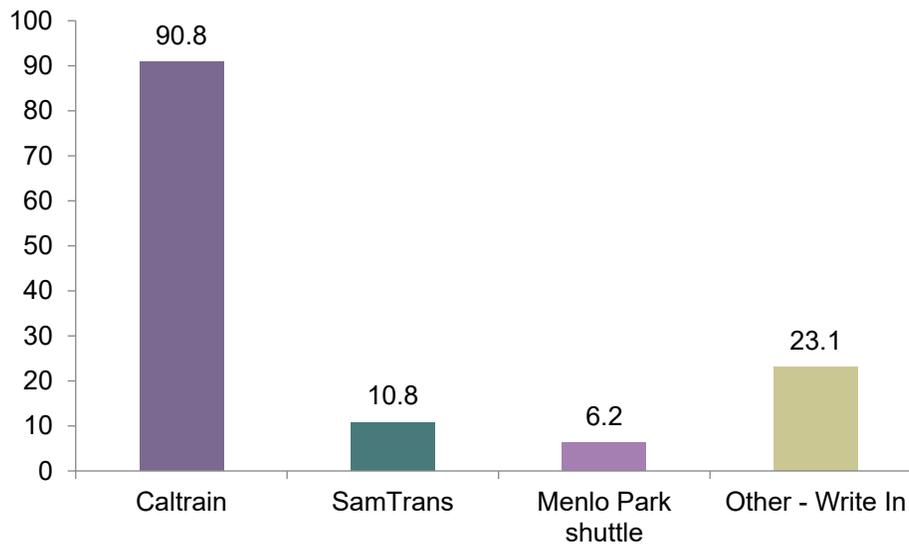
What time of day do you typically use transit to travel to or from Menlo Park?

Shown in percentages; respondents could select more than one response.



What types of transit do you use in Menlo Park? (check all that apply)

Shown in percentages; respondents could select more than one response.

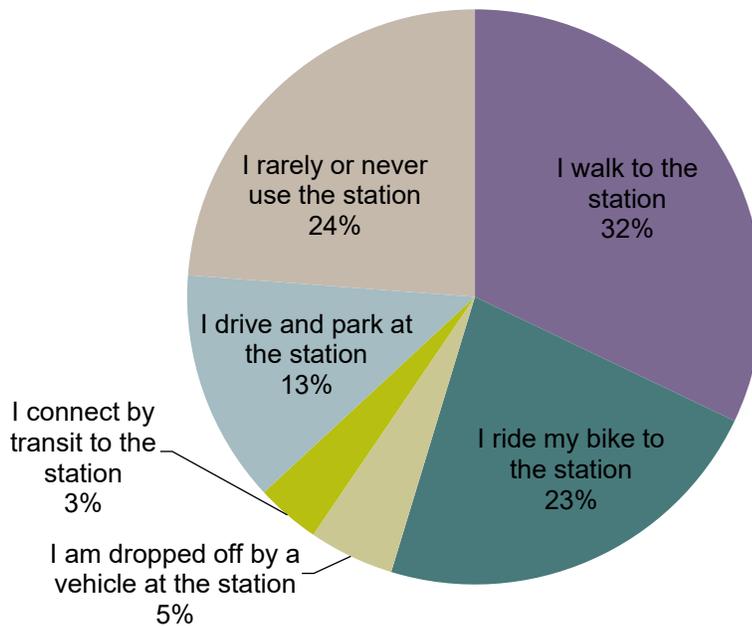


Other – write in responses:

- Facebook Shuttle – 3 responses
- Bike
- Feet
- I usually drive to Millbrae to take BART
- Kick Scooter
- Lyft
- Personal car
- Santa Clara Valley Transportation Bus
- Stanford Bohanan Bus
- Stanford Marguerite
- VTA Light Rail
- walking

Please indicate the most common condition that applies to your use of the Menlo Park Caltrain station. (Select one)

84 responses



What have you experienced at specific locations while riding transit or using transit stops in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box.

28 responses; word cloud is shown below; interactive map with comments associated with each pin can be viewed [online](#); full list provided in [appendix C](#).



Is there anything else you'd like to add about your experience riding transit in Menlo Park?

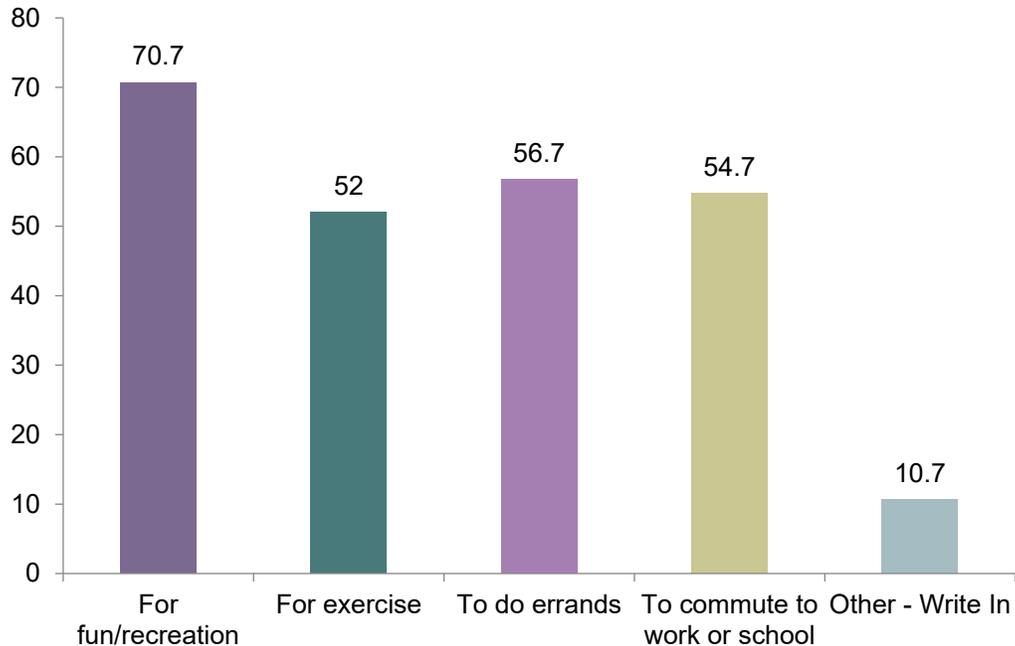
37 responses; full list provided in [appendix C](#).



Biking

Why do you ride a bike in Menlo Park?

Shown in percentages; respondents could select more than one response.



Other – write in responses:

- Bike my kids to
- Biking gets people to school, without cars, as well as
- Drop kids at school
- I do not bike or have my children bike because there are no bike lanes on my street (Olive St.), despite it being a major thoroughfare for Hillview students. It is not safe for kids to ride bikes on many major paths in Menlo Park.
- I don't ride a bike! I'm a senior with a hip transplant and riding a bike is truly not a desirable (or good) way for me to travel!
- I no longer ride in Menlo Park. There is simply too much car traffic.
- I plan to bike in 2018.
- Rare, but to get to work.
- To do volunteer work, quasi commute
- To get places, as a mode of transportation
- Want more students to use bikes to get to school.
- handicapped. Cannot ride a bike.
- to get to Palo Alto
- to take my kids to school
- transport children to school
- transport children to school

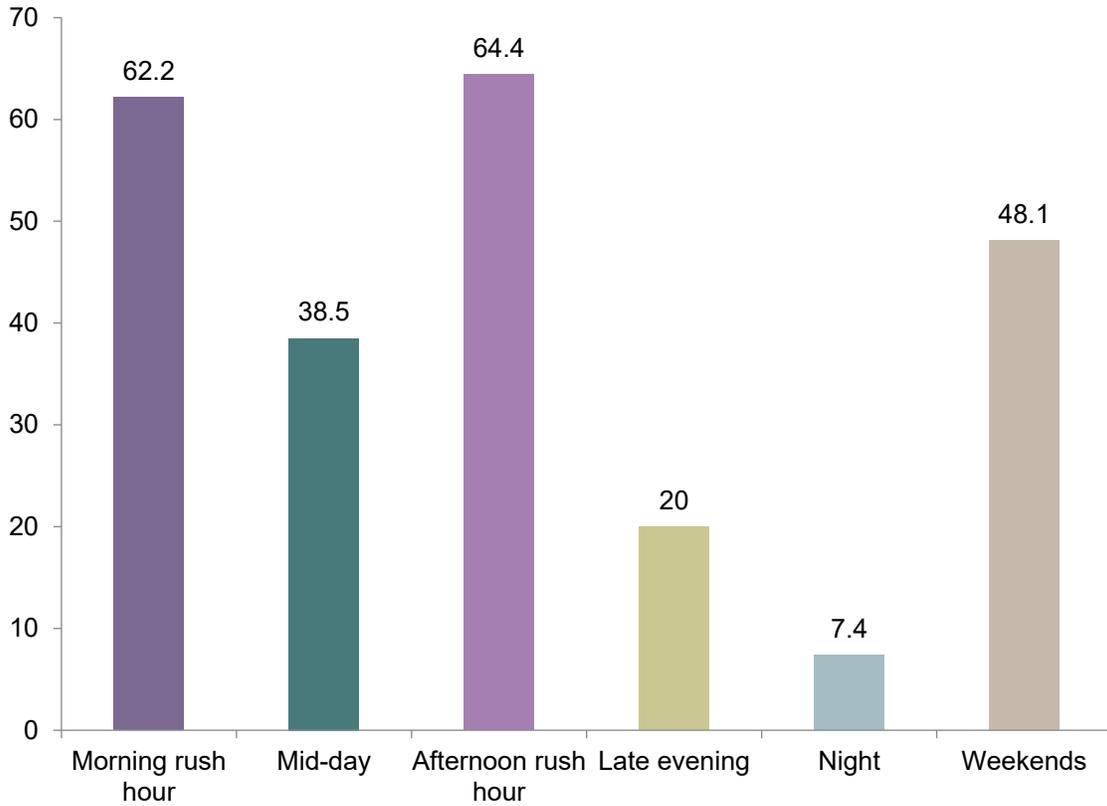
Respondents ride their bikes to:

Menlo Park	17	Encinal School	1
Mountain View	8	Facebook	1
Palo Alto	8	Kids - to Hillview	1
Stanford	6	Marsh and 101 area	1
Downtown Menlo Park	4	Menlo Oaks Drive	1
Laurel school	4	Oakland Ave	1
Caltrain	3	PA Caltrain	1
Bedwell park, downtown	2	RWC	1
Middlefield Road	2	SLAC	1
Mid Pen High School	2	Sand Hill Road	1
Oak Knoll School	2	Santa Clara	1
Santa Cruz and Arbor, Menlo Park	2	Sevier Ave	1
Arbor Road	1	Shop	1
Allied Arts neighborhood	1	Stanford Research Park	1
Bayshore Trail, grocery stores	1	Sunnyvale	1
Belle Haven, MP	1	Timothy Lane, Menlo Park	1
Cale Ave, Palo Alto	1	Various (school, errands, work in palo alto, etc.)	1
Downtown Palo Alto	1	Walsh Road/Alamdea	1
Downtown, library, Stanford Shopping, West Menlo	1	random cycling locations	1

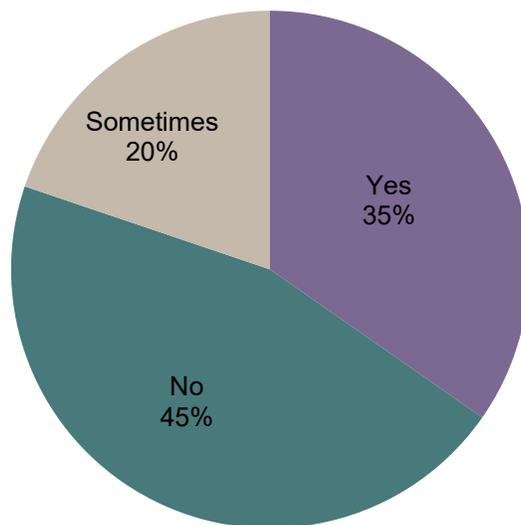
Respondents ride their bikes from:

Menlo Park	24	Hillview School and Encinal School	1
Belle Haven, Jefferson Ave	5	Home (Arlington Way)	1
Home	4	Home in Allied Arts	1
Willows	3	Home in Menlo Park	1
Allied Arts	2	Home on Sevier ave, Belle Haven	1
Flood Park Triangle	2	Kavanaugh	1
Mountain View	2	Laurel's Upper Campus	1
Palo Alto	2	Menlo Oaks	1
Stanford University	2	Menlo Park (Encinal and El Camino)	1
125 Constitution Drive	1	Menlo Park (Sharon Heights)	1
Atherton	1	North Fair Oaks	1
Belle Haven	1	O'Brien Drive	1
Belle Haven MP	1	Palo Alto/Professorville	1
Caltrain Station	1	Redwood City (Florence and 15th)	1
Downtown	1	Roble Ave	1
East Menlo Park	1	Sand Hill Road	1
East Palo Alto	1	Santa Cruz Ave and Fremont St, Menlo Park	1
El Camino and Encinal	1	Santa Cruz Ave.	1
Encinal Elementary School, Atherton	1	Seminary Park	1
Facebook	1	Suburban Park	1
Flood Park area	1	The Willows	1
Fremont Street	1	Vintage Oaks (Menlo Park)	1

What time of day do you typically bike in, and around Menlo Park? (check all that apply)
Shown in percentages; respondents could select more than one response.

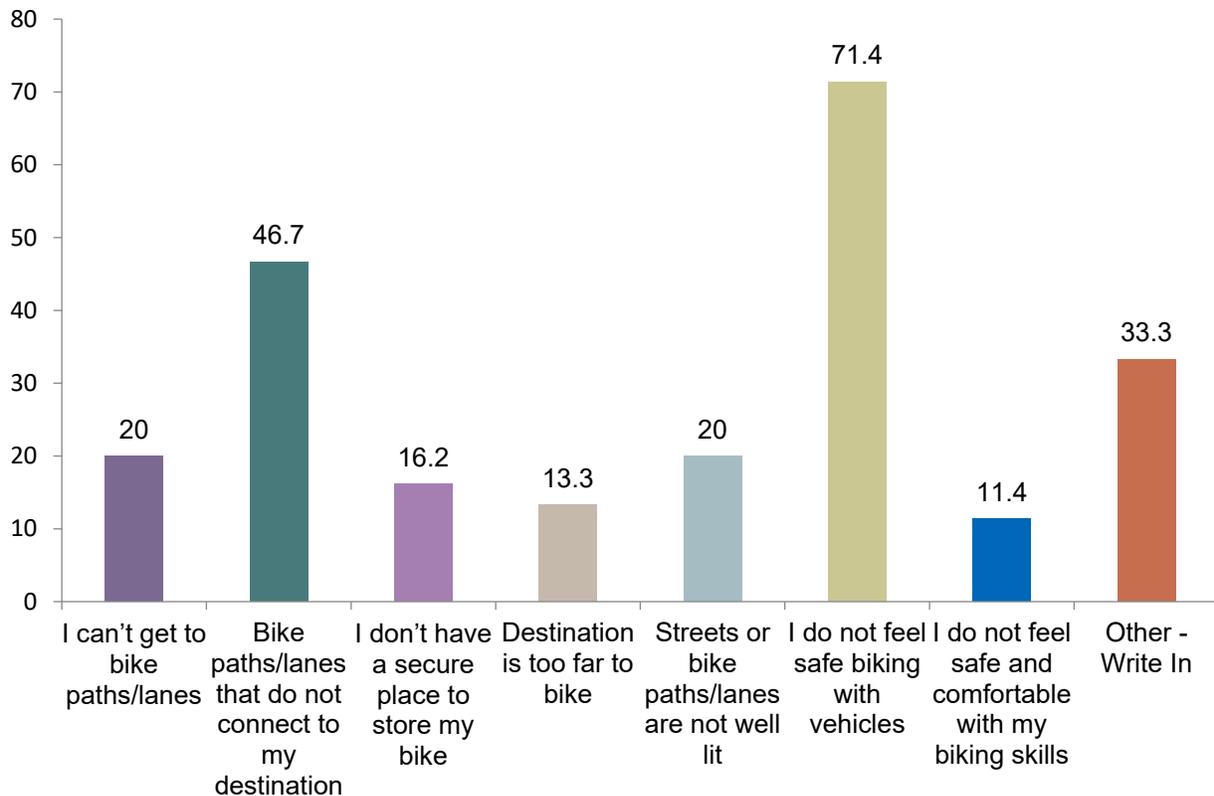


Do your children bike to school?
101 responses



If you are not a frequent bike rider, are there factors that prevent you, or your children, from riding your bike more frequently? (check all that apply)

Shown in percentages; respondents could select more than one response.



Other – write in responses:

- Takes 3 different cycles to cross intersection – 3 responses
- High Speed cars, trucks next to bike lanes – 2 responses
- no safe lanes for smaller children to bike. Cars speeding through side streets to cut to 101 – 2 responses
- Bike lanes inconsistent
- Bike paths through Atherton territory and by schools are dangerous
- Bikers often have helmets, tools, etc that need to be secured. Bike rack need to have extra facilities.
- Biking between upper and lower Laurel campus is an incredibly stressful experience. With young kids on bikes, no bike lanes and high traffic it makes for a very unsafe ride.
- Cannot carry heavy or bulky items on a bicycle.
- Don't own a bike, but like the Oak Grove test project for safe bike paths
- ECR is only convenient N/S route and it sucks for bikes.
- Even professional bikers feel threatened in MP, especially the Santa Cruz Avenue - Sand Hill Road intersection

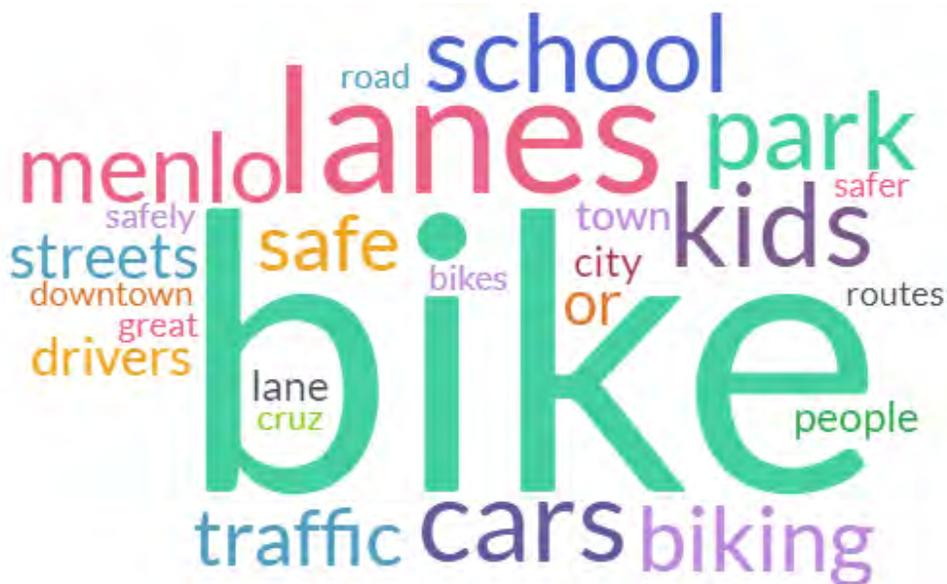
Other – write in responses (continued):

- I am not comfortable letting my 10 year-old bike alone around Menlo Park yet. His skills are great but we don't yet have great cross-town routes, and major intersections are super sketchy. Plus, too many aggressive/distracted drivers.
- I can walk to most downtown locations so don't need to bike very much. And work from home.
- I have heard stories about unsafe vehicle practices with bikes.
- I usually don't want to ride my bike.
- I would have to cross 101 and there is no place to do that and not die.
- Lack of safe bike lanes
- Many intersections are so congested with cars, that it feels unsafe to be on a bike at them.
- My children are beginning bicyclists and we have congestion on Coleman Avenue getting to Laurel Elementary
- My kids bike all the time, but MP does not feel safe on a bike due to bad driving behavior- impatient, reckless drivers.
- Son hit in crosswalk while biking to school
- There are bike paths to my daughters schools, but there are gaps; also, she is five and too young to bike. I won't feel comfortable with her biking to school until she's 10 or 12.
- There are so many. Tons of gaps in the network. Disappearing bike lanes. Cars traveling 40 mph with only a white line separating (if lucky).
- There are too many automobiles on the road during the highest bike traffic. It is a lot to as cars to watch out for bikers when the lanes are so small and there are lots of cars. Especially when not all bikers follow rules of the road.
- Very poor maintenance of MP streets, especially along sides--trash, pavement issues, excessive crown to streets from way to many cheap paving jobs; lots of parked car obstacles.
- my children are too young to ride their own bikes. (I take them to school in the bike trailer.)
- my son goes to school in San Mateo too far to bike. My daughter is terrified to bike to MA High from Sharon Heights. Crossing over El Camino is terrifying and Val Paraios and Santa Cruz Ave are too busy. She's too scared to bike
- need to carry items that are too heavy or awkward for bike.
- no connection from west MP to the other side of El Camino. The safest option is to cross at Sand Hill, Middle is a nightmare because of all the traffic and other MP crossing aren't much better. I used to ride daily, now I never do.

What have you experienced at specific locations while biking in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box. 112 responses; word cloud is shown below; interactive map with comments associated with each pin can be viewed [online](#); full list provided in [appendix D](#).



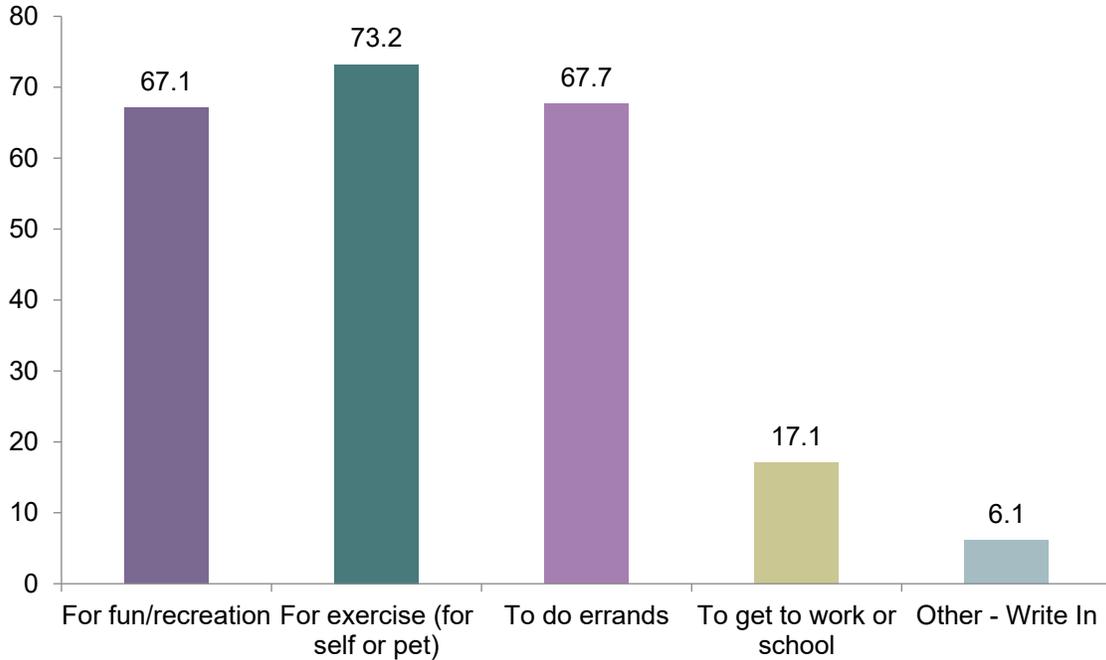
Is there anything else you'd like to add about your experience riding transit in Menlo Park? 69 responses; full list provided in [appendix D](#).



Walking

Why do you walk in Menlo Park?

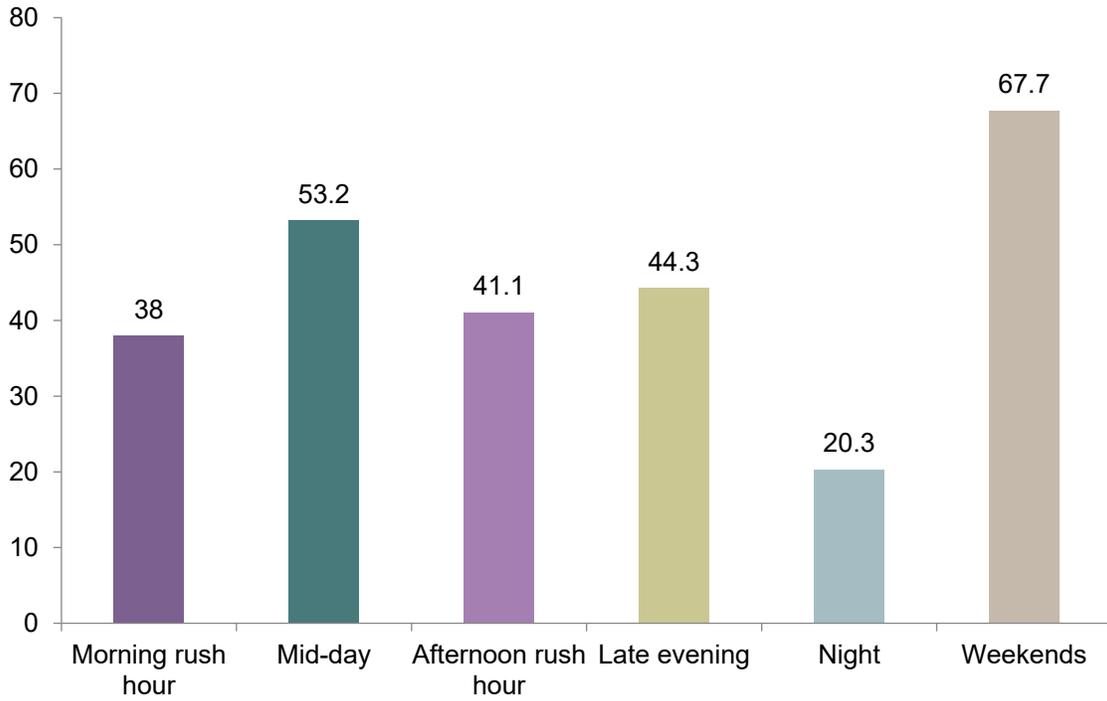
Shown in percentages; respondents could select more than one response.



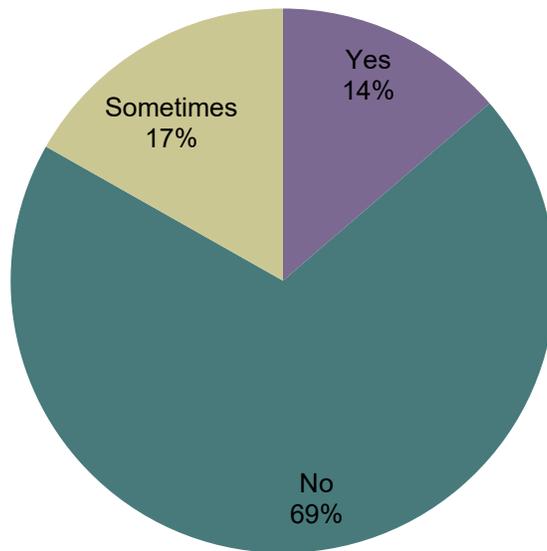
Other – write in responses:

- Bike my kids to school
- Cannot walk.
- Cut down on use of car/emmissions...
- Go shopping
- I walk in my neighborhood but only for pleasure, not shopping, etc. Stroller w/ kids
- To dine out, and occasionally shop.
- To get to neighborhood events
- shopping
- to get to Caltrain

What time of day do you typically walk in and around Menlo Park? (check all that apply)
Shown in percentages; respondents could select more than one response.

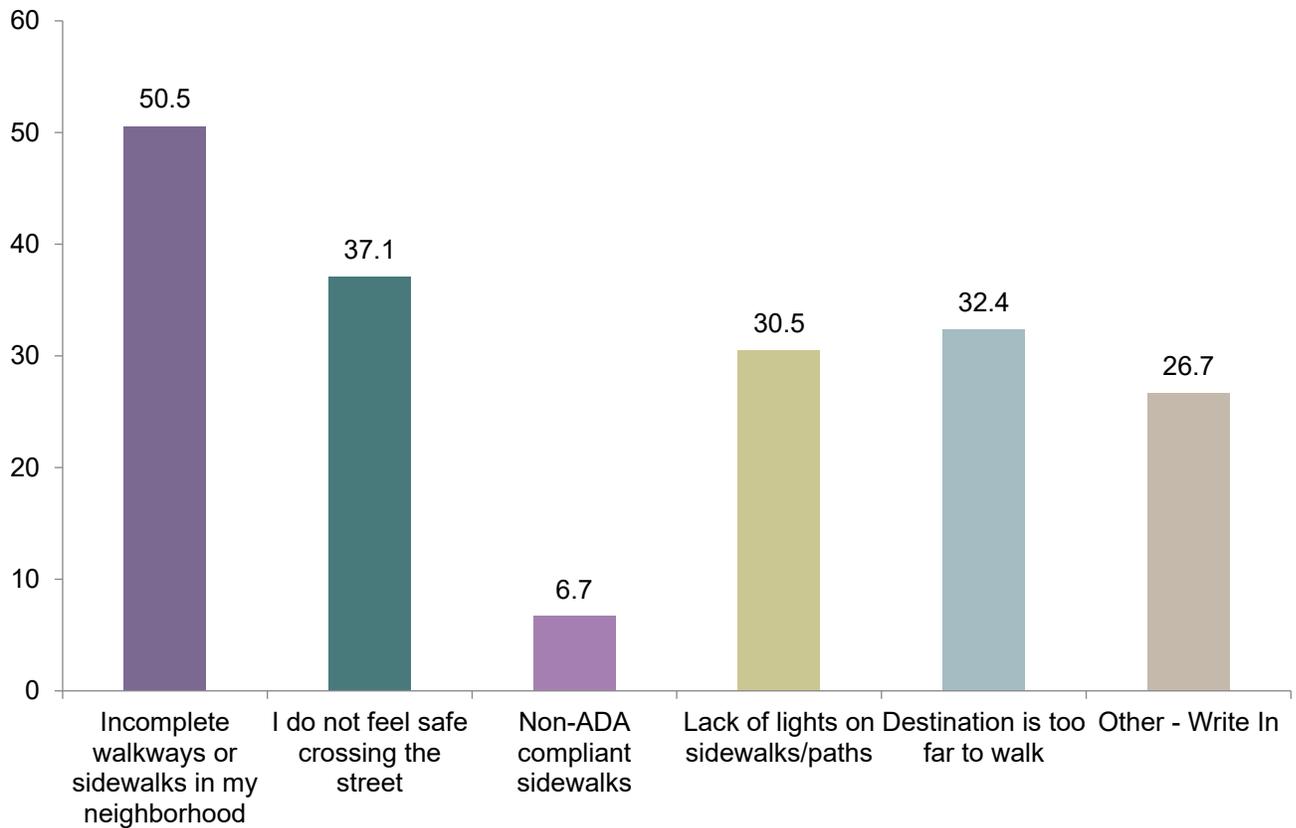


Do your children walk to school?
95 responses



Are there factors that prevent you or your children from walking around Menlo Park more often?

Shown in percentages; respondents could select more than one response.



Other – write in responses:

- need a light at Ravenswood and Alma. Yesterday – 2 responses
- No children – 2 responses
- Bushes and vehicles blocking sidewalk
- I do try to limit walking during the morning/afternoon rush traffic.
- Lack of shade in the summer- plant more shade trees!!!
- No crossing guards. Signals don't give enough time to cross street (Belle Haven)
- Sidewalks in our neighborhood are dangerous due to tree roots pushing up sidewalks
- Too young
- Traffic is moving too fast so can't motorists are too busy in traffic to see pedestrians
- Traffic is too fast and too close too walking.
- Walking takes too much time.
- Walkways are uneven
- When it rains, intersections are flooded (Middle at Morey and Kenwood). I worry that the new ADA corners and driveways on Santa Cruz Ave will flood, too, because the street crown is so high
- When walking existing sidewalks are often blocked by parked cars. Landscaping is often overgrown; obstructing the pathway.

Other – write in responses (continued):

- Menlo Park: Home of the oblivious driver.
- cut-through traffic speeding, ignoring signs, etc.
- lack of sufficient walking routes to cross train/El Camino between Ravenswood and Sand Hill Rd
- no sidewalks at all on many 'main' routes
- non-compliant speeding and rolling thru stop sign traffic
- some sidewalks in significant disrepair = dangerous
- we walk in the neighborhoods early to mid-morning
- weather too hot too rainy

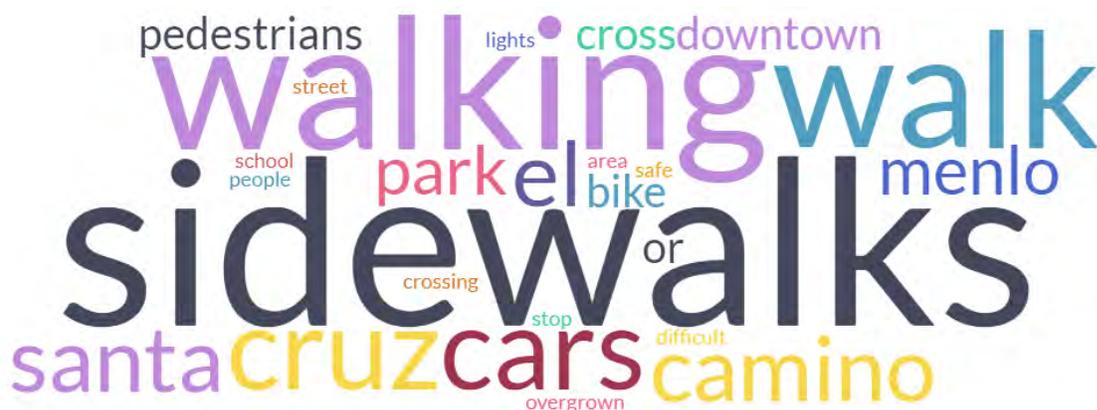
Use this map to describe what you've experienced while walking in Menlo Park. Drop a pin at the location you are commenting on and describe your thoughts in the comment box.

64 responses; word cloud is shown below; interactive map with comments associated with each pin can be viewed [online](#); full list provided in [appendix E](#).



Is there anything else you'd like to add about your experience riding transit in Menlo Park?

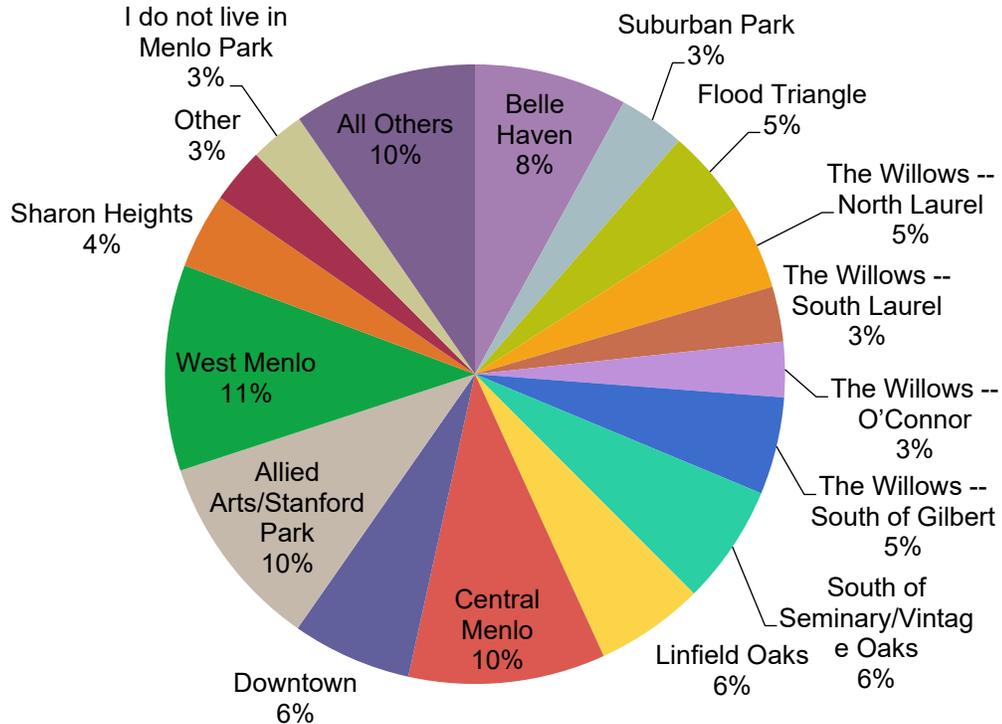
42 responses; full list provided in [appendix E](#).



Comment

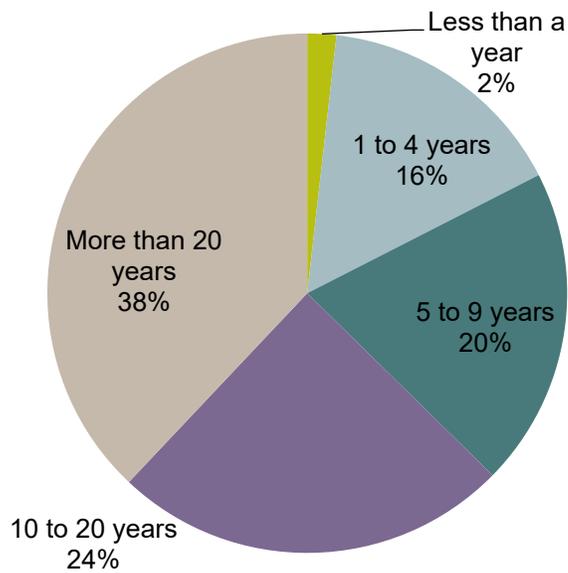
In which neighborhood do you live?

169 responses

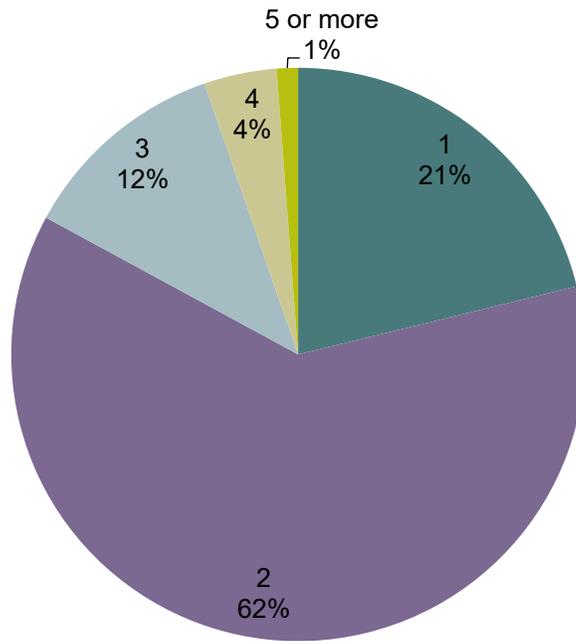


How long have you lived in Menlo Park?

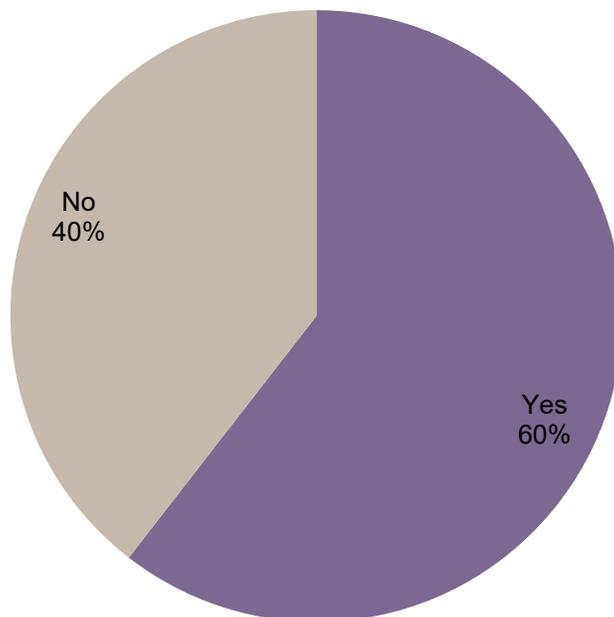
166 responses



How many cars are in your household?
170 responses

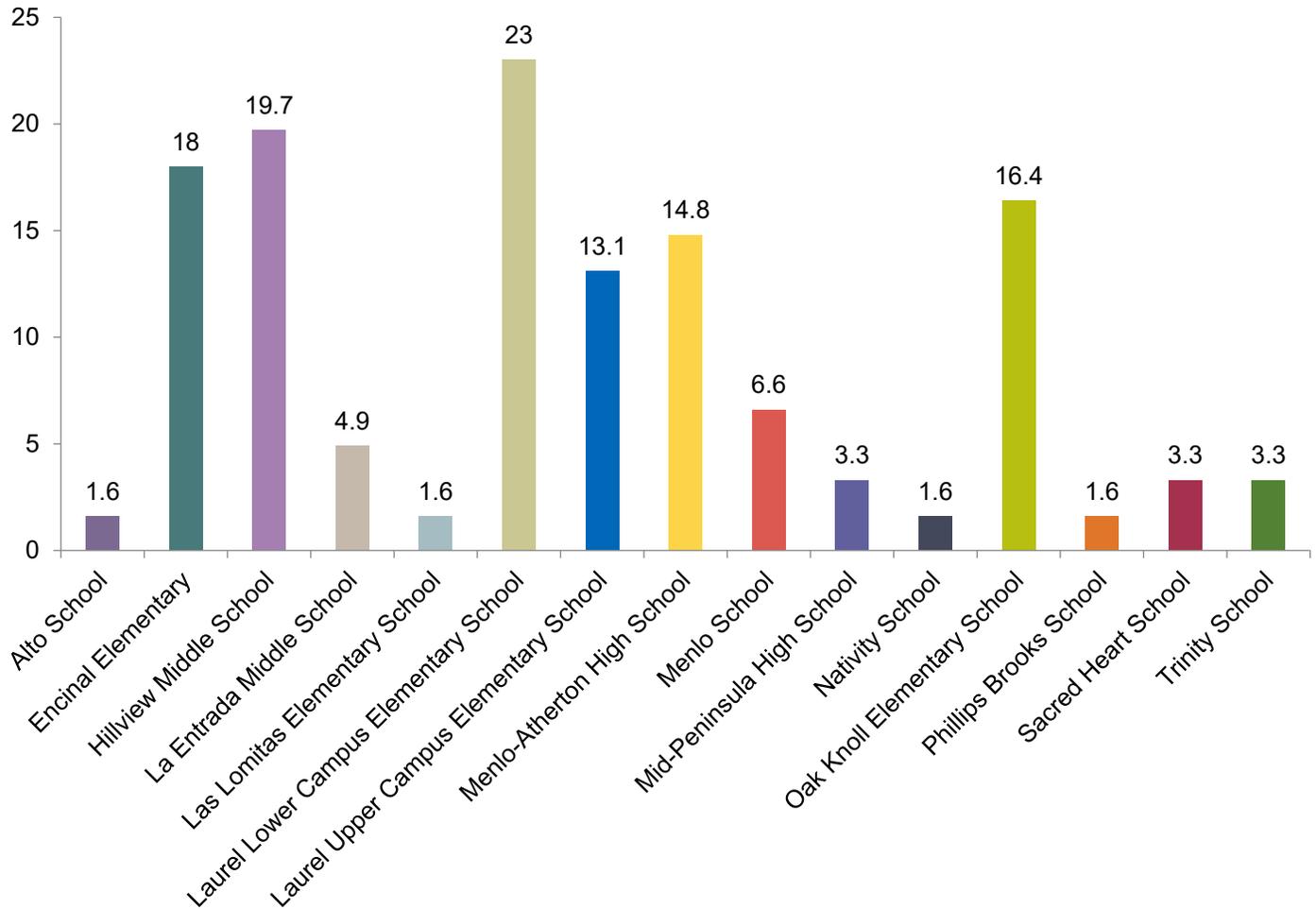


Do you have children?
162 responses



If your children attend school in or near Menlo Park, where do they attend? (check all that apply)

Shown in percentages; respondents could select more than one response.



Appendices

Appendix A: General comments

How would you describe the current state of transportation in Menlo Park?

Congested – 3 responses

Not great – 2 responses

I have only lived in Menlo Park about 10 years but the traffic congestion has gotten worse over that time. When I was working I rented an office less than 1 mile from my house so that it would be convenient for me.

9 days out of 10, it's really not bad. But those 10th days when things get snarled all over town, it can feel like you are confined to your home.

A few problem spots at peak times, but otherwise good.

Absolutely horrible. Too many people and too many cars. Stop building and bringing in more people than Menlo can handle.

At peak hours in the morning and late afternoon to early evening, traffic is very contested. Due to the push for bicycles sharing the road, the lanes are smaller and there is less parking in areas of the city. Menlo Park has two ways in from the 101 Freeway, Willow Rd and Marsh Rd. Unless these two roads can be made into 4 lane roads, traffic will get much worse with the planned development. El Camino is also a very busy road, and the plan will make this much worse as well. In the event of a disaster that requires Menlo Park to be evacuated, we are sitting ducks. The increased population of workers and residents will make this a much more dangerous situation.

Awful during commute times! I've lived in Menlo Park for 50 years, in my house in the Willows for 41 - and it's never been so bad to go anywhere while others are commuting. I work at home, and plan all my trips to be the middle of the day, or the evening. I'm afraid to bike with traffic, but I do walk to downtown Palo Alto some - it's closer for me than M.P.

Bad traffic on El Camino. Ok in my neighborhood. Pitiful public transportation.

Between the hours of 8pm and 6am lovely. Between the hours of 6am and 8pm - anything goes. Do not plan to get across Menlo Park or through Menlo Park without heavy traffic on the major routes: El Camino, Willow, Marsh, Sand Hill etc.

Car transit is congested and frustrating. Bike transit options are excellent.

Car-centric and limited.

Congested on off and on ramps. Very congested on Willow going toward Dunbarton Bridge.

How would you describe the current state of transportation in Menlo Park? (continued)

Could be better. Commute hours are rough, otherwise, just fine.

Critical

Crowded especially on Santa Cruz Ave up by Alameda with cars going too fast.

Currently, the overall system is disjointed. Pedestrian and bike crossings at stop lights are not managed consistently. Overall, the system is geared toward the ease of the vehicle.

Dangerous and frustrating. I am constantly trying to avoid crowded main roads during morning and evening rush hour. Getting the kids from school to after school activities ends up being a 2-3 hour event most nights. Happy though to see some more safe routes coming up for the schools.

Difficult for residents. Adversely impacts our quality of life. Adversely impacts the potential value of our property.

Disastrous. The major streets are congested Monday - Saturday and especially M-F in the early morning commute hours and in the afternoon at 3 pm to 7:30 pm. Many days on El Camino Real there is total gridlock. El Camino Real needs additional traffic signage (ie no U-Turns, no left turn, etc) to assist with safe ingress and egress from side streets.

Disjointed. It works more or less ok for cars, but it can be hard to use alternate methods of transportations (biking, walking) due to lack of safe routes.

El Camino congestion is impossible. Other areas of concern for pedestrians and drivers are around schools at opening and closing times.

El Camino has too much traffic The intersection of Sand Hill Road and Santa Cruz has too much traffic.

El Camino traffic is horrible, especially at rush hour. I'm not looking forward to new construction that will make it worse. Easy parking at rear of businesses is often good but some areas are increasingly difficult. Bicycling feels dangerous -- I look for ways around the main roads. Middlefield is difficult and Willow very slow at rush time and getting worse. Most of the time I adjust my timing and traffic is pretty good -- I'm not too impacted unless I have to go through El Camino near Santa Cruz. Once out of town center I don't complain. Public trans if was like the Stanford shuttle I might use for quick trips, but so far not an option. Walking is my thing; much of Menlo is pretty.

El camino is a bottleneck and I am very concerned that the already entitled and some under construction projects on el Camino have poorly envisioned entries that will create backed up right lanes of traffic ve waiting to enter the properties. The boutique hotel at corner of Oak Grove and ECR is prime example. If the have any special event or meeting where more than five driving attendees need to be ther and arrive at the same time, the stop light and ECR will be majorly impacted.

How would you describe the current state of transportation in Menlo Park? (continued)

Exits from 101 are getting very backed up really late into the evening.

Extremely poor – 2 responses

FUBAR. Menlo Park keeps approving new massive construction projects (Greenheart, Facebook, Stanford, etc.) without any consideration to neighborhood traffic impact.

Fair. Peak times are unmanageable.

Fine for local walking and biking for adults but does not facilitate longer distance commuting well.

Fragmented and incoherent

Fragmented. Streets don't connect. Bikeways are incomplete.

Frustrating as a driver; often dangerous as a cyclist. (When I commuted from Redwood City to Palo Alto on El Camino, it became abundantly evident that Menlo Park is the biggest choke point among the various cities, which made me grumpy.) I felt like I had to drive, though, because of unsafe bike conditions on alternate routes (e.g. Middlefield in North Fair Oaks.)

Generally good, but has trouble spots.

Going from poor to bad, with terrible and unbearable on the immediate horizon.

Gridlocked arteries near my neighborhood. Dangerous and disruptive cut-through traffic within my neighborhood.

Haphazard

Heavily congested at peak traffic times. El Camino is too congested. The intersections around the train track, especially at Ravenswood, are extremely dangerous to motorist, walkers and bikers. There are no safe bike routes/bike lanes to several of our schools. In particular, Laurel Elementary School.

Horrible during afternoon and evening commute hours!

Horrible! Neighborhoods being over-run by commuter traffic!

Horrible! Willow Road is a nightmare between 7:00-10:00AM and 3:00-7:00PM.

Horrible. It's difficult to get across town, let alone down the street with the large number of cars on the roads and traffic congestion.

Horrid during peak hours. Tolerable during off hours.

Horrific

How would you describe the current state of transportation in Menlo Park? (continued)

I am aware of very few transportation options. I am lucky that I can walk to caltrain from my home. I also bike to shops whenever I can. I avoid arterials during busy times of the day such as work or school rush hours.

I drive around town from the flood triangle to downtown mostly. Also drive bay rd to marsh ? It takes forever to get across El Camino at the lights at oak grove, glenwood, ravenswood. This does not help residents but commuters passing through. I travel at the speed limit on the long stretch of bay rd from Ringwood to marsh rd. It get honked at, tail gated, passed on the left. I asked the police to put the mobile speed limit sign out to remind drivers. They did but they do not have a clue where to put it. They placed it at the beginning of the stretch. The problem is the length allows drivers to creep over the limit so it needed to be placed half way as a reminder. Also could use the speed limit painted on the pavement. The point is I think the city and police do not always get the situation. I have lived in Menlo Park for over 30 years and the traffic is at it's worst which I am sure you are aware of. Please ignore the lack of capitalization or this would take me forever. I have notice

I live in Menlo Park on Roble Ave. I go north on Middlefield frequently to go to Costco. my Stanford doctors on Broadway, downtown RWC to shop at Grocery Outlet, etc. The only suggestion I would like to make is that the light at the intersection of Ravenswood and Middlefield to go north is very long while the traffic on Middlefield dwindles. Can't there be traffic-sensitive sensors underground to direct the traffic based on when there are cars waiting to turn? Many other traffic lights in MP have that capability. Thanks! I was disappointed when the MP shuttle stop at Little House no longer goes the route it used to-Stanford Shopping center, etc. I used to take it to go to MD appts. at Stanford med.center. That stop was convenient for me.

I live near Facebook on Hamilton Avenue, and the traffic at commute time is pretty bad.

I think that it is outdated and needs to be updated. There are significant choke-points for vehicle commuters (e.g. Willow Road, El Camino at Ravenswood etc). The bike capacity needs to be increased for safe routes for kids and bicyclists. As more people move into Menlo Park, the transportation grid must improve.

I think the current state of transportation in Menlo Park is very good.

I think they are good not great. There are quite a few streets that need to be repaved, and lanes made wider.

Improved, but Willow Road is too clogged.

How would you describe the current state of transportation in Menlo Park? (continued)

In general, it's ok. El Camino Real can be annoying when it gets backed up and I think that addressing it from a flow perspective should be a priority (three lanes each way would help). It's not clear at times why certain projects are undertaken. For example, I live in Sharon Heights where there are no sidewalks or curbs, but corner curbs were installed with yellow bumpy plastic inserts - this make no sense and was a waste of valuable resources. The reconfiguration of Santa Cruz that was just completed seems like another solution in search of a problem. It's a wide street that seemed to have plenty of room for all (walkers, bikes and cars), yet somewhere it was decided that a reconfiguration was needed that does not seem to change much.

Inadequate

Inconsistent and deteriorating. Traffic has become so much worse than when I bought my house here in 2011, especially in east Menlo Park, and on Willow and Marsh.

Inconsistent. There is no parking and the biking people think they are cars. I am in favor of bike lanes but not bicycles on the main road with cars that act like cars. Live oak was a huge fail. There is zero parking and the lanes do nothing since everyone bikes in the middle of the street

Increasing pass through traffic on the Willow corridor making it worse and worse for local residents.

Increasingly congested, frustrating and dangerous, with frequent traffic jams and overflow into neighborhood streets.

Incredibly congested and almost impossible to get around during key periods in the work week.

Infrastructure a little haphazard. Given our city layout we have a tough time optimizing for various modes. We have some bike facilities but they are of inconsistent quality and end abruptly in places. There's a pretty consistent lack of way-finding signage (the kind you see in Palo Alto). Sidewalks in many places could be better (e.g. wider). Traffic on El Camino, Middle, Ravenswood, Middlefield, and Santa Cruz seems too fast and there aren't enough safe places for bikes and pedestrians to cross. I've heard that downtown parking is a severe pain point but we don't seem to be managing it efficiently with pricing, etc. In general, things seem to be put together in a piecemeal fashion, so it's great to see a holistic attempt at prioritizing and creating policies. I'd like to see us look to Palo Alto as a model. Though we have half the population, we have a comparable # of people who reportedly bike or walk to work (~3500). We could probably increase that number (and take some pressure of

It has become too congested. More downtown parking is needed, however, I am downtown often & I seldom have a problem finding a space.

It is bad and getting worse, especially with all the growth along El Camino and with the growth of Facebook and Stanford

How would you describe the current state of transportation in Menlo Park? (continued)

It stinks. Hard to access train station with narrow openings for entry and exits and not enough parking. Terrible cut through traffic to avoid back ups on El Camino, Santa Cruz or to make faster time to freeways. Terrible new stop signs on Santa Cruz to repel traffic to a dying downtown. The ONLY thing MP has done right in the last few years is install sidewalks on Santa Cruz for pedestrians. Even still, residents don't have room to put their garbage cans out without hampering and endangering bikers or pedestrians.

It's pretty good, and although I don't like the impact on parking, I'm glad to see more bike lanes in the city. I'd like to remind the council that a lot of people with mobility issues (especially seniors) may do a lot of their activities locally, but may still rely on cars as transportation, and the same is true of people with very young pre-school age children. I'd like to see more focus on sidewalks for these people. I'm really glad to see more light-up cross-walks as well. FYI, I appreciate that MP is focusing on commuter bike routes rather than recreational bike routes. I don't think that our public roadways should be designed to support people's hobbies, but their transit needs.

It's the top issue in Menlo Park!!!!

Lack of public transportation, which leads to excessive traffic and congestion on Marsh and Willow.

Let's just say that it is manifestly clear that the transportation planning process to this point has been ad hoc.

Let's just say that it is manifestly evident that the prior process has been "ad hoc."

Like all cities and regions in the area, the carrying capacity of the roads are overwhelmed during peak commute times. The main bottlenecks I encounter are mostly on Hwy 101, so not necessarily within the jurisdiction of MP, but something that could be positively affected by a well executed TP. I also commute 12 miles (each way) many days a week by bike. The majority of my ride is on bike paths in decent shape.

Lots of congestion at school start/end times as well as commute times at North-South corridors of 101, Middlefield, El Camino, Alameda de las Pulgas

Lots of congestion for car traffic during rush hours. Much faster for bikes, although feels dangerous.

Main roads are becoming increasingly saturated during rush hour, especially near highway 101. More traffic cutting through neighborhoods. Some issues with bike lanes. Otherwise pretty good.

Major streets overwhelmed with traffic at peak times.

Mediocre to poor; disconnected from current high level of development activity.

Meh

How would you describe the current state of transportation in Menlo Park? (continued)

Menlo Park currently has a fragmented transportation system. I ride my bike, walk and drive regularly around the city. There are few safe routes from my neighborhood (Allied Arts) to local parks and schools because of the lack of sidewalks and poor street lighting. There are no easy access points from downtown Menlo Park to downtown Palo Alto (Ravenswood crossing to Alma is the best way right now). Getting to Belle Haven is particularly difficult and divided our city and prevents equal access to opportunities for our families.

Menlo Park has been designed to inhibit transportation from the baylands to the hills (NE to SW). No single road crosses the city. In my last position I supervised large teams of temporary professionals coming into Menlo Park to work at our offices on Middlefield. It was a constant problem for anyone outside the area to get into work without frustrating traffic.

Menlo Park is challenged by the success of businesses in the area. We are blessed with a thriving economy but lack an infrastructure to support the increased growth needed. Commuting around town during rush hour or peak times for schools is challenging.

Menlo Park seems to favor single occupancy cars over all else. That is not good. The roads and parking lots are deteriorated terribly, and don't seem designed for the heavy equipment all the construction projects require. The bike lanes are not contiguous, so it isn't easy or safe for normal people, including kids, to get around. The public transit options are horrible - not enough frequency for them to be useful. This includes buses and shuttles, even the train (that favors other cities as hubs).

Moderate to frustrating

Most driving infrastructure is fine, with annoying congestion at rush hour. Most bicycle infrastructure (at least between the downtown and the 101) is good for adults, but is badly lacking for children, especially during congested periods.

Near gridlock traffic during commute hours. Minimal and under- publicized bus service. Use Caltrain from the PA station due to lack of trains stopping in MP. People seem obsessed with blocking traffic not creating better traffic flow

Need safer bike routes off of major streets. Need to figure out rush hour congestion on El Camino Real And Sandhill Drive.

Needs improvement. Biking: difficult to get around on bike. Difficult to get from the willows, across the middlefield/willow intersection, and once at ravenswood/ecr or santa cruz/ecr, super dangerous to get into town. Really unenjoyable and separates us from easy access to going downtown. Car: Traffic on willow of course is a mess, which makes the willows super unsafe for almost all modalities as folks speed thru.

Not bike friendly, congested/grid-lock, no easy ways to get around (lacks arteries).

Not enough convenient public transportation options (e.g., free shuttle). Traffic is "okay" but freeway arteries (e.g., Willow) definitely get clogged, and certain intersections can be dangerous for cycling (e.g., Willow @ Middlefield, Bay @ Ringwood).

How would you describe the current state of transportation in Menlo Park? (continued)

Not good--El Camino is currently at capacity much of the time and it is entirely unclear how it will absorb the significant increase in traffic to be expected from new development. It is not safe to bike on El Camino, but there is no good north-south alternative for biking. Getting across town is also difficult, requiring long waits at lights and circuitous routes. Again, biking is challenging at best.

Not great- very congested everywhere. We are spending a lot of time standing in traffic

Not very bicycle and pedestrian friendly. Car traffic is becoming heavier and often terrible. We feel trapped in our neighborhood because we don't have safe walking or biking alternatives to important destinations.

OK, except at rush hour, but not good for pedestrians and cyclists (although getting better).

OK. During the day travel via car is pretty straightforward. But during rush hours it is non stop stop and go traffic.

OK...but very inconsistent and not fully safe for pedestrians and bikes and not always clear right of ways for cars in the residential areas.

Ok, but needs a lot of work in residential areas, needs more sidewalks for safe walking (not driving) and Haven area needs proper sidewalks and bike pathways for the entire length

On the brink of chaos. The volume of traffic on Oak Grove combined with decreased lane size and bicycles at the end of the school day is dangerous. Please note that there are seniors on Oak Grove and Pine who are not able to park on Oak Grove to off load groceries and packages, and there is little room on Pine St. for additional parking/delivery due to Nativity School parking. I believe there are other issues for seniors and I hope this will be considered. The Ravenswood RR crossing still dangerous with pedestrians crossing and cars backed up and u-turns made right after Noel Drive.

Poor

Poor - limited rail, congestion on Willow

Poor at best

Poor- Bayshore highway in the evening going to Dunbarton bridge is a nightmare. No good public transportation options

Poor. It's too dependent on cars. We have a city that is small enough to be navigated on bike and foot, but there just aren't enough safe routes to do so.

How would you describe the current state of transportation in Menlo Park? (continued)

Poor. Public transit is inadequate. Pedestrian rights - or the existence of people who choose to be pedestrians is too often ignored. This survey will not get good information. For example, in the next button choices, I occasionally drive on BOTH weekends and weekdays. WHY did you think people would do one and not the other? What data are you trying to suppress? Similarly I use walk on both weekdays and weekends, and use public transit, but less than weekly.

Poor. Too much congestion on main travel streets. Vehicles speed although even the posted speed limit is often too fast for pedestrians, bicycles, wheelchairs and getting in/out of driveways. I like the new focus on bike lanes and sidewalks.

Poor. Too congested during commute hours. Too many commercial vehicles on main roads. Vehicle speed too high during non commute. Public transportation not very useful except for Sam Tran routes dedicated for local schools.

Poor: The downtown traffic signage and crossing streets to Santa Cruz are terrible. Perhaps vehicle traffic should be banned from University to El Camino. The overall traffic at school times and rush hours are terrible. Very poor quality of life. The residential speed limits of 25mph or 30mph are very dangerous and degrade the quality of life.

Pretty good, though there are still some places that are dicey for cyclists

Pretty horrible. The current congestion encourages terrible driving and cycling behavior: running red lights, blocking intersections, ignoring pedestrians and bicycles, angry gestures, yelling, honking.

Problematic. Key roads are oversubscribed at rush hour. People drive too fast and too aggressively out of frustration. Huge numbers of drivers are paying more attention to their devices than to the road.

Roads in many parts of town were not designed to handle current levels of car traffic (namely, El Camino). Many main streets are unfriendly to bicyclists and pedestrians--it's particularly notable near our schools and parks, locations that are perfect for biking and walking to. There is a vicious cycle where levels of car traffic make people scared to bike, thus compounding the problem. To reverse this cycle, we need to go out of our way to invite bicyclists and pedestrians onto our streets.

Rush hour traffic is bad in some areas, like Willow, Alpine/ SandHill.

Safety for bikers and walkers is very poor, especially for students going to and from school by foot or bike. Need bike lines, sidewalks, and/or signs specifying no parking during school commute hours on major school commute thoroughfares, like Olive St, where Hillview kids are currently not safe.

Slow during afternoon commute hours. Especially bad between 101 and Dumbarton corridor.

Sometimes okay, sometimes impossible. Belle Haven is surrounded by bottlenecks that trap us in here.

How would you describe the current state of transportation in Menlo Park? (continued)

Spotty, inconvenient long-range transit options. Generally very car-centric, and very very congested because of that.

Super congested and getting worse!!!!

Terrible on El Camino, bad to not bad elsewhere depending on time of day. The pedestrian crosswalk at the Ravenswood grade crossing is still dangerous. The crosswalk should have a walk/don't walk light that is coordinated with the El Cam stop light and, more important, with the train gate. Headed east, I almost got stuck on the tracks when the cars in front of me stopped for several slow-moving pedestrians and the gate started coming down.

Terrible, all dependent on cars

Terrible, at times streets are impassable.

Terrible. All major routes are bogged down with too much traffic including those pass through town and those traveling within town.

Terrible. Roads are completely inadequate for traffic and it's virtually impossible to cross town west to east.

Terrible. There is a distinct lack of reliable public transportation to the west side of Menlo Park!!

The current state of Transportation is a huge mess. People who live on the East Side have been deeply affected by all this new construction. People who have their kids in Tinsley Programs and have to take their kids to West Menlo to school are stuck in traffic for so much time, its ridiculous.

The downtown and West side of Menlo Park is pretty friendly to multimode transportation.

The state of transportation is average for an older suburban, small city. Traffic congestion has worsened sharply in recent years. Although some roadways can accommodate people on bike or walking safely, many can't. The design is car-centric vs. people-centric. Public transit options are sparse.

There is a lack of a thoughtful solution consistently applied across town. Priority appears to be given to non-town, business, Palo Alto & commute traffic on thruways such as Sandhill - that does not consider local residents access, or ease of use.

There is a lack of bussing available to students from both west menlo park and east menlo park to high school. Buses are to full for students to get on or do not take a direct enough route to school to get them there on bell schedule. Students often are left at bus stops and must walk to school two to three times a week.

Through traffic has considerably increased, especially on the Willow Road corridor to Dumbarton bridge

How would you describe the current state of transportation in Menlo Park? (continued)

Too car centric

Too car centric, with existing traffic likely to get much worse as properties along El Camino and in Belle Haven are developed. Parents driving children to school greatly increase traffic in the mornings and when school lets out. Workers parking on side streets near downtown contribute to traffic backup on University between Santa Cruz and Middle, add the parked cars along University and this street is not easy for bikes despite being designated a bike route. Traffic along Middle has increased noticeably in the past couple of years, with frequent backups at the University Ave intersection. The Safeway/Shell Station/El Camino intersection of Middle is frequently a clogged free for all of cars going every which way. I love (and use!) the new sidewalks along Santa Cruz. We need sidewalks on the south side of Middle and on at least one side of Olive between Oak and Santa Cruz. Ringwood should also have a walking path on both sides of the street. Traffic heading out Willow in the mo

Too many traffic crowding/traffic jams, particularly on El Camino Real. Insufficient parking downtown and at CalTrain. Foolish usage of speed bumps and similar road blocks on residential streets. Wasteful use of traffic cameras that make certain intersections more dangerous. Inadequate alternatives to the private automobile. Over-focus on bike lanes on arterial streets.

Too much congestion, especially during commute hours, which have increased in time (7am -10am & 3pm - 7pm)

Too much traffic on residential streets

Too much traffic! I avoid going certain places (downtown MP) during peak traffic hours. Willow road is awful in the morning and afternoons!

Traffic congestion has gotten really challenging. Both downtown and crossing El Camino. Belle Haven is a disaster. The lights recently changed pattern and make it impossible to use a car to get in and out for many hours of the day. A safe bike route for kids through downtown is imperative. Making the city more bike friendly will be more sustainable than encouraging more cars by having a few parking spaces.

Traffic congestion is terrible in the mornings and evenings trying to leave or return home. There needs to be a fix to the flow of traffic to and from the Dunbarton bridge. There are so many cars coming from this direction in the morning that if I don't leave for work before 6:50am, it can take 10 minutes just to turn onto Willow Rd. from O'brian. This is made worse by the awful light timing at that intersection (dangerous zero delay between green and red, and the backup on Willow doesn't allow more than 2-3 cars to turn before our green arrow is red again). There is also no sidewalk from my house on Kavanaugh out to Melo Park. This makes running and biking to the store or for exercise less safe.

Traffic is becoming more congested every month, and it leads to frustration and bad decisions by drivers, bike riders, pedestrians and other travelers.

Traffic is very heavy at peak times Mon- Fri.

How would you describe the current state of transportation in Menlo Park? (continued)

Traffic on El Camino is terrible. It's difficult to get across MP by any means (car, bike, foot). Not enough bike lanes to feel safe riding.

Vehicle gridlock, not enough emphasis on safe biking and riding. No-one understands the free shuttle available to residents.

Very congested, especially El Camino

Very driver-centric, ignores bicycles and pedestrians

Very good in most areas, but has specific spots that could be improved.

Very poor. We have increased commute traffic through Menlo Park, particularly in the Willows neighborhood and along Willow Road. It can take 45 minutes to an hour to get from Gilbert where my home is to 101, which is less than a mile away.

We are in crisis. The roads are gridlocked, especially during peak travel times. Many walking and biking routes have terrible gaps that make them unsafe. Having all modes of transportation "share the road" is dangerous...some streets are better for some modes, other streets are better for other. We need a strategic vision.

Well, the clogged roads are a pretty clear sign that traffic is an issue. More affordable public transportation options would be great for residents and commuters.

West side – just fine. Typical delays at rush hours that would happen anywhere. East side – Marsh/Willow – crazy. We fundamentally had to change our habits to avoid going down those roads from 4pm-8pm, including no longer taking after school dance lessons at a studio in the vicinity, using a hair salon, or eating at Mardini's, etc.

challenging. el camino is often above capacity. cut thru traffic is risking children's safety in many residential neighborhoods. the rise of facebook has made intercorridor traffic near gridlock.

driving on El Camino is tedious, to say the least....

el camino traffic increasingly congested Bikers not given enough attention

feels like it's not well integrated or implemented with any kind of overall plan in mind. Ad hoc. Leads to disjointed areas that are hard to navigate between, unpredictable traffic patterns, and ripple effects where one incident quickly has far ranging impacts. I also notice quite a lot of traffic problems caused by unlawful driving behavior (e.g. packing an intersection when a light turns yellow then red, which keeps cross traffic from being able to move through the intersection when its their turn) that is very predictable (particular intersections / times), and no enforcement. If people were regularly ticketed for that behavior it might have a positive impact on traffic overall.

horrible, crowded, un safe, disorganized!

How would you describe the current state of transportation in Menlo Park? (continued)

i live in the willows. I want to be able to go to the grocery store at 4 in the afternoon, or any other time of day without spending significant time traveling. I want to know what's going to happen in an emergency. when cars are lined up, as they are every day, to cross the bay on Willow Road and university ave,, locking this neighborhood down. I want commuters to stop cutting through my neighborhood. I want parking on streets to be limited enough to allow traffic to flow both ways (there are areas where parking on both sides of the streets causes single car access to pass). I want bicyclists and more importantly pedestrians to me held to higher safety standards (no cell phones!!) and share street access more readkly I want double parking of delivery trucks to at least limited to less heavy traffic hours. I want to not be required to drive through Palo Alto or Ravenswood to get to stores.

in almost 20 years of living in Menlo Park, this is the worst I have ever experienced. I would rate on scale of 0 to 10 (10 being best) a 0.

in crisis

too dependent on cars/autos. Not enough thought to increase pedestrian and bike access and safety and therefore encourage people not to drive.

too much traffic, congestion, and accidents. Need more sidewalks, bike lanes and protected areas for pedestrians/cyclists.

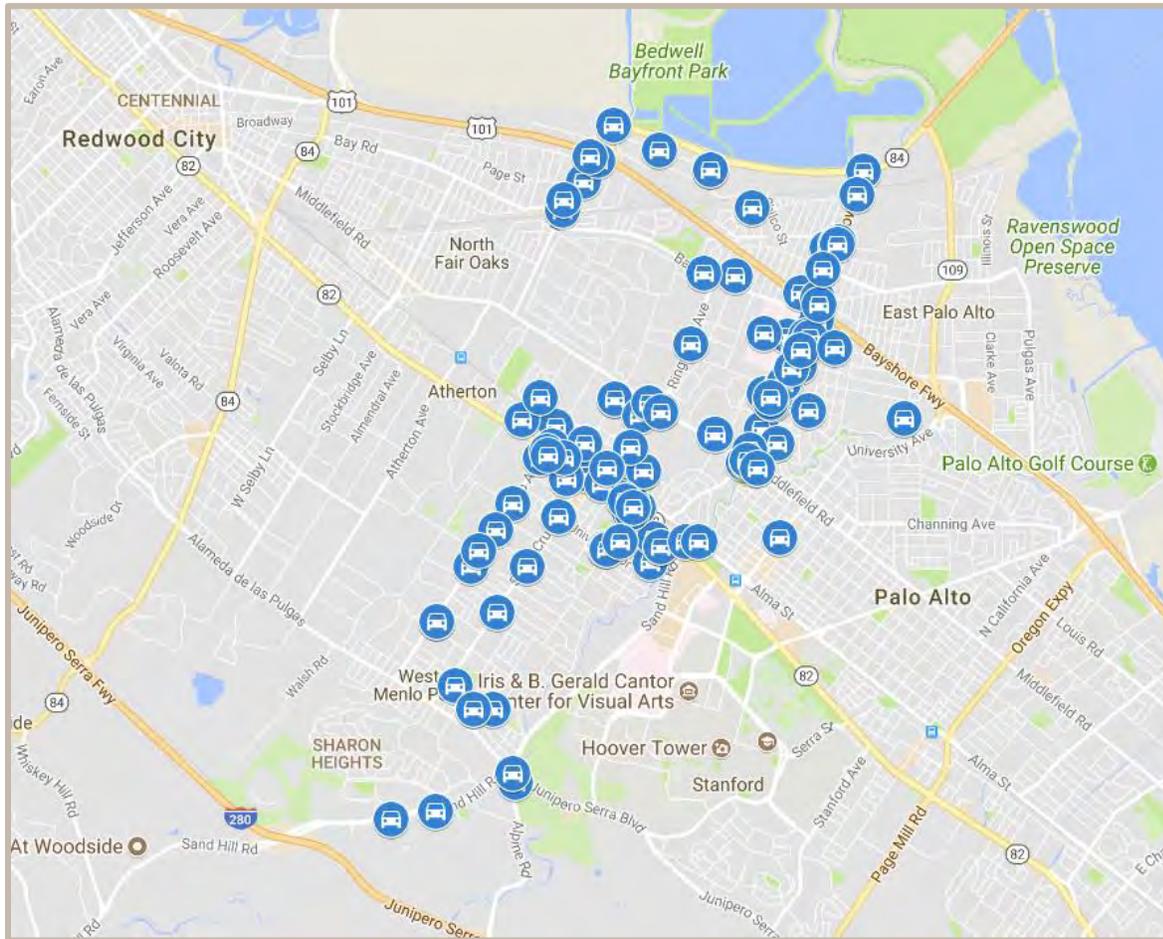
very congested and bottlenecks everywhere. Unsafe on bikes.

Appendix B: Driving map and comments

What have you experienced at specific locations while driving in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box.

Map

Respondents indicated location-specific comments on a map; these comments are below and also available through an [interactive online map](#) that associates comments with locations.



Comments

Cut through traffic (2)

I am very concerned about the back up Oak Grove due to the new bike lanes that remove the possibility of cars flowing freely. Now with parents lining up on Oak Grove to pick up children at Nativity with no possibility of pulling over to the right side so cars can proceed through because of the new bike lanes are now in the way. Traffic is backing up terribly and those of us who live on Rebecca Lane, can't even get out of our neighborhood to turn left on Oak Grove. It is a nightmare. (2)

Slow traffic on elcamino and willow moves traffic through neighborhoods (2)

Driving map comments (continued)

Speeds on Valparaiso seem too high given the residences, schools, and churches that are on this street. There are a lot of cars trying to turn on and off the street and no controlled intersections except for the light on University. It may make sense to have a stop sign or two along the road, which would help slow traffic down and give people a place where they know they could turn easily. Driving on Valparaiso, the street signs (e.g., for N. Lemon Ave.) are really hard to see until you are almost past the intersection). Clear sightlines well in advance of the intersection would help considerably--if there aren't existing guidelines for street sign visibility, this would be a great thing to include in a Transportation Master Plan and have enforced around town. (2)

Traffic goes very fast on this stretch. Speed limits aren't adequate and there is never any policing here either. Also the traffic light at Santa Cruz going W and making a left towards Sand Hill Rd doesn't seem to be timed or triggered on the weekend. (2)

distracted drivers, commuters cutting through neighborhood to access 101/speeding, inappropriately blocking bike lanes and side roads to drop off at pool/gym. (2)

Around CalTrain station and Rec Center is most congested area with the most problems. Not sure how to fix it - I avoid this area except for very limited off times.

At a number of different spots on Gilbert Ave, the city has recently added some yellow crosswalks. I think this has made the intersections more dangerous. For example, at the intersection of Gilbert and Pope. Let me explain... The people driving on Pope have a stop sign, and the people driving on Gilbert do not. It has always been this way. But since the new crosswalks have been painted, I've seen several drivers on Pope pull up to the crosswalk, stop, and then immediately start to cross Gilbert as if they have the right of way, which they do not. The cars and bicyclists coming along Gilbert have the right of way. There is something about painted crosswalks on the asphalt which has now confused some of the Pope street drivers into thinking that this is now a 4-way stop intersection, which it is not, and never has been. Any resulting car crash here is not safe for drivers, pedestrians, or bicyclists. Please don't see this as a reason to convert that intersection into a 4-way st

Backup on El Camino around 4pm gets crazy. Often seems in part that it is because the lights aren't timed well.

Belle Haven building is way out of scale with ability of infrastructure to support, to the level a building moratorium should be considered. And all the FaceBook activity is piling on, at very high employee density levels. The El Camino/Alma left turn bad joke needs to be coordinated w/ Menlo Park and Palo Alto. The intersection is constantly congested, compounded by drivers from Palo Alto northbound on Alma routinely making a U turn at first intersection to backtrack and get to Sand Hill. The supposed roadblock isn't fooling anyone, Waze, Nav system or otherwise. OParking needs finally to be banned on El Camino, both in front of old car dealerships northbound and otherwise, and southbound near the clock store and theatre south of Ravenwood. Lone or two businesses who are cheap on parking ar holding ECR traffic hostage for very poor provincial reasons.

Driving map comments (continued)

Big traffic backups in afternoons and evenings leading to cut through traffic

Cannot get on to Sandhill from Monte Rosa easily anywhere from 5:30-6:45pm. Sandhill is backed up and Monte Rosa is the only road on Sandhill without a traffic light to assist vehicles getting on to Sandhill. I suggest that a traffic light be installed here.

Congested and gridlock.

Construction taking up sidewalk and a Lane of traffic.

Crazy slow traffic in afternoon peak hour. Bottleneck getting onto 101 South creates a major backup, even if just want to cross 101!

Cut through traffic & too many lyft/Uber & bus drivers who are either unfamiliar with area (causing delays), or aren't actually in use/ full. Over 90% of company buses in the M2 Area are unfilled or have very few riders.

Dangerous bike and pedestrian crosswalk at Middlefield and Lin field. Middlefield from Willow to Ringwood is dangerous -- too broad and nothing to slow down traffic. Cars routinely go 45mph here. Need something to slow cars down and we need better police speed enforcement.

Dangerous right turns onto Woodland from Middlefield. Lots of cut-through traffic and no marked crosswalk

Difficulty turning onto Santa Cruz Ave - even a right turn - at rush hour, which includes when school kids are being driven to/from school

Drastic increase of traffic and speed of vehicles over last 5 years.

Driving from home to Ladera and return in the morning before 9 AM is a nightmare with drivers coming off 280 at high speed and very angry.

Driving into Belle Haven during the evening commute can be very hard due to increased Facebook and Dumbarton Bridge traffic. Willow Rd will be backed up to Middlefield and Marsh Rd. to the Hwy 101 interchange. When we want to drop kids off at home (on Terminal Ave right by FB campus expansion), we often drop them off at the pedestrian overpass on Bay Rd, west of Hwy 101 so that they can walk into Belle Haven - they get home quicker that way.

Driving map comments (continued)

Driving on Willow Road is 3-4 times as long during the AM and PM rush hours. It can take 20 minutes to go from Middlefield to Bay. Living on Gilbert, this is a main route for us and the backup is consistent and dangerous. People drive "amad" and skirt around to try to avoid the traffic. Traveling on Gilbert across Willow toward Santa Margarita for example is difficult because there is a left turn lane and a shared straight/right lane. Most traffic trying to turn right gets backed up. So anyone who wants to go straight is stuck through multiple long light cycles or has to illegally go into the left hand lane and not turn. Or legally turn left and detour around. This is a main school route to three schools in the Willows. This is a huge issue for local traffic. In addition, it's not safe to have kids crossing this road on bike. My daughter nearly got hit just last year by a car that ran through the red light as she started to cross legally in the cross walk, walking h

During rush hour it becomes almost impossible to get from the Willows on 101 (Willow). There are long lines of cars on Chester, Durham etc. that are cutting through the Willows (most likely following Waze) to avoid the traffic backup on Willow Rd.

During rush hour it is impossible to get from the Willows on 101 (University) as there is an endless stream of cars (most likely using Waze) that hops of University and uses Woodland to join University again. It might save them 2 minutes, but it can take 20 minutes for the Willows residents to make the turn onto Woodland.

El Camino Real - the back ups that occur during certain times seem like they could be alleviated by making it three lanes throughout Menlo Park. Especially when all of the housing that is being built along El Camino Real is completed, we are going to need EL Camino to handle even more cars and traffic and the existing configuration is going to make traffic extremely slow and inefficient.

El Camino Real is a giant bottleneck for people trying to get through the city. Nobody wants to stop and shop downtown when they're losing precious time twiddling their thumbs in traffic because of the fat medians restricting the lane width/number. It makes me quite resentful toward the city. Willow Road is a congested mess around the clock; I often take Marsh because it's less congested. If I need to get to eastern Menlo Park during rush hour for a meeting, I'll literally put my bike in my car, drive downtown, and then cycle across the Pierce road bike bridge. (Which is ridiculous, no?) Sharon Heights and 280 are a breeze; I suggest the city encourage more development there to even out the density.

El Camino all through Menlo Park is bad. I try to avoid it.

Encinal Ave. has a bunch of traffic issues during school drop-off/pick-up times. The street gets backed up from people trying to make a left-turn into the school parking lot, resulting in all kinds of crazy driver behavior. People make U-turns in the middle of the street, honk, etc. More people might park on the side streets to pick up their kids if there were sidewalks on Encinal to make it safer to walk there and back. Right now the school is optimized for car pick-up vs. bicycling or walking. Middlefield is a main road and Encinal is a popular road for getting between Middlefield and El Camino. So having sidewalks and bike lanes along the whole length of Encinal would seem like the bare minimum if we want to improve the situation here.

Driving map comments (continued)

Entry onto Valpariso and Santa Cruz from the crossing side streets is very difficult especially at school and rush hours.

Extreme congestion throughout Belle Haven during commute times, with Willow backing up onto the 101, and cut through traffic blocking neighborhood streets like Hamilton and Chilco.

Extreme delays in traffic especially during commute hours. Too many commercial vehicle causing premature wear on the roads. Vehicles driving too fast and unsafe for residence. Too much traffic causing noise pollution. Unable to cross roads safely. No safe pedestrian cross walks except for Middlefield and Gilbert.

Extremely difficult and somewhat dangerous to make a left on middlefield from woodland. Also, bikers and pedestrian crossing middlefield at dangerous blind spots. I feel it's a disaster waiting to happen. During lunch hours and Monday evening at the Willow Market, employees from offices across the street and from Willow Road cross the intersections unsafely. Monday evening food trucks are exasperated the already heavy traffic area at Willow and Middlefield.

Extremely difficult to exit and enter the Belle Haven neighborhood due to cross and cut-through traffic. All cut-through traffic must be eliminated.

Extremely unsafe biking and walking conditions for Hillview students going to and from school on Olive St. There is tremendous traffic on Olive St during morning and afternoon times, when hundreds of Hillview students are going to and from school. Olive St. is a major thoroughfare for these students, yet there are no sidewalks or bike lanes or a much-needed cross walk (at Olive St. and Stanford Ave.). This means that hundreds of Hillview kids are putting their lives at risk by walking and biking well into the very busy street. Though we really need bike lanes and sidewalks for these children, an interim solution would be signs that authorize no parking during school morning and afternoon rushes. The portion of Olive St. that needs these signs is the portion from Middle Avenue to Santa Cruz. We also need a safe crosswalk at Olive St. and Stanford Avenue, where hundreds of Hillview students attempt to cross at a blind corner every day.

Getting down Willow is often not worth the frustration. If I have to drive 20 mph I'd rather do it on neighborhood streets where it's pretty. If the main roads are impassible, it's unfair to call people like me 'cut through traffic'. I avoid rush hours as much as possible but there are still bottlenecks and I try to avoid getting stuck. I know there is no real solution as long as people have to get to the bridges to get home from work. The burden will always land on the people who live near them.

Getting onto or off of Willow Road at most any time of day (leaving or entering the Willows neighborhood. So much cut-through traffic in the neighborhood and an endless line of cars on Willow Road that blocks intersections! The traffic in the Belle Haven is impossible! I don't know how people who live there can tolerate the traffic/congestion IN addition, El Camino is a mess!

Gridlock on Willow Rd between Alma Street and Highway 101 is very lamentable.

Driving map comments (continued)

Hamilton and Willow is completely congested and frightening at commute times; too many cars parked on the sides of Hamilton while cars are coming in and out of the gas station and shopping plaza. The stretch of Willow between 101 and Middlefield is a bottleneck.

Happy with how this area has improved by eliminating left turns from Ravenswood near the RR tracks. Maybe a pedestrian overpass (to cross Ravenswood) would help.

Heavy traffic on Willow

Horrible too much traffic

I am not able to walk, but must take car. I am concerned about the volume of traffic on Oak Grove with the new station 1300. Added to the railroad crossing and the bike traffic, this will be an area of concern.

I avoid driving on Willow and 101 when I can. Getting on 280 from SandHill is getting horrible, and Alpine is also bad.

I can drive from San Leandro to my children's daycare near Willow and Newbridge (27 miles) in 45 minutes at 5 pm. If coming from home at Willow and Alma at 5 pm, it takes 60 minutes to go 2.5 miles down Willow. The thought that MP wants to add more residential and commercial traffic to this nightmare terrifies me. Something has to be done to improve access to the Dumbarton Bridge from MP and PA.

I do not commute - but am frustrated by the increased traffic experienced while out and about during the day.

I don't commute

I have experienced all the issues listed @ <http://www.univpark.org/safe> but am most frustrated by the high speeds, high traffic volume and distracted drivers that I see daily. I've also developed asthma as an adult and feel that poor air quality, largely due to combustion engines is a significant contributing factor.

I have lived on Coleman Ave for almost 20 years and currently can't go east between 3 and 7 pm each day. This is unacceptable.

I live on Chester, and during the afternoon from 4 to 6 pm the road is often so congested (towards Willow Rd) that I cannot get to my house or leave (except away from Willow)

I try to avoid Willow, which seems to get backed up frequently.

I would describe biking on Marsh Rd as the most stressful part of my 12 mile commute (my commute includes Foothill Expressway, El Camino and Middlefield). Cannot believe that the primary strategy is to have signs telling bikes they may take a whole lane. Have you ever biked during rush hour on a bike taking a whole lane? Ridiculous.

Driving map comments (continued)

I'm going to have to switch jobs and start commuting again and seriously thinking of leaving Menlo Park and California because it will be too time consuming just getting in and out of Belle Haven. It is very difficult to get onto Willow from Newbridge in the morning. It can take 12 minutes to go 3 short blocks because only a few cars get through the light. The pedestrians are competing with the cars. The construction has been dragging on forever and there needs to be that 3rd lane to 101 N. And at 5pm it is impossible to get from downtown menlo park across 101 to Belle Haven. Reducing traffic through neighborhoods sounds nice, but the main roads are so packed and not moving and the cars on neighborhood streets can't move and there are too many cars. There has to be a better way connect the highways (e.g. Dumbarton and 101). I lived near Burgess park for 8 years and traffic moved easily. Belle Haven is a disaster and there are hours of the day when it take 20 minutes to go a

In this very busy portion of Haven there are no sidewalks or bike paths connecting new condos to bike bath to get to Facebook

Increased traffic and safety issued on Willow Road and O'Brien Drive

Increased traffic on Willow and back up on O'Brien.

Increasing use of Cambridge and University Drive as a cut-through especially at rush hours

Incredibly frustrating to be blockaded behind traffic queuing up for 101 and the Dumbarton, when all I need to do is to get across Willow to my home on the northwest side.

Insufficient parking downtown; I am often reluctant to leave my permitted parking place midday because often I cannot find another space in that lot when I return. It is difficult to see the stoplight at Elder and Santa Cruz because of hanging tree branches. This light also makes it difficult to turn left onto Olive Street from Santa Cruz Avenue because it allows great groups of cars to continue towards downtown (the Santa Cruz Avenue left turn lane is often full or overflowing during the peak hours). I'd also like to see all left turns (onto and off of) Oakdell at Santa Cruz.

It is very congested.

Just a ridiculous intersection where Ringwood and Ravenswood meat Middlefield. The city is so lucky that accident rates are not higher here.

Lack of on-street parking when dropping off my kid at Nativity Elementary. Bottleneck from Bay Road to Laurel and Oak Grove caused by Encinal Elementary (which also has inadequate parking), Laurel School, and MA High School. I also really wish there were MORE off-freeway cut-throughs and alternate routes. The conjection on 101 is largely caused by local, in-town traffic (I shouldn't have to get on the highway to get to Redwood City, but because of civic design, it's unavoidable).

Driving map comments (continued)

Leaving Menlo Park in the morning isn't too difficult depending upon Bay Front and North bound 101, but returning home before 7pm is very difficult. Mostly the delays are either on Chilco returning into my residential area with the Instagram and Facebook buses and pedestrians working there. Or heaven forbid I try to take Willow from 101 into Bell Haven, that can take forever because of the intense congestion.

Long delays on El Camino Real, particularly in the afternoon, in both directions and at all times of the year.

M-A: signals and route east-west through this area of major auto/bike/bus, truck access is two decades out of step Willow: travel through this area is overwhelmed by commuters to palo alto, locking residents out of roadway Menlo-Ravenswood: east-west travel is compromised by Menlo Ave ROW; north south travel is compromised by bottleneck ECR Cambridge: travel backs up from bottleneck locking residents out of roadway ECR Valparaiso: travel backs up from bottleneck Valparaiso: traffic compromised by lack of sensor programming at University, lack of left turn pockets and enforcement of no driving in (when empty) bike lanes.

Marsh Road exit off 101 has gotten substantially worse trying to make a right turn. It seems that the traffic to the Dumbarton bridge is a leading cause. Maybe the City can work on traffic light adjustments and Caltrans to create a separate right turn exit.

Middlefield & Woodland. From Woodland, turning onto Middlefield going south This corner is basically a blind turn. Cars are shooting north on Middlefield. Turn lane onto Woodland reduces vision of cars going south. Willow Market loading on Middlefield reduces vision of cars going south, Need to merge into traffic gaining speed going south. No signage to slow down or alert cars on Middlefield that cars are coming out of Woodland. High t-bone risk.

Middlefield and Ringwood, better cyclist facilities such as bike lanes and box at light needed for left hand turn on Middlefield from Ringwood. Cyclist coming or going to SRI compete with cars making right hand turn or high school student go wrong way at light crossing to avoid narrow stretch to make left hand turn into school parking student lot. Bikers, vehicles and pedestrians compete in space which ties up traffic in area. Flow could be improved for Oak Grove, Ravenswood and Ringwood thru Middlefield with better planning.

Middlefield and Willow frequently backs up with to/from bridge traffic (same for Willow / Bay) and significant impact of irresponsible driving behavior of filling up the intersection when it's yellow / red. This activity should be ticketed and curtailed as it ends up creating unnecessary problems for cross traffic.

Driving map comments (continued)

Morning about 9am: 1) southbound Junipero Serra between Santa Cruz and West Campus Drive gets backed up due to poor light timing at West Campus Drive Evening about 6pm: 2) Poor traffic light timing at the intersection of Sand Hill Road and Santa Cruz when heading north on Santa Cruz. Cars back up on Santa Cruz and block the intersection with Junipero Serra. 3) The right turn lane from northbound Santa Cruz to eastbound Sand Hill Road is too short; lengthening it would allow northbound Santa Cruz traffic to clear the intersection faster.

My placement here might not be accurate (was hard to move the red marker across town within the frame). I want to highlight that Santa Cruz Avenue near Oakdell is dangerous as well. Cars are going surprisingly fast, maybe because they're heading downhill. I've seen kids almost get hit on a couple of different occasions. The one crosswalk is in a really counterintuitive place, not where kids would actually use it.

Need to improve traffic control coordination at this complex two-stage intersection, e.g. consider preventing "right on red" traffic in rush hours from Junipero Serra Blvd toward Sand Hill, currently it backs up Alpine Road badly.

Often after 8 PM I find that I have to wait at this signal even if there is no traffic coming from any other direction. Please install a traffic sensor so that the signal will turn the light green if a car is at the intersection there are no other car there.

Pretty much most of El Camino Real. It's basically a parking lot during rush hours.

Primarily travel 101 to the Marsh exit. The 2 left turn lanes to Scott Dr. merging down to 1 on sharp turn is asking for trouble. People are idiots.

Ravenswood/El Camino intersection is really a mess, almost always backed up around the train tracks. I regularly see cyclists--usually kids--cut through the Barrone Plaza bc there is too much traffic congestion to navigate toward this intersection on a bike. My son was involved in a bike/car collision in the crosswalk os this intersection. The traffic lights need to be calibrated with cyclists/pedestrians given more time to cross before cars can turn right--possibly "no right on red" during certain hours? The sharrows markings do not make this a safe route. There just seems to be way too much traffic funneling through this tight spot.

Rush hour gridlock on El Camino must be solved. Move the bike lanes off of a congested El Camino and move them to parallel side streets like Alma and Laurel

Rush-hour congestion between the 101 & Willow Rd (& University) is terrible. I stay at work extra hours just to avoid the awful slow downs.

Speaking as a "woke" driver, I've had some close calls here with kids trying to cross in front of me. The section of Middle between University and San Mateo is super dangerous for bikes/pedestrians. The crosswalks aren't well-marked and are often used by kids who don't accurately gauge the speed of oncoming traffic. I'd like to see roundabouts instead of stop signs at strategic locations along Middle (e.g. University, San Mateo, Olive intersections), proper bike lanes, improved crosswalks, and whatever it takes to lower the speed of drivers.

Driving map comments (continued)

Terrible access points to cross El Camino at all locations, Willow Rd is simply not tolerable at almost all times of the day, back ups and delays at El Camino along the Menlo Park corridor (and adding bike lanes will cause MORE not less traffic!!!), speeding vehicles along Santa Cruz to San Hill and now along Middle Ave to access Olive or Oak to get to Sand Hill/280/Junipero Serra. Oh and lets not forget the new stop signs on Santa Cruz make it impossible to drive down the street to get to the train station. Who thought that was a good idea??

Terrible traffic along Willow Road. If I want to leave my home in the evening, I am basically trapped. It takes 30 minutes to 1 hour to get from my home in the Willows to Highway 101 which is less than a mile away. Reducing traffic along Willow Road, which backs up from people trying to access the Dumbarton Bridge should be a priority.

Terrible traffic delays during evening commute times.

Terrible westbound traffic congestion during the week between 4 and 6 PM.

*The City of Menlo Park is just waiting for a child to be killed on Coleman Avenue. It is appalling. Coleman Avenue serves as the main motorist/bike/pedestrian route between Laurel Elementary School's Lower and Upper Campus. Almost all families that attend Laurel have children in both campuses (one on Edge Road in Atherton and one off O'Connor Street in the Willows). There is no safe bike/pedestrian route between the two campuses. I personally bike daily with my 6 year old to Laurel's Lower Campus at Edge Road, however, we have no bike lane and share the road with motorists. Many of the motorists are high school students speeding to MA High School and do not slow down for children. The afternoon is horrible. We only have to be on Coleman for a short stretch so we continue to bike (although I don't feel every safe) but I have no way to bike with him to the Upper Campus in 2 years because there is no safe route. **BOTTOM LINE:** Coleman and Gilbert need a bike lane for elementary school children*

The Willow exit is a mess from 4-8pm. It gets backed up and cars drive right up to the exit to merge, so those who get into the line, like good citizens, are waiting for a very long time. If all these people are trying to get on the bridge to Fremont, perhaps we need a direct connection from 101, that avoids the ground roads and doesn't load them up.

The congestion on the Willow on and off ramps to Menlo Park is terrible during rush hours, and often in the early evening. Traffic on Willow leading to the Dunbarton Bridge and to Facebook frequently backs up so that drivers cannot enter or leave business driveways.

The corner Elena and Valparaiso is very busy at morning and afternoon school rush hour times with bikes and cars going to many local schools. It is impossible to make a left turn from Elena onto Valparaiso because there is no break in traffic. Because there is also no light or stop sign the entire length of Valparaiso from Alameda to University, this leads to cars traveling at high speed. This also leads to dangerous conditions for bikers and joggers. There really needs to be a stop sign or light to make this intersection safer.

Driving map comments (continued)

The gridlock on Marsh Road between Bay and Bayfront already is problematic. With all the new commercial and residential construction going on in the area east of 101, this is going to get unbearable. I cannot fathom the level of incompetency involved with approving the development plan for that area with significant improvements in transportation infrastructure.

The intersection between Willow and Coleman has a traffic light that switches too quickly in the morning. It is impossible to get onto Willow from Coleman, and I spend 10-15 min in a jam in the morning. There is a lot of pedestrian traffic there as well, which slows down traffic even more. Something has to be done about this!

The intersection of Middle Ave and University Drive is very dangerous. It is a high traffic area at rush hour, when school lets out and even on weekends, but has no traffic light. It is also a school bus stop location. There are many bikers, pedestrians, moms with strollers and seniors with walkers due to the nearby senior center and park. I have seen many near accidents at this intersection and there needs to be an intervention.

The intersection of Middle and El Camino is difficult to navigate at almost any time of the day because of traffic entering/exiting the Safeway parking lot and the Shell Station. Having pan handlers begging at the Safeway exit only makes matters worse. Cars backing out of parking places on Middle at Nealon Park cause further delays; redesign that parking to get it off the street.

The light at Durham and Willow for cars going west on Willow needs to be longer. There is always a huge back up all the way to the 101 overpass. The merge from 2 lanes to one causes a back up, but if the light was a bit longer, it would be so much better!

The number and timing of lights on El Camino through downtown is ridiculous. What's going to happen when El Camino is fully developed?

The traffic on Willow Road is always an issue. The construction at the entrances and exits to 101 has made traffic worse, and I look forward to the day when that work is done. I also understand that much work will be done on Willow Road itself. Thinking about it gives me headaches!

The traffic on marsh Road is insane.

The wrong location was pinned and I can't fix it.

There are frequent cut throughs on this side street from University to El Camino

There has recently been a loss of parking along various parts of Oak Grove Ave. It's a recent project I believe. I think this just makes things worse, since now people have to drive around even more to find parking. I think the lack of parking might make drivers more frustrated. Then because they are frustrated they start driving more aggressively, which could endanger other drivers, pedestrians, and bicyclists. Can a lack of adequate parking lead to more road rage?

Driving map comments (continued)

There is tremendous traffic on El Camino at all times of the day. The traffic signal at Middlefield/Ringwood is terribly timed. Going south on Middlefield or turning off Ravenswood onto S. Middlefield is made worse by the very slow left turn signal from Middlefield onto Ringwood (cars trying to turn left back up into the lane of cars wanting to continue south on Middlefield. The signal for those continuing south does not change to green when there are no left turners from N. Middlefield into SRI. The left turn light onto Ringwood does not change even though there is no traffic coming north on Middlefield from Willow. No cross traffic from Ringwood either. Makes everyone want to run the red light. A lot of cars use that turn to get onto Bay to connect to south Hwy. 101. Then add the school traffic from the high, middle and charter schools--just really bad. It gets worse each year. Nicole knows about it, but says a 'study' needs to be done. Just put an intelligent person on

There would be improved throughput to University during afternoon rush hour if you could u-turn from Bayfront (bay/bridge-side) instead of requiring the turn onto Willow.

This intersection always scares me. Kids bike across the crosswalk on their way to school, sometimes in a steady stream, seemingly oblivious to the danger they face from four lanes of traffic merging to three. People seem to get stuck on the tracks more often than they should. Speed is too high--should be 25 throughout this section and cars are usually going over 30. Grade separation will help but it's hard to get hopeful about something so remote.

This intersection should not be forced to carry Palo Alto traffic avoiding the University/101 Interchange at afternoon rush hour. There should be NO RIGHT HAND TURN from Northbound Middlefield (from Palo Alto) from 3pm to 7pm onto Willow Road.

This is a very dangerous area during school start and end times. It is not safe for bikers, walkers or drivers. Three weeks ago my son was "doored" while riding his bike to school. A car pulled over in front of him on Olive Street near Santa Cruz to quickly unload a student and as my son passed the car he was "doored"and sustained a fractured collar bone. This area can NOT be a drop off zone as well as a path for bikers and walkers. Now that I drive my son to school, I see drivers cutting off bikers and walkers as well as making illegal u-turns on Olive after dropping off students which is not safe. I also see students cutting across Olive Street in front of moving cars and before the crosswalk on their bikes or by walking to avoid the cars pulling over to quickly unload. This is an area where a more major accident than my own son's accident is waiting to happen. Something must change. A start would be to make Olive Street a NO STOPPING zone during school start and end times.

This is the worst intersection in Menlo Park. In the afternoon rush hour, cars travel east on Ravenswood and turn right on Middlefield. Then they line up to get in the left hand turn lane to turn left onto Ringwood. The result is complete gridlock, every afternoon. Cars traveling south on Middlefield cannot proceed through the intersection, even on a green light, because the left hand turn lane on Ringwood spills over into the through lane.

Driving map comments (continued)

This region is a mess and reflects the city's rush to allow development dollars to flow into the coffers without requiring the developments and developers to fund adequate transportation infrastructure PRIOR to the development. I read in absolute disbelief the draft report on traffic relief options for the region. The report is talking about solutions that reach 10+ years into the future when the problem exists NOW! The rail corridor between downtown Redwood City and Bay Shore should be immediately developed for both light rail and pedestrian/bicycle access. If the corridor is too narrow to allow for this, the eminent domain process should be invoked in order to make it happen.

This site is comical. Does the city/county/state have any real transportation engineers who simulate the type of change planned here? It all sounds so good and healthy - widen the bridge, add bike lanes and pedestrian paths, make egress from the freeway easier. Did any of that really work at Marsh? No, the traffic over the bridge there has flowed less efficiently since the 101 exit and overpass were rebuilt. At Willow it makes even less sense when you throw in the added variables of the intersection at Bay Road being less than 150 feet from the freeway exit and the immediate narrowing of Willow Road to a single lane that occurs after Bay Road.

This whole area of Willow heading to the bridge is very bad. Some days it takes me over an hour to get from Middlefield to Bayshore if I'm heading to the East Bay after work.

Too congested. Challenging to merge to left on Middlefield from Oak Grove for Ringwood. Long line of traffic on Middlefield both way.

Too congested. Traffic signal creates long line that the section of street doesn't accommodate.

Too much congestion on Willow Road between El Camino Real and Hwy 101

Traffic at El Camino and Sand Hill/Alma is frequently backed up by multiple light changes at non-rush hour times both entering and leaving the city. This is due in some measure to Palo Alto's unwillingness to take their fair share of the traffic generated by the shopping center and development on Sand Hill. East bound Sand Hill traffic cannot continue onto Alma without turning onto ECR, making a u-turn at Cambridge and returning for the protected left turn onto Alma. huge waste of time and gasoline. However traffic northbound ECR at evening rush hour is very backed up and I try to avoid this route whenever possible.

Traffic backs up at the corner of Glenwood/Valpariso and ECR. It has been made much worse by the construction in this area. Contractors should not be allowed to encroach onto the streets. Construction vehicles and equipment have reduced visibility and space for residents in cars and on bikes. Children on bikes going to school are especially endangered.

Traffic flow from Palo Alto through Menlo Park to Willow Road seems to have improved since the North and South bound lanes of Middlefield have been reduced to one lane in each direction. It has made that route less attractive to "Waze" traffic. I would support keeping Willow at one lane in each direction to minimize the chance of encouraging the use of that route to get to the East Bay and 101.

Driving map comments (continued)

Traffic is very congested on Willow Road. This is both annoying as a driver, and also bad because it causes backups on collectors like Coleman and Gilbert, and also cut-through traffic on residential streets, like the one in front of my house (Riordan Pl.) and in front of my old house (McKendry Dr.)

Traffic on Chester street at 4pm

Traffic on el Camino is terrible due to lack of synchronization of traffic lights. Should easily be improved.

Unpredictable delays due to excessive traffic

Unsafe 4-way stop at university and middle for the amount of pedestrian, car, bike and school bus traffic.

Valparaiso Ave. has major congestion and a terrible intersection with El Camino. Intersection needs to be redesigned. Often have to sit through multiple light changes to turn left (northbound) onto El Camino from Valparaiso.

Valparaiso doesn't have a safe way to do left turns or cross for bikes and pedestrians. We need some lights.

Valparaiso east bound is frequently clogged. Even at non rush hour times. I have started to avoid this street even in the late evenings.

Very difficult to turn left onto Santa Cruz avenue during morning rush hour. There are simply no breaks in the cars.

We live on the San Clemente - Santa Monica intersection. Each morning I have to take Coleman to turn left to Willow to get to 101. It has been horrible lately (and not just because of the construction on Bay Rd and on both ramps). The traffic light at the Coleman and Willow is extremely quick for people who are standing on Coleman waiting to turn into Willow. Sometimes I have to wait for my turn 4-5 times!! It takes me longer to get through this traffic light than the entire commute to work! I need someone to increase the time the green light is on, especially during times when the school is on. We have 2 kids ourselves and I understand the importance of bikes, scooters, etc, but we also have to get to work and not be late each morning.

We need a 101 bypass that connects to the Dumbarton Bridge please! Everyone who needs to get to the Dumbarton is creating major traffic in Palo Alto and Menlo Park even though they are just passing through. And, the extension needs to connect to the El Camino, and Alma as well.

We need consistency. On Santa Cruz avenue, either have stop signs on every corner or none. So confusing. There is no parking. That is a huge issue. And the downtown is so inconsistent

Willow @ Middlefield is a dangerous intersection for cyclists: speeding cars don't pay attention to cyclists/pedestrians. Bay Rd. @ Ringwood is dangerous for cyclists. Too much cut-through traffic in the Flood triangle (down Bay Rd from Willow to Ringwood).

Driving map comments (continued)

Willow Rd between Bayshore and 101 is a parking lot at most hours of the day during the week, particularly weekday rush hours. Between 101 and Middlefield it is almost as bad. Since Facebook moved in several years ago, the commute time for most of the families at the school where I work at the intersection of Willow and Ivy has lengthened significantly. I have heard from many families who used to have a 10-15 minute drive to drop off their children in the morning now facing a 45 minute drive, mostly because of congestion on Willow Rd.

Willow Rd from Middlefield to hwy 84 cannot handle the volume of traffic currently. More lanes needed now. Will only get worse as East Menlo Park grows.

Willow Rd is a parking lot from 3:30 until 6:30. The lights for cross streets need to be longer in the morning to accommodate cars crossing Willow. Ringwood in the afternoon is very crowded from the high school down to Bay Rd. Bikers very often ride on the incorrect side of the road which is dangerous for drivers. The rules of the road need to be unforced with bikers as well as drivers. Many bikers are also on cell phones which is dangerous.

Willow Road is a nightmare!!!! Facebook has destroyed the once quiet community! Facebook traffic is horrible

Willow Road regularly backs up all the way from Middlefield to 101. It's taken over half an hour for me to travel this stretch during evening commute hours.

Willow and bay. I live off bay rd. I have to get onto bay rd to leave my house. The last few years, since FB took over the city, bay rd has started backing up in the afternoon and I can't get home without creeping along in it. I wait a long time to cross Willow at Gilbert as Willow traffic gets priority. If the light at bay were longer maybe it would not back up on bay rd.

Willow road is a disaster. Many kids need to cross Willow to get to school and it is unsafe. Also, Willow is bumper to bumper. I hate having to get to Hwy 101 during peak hours. It can take 20 minutes to go 1 mile!

Willow road is always congested no matter what time of day. Although around rush hour it gets ten times worse.

Willow road is always congested no matter what time of day. Although around rush hour it gets ten times worse. Downtown, Santa Cruz ave, are people allowed to make u-turns right there in the middle of Santa Cruz??? They do it all the time, it completely stops traffic on both sides, the road isn't even wide enough for it so they come close to hitting a parked car!

Willow road is heavily congested

Driving map comments (continued)

Willow road saturated from Middlefield to 101 at rush hours. Heavy cut through traffic in Willows and Linfield neighborhoods, attempting to bypass main arteries. This traffic often moves too fast, rolls through stop signs, and makes it difficult or unsafe for residents, especially children.

always congested

driving down El Camino to Palo Alto is too tedious for words with traffic backed up even at green lights due to the next light being red -- even outside of rush hour.

el camino grid lock. massive allied arts cut thru traffic on cambridge and university (very dangerous). grid lock between el camino and dunbarton via willow connector thru facebook campus.

retired, so not commuting at all.

this is a very dangerous area already with many conflicting turns and considerable congestion. Not just at rush hour but also around the times school is out. No room for bicycles. Stanford project will cause huge negative impacts on safety and time, making it even more dangerous.

traffic heading towards Facebook during evening rush hour is like a parking lot.

traffic is awful-- would be great to have traffic signals connected to traffic flow-- we would not wait forever when NO cars are coming.

unsafe driving in exit only lane off of Willow rd from 101 going South in evenings. Many drivers drive in exit lane until last moment and then get back in traffic on freeway to skip the line. Also extremely unsafe driving accross the willow rd overpass accross 101- very frightening and unsafe for pedestrians and bikes (currently not an option) Bike bridge to the North is safer, but could use better security around neighborhood in East MP.

willow road is a mess. there are limited ways to exit and or enter the Willows neighborhood and all are constantly competing with commuter traffic. Ravenswood at Alma is just plain frightening. Pedestrians and bicyclists need to be routed safely immediately. I think nothing short of underground tunnels will correct this extraordinarily dangerous situation. Move the train underground too. El Camino - what can I say? commuter traffic congestion is offensive and plans indicate that it will get worse? Underground solutions should be considered You cannot talk menlo park traffic planning without coordination with Palo Alto and other surrounding communities.

Is there anything else you would like to add about your experience driving in Menlo Park?

I hear it can take an amazing amount of time getting from W Menlo to E Menlo or to 101 during commute hours although I don't go that route. It shouldn't take more than 15 minutes to get across town! (2)

It's healthier for all to have traffic move through Menlo Park without a lot of stops as it increases pollution while the cars just sit there idling. When I drive to downtown Menlo Park, it is important to have easy access to parking and the ability to drive through downtown without a traffic jam. We have many older citizens in Menlo Park and Atherton and they need to be able to access areas as well as young children on bikes. I feel you are slanting the transportation plan to just the young and not our older citizens. You need to balance both concerns! You also need to make sure the traffic lights on El Camino are always synchronized so people can move quickly through Menlo Park and alleviate the traffic jams. (2)

We use the Ravenswood/Ringwood route between El Camino to Flood Park frequently and it is highly congested. The merging into one lane eastbound on Ravenswood brings traffic to a stand still. And the left turn from Middlefield onto Ringswood backs up onto Ravenswood during evening commute at times. Cars making that left turn onto Ringwood often block those traveling straight on Middlefield. I think it is the worst part of driving in Menlo Park. (2)

Also, all across Menlo park use of roundabouts should be increased.

Annoyed with the reduction of parking downtown. First the restaurants adding outdoor seating, then the "parklet"? What's wrong with Kelly park or Burgess? Or for that matter, the duck pond in Sharon Heights?

Attempts to fix so-called "cut through traffic" in the Willows are misguided and try to privatize public roads for private benefit. Further, I fear the solutions to that "problem" are going to prevent people from entering their own neighborhood at a number of points.

Bay Road between Marsh and Willow has seen an extraordinary increase in the amount and speed of traffic. Sometimes it's stopped and backed up. Often it's a regular flow of fast moving traffic. This is the only road that kids in Lorelei, Lorelei Manor and Suburban Park can take to bike to Encinal, Hillview and MA. It's feeling very unsafe, kids ride the wrong way on the street because there are not safe places to cross and the bike lane next to the Lindenwood Wall feels narrow and visibility does not seem great. Please improve this road! It's becoming a 101 alternative route and we're all suffering.

Been commuting to Menlo Park from Mountain View since 1999. After years in a car, recently shifted to bike commute for exercise and health benefits. Roads are not comfortable for cycling, but it often takes the same time to bike as driving the 9 miles, and is faster on worst days for 101. Each time 101 or Willow is expanded, it just attracts more cars.

Bike and pedestrian pathways must be segregated from those for automobiles.

Cars drive faster than posted speeds. I would like to see many street speeds reduced to 25mph for the safety of peds and bikes and other non-drivers using MP streets.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

Drivers are too distracted. There is generally plenty of parking downtown MP if you are willing to walk 1-3 blocks. Walking actually gives merchants a better chance to draw shoppers into their store. And it is healthier for all. Too many drivers drive in bike lanes or center lanes. Need better signage and outreach along with some enforcement.

Chilco is another big bottleneck because it's so narrow. There need to be routes for emergency vehicles that are available 24/7, not blocked at certain times by impassible traffic jams. Menlo Park has a history of not planning for emergency vehicle access, I think because the Fire District isn't part of the City Government. We're just lucky that when we needed an ambulance we were a five minute walk from the firehouse and they got here very quickly. I have seen too many ambulances and fire trucks stuck in traffic.

Congested

Consider eliminating light controlled intersections at at least half of the ones that currently exist. Or make the lights green for a very long time when traveling along El Camino. Cross traffic should wait much longer. Move the train rails up like in Belmont.

Driving within Menlo Park is a disaster, especially during commute times. Too many cars on the road, driving too fast on Santa Cruz Ave; unable to drive on El Camino Real.

Due to the excessive traffic by everyone, there is no efficient way to get through east of bayshore to bridge. If bridge traffic was limited to 1 road - marsh? - the lights could be synced up to move everyone along.

During week limited to 10 am to 3 pm and after 7 pm

East-west routes are generally horrible. As a Willows resident, it is more convenient and appealing to frequent businesses in downtown Palo Alto than downtown Menlo Park.

Easy except at rush hour

Enforcement should be increased. Every time I ride my motorcycle along Valparaiso Avenue vehicles will invariably use the bike lane to pass other vehicles that are waiting to make an unprotected left turn.

Extremely difficult to into downtown area from Belle Haven during week days.

I bike almost every day. Downtown Santa Cruz Ave. always feels crowded and unsafe.

I bike during this time to avoid commute traffic.

I cannot leave the Belle Haven neighborhood during commute times. I feel trapped!

I don't drive much in Menlo Park because the traffic is very heavy along El Camino and because there are more enjoyable, faster, and convenient alternatives. Both biking and walking, thanks to bike bridges, and faster than driving to my work. We should be investing more on expanding the alternatives.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

I feel terrible about the impacts of the current traffic on the families in East Menlo Park trying to return home at night.

I generally drive on days when I don't bike. Driving reminds me of why I bike. :-)

I like where Menlo Park has planted trees within the median such as on El Camino. I would encourage more work like this that improves the quality of the environment.

I live in Belle Haven and cant leave my house in a car during rush hours. The traffic on Willow is terrible. Also the merge lane getting onto the 101 S is horrible short. Feels like a death trap.

I live in the South of Seminary neighborhood, just a mile from 101 and Willow Road. That mile can take me as long as 45 minutes to drive when traffic is bad, especially during the evening commute time. It is untenable.

I often find myself sitting in stand still traffic in MP because a 2 lane rd decreases to a 1 lane, or a three lane to a 2 lane. IT took far too long to even expand Sand Hill because MP was in denial about worsening traffic. IT helped temporarily, but traffic continues to build. We really, really, really need to improve our public transit system to get people out of their cars. The train doesn't go enough places or run frequently enough to really be appealing. Bart would be great in this area! At least from parts east- anything to get people quickly to their work places and out of cars! The buses help, but are still sitting in stand still traffic!

I think everyone knows that Willow Rd is overly contested during commute hours. The Bay Area as a whole needs better transportation infrastructure, that will certainly have positive impact on Menlo Park.....it's not solely a MP issue.

I think we need a second light rail line along Alameda de las Pulgas or near 280.

I try to limit it as much as possible.

I try to ride a bike during rush hour. But the key trouble spots are the Willow corridor and Ravenswood by the Caltrain

I work in downtown Menlo Park, and have noted that the parklet does stop the flow of traffic (and some get confused).

I'm all for more bicycles, but there is no enforcement of bicycles obeying traffic law. I am constantly blind-sided on the right by a cyclist that comes up behind me (either in a bike lane or not) then cuts in front of me at an intersection and turns left with no hand signals, or indication of intentions. Bikes need to act predictably. No running stop signs when car traffic is present. Passing on the left of the cars to turn left (rather than getting in the lane with the car.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

I'm also frustrated with Stanford and Palo Alto not doing their fair share to mitigate Menlo Park traffic. I am speechless/overwhelmed that Stanford can build more MP office complexes/space without contributing more housing and traffic mitigation! I'm now retired so don't have the daily commute but do walk & ride my e-bike or other bikes daily. I estimate that every other day I experience either stress or actual danger from a vehicle.

I'm concerned that the congestion frustrates drivers and makes it even less safe for people on bikes.

I'm in favor of building a parking garage (or two) in downtown and eliminating some of the parking places along University and Menlo, especially the ones adjacent to Draeger's and Trader Joes. Driving in downtown Menlo Park is like navigating a rabbit warren; too many streets that don't line up and are constricted because of parking on both sides of the street. I'm in favor of closing Chestnut or Crane (or both) and using those streets as outdoor venues for cafés. Menlo Park would be more enjoyable if we moved the car parking into garages and eliminated parking along Santa Cruz and side streets downtown.

If construction is causing a single lane with a traffic light situation, I would expect the construction to be fast and efficient, with people working round the clock so that the second lane can be opened up as soon as possible.

Improve El Camino traffic lights for through traffic in Menlo Park--often can drive just fine in Atherton and Palo Alto on El Camino, but Menlo Park is the bottleneck.

Improve traffic flow into Dumbarton Bridge/East bay- add Connect Menlo Park with Bart, add lanes to 84

In conjunction with looking at the new FaceBook Willow campus development, the Complete Street Commission as a project for this year or next should assess the vehicle/bicycle/pedestrian situation on Willow Road east in partnership with Bell Have Menlo Park and East Palo Alto residents and make further improvement with the transportation city staff. Below are some suggestions: 1. Side streets for local residents traffic and access to Willow Road should be facilitated and prioritized over non local through traffic on Willow Road between Dumbarton and US101. For instance the duration of the traffic light to make a left/right on Willow Road from O'Brien Drive is too short and should be better coordinated specifically with the Newbridge light (and also Ivy light). At peak hour due to heavy traffic on Willow Road sometimes only one or two vehicles can turn from O'Brien to Willow causing a major backup on O'Brien Drive all the way to Kelly Court. The light on Newbridge and Ivy to go West

It has become more difficult to park in downtown Menlo Park. This will drive away shoppers and diners. Reducing parking and size of parking spaces is counterproductive to attracting spenders.

It is easier to reach from 101 El Camino through Palo Alto then Menlo Park streets

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

It used to be that if you could just avoid El Camino between Ravenswood and Glenwood Ave at 8, 12, and 5 you could travel in MP just fine. Now, El Camino is backed up all day long. Middle Ave has become the new Santa Cruz Ave with drivers speeding to beat the Santa Cruz traffic, blowing through pedestrian cross walks with kids in them, Getting from West Menlo to East Menlo takes 40 -60 minutes some days. And adding bike lanes because they're green proves this cities values are focused on the needs of a few at the expense of many.

It would be wonderful if we could have more police to give tickets to all of the people that do not STOP and stop signs or while a pedestrian is walking across the street in a pedestrian lane.

It's difficult to drive in Menlo Park because the street grid is choppy and therefore channels you onto major streets such as El Camino, Middlefield, Middle Avenue.

It's miserable more often than not.

Lived here for 35 years. Never could comprehend why the entire available width of El Camino is not used for as many traffic lanes as possible instead of taken away to provide a couple dozen parallel parking spaces which are a hazard to get in and out of.

Menlo Park seems to highly prioritize the residential communities west of El Camino over the residential communities east of El Camino. All members of the community should receive the same consideration in terms of reducing traffic impacts throughout the community.

Menlo Park transportation has not responded to two decades of complaints about traffic with solutions that target the 95% of daily users.

More people are short-tempered while driving. Many could be more thoughtful, for example - moving further to the left while waiting to turn left on a busy street where there would be plenty of room for others in a long line to turn right if they had thought about it. Would be great if we were all just more thoughtful and kinder to each other, and give everyone the benefit of the doubt. I am trying! Kids need better training about bike safety - they so often aren't paying attention, or sometimes even in the middle of the road while cars are coming. Too many speed bumps! (It doesn't slow down the speeders, only inconvenient for those already being careful.) Please no more speed bumps or roundabouts! Better planning AND communication on major projects like the Willow Road / Hwy 101 interchange - so tragic to cut all those gorgeous old trees - and without preparing residents for it, or getting people on board for why it was being torn up. Even knowing about the plan, I didn'

More police stopping cyclist for illegal behavior. Palo Alto makes kids go to traffic school, let educate people on rules to improve traffic flow.

My concerns: 1. Bike Lanes for children biking to school especially on Coleman and Gilbert connecting Upper and Lower Laurel Elementary School's two campuses. 2.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

Congestion and cars turning after train tracks. Ravenswood continues to be a dangerous railway crossing. 3. Underpass under El Camino connecting the east to the west side for bikes and pedestrians

Nearly all main roads are too congested making it nearly impossible to travel anywhere during commute hours. El Camino, Middlefield and Willow is over burdened during commute hours. Resident living on Willow Road hear continuous vehicle noise all day and into the night. For commercial zones that's fine. But not for residential.

Need to reduce time spent waiting to cross El Camino, and add additional access under/across the railroad tracks.

Not good. Much deteriorated in last 5 years (as a 30 year resident) as developers have focused much more on MP.

Overall, driving is acceptable

Please open more roads its crazy for working families that live in area and are stuck in traffic.

Please suggest building a separate/direct exit off 101 to Dumbarton bridge. Marsh and Willow can not handle the volume. Build it like exit to 92/ San Mateo Bridge. Build out bike lanes so people can safely bike and stay out of cars.

Poor traffic flow on El Camino

Recently a bunch of stop signs have sprouted in downtown on Santa Cruz. There are too many! Putting in a mini-park is a nice idea, but the location next to Trader Joe's is terrible. Pick a less used side road. It wastes gas to circle around the block.

See first note. El Camino worst. Rush hour is bad. Generally if I choose my time right, I'm not stopped too much. Rush hour is so bad, I stay at home and avoid it.

Stop approving new developments until you solve the transportation issues like Willows Cut Through Traffic!!!

Suggestions for the Willow east corridor: 1. Going East on CA 114 towards the Dumbarton bridge, the sign next to the sidewalk indicating that Willow through traffic must merge left near the intersection of Willow Road and O'Brien Drive is too close to the intersection/traffic light. It does not give cars enough distance to move to the left if going straight. This gives the impression that there are 3 lanes instead of 2 and at peak commute hour creates a bottle neck for people who want to turn right on O'Brien Drive. The "Through traffic must merge left" sign should be moved before Albemni Street EPA to give enough time for drivers to get off the right lane and not block it (and may be a "Lane ends merge left" sign could be added on the far right lane on the large overhang traffic light pole after Newbridge street). Some "Right arrows" should also be painted just after Albemni Street EPA on the right lane to reinforce the message. 2. Going West on CA 114 towards US 101, the new

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

The O'Brien and Willow intersection is particularly bad. Cars going towards the Dumbarton block the intersection. The light pattern allows cars going towards 101 to continue while the left turn arrow is on. Then O'Brian gets the left turn and I've seen multiple cars run the red light on Willow heading towards 101 as they didn't expect it to change. I've almost been hit when I'm turning left onto Willow on my bike. The light at Newbridge recently changed pattern and now there is no space for cars to turn left onto Willow. It's gotten even more dangerous.

The Ringwood/Ravenswood/Middlefield intersection needs help. Middlefield should be narrowed to 1 lane in each direction with a center turn lane between the PA and Atherton borders. The Oak Grove bike pilot still forces cyclists to "share the road" with cars on Santa Cruz. Dangerous. The conditions getting out of Belle Haven onto Willow are awful. Even once the Willow/101 interchange is fixed for cyclists they will still have to "share the road" between 101 and the VA (near Bay). This is not ok.

The intersection at Ravenswood and Middlefield needs to be reworked. Traffic from Ravenswood that is turning onto southbound Middlefield in order to access Ringwood is a disaster. This could be remedied by reworking the right turn options and ensuring that there are two separate options for turning: one that funnels traffic to the left turn lane on Middlefield to Ringwood, and one that allows those that want to continue unimpeded on Middlefield.

The lack of bike lanes and sidewalks for students going to and from school is abysmal. I drive my kids to and from Oak Knoll, despite the short distance, because the paths are decidedly unsafe. As a driver, I worry every morning about the kids on bikes and foot because there is so much morning chaos, with kids on feet and bikes walking well into streets.

The neighborhood of Belle Haven feels like a trap. The only ways to get in and out are Marsh and Willow and both of those can be a traffic nightmare.

The railroad crossing between burgess and the MP train station is extremely hazardous - especially going east towards middle field because pedestrians unpredictably cross forcing cars to stop and traffic often backs up with cars stuck on the tracks.

The small town roads are not current equipped to handle the big city like traffic. The business center on Willow (closer to Alma) where Boot Up sits has changed the area and added unnecessary complexity to the neighborhood. All of that land and the old Sunset building should be housing! We need an Urban planning mentality. I no longer consider Menlo Park as the Burbs! :)

There are some bad sunken spots on Willow heading from the bay towards 101 in the right-most lane. This isn't a pothole, but rather a sunken spot that seems likely to damage/slow vehicles.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

There have been many new residences constructed on Haven Ave and yet the 200 yards on Haven going into Marsh has no lanes, no shoulders, no bike paths and no sidewalks. And it is getting busier each day

There is currently limited ability for bikers and cars to coexist safely. Very happy with new Oak grove bike lanes but need more! Kids walking and biking in and around school areas do not seem like they have a safe route

There is inadequate parking in downtown Menlo Park, inadequate parking for CalTrain, and difficulty driving with the traffic cameras, always worrying that the

Menlo Park is a bottleneck for traffic flow - Alma doesn't connect, willow doesn't go through to El Camino, Not to mention 280. We need grade separation for the railroad crossings to make it safer as well as not blocking traffic. Our traffic flow makes no sense

Menlo Park is a charming town that is known as a desirable place to live. Even for those who do not enjoy walking and biking, they should know the value of their home is tied to our small town feel. This is getting destroyed by the traffic congestion and is changing Menlo Park for the worse. We need to stop this before it is too late!

camera will go off incorrectly, which I have observed many, many times.

There is no easy way to get across town from the Trinity Drive/ Sharon Heights area. Driving across town is slow. There are also frequently skate boarders on the Trinity Drive near Valpariso & also on Valpariso near Hallmark Circle making driving more interesting!

Think BIG. Streetcars, tunnels, banning cars from downtown. Increased density housing near public transportation. We need real solutions, not band-aids. Stanford and other developers should be charged the REAL cost of development and finance public transportation.

To many people do not live here they are just driving here. Have you thought about charging to come in from the east bay like London? I know that is not what you were asking but I have thought about it many times.

Too much traffic going through residential streets from other areas.

Traffic is making Menlo Park an undesirable place to live, and it will only get worse with the new Facebook developments.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

Traffic is terrible in Menlo Park! On Sand Hill in am and pm, on Willow all day long, Middlefield between MA High and Marsh, Marsh road all day long and El camino between Atherton Ave and all the way through to Sand Hill in Palo Alto. Not to mention driving down Santa Cruz ave and Val Paraiso at school drop off/pick up times. I was so fed up with traffic in Menlo Park that I bought an E Bike. It is the best thing I've done. No more traffic nightmares and it only takes me about 2-5 min longer than driving. We should be promoting people GET OUT OF THEIR CARS!!! ESPECIALLY PARENTS DRIVING THEIR KIDS TO SCHOOL!! That is the major cause of traffic in Menlo Park. We have flat streets, everything is only 2-5 miles away max and we have the best weather. There is no need to drive here!!

Traffic on El Camino and Middlefield is insane

Traffic should be cut off at Willow and 84. Route traffic to Marsh and make that a highway to the bridge. No lights. Make FB pay for all changes along that route.

Walking downtown is dangerous; driving downtown is dangerous with people darting into the street from walkways hidden by bushes. Now we have 3 or 4 stop signs in the space of about 25 yards that some drivers ignore. I have no idea what the city is thinking ?

We need to widen the lanes on El Camino and stop pinching the traffic in hopes that people will not drive. We must drive in many cases, and you need to support that.

When I am driving, I wish I lived in Mountain View where road designs and surfaces are far superior.

When school is in session, North/South driving commute through Menlo Park is untenably slow. I ride my bike instead and find it to be faster than driving between North Fair Oaks and Palo Alto.

When the bikes are off the roads during school holidays, the roads feel much safer. Bikers need to follow the proper rules of the road. Often they do not stop at stop signs, fail to ride single file, fail to signal, ride on the incorrect side of the road (wrong bike lane as well) and often are on a cell phone. The roads were not designed to manage a heavy traffic population. The morning and late afternoon to early evening rush hours are too congested. We do not need to make this worse by increasing the population of Menlo Park.

Willow Road east of Middlefield, and especially east of hwy 101, is absurdly congested. The area near Safeway shopping center and gas station at Middle and El Camino Real is highly congested, with bad driver behaviors. I cannot imagine adding bikers and more cars to that with the Stanford project. Bad accidents waiting to happen!

Willow Road, Middlefield, and El Camino have all become completely jammed.

increasingly congested but still not bad overall, just a few predictable pain points.

Is there anything else you would like to add about your experience driving in Menlo Park? (continued)

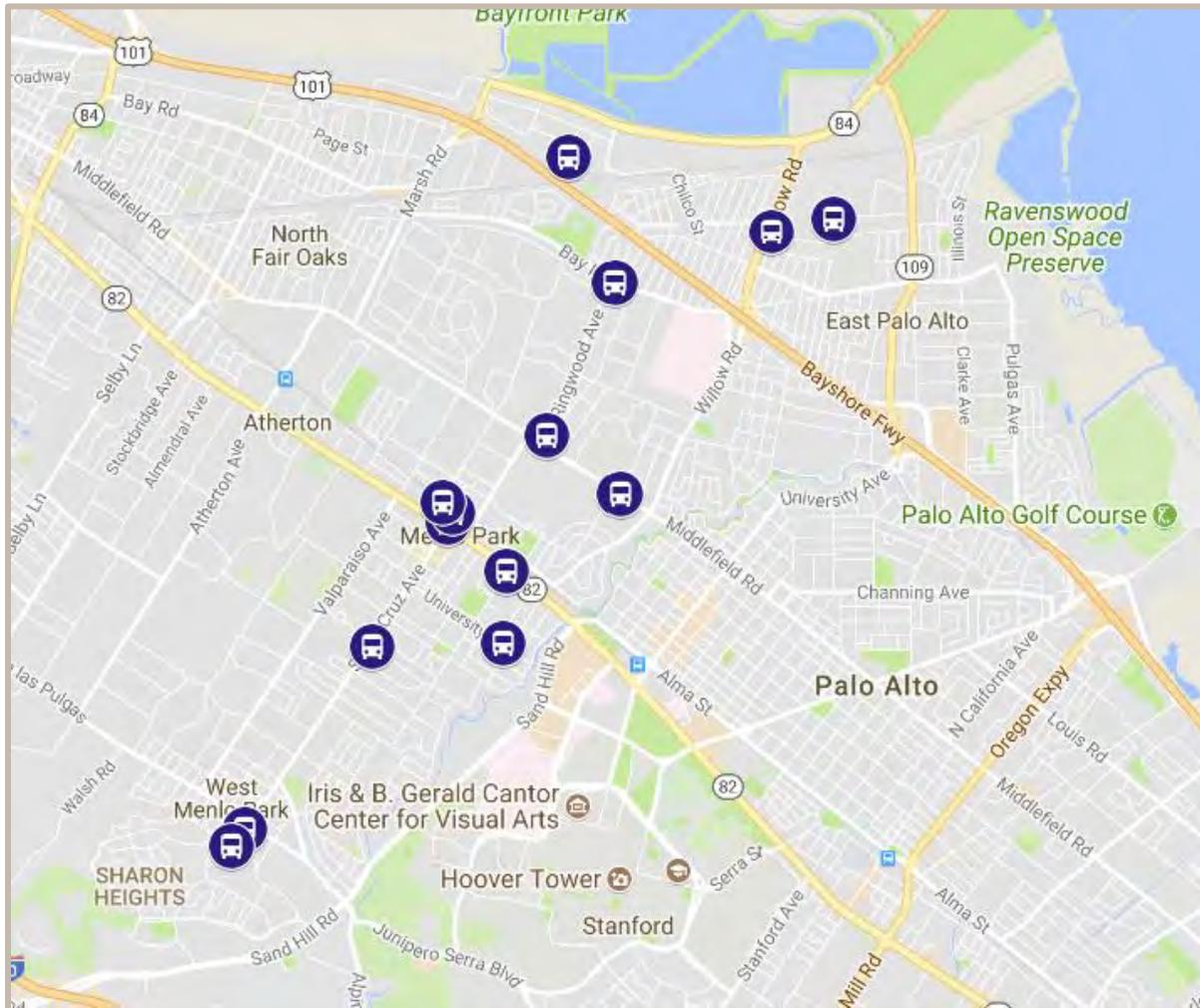
parking is most difficult!!! especially now that dining has taken over the parking spaces--- now Oak Grove has no parking. We find our street being used for those working in the downtown and we have to save parking spaces for guests-- The mini park is a joke -- we would rather have parking!!!!

Appendix C: Transit map and comments

What have you experienced at specific locations while driving in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box.

Map

Respondents indicated location-specific comments on a map; these comments are below and also available through an [interactive online map](#) that associates comments with locations.



Comments

I don't commute for a job, I do drive around town doing errands and other activities. I try to do it after the morning commute or before the afternoon commute due to the traffic congestion. (2)

Caltrains too infrequent in the middle of the day.

Difficult to get to crossings to connect Palo Alto train station to downtown Menlo Park.

Transit map comments (continued)

Dont use it.

For 8 years I took the train from Palo Alto to Millbrae and it was great. Occasionally when there were incidents i could take the bus and while it took 2 hours, I did get home. Caltrain is great, but would be helpful to have more bike carrier space. It took an hour each way on average.

Frequent illegal left turns from southbound Middlefield onto Santa Monica Ave

I frequently encounter the homeless and have been threatened by them. It makes me want to avoid using public transportation.

I know nothing about the shuttle service in Menlo Park and how it operates. Menlo Park needs an awareness campaign as to what is available.

I walk in this area before school starts. It is a VERY dangerous intersection for students walking to school at La Entrada. Many cars seem to be unaware of the stop sign on Altschul (heading towards La Entrada) and I have personally witnessed many near misses! There needs to be additional traffic monitoring here - It would be awful to have someone injured. I've mentioned this before to the School Superintendent but haven't seen changes made at the intersection.

It would be nice to have more frequent transit options and better visibility of the wait time for the O'Brien/Caltrain shuttle. The shuttle gets caught on Willow Road traffic which makes it a bit inefficient.

Long Distance from Train Station

Middle Avenue intersection with El Camino is a nightmare!!! Vehicles headed north on ECR stopped in the left & U turn lane at Middle often have near miss collisions with vehicles turning "right on red" from Middle onto ECR southbound.

My daughter typically takes the Willow Road shuttle stop at Mid-Pen HS 3:18pm or O'Brien and Willow Rd at 4:59pm to the Menlo Park Caltrain station. The shuttle tends to run late because of the congestion of traffic on Willow Rd in the afternoons.

Not sure what "shuttle" you are talking about. But Samtrans has a bus, #286, that runs 2x in the morning and 2x in the afternoon. If you go to school or have to be downtown for anything before 9 it works. Coming back it stops before 5. Pretty useless.

Now that the Stanford shuttle changed its route from Bay Rd to Middlefield, there is nothing that serves the neighborhoods along Bay Rd between Marsh & Willow. It would be nice to have a way to get to downtown without driving. I should be nice to have an MP shuttle that runs along Bay and runs more frequently.

One of my kids goes to Mid Pen, and mostly rides his bike (which I worry about all the time with traffic). Sometimes he takes the shuttle to Caltrain to get him closer to home after school. Traffic makes it slow. More departure times in the afternoon (after sports practices) would be helpful- and a stop at Mid-Pen for 5:30 after sports or play practice or something would also be really helpful and safer.

Transit map comments (continued)

Parking spots are limited, access points into and out of parking spots are narrow and difficult to navigate, roads leading to parking at train station are blocked or difficult to access. How do you expect people to take the train when you so clearly don't want them to get there?

Santa Margarita shuttle use to drop off and pick up here, but no longer. Menlo Park Shuttle should provide services for MAHS students and adults from this location and East Menlo Park to CalTran Via Bay & Ringwood.

Sidewalks do not go the entire length of University. Sidewalks should go the entire length of all thoroughfares in MP

The MP shuttle often lets people out in the middle of a turn at the OakGrove/Laurel intersection stopping traffic and creating an unsafe situation

The Menlo station is skipped by most rush hour trains. It'd be nice to get a shuttle to and from one of the pivot stations on either side - RWC or PA.

There should be public transit with a serious schedule here. There should be a bus from ECR to Rosewood that runs back and forth all the time. There are people - esp. visitors, kids & teens, older people, all of whom don't drive or don't have a vehicle - in Stanford West, Oak Creek, Sharon Heights, SLAC, Quadrus, Rosewood who would USE a bus to get to shopping, run errands, go to work, etc. if there were intelligent bus service. Palo Alto and Stanford should chip in for this. Here should also be adequate bus service so that kids in West Menlo could take a bus to K-8 schools and M-A. And there should be adequate safe crosswalks.

To get to the train station, crossing Oak Grove at Alma (by the 7-11) is always a bit hairy on a bike. There are cars going both ways on Oak Grove and then cars coming out of Alma. Acting like a car and waiting in the middle of Oak Grove to make a left feels very exposed since there is no turn lane or "official place" to wait. Creating the equivalent of a "Safe Routes to Train Station" plan for those coming by bike and foot from all different corners would be really useful.

Using Caltrain from the downtown station is fine. It would be nice to have more frequent service at off-peak times, however. If you miss the 8:43 train, you are stuck on a local train to get to SF.

Way too limited. I have considered using the shuttle, buses etc. but planning trips using one or more of several different public systems is almost as horrifying as choosing a Medicare drug plan. FAR too complicated and limited.

it is difficult to find parking near the train station

the frequency and hours aren't helpful - too infrequent and not early/late enough to be useful. Kids don't use buses, shuttles enough. I wonder if those match their schedules to the schools' schedules, which change by day of week and by week/month.

Is there anything else you'd like to add about your experience riding transit in Menlo Park?

Although I live in Menlo Park, I usually use the Palo Alto Caltrain station since it has more trains.

Caltrain service is inconvenient and inadequate. Not enough trains and frequently late. Service is only every hour on the weekends vs BART which is every 20 minutes. This means many people, myself included, end up driving when we could be taking public transportation.

Caltrain to the city is great, but overcrowded so I avoid it now. I used to take the train to the city or south SF, but service times and crowding were very limiting issues.

Caltrain works great however it is really limited in its usefulness by the low frequency. The buses are really limited by the county boundary. Buses are also not frequent enough. They are not designed as a real option for people with cars; they seem to be designed to serve people who have no other options and thus they mostly serve people with no other options. It'd be great to see more investment in public transit to make it an attractive option to a broader segment of the population, in which case it can really help reduce congestion. I'd love to see Bus Rapid Transit.

Don't use Caltrain station in favor of the PA station which has far more train options

Fragmented connection points through the city make biking unsafe.

Getting to stops and Transferring adds quite a bit of time, making bus and shuttles undesirable in most cases

I don't do this too often but it's great to have the option.

I don't know much at all about the Menlo Park shuttle. Is it free? Would like to learn more.

I don't ride transit in Menlo Park as it's pretty non-existent or inconvenient where we live. I do drive to Millbrae to pick up BART to go to the city.

I feel like my neighborhood is a transit desert. Taking transit to work in downtown Palo Alto used to be reasonable, as I could use the Atherton Caltrain stop. Now it requires a walk, a slow Samtrans route to the Menlo Park Caltrain, and then one stop on Caltrain to reach Palo Alto. It takes forever, so I ride my bike instead. I sometimes take Caltrain to commute to San Francisco. I have found that the Menlo Park station is seldom useful for meeting efficient trains that will reach San Francisco in time for a 9am work start. I end up biking to Palo Alto and boarding the train there or driving to Redwood City and boarding the train there. If the Menlo Park Caltrain station had better bike parking options, or if Caltrain had fewer instances of cyclists being bumped from trains, then the Menlo Park station would be somewhat more useful. I wish there was better bus connectivity between North Fair Oaks and the following: downtown Menlo Park, downtown Palo Alto, Redwood City

Is there anything else you'd like to add about your experience riding transit in Menlo Park? (continued)

I guess I need to learn more about getting around by bus - I've been so intensely stressed and busy taking care of my parents - and too exhausted - just had to use the car at my own timing.

I hardly ever use transit because it doesn't go where I want to go and doesn't go when I need to go. I have lived in big cities where I never used a car but that isn't possible here. We have tried a number of times to utilize transit to get to/from airports (SFO and SJC) but the train schedules and BART's are not synchronized. The signage is poor - especially for people who don't speak English or understand our area. For example, why does the sign to the train say Platform x rather than San Francisco or San Jose? The Platform name means nothing to anybody but the Caltrain employees. Also, it isn't clear how/where to use ticket machines. We now have Clipper Cards, but even that was tricky. Not all stations (e.g., San Mateo) have obvious sign-off machines.

I have no idea of the bus schedules and could never rely on a SamTrans bus to get me anywhere on time. Buses worked only when I lived in a more densely populated and compact city (e.g. New York City; Grenoble, France). The CalTrain connection to BART is poor and there is not sufficient parking at the CalTrain station, which is why I drive to Millbrae to take BART to SF. I have tried riding the bus and found it unreliable, time wise.

I know people of Menlo Park don't ride the bus enough so the system can't support itself. When redesigning your system, please don't forget about West Menlo we need a bus too.

I like the idea of the MP shuttle and as I get older (no longer able to walk or bike) could see incorporating it, however, I'd much rather have a system like FRED in San Diego -- Freeride in New York, Santa Monica, Venice, Marina Del Rey! An on demand electric shuttle would be awesome! I much prefer electric over the subsidized uber/lyft that Mayor Keith recently introduced in a city council meeting. This may be far afield but I did work @ Stanford for a bit and really like their shuttle system (including the online aspect). They just need to establish park & rides/shuttle at 280/101 and Dumbarton bridge.

I love the new bike lane on Oak Grove - keep it up!!!

I only use caltrain to travel to the city for recreational purposes.

I rarely use Caltrain because it's so, so expensive and it doesn't connect to other modes of transportation at it's stopping points.

I use CalTrain a few times a month. It would be nice to have more frequent trains nights and on weekends. Also to have more seating during commute hours.

I wish there were a CalTrain overpass on Ravenswood Avenue. It would improve traffic there immensely.

I would rather not use transit, thank you.

Is there anything else you'd like to add about your experience riding transit in Menlo Park? (continued)

I would ride bus down El Camino to Palo Alto if there were more frequent buses available in the middle of the day.

I'm retired and i will never be interested in spending a day on public transit to run a couple errands.

It's great if you have no time constraints and can adapt your schedule to the very infrequent buses. But that's not the way to build and satisfy demand for non-car transportation - walk or bike + bus or train.

It's rather convenient when I am heading to the city, but I rarely use it to get around locally.

Many small intersections have no signage so right of way is not clear

More protected bike lanes please!! especially to and from transit centers like the CalTrain stops

My son rides to and from school every day. I am grateful he has the train to get him to Burlingame. It would be nice if there were a few more pickups in the morning.

No easy way to get from East Bay. expand the roads, provide more public transportation options (train/bart)

Over the past 10 years, the choices have steadily diminished until they're near zero now.

There is no direct route from East Menlo Park to Downtown via SamTrans. Why aren't there ways to get to Safeways to Belle Haven?

This section is a joke! No one uses public transportation in Menlo or Atherton!! Maybe a few elderly people, but seriously...

Unable to use public transit due to the nature of my employment. If I attempted to use public transportation from Belle Haven to Cañada College, it would take approximately 90 minutes. Additionally I travel to various hospitals along the Peninsula.

When I was initially tried to find the Menlo Park shuttle stops for my daughter at the Menlo Park Station it was confusing because the signs still say "Midday Shuttle" and no one could tell me where the Belle-Haven stop was. I eventually figured out that the Midday shuttle sign was for the Belle-Haven stop. You should change the sign at the Menlo Park Station and Ivy Drive to include or say "Belle-Haven Shuttle". Thanks.

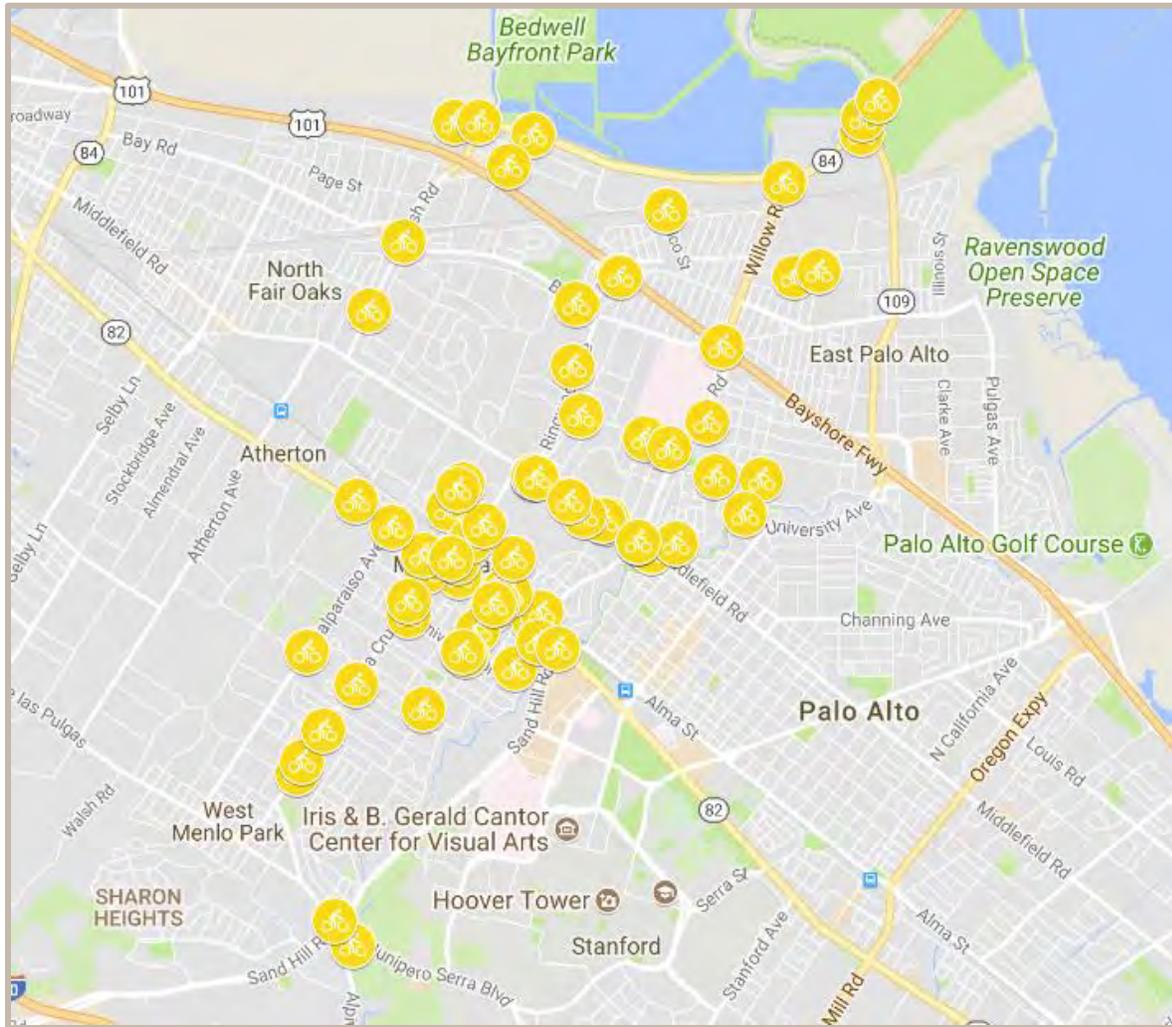
the Menlo Park shuttle has limited hours and stops, so it is not useful to me.

Appendix D: Biking map and comments

What have you experienced at specific locations while biking in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box.

Map

Respondents indicated location-specific comments on a map; these comments are below and also available through an [interactive online map](#) that associates comments with locations.



Comments

In many ways Alma should be an ideal north-south route, connecting the civic center to the train station and other amenities. It's also wider than Laurel, with bike lanes the whole way. But the current Ravenswood crossing feels unsafe. Not sure how to fix this without the whole grade separation thing but wanted to mention it. This is also where the wonderful Ravenswood bike lanes come to an abrupt end. A lot of people ride here anyway. I'm hoping that we can soon improve this section of road. (2)

Bike map comments (continued)

*When cycling and turning left onto Middlefield from Ringwood, the takes *FOREVER*, and this is true even when there is little traffic on Middlefield. This makes it more annoying to use the ped bridge/Ringwood, and is one of the reasons to drive instead of cycling. (2)*

Across Menlo I have seen issues with cars wandering into bike lanes and young bikers wandering into car lanes. I think better marking of bike routes would increase safety. Both bikers and drivers would benefit from better awareness of road space allocation.

Along most major streets (and in neighborhoods), vegetation grows too high at the intersections, blocking visibility for cars. They then bolt forward without adequately looking for bikers and pedestrians. I know of people, including kids, who have been hit by cars, and there have been many close calls. I have experienced a number of them myself while walking or on a bike. We need regular code enforcement to ensure there is pruning done. I have heard there is only one code enforcement person. That is not enough for a town with as many different types of code issues as we have, and with the difficulties getting around town. Safety is a very very big issue. People don't/won't prune unless required to do so. This should be a regular thing. We have trees and bushes growing in the sight triangles on many, many street corners. FIX IT.

As mentioned before every other day I encounter a vehicle that either stresses or endangers me in some fashion. I used to work @ Sun Micro (where Facebook is now) and would occasionally bike to work from West Menlo Park. I never felt completely safe doing that however (even when young and invincible). :)

Bay Rd has had a dramatic increase in volume and speed of traffic with no increased bike path or speed control measures.

Bay road traffic is not very bike friendly. More speed enforcement would be a plus. Certain areas where school bike traffic is common in the mornings have particularly challenging bike / car dynamics that could use traffic calming intervention and/or enforcement (e.g. blind curves through Lindenwood, etc.)

Better bike paths should be implemented on the O'Brien business park as it will connect to the new FaceBook Willow Campus

Bike lanes and walking lanes needed on Coleman Ave. It is a main thoroughfare for Laurel and MA High School and the daily cyclists and pedestrians that have to walk or ride in the car lanes is insanely dangerous.

Bikepath along Eastbound Bayfront Expressway ends at traffic signal and has no path of travel to get to shoulder on Southbound University Avenue. There is no cycle in the traffic signal for bikes. Bike are required to cut across left turn traffic from University Avenue or stop, walk bike and wait for a 2nd and 3rd pedestrian signal to cross intersection and resume riding. It is ridiculous to wait for 3 different signals to cross intersection and adds a delay of over 6 minutes to cross intersection.

Biking feels quite dangerous at this intersection. I try to find alternate routes or ride at non-peak times.

Bike map comments (continued)

Cannot conveniently ride between Middle Avenue and Burgess Park.

Cars go too fast and do not stop even when dismounted at crosswalk.

Crossing El Camino Real is very difficult.

Crossing Marsh road from Eastbound Haven to Bayfront express way is hazardous and confusing for bikes. Cars turning for Marsh to Bayfront don't stop even when light is red, because they seldom see traffic coming from Haven. Pavement marking for bike lane and path of travel is not clear. Need green bike lane and flashing warning to cars that bikes are coming. Saw fatal bike collision at intersection hear a couple hears ago and nothing has improved.

Crossing Middlefield is a hazardous part of my last routine commute.

Crossing el camino at sand hill is a nightmare, even with the light.

Dangerous intersection!!!

Difficult to cross 3 high speed lanes of traffic to make left turn from northbound University Avenue shoulder bike lane to Westbound Bayfront Expressway. Traffic has gotten much heavier last 2 years so both are dangerous for bikes.

Difficult to cross 4 high speed lanes of traffic to make left turn from northbound Willow Road bike lane to Westbound Bayfront Expressway. Same issue applies on North bound University Avenue from Westbound Bayfront Expressway. University used to have lighter traffic but has gotten much heavier last 2 years so both are dangerous for bikes.

Difficult to cross El Camino on Ravenswood. Do not like sharing vehicle lanes with vehicles on Menlo.

Getting around downtown MP can be challenging on a bike - lots of cars, parking/parked cars and lack of areas to lock bike. Crossing El Camino from Menlo Ave to downtown and back is a challenge -- especially from downtown going east - you have to jockey to fit in the car lane on Menlo Ave, when cars often don't leave room for a bike, and then hope they see you and know you're going straight. Riding a bike on Middlefield Rd does not feel safe AT ALL. Too many cars, merges with right turning cars and bikes, dirt shoulders.. Laurel St near Nativity is equally bad with dropoffs/pickups . N/S routes leave much to be desired in terms of perceived/actual safety. No way would I ride my bike from Burgess Park to Bohannon PO or Marsh Manor for instance . And you note a N/S bike route on El Camino between Isabella and Encinal (?). You must be nuts - no way to cross the wide street, cars have no awareness, cars jockeying to pass other cars, higher speed limit. If there can be a street more i

Gilbert and other streets to upper Laurel campus do not have bike lanes, are congested and dangerous. We do not let our daughter ride to school because of this even though we live in the willows.

Haven't ridden enough around town to pick any one specific area.

Bike map comments (continued)

I cannot see how to move the pin, but the lighted crosswalk at Middlefield and Linfield is extremely dangerous, particularly in the morning hours when the sun is in the eyes of drivers. I use this crosswalk regularly, and typically only about 30% of cars stop. I am an experienced and able cyclist, and this intersection terrifies me. The crossing of ECR at Ravenswood is fine in sections, and in other areas, the bike lanes (on either side) basically disappear into car lanes. This is also really unsafe.

I commuted to work by bike for almost 10 years, but am now retired, so this comment is made with that knowledge: the new Downtown Plan added the railroad under/over pass at Middle and El Camino Real with the intent of providing Oak Knoll and Hillview students after-school access to Burgess complex via extending the Middle Avenue "safe bike route" (Not green on this map!) from University Drive to ECR and across the RR tracks. RR crossing has had public meetings, etc. but there has been NO ACTION (at least publicly) on the Middle Avenue bike lane extensions needed, and the very complicated ECR intersection.

I do bike on Sandhill toward Portola Valley & also toward Junipero Serra. Generally I feel vulnerable at most junctions - there is too much car traffic. The Junction of Foothill & Sandhill feels risky to use. Similarly biking in bike lane on Sandhill near the Sharon Heights Golf club and heading over the 280 bridge also make me feel at risk of not being seen or being hit by a car.

I do not bike across El Camino, because I have not found a safe place to cross El Camino and then the railroad tracks.

I get very frustrated trying to get to locations in southern Menlo Park along El Camino Real when I'm coming from Palo Alto. I have to take Alma and go all the way to Ravenswood and then back along El Camino, or I have to cross El Camino -- and both end with sketchy sidewalk cycling that feels unsafe. I don't see any reason not to paint lanes along Monte Rosa Drive or other roads in Sharon Heights that are plenty wide, where people tend to drive fast in their fancy cars. The bike lane ends suddenly at Willow Road near Bay Road, which makes me very anxious on a bike.

I live in Menlo Park and do not bike. But I watch bikers run stop signs all the time. Particularly at bay and Ringwood.

I love new bike facilities on Oak Grove!!!

I primarily bike through neighborhoods to my work in downtown Palo Alto. Street parking by cars puts bikes into the car lanes, bike lanes should be improved, particularly on school routes.

I ride the loop, and Canada Road mostly to avoid the traffic. I sometimes am on Alpine Road heading into Menlo Park during morning commute and it's uncomfortable because there is so much traffic. Sand Hill Road exit from freeway onto Sand Hill Road heading into Menlo Park is not good for bikes either, the merge is very bad when it's the morning commute.

Bike map comments (continued)

I would consider biking instead of driving to my office in Palo Alto if there was a bike lane that connected to the bike lane that runs along El Camino in Palo Alto.

I would describe biking on Marsh Rd as the most stressful part of my 12 mile commute (my commute includes Foothill Expressway, El Camino and Middlefield). Cannot believe that the primary strategy is to have signs telling bikes they may take a whole lane. Have you ever biked during rush hour on a bike taking a whole lane? Ridiculous.

I would like to see better sidewalks on Marsh Road, now that the bike lanes are gone.

I would very much like to bike to Laurel with my son, who is in kindergarten. It would be more convenient for me, set a better example for my son, and also reduce the congestion and backup on the streets around Laurel. However, Coleman Ave. is far too crowded and dangerous to bike with my son. It feels like an extremely dangerous situation with so many people walking, biking, and driving all on the same narrow strip of road without sidewalks or bike lanes. These four blocks should be a first priority for the city to make walking and biking safe for children in Menlo Park.

I'd like to ride to Stanford and Stanford shopping center, maybe Safeway. But all such locations require crossing El Camino and/or, as with driving, going significantly north or south to get across town. I use street and other bike paths in Palo Alto more frequently but just recreationally.

I'd love to see in the Transportation Master Plan (or other city document) a requirement that all major developments on street corners next to residential areas have a bike/walk path around them. The development on the northeast corner of El Camino is a perfect example. It has a parking lot behind the building that is accessed from El Camino and from Encinal Ave. The parking lot becomes a through route for bicyclists who are trying to avoid the traffic pileup at the intersection of El Camino/Encinal and pedestrians looking for a more pleasant route away from the main road. It would be even better if there was a dedicated path that went around the parking lot to accommodate.

I'm excited about the potential to replicate the Homer Ave Undercrossing concept here. What would make it even better would be good connectivity between Roble and Cambridge on the downtown side of the tracks. There should be multiple access points, just as there are in Palo Alto.

Inadequate connection. Often require heavy traffic street crossing to get to the location

It is super unsafe for bike riders to go from Elder to Santa Cruz, and Santa Cruz to Lemon. These are prime locations for Hillview students and Oak Knoll students. We would bike to school except for those two corners. Santa Cruz itself and the sidewalks are a total mess between Elder and Alameda (we watched a bike rider fall there a couple weeks ago seemingly from the bumps in the sidewalk – children don't have a chance!). Cars COMPLETELY ignore the crosswalk at Lemon, both for pedestrians and bikers. There will be a fatal accident there at some point.

Bike map comments (continued)

It would be nice to have a bike path on O'Brien Drive/Kavanaugh Way connecting to Willow Road and University Avenue. The area should also have also better and more lighting in the O'Brien business park.

It's really difficult to bicycle on El Camino. I use the sidewalk. This should be considered the bike path on this state highway.

Lanes riding along Valparaiso, Santa Cruz, and Middle are not safe for kids with cars going the speeds they are allowed to go currently.

Laurel Elementary School expanded last year to open a new Upper Campus off of O'Connor Street in the Willows serving 3-5. The Lower Campus still exists on Edge Road in Atherton serving K-2. Most families have children attending both campuses. THERE IS NO SAFE WAY TO BIKE BETWEEN THE CAMPUSES!! The route most motorist, bikers and pedestrians take between the two campuses is down Coleman Avenue and Gilbert Avenue. There is NO bike lane on either of these two roads. I ride my bike daily with my 6 year old son to Lower Laurel. We luckily live nearby, but still have bike a short stretch along Coleman. It's a daily nightmare. The street is narrow, many motorist go fast (especially high school students rushing to and from MA High School) and I worry about our safety. We will have no safe way to bike to the Laurel Upper Campus in two years and will have to drive. My friends that live farther away have no safe way to bike to school because Coleman is too dangerous. Please make a bike lane for t

Lots of traffic at middle and university. It feels unsafe during rush hours trying to cross with kids.

Many people use this street as a connection to El Camino from University

Marsh road between Middlefield and Bay stinks for bikes. Nice drainage ditch, though, thanks.

Menalto and Oak Court is a major place for biking to Upper Laurel. It is very dangerous with cars backing out of spots. Other areas: Coleman Ave. - Volume, speed, parked cars, buses, new drivers, kids riding unsteady. Absent bike lanes on Willow Road in key dangerous places (near 101 on both sides). Gilbert - kids swerving around parked cars. Crossing of Middlefield at fire station (Linfield). Middlefield in general - cars traveling too fast to have only a thin white line. Middlefield/Ravenswood/Ringwood intersection. So many problems there. All crossings of El Camino. Biking through downtown dangerous. Need better bike crossings of Santa Cruz near Hillview. Santa Cruz Ave and Sharon Road, very dangerous to cross. Sharon Road near La Entrada - no dedicated biking (or walking) path. Belle Haven!

Middle is not safe for kids. Construction trucks and cars consistently block the bike lanes and force kids to ride their bikes into traffic. Cars with drivers unfamiliar to our neighborhoods frequently miss pedestrian crosswalks because there are no crosswalk lights or flags.

Bike map comments (continued)

Middle near Safeway is a terrifying area. I have been caught in the middle of the street, heading east and trying to turn left into the parking lot. Cars were turning from the parking lot in front of me. Cars were lined up in front, beside, and behind me. Cars were rushing around. Cars heading west on Middle were turning right into the parking lot and not looking for bikes. I have tried to cross El Camino at Middle, going east. There is no lane! Cars trying to turn right (south) onto El Camino are in a hurry and not looking for bikers sandwiched in the gutter.

Might need a cyclist triggered stop light here for safety.

N/A

Need connection at Ravenswood.

New bike lanes on Oak Grove are terribly designed, and I would NEVER use them. You put the bike lane hard up against the curb on a sidehill sloped road surface with a lane that appears narrower than standard. I would never ride in this space. THE amount of road and tree detritus that accumulates in that narrow corridor makes bicycling there comparable to riding through a mine field. One is just waiting for a flat tire. Also not safe in wet conditions. I realize some mother whose kids never really bicycle anyway really wanted something done on this street, but the solution is a joke. No safe path of travel for bikes from bikepath on bay (north side) of Bayfront Expressway to southbound Chrysler Avenue. Cyclists are required to ride in cross walk against traffic then turn swerve to right in front of cars turning left which confuses drivers. A crossing is needed on west side of Chrysler for bike with warning to yield to oncoming bikes, or cycle needs to be added to allow bikes to cross before cars exit Chrysler with green light.

No safe routes

Not fully connected. Willow Lane bike lanes are a joke. Need better separation. Need to move away from paint only on busy roads.

Nothing in particular, although bike lanes could be better (bigger) on many of the streets. Find myself going around parked cars so I am in traffic in order to do that.

Olive Street near Santa Cruz needs to become a NO STOPPING zone during school start and end times. It is not safe and another accident is waiting to happen. My son was "doored" here on his way to school three weeks ago and sustained a fractured collar bone. PLEASE make a change.

On my commute, I ride up the west side of San Francisquito Creek on the west side, which is great for biking, then cross over to the bike path on the north side of El Camino Real. Unfortunately, there's no good way to get between the two, except to go from Creek Drive up the large ramp onto the sidewalk portion of El Camino Real crossing the creek, where there's not much room for even one bike going one direction, to get to the crosswalk crossing El Camino Real. I see a lot of other bikers taking this route as well, but that one section crossing on the sidewalk is not safe.

Bike map comments (continued)

Our 2nd grader crosses this intersection every morning to get to Laurel School. This is by far the most dangerous non-bike lane street / intersection. There was a modest improvement with the crosswalk installed, but it doesn't have flashing lights for pedestrians trying to cross. Additionally, the sunlight for south bound traffic in the AM commute is glaring directly into their direction.

Our kids did bike to school when they were k-12. Biking downtown and on Ravenswood Ave feel dangerous although I've never actually been injured there. On El Camino I commonly ride on the side walks instead of the street for safety. It's not in Menlo Park, but the intersection of El Camino and Sandhills is very dangerous for bikes and pedestrians and the No Turn on Red rule is almost never enforced.

Please make it safer for bike riders to travel from Alpine Road to the Alameda!

Riding on Coleman to Lower Laurel School is not possible with a school age child. Way to dangerous. Total bummer. Getting kids to school from the Willows on bike is too dangerous in the morning.

Santa cruz has not been very safe for kids biking to the middle school. Bike riding should be encouraged and made easy to save all of the parent's trips to and from school. Kids biking is a real win-win around every school!

Stop working on every other piddly bike project that has no real value, and build an underpass here where Burgess Road can be connected with Middle. Don't hire some consultant to waste more money studying it, just get out there and dig. This would be the most useful way to connect areas east and west of ECR, and to provide better bicycle/pedestrian access to the Burgesses Center from the west and to downtown from the East.

The 90 degree turn from the bike path here makes it very difficult to see traffic and there is no stop sign for vehicular traffic. I'd feel much more safe if there was a stop sign here, as there is on the other side of the ped bridge.

The Ringwood / Menlo Avenue route to downtown is a dangerous choke point for bicycling, I often use Oak Grove from Atherton up into downtown instead. A well designed elimination of the grade level crossings may help.

The bike lanes along Bay Rd. are relatively great and are getting used more and more by High School students travelling to Menlo-Atherton. One of the continuing sore spots, however, is the area surrounding Bohannon Dr., Marsh Rd. and Bay Rd. on the Redwood City side of the city border. Marsh Manor is a significant impediment to bicycling as is the too narrow section of Marsh Rd. between Bay Rd. and Bohannon Dr. I thoroughly believe that improving the stretch of Marsh between Bay and Bohannon would enable many more employees in the Bohannon office complexes to consider biking to work. In addition, placing a pedestrian/bike crossing across the train tracks where Bay Rd. would normally cross, would have a DRAMATIC impact on the bikability and walkability of the entire area. I realize that it is not in the city limits of Menlo Park, but I think that a pedestrian bike railroad crossing at Bay Rd. would provide a major bikability improvement to the residents of neighborhoods like Subu

Bike map comments (continued)

The corner of Ravenswood and Alma is a difficult location for safety. Drivers tend to be very attentive, but they are going fast with fairly heavy traffic. Alma is a great bike route and is important in many people's commutes.

The diagonal parking in downtown on Santa Cruz seems really unsafe for everyone. Drivers can't always see clearly when backing out. We had that tragic incident a few years ago with the driver hopping the curb and pinning the kids against the wall at Walgreen's. And it just adds to the visual confusion, along with the crosswalks in places you don't necessarily expect them. Honestly, Santa Cruz Avenue would be ideal for a pedestrian mall with a bikeway through the middle. Parking isn't decorative or fun or village-like. It would be better to route cars around town (since there are so many crosswalks and stop signs on Santa Cruz already) and turn this into the bustling retail and dining scene that it could be.

The intersection of Middlefield and Ravenswood is very difficult to navigate on a bike.

The lack of bike lanes on Menlo, especially on the west side of El Camino near the intersection is quite unsafe. My husband, an avid biker, won't even bike there. I am not an avid biker but go there sometimes. I have to bike in the gutter IF there is not a car already there, eager to turn right onto southbound El Camino.

The point on Ravenswood in which the westbound bike lane ends and dumps you into the car lane is right up there on my least-favorite points on the road in Menlo Park. Ravenswood x El Camino is pretty unfriendly to bikes in general, but having the bike lane just end like that really makes you feel like a second-class road user.

The stretch from ringwood and middlefield to Encinal school could really be much better. I'd prefer a more protected bike lane all the way from Laurel school, passed MA, and over to Encinal. More kids would be walking and biking if this were a safer more protected route. I feel nervous taking my kids through here, so from the bike bridge over the 101 I take a circuitous route through residential streets to get to Encinal.

There is no safe way to bike over the 101 on Willow Road. This would be an awesome thing for my entire household!

There is no safe way to get through downtown on my bike. The streets are too narrow and crowded. I would love more protected bike lanes.

This crossing is super funky. It would be nice if we could connect our Middlefield bike lanes to the improved bike connection by the Palo Alto creek.

This intersection (really the Ravenswood one, actually) is kind of funky for non-vehicular cyclists. I see a lot of people turning left from Middlefield onto Ravenswood and few of them actually use the turn lane. In part, this is because they have to merge across a lane of high-speed traffic. A lot of them are kids. They tend to cross Middlefield at the red light and then cross Ravenswood during that same light (not waiting until they get a walk light). Heading from Ravenswood to right on Middlefield is dodgy as well, with a high-speed merge and mixing with cars. I tend to go straight across Middlefield, through the high school, and then left on Ringwood from the high school parking lot.

Bike map comments (continued)

This intersection needs to be improved soon. Currently cars heading for 101 come screaming down Alma toward Willow and make a high-speed left, often without signaling. Thing is, this is also a major commute route for cyclists heading north from the Palo Alto bike bridge. I've had a number of close calls here. I think a 3-way stop sign might be indicated, as the speed bumps don't handle the visibility/lack of signaling issues. Or maybe a roundabout.

This is a great location for the double HAWK beacon concept that the Fire Dept suggested. I hope we can work it into the plan. Santa Monica is a great road for bikes—wide, quite, low traffic. And riders who want to get from the Willows to Burgess and downtown could really use a more comfortable route than Willow Road.

This is a really busy street, with lots of bikers and walkers of all ages. It's also really dangerous. The city needs to address safety on this street.

This is a very dangerous intersection for bikers. Cars on Valparaiso often pass other cars in the bike line.

This location needs a stop-sign or something. A lot of kids come across the bridge in the morning and cross without looking. This is an accident waiting to happen.

This signal upgrade a couple of years ago was a game-changer for safety—would like to see it improved on Ravenswood (a lot of people want to turn left on Laurel and run the gauntlet) and similarly improved at Laurel-Oak Grove.

This was super problematic last time I was riding it: you have a two-way cycle track abruptly ending and dumping cyclists out on the wrong side of the road. Maybe it's fixed now?

Uncomfortable sharing street with vehicles on University between Santa Cruz and Menlo Avenue.

Vehicles getting closer than 3 feet, vehicle not stopping at stop sign, speeding, vehicle extended too far into bike lane

Vehicles turning right pay too little attention to bikers and pedestrians. Parked cars and cars entering or leaving parking lots often block sidewalks and bike lanes. Bikers should not be using sidewalks; it is hazardous for pedestrians.

Very unsafe to bike along Middlefield going South- no bike lane, and the sidewalk is far too narrow to be used on a bike, so cars honk, almost hit you, and it feels like playing chicken! Going North is great! Wide bike lane and sidewalk!

WE bike/scooter with our kindergartner to Laurel from Flood Park on Ringwood. It is a bit terrifying. I think that cars using that route at that time of day are accustomed to children, but I have seen cars that are pretty impatient. Part of the issue is the lack of sidewalk - it makes it so that young kids who are new on their bike/scooter are even more squirrely with the rain gutter, dips, and uneven pavement. A sidewalk, or even a mild curb to separate cars from pedestrians would make the route feel much more safe.

Bike map comments (continued)

We have great bike lanes here and new bike lanes on Oak Grove—but they don't connect to each other well. There's not a great way for bikes to turn left onto Oak Grove (still no three-way or left-turn signal, which I thought we were going to install) and I noticed that the righthand turn from Oak Grove onto southbound Laurel is funky as well. I think maybe there's even a bus stop there, right where a bike might want to turn right?

We need more bike lanes and better visibility at intersections. Pavement ought to be maintained better and plants kept cut back from roads. A lot of bicyclists take too many risks. They act like pedestrians with wheels when they should act like vehicles. Maybe licensing bicyclists would help them be more responsible. (This is provided by my spouse who rides regularly.)

We no longer bike to from our home to Laurel's Upper Campus because the section of Coleman that we have to travel along is way too dangerous for bikers. It is not worth the risk to my young sons life or health to attempt to bike along Coleman any longer.

We've just added bike lanes to University and there are a lot of folks who bike on Middle between Olive and University. We don't have an optimal way for them to make a left-hand turn onto University. Skilled vehicular cyclists will signal and integrate with the cars, taking their turn. I frequently see people trying to turn left from the not-really-a-bike-lane bike lane to the right of cars. If cars are also going left, it's not a big deal, but sometimes they're going straight and it's hard to know since people don't always signal. A roundabout here (check out the ones on Stanford campus) could integrate cyclists more fluidly and reduce backup and four-way-stop confusion. Not sure how well those work for pedestrians but the current situation needs improvement.

When I bike from Allied Arts to Palo Alto, I can't easily/safely get to/from there. Here are issues with different routes: Going down Middle means losing the bike lane and getting squished by cars near El Camino. Then I have to bike ON El Camino. That is scary. Returning from Palo Alto, I cross at Sand Hill Rd and have to use the sidewalk on the bridge to get to the neighborhood. If I want to go to Safeway or downtown from Palo Alto (e.g., to stop at a store), I either have to ride on El Camino (too many cars for my comfort) or take Alma to Ravenswood/Menlo where there isn't a bike lane. Those who think using Alma to get north/south don't understand that many of us don't like having to choose between Ravenswood and Sand Hill Rd because we need to get someplace(s) in between those. The proposed bike tunnel at Middle might help BUT it dumps us onto the extremely dangerous Middle Ave mess near Safeway.

When riding East on Willow approaching the intersection with Middlefield, I have consistently had trouble tripping the traffic light signal when no cars are present. (It's possible that this problem has been fixed. I have not ridden my bike through the intersection for at least 8 months because I was pregnant or caring for a newborn.)

While the new sign here to stop for pedestrians has added awareness to the crossing here, I often watch cars fly right by without noticing a pedestrian has dismounted from a bike and is stopped waiting to walk across it. It seems only cars stop if there are strollers waiting - they don't see pedestrians well here also.

Bike map comments (continued)

Woodland avenue is a very narrow road. It has a double-yellow line and no bike lanes. People bike and walk along the side of the road. It is impossible to give people the legal 3' clearance without crossing the double-yellow line. Virtually every resident of the Willows must cross the double-yellow line to safely pass pedestrians and cyclists on a daily basis. Cut through traffic often speeds and creates unsafe conditions. The road looks too narrow for a bike lane. Either need to add a bike lane, remove the double yellow lines, or create an alternative route for bikes.

at the corner of university drive and middle ave, we need to make the intersection/crosswalk safer. This could be done with a traffic light or even a well lit crosswalk would help (with flashing lights, flags etc). Many bikers cross this intersection but there have been too many near misses due to the poor design of this intersection.

bike lanes often blocked by cars stopped/parked illegally

cars in bike lanes, parked

coleman avenue and Gilbert avenue are not safe enough for kids to ride bikes. no bikelines, parked cars on the street, cars are not careful enough.

congested. feels unsafe to bike over 101 interchange

the el camino bridge and side walk connecting menlo park and palo alto is incredibly dangerous. the connection between creek drive and the bridge/sidewalk is horrendous.

there are now many new condos on Haven and there are no bike paths or side walks on the final 200 yards that connect Haven to Marsh and it is very dangerous and confusing...even for cars

traffic on El CAmino makes crossing difficult

Is there anything else you'd like to add about your experience biking in Menlo Park?

Cars on Willow Road and Bayfront Expressway are driving at Freeway speeds through intersections. (3)

Connections between bike lanes and bike paths across intersections and Belle Haven are poor or non-existent. (2)

I started bike commuting in Boston, home to some of the worst drivers on the planet. It was a great place to learn self-preservation skills and so I'm comfortable merging with traffic and basically riding as though I were a car, with all that this implies (yes, signaling and stopping!) That said, I know I'm faster and street-savvier than most of the people in our town who bike. And I've had some scary experiences, almost all of them involving distracted drivers. We need to design our streets with non-expert users of all kinds in mind. (2)

Already added earlier. Cyclists need safe routes, but also need to be enforced on obeying the traffic laws so they have predictable actions that cars can see and be aware of.

As a life-long bicyclist (and driver) I really don't think that bike lanes and bright green bike lanes are any help at all in keeping me safe from cars. If drivers aren't paying close attention to their driving duties, then even the biggest brightest bike lane isn't going to help me. I do take steps to increase my personal visibility. Bright, reflective clothing, and lights for the bike both front and rear. I try to stick to the wider streets when possible. But even these personal measures won't help if a driver isn't being careful when they drive. I think these bright green bike lanes are going to be expensive to maintain in the long run. City funds are always limited. I'd rather see money being spent on other community issues, such as housing and homelessness.

Because I find the biking conditions in Menlo Park to be less safe than other places I have lived (such as Palo Alto and Mountain View), I suspect that my kids will not bike to school at as early a grade as they would if we lived elsewhere. There are not enough bike routes and the ones that we do have are mixed with too much vehicle traffic. The connection between North Fair Oaks and the rest of Menlo Park (and Redwood City) is particularly weak, in my opinion, but in fairness much of my complaint in this area is due to unsafe bike conditions on Atherton streets.

Bicycle boulevards are needed.

Bicycle routes for the kids going to school could be improved

Biking during commute hours is a deadly proposition. On the east-west routes like Willow Rd, Ravenswood Ave, and Middle Ave, cars frequently make dangerous right turns or unprotected left turns without looking for bicyclists.

Coleman avenue is a disaster waiting to happen for bikers. Sooner or later a kid will get killed, and then everyone will wonder why nothing has been done.

Drivers and bicyclists are becoming far too hostile and self-righteous. I am not sure how we can reintroduce civility between these two groups.

Is there anything else you'd like to add about your experience biking in Menlo Park? (continued)

ECR stinks, and it's frequently the only good N/S route. Put in bike lanes. There are lots of racks for parking downtown! Ped/bike bridge over 101 is great.

Getting across the Sand Hill Rd/El Camino Real intersection to access the bike path in both direction is dangerous and could be re-evaluated for safer crossing.

Getting across the tracks is a pain. Need a rail under crossing to get up to Safeway, forcing everyone in the Willows, Flood Park Triangle, etc. to shift over to Ringwood and back is foolish.

I REALLY REALLY like the new bike lane on Oak Grove!! It is wonderful. My family uses it on the weekends to bike to downtown Menlo Park and the west side. Before there was no safe way for us to bike to the other side of El Camino. It is also helpful during school rush hours to know that students heading to Hillview Middle School and MA High School are going to be using that route so you can expect them. Having students use non-bike routes made it unpredictable when you might encounter one on a random road. Please keep this route and implement the same on Coleman and Gilbert Avenue.

I am disappointed Menlo Park hasn't done anything to make biking and walking routes to schools safer. When the new Laurel Upper Campus opened, no bike lanes were put in to encourage children to ride bikes, and there is increased neighborhood traffic from Waze and other sites, and Menlo Park hasn't implemented common sense traffic regulations to decrease cut through traffic. The combination of no bike lanes and no efforts to reduce cut through traffic make roads unsafe for children, which discourages parents from sending their children to school by foot or bike.

I appreciate the "bike-lanes" on Bay, Middlefield, and Ringwood Ave. I would appreciate a physical barrier even more. The small curb on the South-West corner separating cars and the bike lane at Bay Rd. and Ringwood Ave. is appreciated and a good example of at least a small attempt to separate bikes and cars.

I do appreciate the more bike friendly green painted lanes although cars do not always pay attention to the solid no drive areas especially near Stanford on Alpine Rd.

I dont bike into town, as I dont know where to store my bike.

I love the bike bridge connecting Belle Haven to the rest of Menlo Park. Thank you! My husband also uses the bridge to bike to work to Redwood City and we wish there wer better bike lanes on Marsh road.

I love the new bike lane on Oak Grove. The bike lane on Santa Cruz is also a wonderful improvement for Hillview students - thank you!!!

I used to bike across residential area from my house to the bike bridge over Oregon Expy to bike to Shoreline Park, but got too busy taking care of parents... Now I feel too nervous to bike yet. Need to take off some weight and probably have another knee surgery....

Is there anything else you'd like to add about your experience biking in Menlo Park? (continued)

I used to commute to work by bicycle every day from near the Willows to Page Mill Road. Traffic has become increasing worse. Drivers are frequently not paying attention to the road, everyday I see numerous drivers running red lights, erratically changing lanes, and driving in the bike lanes- all of this makes it very hard for bicyclists. We don't have dedicated bike roads like the Danes or the Dutch, and quite frankly a little stripe on the side of the road doesn't make cyclists safe. Add to that the infrequent street cleaning and maintenance, and riding is a miserable, dangerous experience. No more riding for me until bike roads that are safely separated from car traffic are built.

I want to compliment the city on completing the Santa Cruz corridor between town and Hillview school. My bike rides most often start and end there, but the real benefit will accrue to the students of Hillview. They can now do what they have always done, that is walk and bike to school, and to town after school, but do it much more safely.

Would like to see safer bike routes for kids to ride to school. Our kids go to Laurel and Coleman is a disaster. MA and Laurel kids trying to get to school with lots of cars and 3-4 roundabouts that make it not very safe or enjoyable. Thanks for your help if trying to improve Coleman.

Would love to be able to bike to and from the Laurel School campuses and not have my BP rise every morning with the stress of trying to keep my kids safe.

better connectivity to Redwood City would be nice

better connectivity to east menlo park would be nice

overall dramatic increase in dedicated bike lanes and better (ie, safer) bike connections between menlo park and palo alto, and transiting el camino w/in menlo much needed.

I want to say that Atherton continues to be a major problem for biking in Menlo Park. Getting from Encinal School to Holbrook Palmer Park, for example, is ridiculously difficult and dangerous on a bike. Whenever I think of comparisons between Menlo Park and Palo Alto, I always have to come to the immediate conclusion that Palo Alto is in another stratosphere when it comes to bikeability and this is largely due to the fact that Palo Alto does not have to deal with impediments such as Atherton. These are major quality of life issues especially when considering allowing children to bike to school on their own. Menlo Park has a long way to go before it achieves the levels that Palo Alto reached years ago. I wish cops would ticket more on school routes, especially middle ave. People speed during school commute and pass in the bike lane. This almost caused a deadly accident for my kids who were crossing Middle and someone swooped around in the bike lane, nearly missing them.

I would bike much, much more frequently if it was safer.

I've nearly been run off the road the few times I've biked by people parking in the bike lane. I could wish the drivers would be less awful to bicyclists.

In general traffic is scary when biking.

Is there anything else you'd like to add about your experience biking in Menlo Park? (continued)

It can be scary... cars cutting through and moving at higher speeds than safe for residential areas.

It makes zero sense that these bike lanes are in middle of traffic. So unsafe. Will not let my kids ride unless on streets with bike lanes on shoulder. We need parking not more bike lanes. Live oak is a joke

It takes me far less time to bike across Willow Rd than to drive. Biking downtown is easy. The bike bridge over 101 is great! Need better bike lanes for kids to get through downtown. Having people bike downtown helps with congestion.

It would be wonderful to have more ways to get from east to west MP safely on a bike. Right now, good options are limited to the edges of town - Sand Hill and and Valparaiso.

It'd be amazing if we could have dedicated bike paths around town, so cars and bikes don't have to compete on the same roads.

It's dangerous to bike on many streets in Menlo Park as an adult and it's pretty much untenable to send kids out into the streets to bike safely. The city needs to make a larger effort to reduce traffic, car speeds, and improve bike lanes / bike safety.

It's scary biking in Menlo Park from west to east. Only two streets connect east to west... Val Paraiso and Santa Cruz and they are both crazy busy with cars that it's frightening. I feel more safe biking on Junipero Serra than on Val paraiso. Bike lanes are too close to the cars. We need a dedicated bike lane on Val Paraiso thats not on the street. There seems to be room to put a bike lane going both directions on the left side of the street as you are going east on Val paraiso. Removing cars on University and Oak Grove and Santa Cruz will be a huge help!

Kids going to, and especially from, school tend to bike side by side. The bike lanes need to be full, ideally, with buffer. I fear that the new lanes on Santa Cruz are more narrow than before and that there will be issues with aggressive drivers and kids. Way too many people roll right past the stop line on streets without looking side to side. This is really dangerous for bikers and pedestrians.

Let's improve.. it is a great way to get out. Enjoy our weather, out low traffic neighborhood streets, etc.

Living near a couple of the schools, watching drivers around the kids on bikes, makes me not want to ride. I've nearly been hit once

Menlo Park could be a great bike town, but unfortunately so many of the most popular locations are not bike-friendly and in some cases even bike-hostile. The downtown is encircled by narrow roads that are parked with cars, making it a challenging environment for bicyclists. We only have a very small handful of wide/buffered bike lanes around town and expanding them should be a major priority if we want to get people out of their cars. We should also consider that people are using bike trailers to haul kids, groceries, and other stuff around town so bike lanes should be able to accommodate a double-wide bike trailer.

Is there anything else you'd like to add about your experience biking in Menlo Park? (continued)

Menlo Park lags behind its neighbors in cycling infrastructure. While I am an experienced and confident cyclist, Menlo Park is not a good place for folks who are newer to biking around town. Also, there are very few bike racks around town. Even when people come to visit me, there is no good place for them to lock their bikes as there are few street signs and no bike racks outside of Santa Cruz Ave. Things are slowly changing -- there is the new bike lane on Oak Grove and a couple of signs indicating a bike route. There is a lot that could be done to show cyclists that they are welcome and to make it easier and safer.

Menlo Park should be an easy place to get around on bikes safely. Many of us are within biking distance of downtown, city facilities, shopping centers, and parks. But it isn't easy or safe to get to them on bikes.

N/A

Need better bike lanes, better signage. Protected bike lanes on arterial streets. Bike lanes should be wider than 5'. Make car lanes narrower.

Need more bicycle crossings at the railroad tracks. Also need better enforcement of bicycle traffic laws on bicyclists and cars alike.

One stretch where biking feels safe is going North on Middlefield between Willow and Ringwood. Also, like the bike bridge overpass over 101. Separated bike lanes are always preferred if available in terms of bike safety, especially for kids. If kids can bike safely, parents can be out of cars more often!!!

Our kids could easily bike to school at Encinal however the path to get to school has a lot of traffic with little or no separation for bikes. As an adult, I've almost been hit by drivers not paying attention, when walking them.

Overall, love it!

Put bike lanes on parallel side streets as opposed to high trafficked streets like El Camino Real

Recent activity, e.g., Santa Cruz Avenue, has made good improvements for biking.

Since we moved here almost 10 years ago, the bike awareness was non-existent, until now. This community is perfect for bike infrastructure, and we are very behind compared to Palo Alto and other bay area communities. There is a massive opportunity for MP to take the next step and build the right infrastructure for this community and keep the kids that bike to school/activities safe.

Thank you for the new safe routes to school! I really appreciate the already safer downtown biking and look forward to the Santa Cruz Ave. repaving.

The lack of continuous safe lanes is a very real issue that must be addressed. Until it is, I do not recommend regular neighbors or kids bike around town. It is too unsafe.

There is no safe route to school at La Entrada.

Is there anything else you'd like to add about your experience biking in Menlo Park? (continued)

Too many locations to comment on. - Biking along El Camino to run errands (like going to Safeway or to our bike store - Menlo Velo) or to go with the kids to the Oasis needs to be safer. When will we get bike lanes, so our kids can safely bike after school to the Oasis or Safeway?

Trucks are often parked in the bike lanes (often times City trucks). Overgrown shubbery. Push buttons for traffic signals not there. No wayfinding signs.

We have quite a bike friendly atmosphere! Cars almost always stop when I need to cross the road.

We live in a great place to get around by bike! Flat, close, good mixed-use areas in close proximity. We could do more to make it safer.

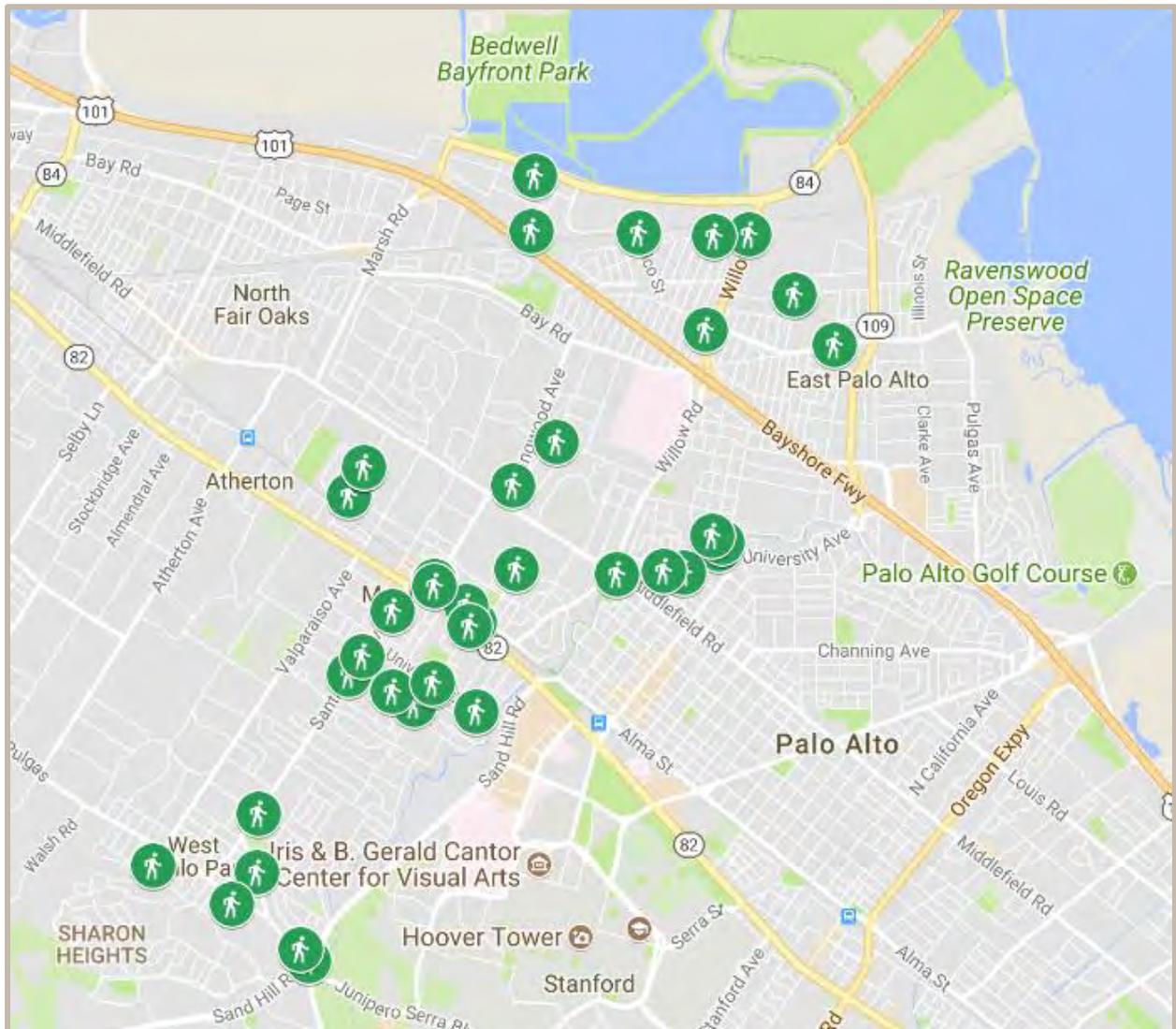
We need to permanently designate Bay Laurel as a bike Lane connecting MA High School to downtown Menlo Park, as well as improve Coleman Avenue

Appendix E: Walking map and comments

What have you experienced at specific locations while biking in Menlo Park? Drop a pin at the location you are commenting on and describe your thoughts in the comment box.

Map

Respondents indicated location-specific comments on a map; these comments are below and also available through an [interactive online map](#) that associates comments with locations.



Comments

It is silly that there are no sidewalks in many of the surrounding areas leading to an elementary school, Encinal. This includes Laurel and the corner of Laurel and Encinal. I understand that this requires coordination with Atherton.

Walking map comments (continued)

Crossing the street to Emily Avenue and then into Atherton is precarious. Traffic doesn't tend to stop on Valparaiso especially in the morning rush-hour and one takes one's life in one hand crossing the intersection

Cars turning right on Oakdell are often going too fast. I have actually been hit at that corner while waiting to turn left (in a car) by a car going too fast. Until I developed the habit of using the north side of Oakdell (while walking) before I turned left onto Santa Cruz, I was worried that the vegetation would/could prevent traffic from seeing me on foot.

Coleman Ave is the primary way that school children get to Laurel Elementary school, but the last few blocks have neither sidewalks nor bike lanes. It feels like a very dangerous situation to have people driving, walking, and biking on the same narrow strip of road. This should be a priority for Menlo Park and San Mateo County to fix.

Coleman Avenue is extremely unsafe M-F particularly during morning commute and when the schools get out. Crossing Willow during morning and evening M-F feels very unsafe

Cut-through traffic on Woodland, Gilbert, etc. impacts safe walking.

Disjointed path with no good connection to the park north of the Bayfront expy.

Extremely dangerous pedestrian crossing. Cars accelerate to avoid train tracks and ignore pedestrians

Fremont Street, Arbor Road, and others have badly heaved (tree roots) and badly broken sidewalks. Major tripping hazards. Need to push for immediate repairs.

From Alma & Ravenswood, there aren't good options for proceeding into the downtown. For instance going to Peet's on University or Amici's on Santa Cruz. Menlo Ave is dangerous for bikes as is Santa Cruz. Young bikers don't have protected lanes for traversing to shops other locations.

Having crosswalks across ECR on only one side (eg only the north side of Middle) is very inconvenient and can add several minutes to certain routes if you hit the lights wrong.

High speed traffic on Santa Cruz Avenue. Finally, sidewalks after 50 years of debate.

I don't mind not having sidewalks in the Allied Arts area, I think it adds to the charm.

I have lived here almost 30 yrs. No much has stopped me from walking around town. Whether it be for fun (growing up living in Sharon Heights) or out of needing to because it was my only option to get somewhere. (Lack of bus)

I know a lot of Ringwood is technically Atherton but it's worth mentioning that the "no Parking" signs along the bike lane across from the high school are routinely ignored and it becomes quite dangerous when cars are stacked up here for an event, with doors opening, people suddenly re-entering traffic, etc. (one reason I can't let my son regularly bike to and from town)

Walking map comments (continued)

I mentioned this in the biking section - we bike/walk from Flood Park to Laurel Elementary along Ringwood and it can be a bit scary. Most cars are used to children, but some get impatient and the small children are still learning their rights and responsibilities as pedestrians. It isn't a great combination and a proper sidewalk or curb would go a long way to making the situation feel safer.

I run around Menlo Park every morning. Cars move way too fast through town and there are wide safe sidewalks. Now that traffic is so much heavier, the issue is so much worse.

I use a walker or a cane and find the unevenness of sidewalks (in my neighborhood) and parking lots (downtown) to be a real problem. It would also help to have a few more disabled parking spots downtown and to have them in predictable places. It would be good for city staff to go around the city and around city office areas, particularly at night, with a walker or a cane, and find the "hidden" traps--where light is insufficient and drop-offs can't be seen. My "favorite" one is exiting the CC chambers to the parking downhill on Laurel Street.

I walk 3-6 miles most days, but usually not in Menlo Park. Menlo Park is dusty from construction and leaf blowers, lacks sidewalks along many routes, has poorly maintained sidewalks that are overgrown with shrubs, covered with debris and too narrow for more than one person in many places. Often power poles, newspaper boxes, and other infrastructure obstruct the pedestrian right of ways. That would never be allowed on car routes, but somehow....we just don't care about the comfort and safety of pedestrians. Want to know where? It's everywhere. All over Menlo Park. El Camino is terrible for walking, Middle only has a sidewalk on one side and it's always overgrown in places, West MP has no sidewalks, Santa Cruz finally has sidewalks, but they don't reach Avy, Ringwood is a major route to schools but has no safe sidewalks, Vintage Oaks has tiny little narrow sidewalks on one side of the street only and no sidewalk at the exit to Middlefield on the north side, which is the direction sch

I walk a lot and don't have any trouble walking on the sidewalks or the edge of the road, we have a lot of roads that don't have sidewalks so our drivers are more aware of pedestrians because they are used to it in town.

I would like to see better sidewalks on Marsh Road and Bay Road.

I'm really happy to see real sidewalks going in finally.

Inadequate side walks on Valpariso

Lack of decent lighting on Coleman Avenue. Very dangerous during the winter months. Unsafe given the volumes of traffic and angry drivers to have kids walk across Willow by themselves to get to school.

Walking map comments (continued)

Look, its not safe to walk the streets sometimes. Cars OFTEN blow through cross walks - even the lighted ones - with kids and pedestrians in them. There are just way too many cars cutting through to access the main streets. Don't forget to count hundreds of construction trucks barreling down our side streets and and into neighborhoods at all hours of the day. When they're blocking the side roads, double parking, blocking driveways, parking in front of fire hydrants, etc, it makes for an almost hellish obstacle course if you walk a dog or go for a jog.

Middle and Blake is a dangerous intersection right in front of Nealon Park. A mandatory stop sign should be put there for all traffic until a permanent solution is in place.

More resturants, shops, cafes, grocery stores in residential neighborhoods would be great, improve walkablity.

More stop signs in downtown on Santa Cruz Ave. have added confusion for pedestrians.

Need a way to cross train/El Camino in this area.

No side walks

Payment at Railroad tracks crossing at Chilco and Willow is uneven making walking challenging.

Recent stop sign additions are a step in the right direction. So many clueless drivers here. Might be good to have an officer or two issue citations for some of the silliness that is seen.

Santa Cruz Ave traffic is allowed to go too fast, speed limit much to high for road conditions, the 26 driveways, curve in road, senior center, and extremely high accident rate. Speed should be 30 mph at most, like the rest of Santa Cruz. Sidewalks on the south side of Santa Cruz Ave between Fremont and University are in poor condition and too narrow.

Sometimes it isn't cold or wet.

Thank you for the new sidewalks on Santa Cruz Avenue. The novelty has not worn off for me and it makes it easier to go to the farmers market or hardware store without having to drive.

The East Palo Alto sidewalks on Kavanaugh Drive terminate at the city limit. In conjunction with the Willow FaceBook campus, new sidewalks should be constructed and connect on the Menlo Park side of Kavanaugh Drive and O'Brien Drive (JobTrain/Polytec) and throughout the O'Brien business park where there are incomplete sidewalks and poor lighting (short poles every other block mostly obscured in the trees). Need more/better/longer poles lighting in the O'Brien business park.

The O'Brien business park needs sidewalks (there are some in Kavanaugh East Palo Alto side but it does not continue on the Menlo Park side). The area is also very poorly lit (low light intensity and not on every electrical pole).

Walking map comments (continued)

The crosswalk to get across El Camino Real at Santa Cruz is really slow. West Menlo Park sidewalks are terrible/nonexistent, especially where Santa Cruz Ave becomes Avy. When I jog there, I always get really nervous, and have almost been hit while out at night. (Maybe the county can do something about that?)

The intersection of Middle and University needs to be safer for pedestrians to cross. There is no sidewalk on many parts of these streets and the four way stop is very dangerous with many accidents and near accidents. This needs a traffic light and possibly speed bumps and a better labeled crosswalk.

The pedestrian controlled crosswalk at Ravenswood and Alma is great. (I'm not sure if it's called a HAWK crossing, or something else.) It has those super bright flashing yellow lights embedded in the roadway/crosswalk. It's very helpful at dusk and night, and even during the day.

The sidewalks are too narrow from Johnson downtown, with poles and boxes in the way. Shrubs grow across the narrow sidewalk, making it even more difficult. All along Santa Cruz, the shrubs and trees are not kept far enough back to make it easy or safe. Also, with the new Santa Cruz sidewalk, some people are putting their recycling bins on the sidewalk. The trucks sometimes put the bins back in the middle of the sidewalk, making it difficult for strollers and those with walkers to move the bins and pass by.

The walking conditions on Olive St. are terribly unsafe, as described earlier, especially for Hillview students going to and from school during heavy vehicle times. Yet, this is a major thoroughfare for Hillview students. We desperately need bike lanes and sidewalks on this street. We also need a cross walk at Olive St. and Stanford Avenue, where hundreds of kids attempt to cross at a blind corner.

This area of Middle has a lot of kids crossing back and forth, often in danger. We need to stop imagining that our drivers are actually paying attention and will stop for a tentative-looking kid on a bike or on foot hovering by the side of the road.

This crossing is bad for people walking. It's quite busy now with Facebook bikers and cars and walkers. Some sort of pedestrian overpass would be great because cars get really impatient about turning left from Hamilton into Willow.

This is a biased junction against pedestrians. Traffic lights take far too long to change to red so a pedestrian can cross safely - Feels like 2+ minutes. When it is safe to cross, the pedestrian green lights do not seem to last long enough to safely cross the entire road without running. The count down starts before I get 1/2 way across the road. In addition, pedestrians have to watch out for cars turning right without stopping while pedestrians have the right of way to cross any of the roads from all directions. I like to walk down to the golf course from here and it's on my daily walk ... this junction is simply awful for anyone on foot or indeed on a bike..

This part of Belle Haven has good sidewalks but not every street has good lighting in the evenings, so I don't always feel safe.

Walking map comments (continued)

Too many locations to comment. Cars racing down residential streets, not stopping at crosswalks for pedestrians, getting upset if a pedestrian enters the crosswalk, etc. has become a more frequent occurrence. Especially residential streets need to be a safe place for people to take a walk, walk their dog, etc. Cut through traffic should be eliminated as much as possible and speeding should be made harder. Why is Central in the Willows still missing 4 way stops on so many intersections that are crossed by children on their way to school?

Too much traffic at University and Middle to feel safe crossing with kids and doesn't feel safe during rush hours

Uneven sidewalks

Walking downtown is a nightmare. I have almost got struck by a car at least 10 times.

Walkways are being used by bicyclists, even when there is a special lane. Alma St. library has all ages of bicyclists riding around on the sidewalks where there are baby strollers and young children. I have told people to get off and walk their bicycles. (Shocked). These are walkways/sidewalks, not bicycle ways....

We would walk to Oak Knoll, except cars constantly ignore the crosswalk at Lemon and I have witnessed too many near accidents.

Woodland Ave is a favorite place to walk/jog but many speeding cars and inconsistent sidewalks.

Woodland avenue is very narrow and does not have sidewalks in the section near Middlefield road. There is one blind curve with a large bush and a power pole that creates a blind choke point. This is unsafe for cars, pedestrians, and cyclists alike. Consider a sidewalk in the section of Woodland near Middlefield.

access across foot bridges to palo alto is great

cars turning at intersections do not look left and right for pedestrians

cars turning blindly from encinal to laurel cut into bike and walking area.

dangerous now. needs a light while waiting for the 8 year plan to take place.

on most of the main high priority sidewalks as per the 2009 plan there are still no sidewalks let alone sidewalks on med priority For people to be able to not use cars for errands etc it is key that sidewalks be installed on high and med priority streets that connect commercial areas and especially schools to homes

spot where I fell and seriously injured my knee because of plants that were overgrown on the sidewalk Lots of other places this happens in the Willows

Walking map comments (continued)

streets are dark at night, pedestrians hard to see, stop lights are timed quickly and sometimes cars don't see pedestrians before turning or continuing. There are NEVER flags at flashing light crossings (e.g. library) and in bright sun the flashing lights are impossible to see (library, Middlefield Rd at Linfield). People walking over the 101 overpass are taking their lives in their hands...

traffic rushes to make the no turn on red...install a camera to deter cheaters.....enforce speeders.....and those who block the box/intersection

Is there anything else you'd like to add about your experience walking in Menlo Park?

Many motorists do not mind pedestrians crossing in crosswalks. Much stricter police enforcement necessary

Annoying, but not hazardous, are hedges and plantings that have overgrown the sidewalks so much that one is forced into the street. A little publicity and reminders might solve this. LOVE the new Santa Cruz sidewalks (and bike lanes)!!

Belle Haven is built to be walkable, which is one of its good points. I don't feel safe walking at night but that would be true most places.

Complete the sidewalks on Santa Cruz Avenue and Avy Avenue.

Crosswalks on Willow and Bayfront expressway are dangerous with cars not slowing down to turn. Can take multiple signal cycles to cross Bayfront at University since crosswalk is only on East side of University Avenue. Walking toward bay is pretty, so needs to be safer.

Difficult to cross railroad tracks - limited crossings force us to go out of our way.

Difficult to walk across Santa Cruz Ave. outside of downtown.

Don't make the walk signals "on-demand". You miss the light by a few seconds and then have to wait for several minutes. Make them always "walk" at least for a little bit when the light goes green.

Drivers are usually very observant of pedestrian crossings. It is unclear if bikes are permitted on the sidewalks downtown. I don't see anything posted about this. Bike riders coming down the sidewalk behind me make me very nervous.

Drivers do not stop at intersections where they should. I have had too many close calls while walking and while biking with eager drivers pulling out without looking both ways. We need better enforcement of rules. Vegetation, both bushes and trees, have grown into too many sight triangles at corners and across existing sidewalks. We need enforcement of rules and required regular pruning! It is really unsafe at many intersections on major streets that families use. The Santa Cruz sidewalks are often overgrown. Investment in code enforcement is critical for community safety.

Generally the automobiles speed by. I pick up litter a lot on Ravenswood between Middlefield and El Camino. It helps that there are 5 trash bins along the way.

I am a runner and my experience is that the traffic lights are all timed for cars and not pedestrians. Pressing the buttons doesn't seem to help on several of the traffic lights especially on El Camino.

I am a runner and my experience is that the traffic lights are all timed for cars and not pedestrians. Pressing the buttons doesn't seem to help on several of the traffic lights especially on El Camino. The crosswalk on Oak Grove between Laurel and El Camino needs lights. I have been nearly run over several times by cars speeding despite there being signs on both sides of the street.

Is there anything else you'd like to add about your experience walking in Menlo Park? (continued)

I do not have any complaints about walking in Menlo Park. I generally walk to Palo Alto more frequently but try to walk to Burgess Park for classes/library regularly. Walking is just not an efficient way to get things done.

I typically don't walk at night as it isn't safe -- no/poor quality sidewalks or lighting. Also traffic is going too fast & visibility is poor. I also walk my neighbors dog fairly often and do not feel safe crossing any of the major streets in West Menlo Park except Avy & Alameda.

I'm astonished by the number of times that I have almost been hit while crossing in cross-walks (even with green lights!) The El Camino crossing near Safeway is horrible in that regard. I'm also astonished at how many people won't stop for pedestrians (including school children) that are waiting at cross-walks without lights. And I've witnessed numerous people passing in the bike line when cars are stopped at crosswalks, both on Middle and Ringwood (near Laurel).

In the beginning of the survey you asked whether children go to school in Menlo Park and your map shows the boundary of Menlo Park. By doing it that way you automatically get a "no" from everyone who has children at Encinal, Laurel (lower) and MA as all these schools are in Atherton.

Lack of sidewalks in my neighborhood not an issue

Lighting on streets is limited in Belle Haven

Like the wild pretty places like the creek area and the bike bridge to stanford trees or in the neighborhood which is often interesting and attractive...unless new construction has cut down the nice trees. Love my town.

New Sidewalks on Santa Cruz are great until get near downtown where we need nice clear wide sidewalks.

No issues walking.

Not a transportation issue but it would be nice if there were trash cans on streets besides Santa Cruz Avenue.

Over the years I've seen reliable transportation disappear from this area. How do you plan to bring it back and maintain it?

Overgrown trees and hedges often make walking in the Flood Park Triangle area difficult. In particular the asphalt sidewalks along Van Buren seem to get overgrown every couple of years.

Sidewalks here are in such bad condition that we often have to use the roadway. See the UnivPark.org/safe website for the documentation of sidewalk issues.

Sidewalks in the Willows are really difficult to walk because of overgrown shrubbery encroaching on the sidewalks.

Is there anything else you'd like to add about your experience walking in Menlo Park? (continued)

Sidewalks on El Camino Real are too narrow and poorly maintained.

Stay consistent

Street lights are way too inadequate for walking in the evening or at dusk.

Thank you for new sidewalks on Santa Cruz!!!

There is some tension between walkers and cars in MP as for the most part there are no sidewalks and so walkers HAVE to walk on the street and cars are usually going too fast or there is too high a volume of cars/walkers.....er University....the whole length.....or Middle etc

Walking in Menlo Park is excellent and one of my top reasons for living here.

We appreciate the "talking pedestrian signals along El Camino -- Please keep them working correctly.

We need far more sidewalks. And you need to connect them to parts of town that go through unincorporated areas in west Menlo Park.

We need more crossing guards. Due to the multi-jurisdictional nature of our community and the many school districts, the City must share the cost/responsibility for funding more crossing guards. We need them in many locations!

We spend a lot of time walking in the Allied Arts area near where we live. I find that the traffic calming mechanisms (for example the speed bumps on Cambridge are too small and easy to go over at a speed greater than 15mph) do not work, and many people do not complete stops at the stop signs at Cambridge and Cornell. Also traffic calming on Creek drive would be recommended given the speed limit is 15mph and often cars are driving much faster than that. I've seen that other areas of the city have put in better traffic calming mechanisms (such as indented curbs by stop signs that prevent people from driving more than 15mph).

When we used to have trial roundabouts in the Willows, it was much scarier to walk with my young daughter (especially when I had the stroller, and she was really young) - the way they're designed there's less room for walking, and the cars are coming right at you for a time -quite frightening. I like to walk on quiet streets where I can look at trees or gardens, and I skip the main thoroughfares. Love to walk downtown though - Palo Alto, as I am on the far south end of M.P.

Is there anything else you'd like to add about your experience walking in Menlo Park? (continued)

Why is there a huge ugly utility cabinet located right in the pedestrian pathway at the corner of Ravenswood and El Camino at Menlo Center?! Why can't you at least ban leaf blowers before 9am so children and adults can get to school/work without going through a cloud of dirt? It would make walking and riding much safer and more pleasant if you restrict the hours for using blowers and ban all gas powered blowers. Especially on San Mateo Drive going toward the bike bridge and on the safe routes to schools. Installing dog waste bags and trash cans in downtown and at the parks might possibly encourage people to clean up after their dogs. Eliminate some of the news stands- there are over 100 of them between El Camino and University on Santa Cruz. Do we really need a bank of them next to Pete's and another bank in the parking lot between Pete's and Dragger's?

great town. more people should be encouraged to walk!

walking/pedestrians is seen by cars as in their way...they don't respect stop signs and crosswalks and speed limits...hefty fines for violations and cameras would serve as deterrents.....

Summer Block Party Engagement Summary

1 Introduction

The City of Menlo Park is developing its first Transportation Master Plan (TMP), which will help identify appropriate projects to enhance the transportation network in a manner consistent with the community's goals and values, as well as prioritize the implementation of transportation projects based on need. When completed, the TMP will provide a detailed vision for the transportation system, establish goals and metrics for network performance, and outline an implementation strategy for local improvements and local contributions towards regional improvements. The TMP will also serve as an update to the City's bicycle and sidewalk plans.

As part of the first phase of public engagement for the project, City staff and members of the consultant team set up a booth at Menlo Park's annual Downtown Block Party on August 16, 2017 to inform community members of the TMP planning process and opportunities to participate while also gathering initial comments on community members' experiences with the city's transportation system. Staff and consultants shared details of the concurrent online open house and survey and upcoming walking workshops, and answered questions related to the TMP. Attendees were asked to leave general comments on a whiteboard, butcher paper, or a city map and to view what other community members had written. This document summarizes the comments collected at the event.

2 Themes

Some themes emerged among the comments left by community members. These are summarized below and may be used to inform future community engagement activities over the course of this project. Individual comments are transcribed in Section 3.

- **Bicycle and Pedestrian Network.** Many community members who commented on bicycle facilities were pleased with the expansion of the bicycle network. They requested continued expansion of facilities, with attention given to safety and connections with local schools. Commenters also requested safety improvements to the pedestrian network and safe routes to schools. Bicycle and pedestrian crossings were requested for the Caltrain tracks and El Camino Real.
- **Public and Mass Transit.** Comments related to public and mass transit included those requesting expanded bus service in Menlo Park; innovation in transportation demand management, such as examining options for shuttle services and working with Stanford on commuter options; improving rail crossings; and positive and negative reactions to Dumbarton Rail.
- **Motorized Transportation.** Comments related to roadways and motorized transportation were often related to congestion and the need to improve signal timing.

- **Parking.** Comments related to parking generally stated a need for more parking or the need to replace parking that had been removed.

3 Comments

GENERAL COMMENTS

The following comments were left at the butcher paper and whiteboard stations and have been organized into categories based on theme. Text in [blue](#) indicates comments that were added by different community members to one another's comments.

Bicycle and Pedestrian Network

- Bike and pedestrian lanes on Dumbarton Rail
- Pedestrian bridge over Caltrain
- Make it safer to bike to Encina Elementary
- Bike lanes on ECR. Make Santa Cruz Av a pedestrian mall
- I like riding a bike
- Atherton needs more biking lanes
- Need bike parking at Caltrain
- Yay on new bike lanes 🙌 need more <3
- Near the small Safeway could have better sidewalks
- Thank you for bike lanes!!
- More bike lanes!!
- 100+ bikes came to Block Party. Thanks for the bike racks!
- Bike lanes on ECR. Now!
- Make Santa Cruz Av a pedestrian mall. Look around you. [←YES!!](#)
- Build the bike-ped undercrossing at Middle Av. We've been waiting >20 years.
- Not everyone can take/use a bike!
- <3 <3 <3 bike lanes, thank you
- Safe bike lanes everywhere
- Sand Hill/ECR pedestrian-bike crossings. Replace RTOR sign with image
- Safe routes to Hillview
- There is not a bike path on University Dr. between Santa Cruz and Middle Ave. (To get from MP downtown to the San Mateo bike bridge). Just hit by a car yesterday which could have been avoided. Thank you!

Public and Mass Transit

- Please have the KX bus to stop in Menlo Park as it was in the past!
- More buses and more stops. See Victoria BC as a plan
- Look into ad-supported on-demand shuttles (Venice, San Diego, Santa Monica) as alternative to subsidizing Uber or Lyft
- Improve awareness of shuttles. Add to google maps?
 - Edgewood
 - Stanford
 - Menlo
 - Etc.
- Get the Peninsula together to deal with Caltrain crossings
- Park-n-ride @ 280 and from East Bay connecting to other transit – can this be a requirement from Stanford? And tie into the Marguerite shuttle system.
- More buses to Stanford
- Dumbarton Rail – Get it done!
- Rail crossing quiet zones!
- Safe crossing on Bay Road during school bus hours
- Dumbarton Rail is bad
- Bus Rapid Transit

Motorized Transportation

- Get Waze to remove neighborhood streets from their routes
- Keep the lanes on ECR – parking and driving
- Traffic on ECR is bad
- Improve signal timing – on weekends needs are different than on weekdays
- Difference between rural and urban road construction
 - Diagram:

- ECR – signal timing leads to congestion
- Traffic between Palo Alto and Menlo Park – ugh!
- Please make urban roadways flat

Parking

- Paint parking lines on Pine St. Please!
- Make sure there is enough parking places (free)!

- No parking on El Camino
- Stop taking away our downtown parking!
- We need parking. Put it back! ← Boo 😞 Love the bike lanes <3 <3
- Parking structures (2)
- No parking on ECR

Other

- We don't need no \$350,000 study...
- What is pre-planning?
- Stop de-populating California!!
- Please give us our (drawing of a tree) back. Yes!

MAP COMMENTS

The following comments were location-based comments left on a city map. Figure 1 shows where comments were placed on the map. Commenters also left stickers in locations where they wanted to see improvements, corresponding to the type of improvement (bicycle, motorized, pedestrian).

Bicycle Improvements

- Sharon Rd + Santa Cruz + Oak Dell univpark.org
- Bike lanes on University
- Yes bike lanes on University
- Bike safety for getting to Encinal Elementary School
- Bike tunnel under RR tracks (500 El Camino) off of College
- Bike tunnel would be safer than El Camino crossing!
- Paint the Middlefield bike lanes Green!!
- Coleman bike lane to Laurel School

Motorized Improvements

- Fix signal timing!
- Fix neighborhood traffic volume during rush hour. Lots of non-locals are clogging our street (Coleman) despite signage stating local traffic only
- Traffic circle (TC) Arnold + Chester unsafe
 - Pushes cars towards pedestrians
 - Blind corner
 - Doesn't function like TC
 - *Another sticky note with diagram*

Pedestrian Improvements

Pedestrian improvement stickers were placed near the intersections of Alameda de las Pulgas/Sharon Road and Sharon Road/Santa Cruz Avenue, but no comments were left.

4 Next Steps

Input gathered at the Downtown Block Party, along with community input collected at other community engagement activities and background studies conducted by the consultant team, will help the City identify transportation issues and potential areas for improvement. Additional efforts conducted as part of the first phase of community engagement include an online open house and survey (www.menloparktmp.participate.online), an informational booth at the August 22 Summer Concert at Kelly Park; and walking workshops to take place at three locations where safety and congestion concerns have made transportation improvements a high priority.

Walkshop Summary

I Introduction

The City of Menlo Park is developing its first Transportation Master Plan (TMP), which will help identify appropriate projects to enhance the transportation network in a manner consistent with the community's goals and values, as well as prioritize the implementation of transportation projects based on need. When completed, the TMP will provide a detailed vision for the transportation system, establish goals and metrics for network performance, and outline an implementation strategy for local improvements and local contributions towards regional improvements. The TMP will also serve as an update to the City's bicycle and sidewalk plans.

In order to take an in-depth look into local transportation issues, the City held three walkshops (walking workshops) in three different neighborhoods in Menlo Park. Community members were invited to join City staff and consultants from W-Trans, Dyett & Bhatia, and Alta Planning & Design in assessing safety concerns along the various routes and to discuss their experiences walking, bicycling, and/or driving in those areas. The three walkshop locations included Downtown at El Camino Real, Belle Haven at Willow Avenue, and West Menlo Park at Sand Hill Road. City staff selected these locations based on a review of collision data, with the goal of visiting neighborhoods in the eastern, western, and central areas of the city. The City advertised the walkshops at public events, including the annual Downtown Block Party and Summer Concert Series; at neighborhood events; through social media such as NextDoor; on the project's online Open House page (<https://menloparktmp.participate.online>); and on the City's website. Participants recorded their observations and comments on maps of the routes, and staff and consultants made additional notes of the discussions. This document summarizes the comments collected at the walkshops. Copies of the route maps for each walkshop are included in Appendix A.

2 Walkshop Themes

This section describes the walkshops and summarizes comments from each walkshop according to location and/or major themes.

DOWNTOWN/EL CAMINO REAL

The Downtown/El Camino Real walkshop was held at 7:30 pm on Thursday, September 7. The walkshop began at the intersection of Ravenswood Ave. and Laurel St., followed Laurel St. west to Oak Grove Ave., then south along Oak Grove Ave. to El Camino Real, then east along El Camino Real to Live Oak Ave., and north along Ravenswood Ave. to end at Laurel St. Participants also took a detour to view Santa Cruz Ave. at El Camino Real to view a new parklet. Seven community members attended the walkshop.



Walkshop participants



Laurel St. at Ravenswood Ave.

The main issues raised during this walkshop had to do with bicycle and pedestrian connectivity and traffic behavior at intersections. Participants were concerned about the safety and convenience of bicyclists accessing the Downtown area from other parts of the City. They were interested in pedestrian and bicycle access from Willow Rd. and Middlefield Rd. that would connect from the Willows to Downtown, as well as other cross-town routes that would serve the needs of bicycling families. Nearly all intersections along the route posed some difficulty for bicyclists or pedestrians due to features such as narrow sidewalks, gaps in the bicycle lane, or drivers turning right into the bicycle lane. Along roadways, some sidewalks were found to be too narrow or in need of landscaping, and cars were found parked in the bicycle lanes. Participants found that the intersections tend to prioritize cars over other transportation modes, and suggested painting or raising crosswalks in order to emphasize and raise the priority of bikes and pedestrians.



Oak Grove Ave.



Ravenswood Ave. and El Camino Real

At the Laurel St. and Ravenswood Ave. intersection, participants found that the signal allowed cars to continue crossing the street even after pedestrians are required to stop. They recommended a protected left turn from Ravenswood Ave. onto Laurel St. Along Laurel St., participants noted narrow sidewalks and parked cars obstructing bicycle lanes. On Oak Grove Ave., the group noticed a need for landscape improvements to create a better walking environment, and continued to have concerns about cars parked in the bicycle lane. They were interested in using flexible bollards to protect the bike lane from cars. At the Oak Grove Ave. and El Camino Real intersection, the group was concerned about bicycle and pedestrian crossings and wondered if the bicycle lanes could be more visible and facilitate left turns. At Santa Cruz Ave., participants were very interested in blocking a portion of the street to traffic in order to create a pedestrian mall. At the intersection of El Camino Real and Ravenswood Ave., participants were mainly concerned with use of the right-turn lane from El Camino Real onto Ravenswood Ave. Group members mentioned that drivers often use the right-turn lane as a through-lane, and recommended better delineating the right turn lane and using flexible bollards to mark the lane and protect bicyclists.

Major Concerns by Location

The following notes summarize major safety and traffic concerns noted by participants related to the design of transportation facilities or transportation policies.

Laurel Street and Ravenswood Avenue Intersection

- This is a difficult intersection for bikes, with a gap in the bike lanes along Laurel Street.
- The sidewalk on the north side of Laurel is too narrow.
- The traffic light prioritizes cars over pedestrians and will give a red hand for pedestrians while cars still have a green light.
- Would like protected left turns/left-turn signals onto Laurel from Ravenswood.

Laurel Street

- Parked cars obstruct bicycle lanes.
- Sidewalks from Ravenswood Ave. to Noel Dr. are nice and wide, but sidewalks from Noel Dr. to Oak Grove Ave. are too narrow.

Oak Grove Avenue

- Bus stop at Laurel St. and Oak Grove Ave. is nice, but it could use a shelter and some landscaping.
- In general, the street could use landscape improvement. Between Laurel St. and Alma St., the planting strips are uneven with the sidewalk and tree roots are affecting the sidewalk.
- Interested in flexible bollards as an option to prevent cars from parking in the bicycle lanes.

Oak Grove Avenue and El Camino Real Intersection

- This is a difficult crossing for pedestrians.
- Morning bicyclists will run the light, possibly on the way to Hillview.
- It is difficult for bikes to turn left onto Oak Grove Ave. from El Camino Real.
- Why are the bike lanes not a continuous green?

El Camino Real

- Signs are encroaching on sidewalk space.
- Noise from traffic is loud.

Santa Cruz Avenue

- The landscaping and street furniture here is well done.
- Participants recommended closing part of Santa Cruz Ave. to cars to create a pedestrian and bicycle zone that could act like a city center and be good for business.

El Camino Real and Ravenswood Avenue

- There is no crosswalk.
- The traffic light stays green for cars but gives a red hand for pedestrians.
- The right turn lane from El Camino Real to Ravenswood Ave. was a concern. Participants drew attention to “right turn lane dodgers,” and a need for delineations or flexible bollards to define the right turn lane.
- Would like to see flexible bollards (bending poles) to protect the bike lane from right turns onto Ravenswood Ave.

Ravenswood Avenue

- Streetscape is nice.
- The bike passage over the railroad tracks looks challenging.
- Would like to see a controlled pedestrian crossing at Ravenswood Ave. and Alma St.
- At-grade railroad crossings pose a barrier; is there opportunity for grade separations?

General Comments

- Could crosswalks at intersections be raised or painted to draw attention and give priority to pedestrians and bikes?
- There is northbound traffic on El Camino Real.
- Neighborhood traffic from Allied Arts use University Dr. northbound towards Downtown.
- Would like better pedestrian and bicycle access from Willows to Downtown along Willow Rd. and Middlefield Rd; it is currently a nightmare.
- Would like crosstown bicycle routes connecting to Downtown; also for bikes with young children.

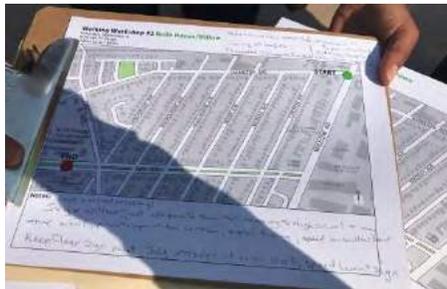
Maintenance and Enforcement Issues

Additionally, participants noted some issues that may have maintenance or enforcement-based solutions. These included:

- Tree roots raising and damaging the sidewalks on Oak Grove Ave. from Laurel St. to Alma St.
- Trash collecting at the bus stop at Laurel St. and Oak Grove Ave.
- The arrow is pointing the wrong direction on one of the pedestrian walk buttons at the intersection of Oak Grove Ave. and El Camino Real.
- Check detection for the signal at Laurel St. and Oak Grove Ave.
- Traffic enforcement may be needed (witnessed a car in the right-turn lane going straight instead).

BELLE HAVEN/WILLOW

The Belle Haven/Willow walkshop was held at 9:30 am on Saturday, September 9. The walkshop began at the intersection of Willow Rd. and Hamilton Ave., followed Willow Road south to O'Brien Dr., continued west along Ivy Dr., and ended at Belle Haven Elementary School. Several participants continued with staff and consultants north along Chilco St. and east along Hamilton Ave. back to the starting point. Fourteen community members attended the walkshop.



Notes on a map



Walkshop participants

Participants on this route were primarily concerned about the safety of pedestrians and bicyclists, particularly students traveling to Mid-Peninsula High School and Belle Haven Elementary School, and about traffic at peak commuting times. In general, bicycle lanes and sidewalks were narrow and had gaps or obstructions, crossing signals did not provide enough time, and crosswalks and bike lane markings were not visible enough. Participants discussed increases in congestion in recent years, as well as an increase in the amount of cut-through traffic during commute times. Traffic during rush hour is gridlocked on Willow Rd., Hamilton Ave., and neighboring streets, with queues on Ivy Dr. and Hamilton Ave. extending to Hollyburne Ave. Speeding and stop sign-running on residential side streets such as Carlton, Madera, Sevier, and Hollyburne avenues are safety concerns as drivers will use those streets to avoid traffic on Willow Rd.

Along Willow Rd., participants noted gaps in the sidewalk that required pedestrians to walk across commercial and residential properties, short crosswalk times, and a general mismatch in the types of infrastructure provided (narrow sidewalks or bike lanes) with the surrounding environment (a school and highly trafficked corridor). At O'Brien Dr., the group noted unsafe conditions such as a tendency for cars to block the intersection and narrow sidewalks with ADA ramps that led into traffic. Along Ivy Dr., participants were curious about opportunities to develop the median as a public space. They noted narrow sidewalks and signs obstructing the sidewalks. Along Chilco St. and Hamilton Ave., participants were concerned about rush hour traffic, particularly cut-through traffic and the inability of the narrow streets to

accommodate parking, trucks, pedestrians, and high traffic volumes during peak times. Members of the group suggested restricting parking during peak times, improving enforcement, and providing crossing guards for the school.



Willow Rd. at O'Brien Dr.



Willow Rd. at Ivy Dr.



Ivy Dr.



Chilco St. and Hamilton Ave.



Hamilton Ave.



Major Concerns by Location

The following notes summarize major safety and traffic concerns noted by participants related to the design of transportation facilities or transportation policies.

Willow Road and Hamilton Avenue Intersection

- Needs signal work. Light timing needs to be adjusted. There is too much traffic trying to exit side streets to Willow as well as increased pedestrian traffic. Lights should be timed to allow for safe pedestrian and bike crossing.
- Hamilton could use two exit lanes (left turn or right turn only). A right turn-lane would be better for locals and not improve cut through experience. Parking could be removed to allow for a right-turn lane.

Willow Road

- Opportunity for bus shelter on the west side near Hamilton Ave.
- The west side lacks sidewalks; pedestrians have to cut through businesses and apartment complex.
- The sidewalks on the east side are clean.
- The crossings at Mid-Peninsula High School are unsafe and require crossing guards.
- There is frequent bike traffic, but the bike lane seems too narrow for such a busy road that accommodates heavy truck traffic. Bike lanes should be protected as traffic speeds on this road are very high.

- The high school only has a right turn exit and would like to be able to exit to the left as well.
- Sounds like a freeway.
- At O'Brien Dr., the ADA ramp leads into traffic, there are no pedestrian crossings across Willow Rd., and there is a potential for right turns to conflict with bikes.
- Intersection at O'Brien Dr. needs "keep clear" markings. Car collisions occur because of the light.
- The bus stop at O'Brien Dr. lacks amenities.
- Add green bike lanes and buffers south of Ivy Dr.
- The sidewalk is very narrow at Ivy Dr.

Willow Road and Ivy Drive Intersection

- Signalization caters to Willow Rd. only. Crosswalk timing is about 25 seconds, not long enough for everyone to cross, including seniors and families with children. Signal should be times for safe pedestrian and bike crossings.
- This intersection is in front of Mid-Peninsula High School but there are no yellow markings to indicate a school crossing or crossing guards.
- There is no visible signage for Ivy Dr.
- Can this intersection extend to the Mid-Peninsula High School entry so that drivers can have east/west access?

Ivy Drive

- Sidewalks are narrow, and there are signs in the middle of the sidewalk at Madera Ave.
- No crosswalks at each block where the median is cut out.
- Community would like to see improvements to the median, such as a dog park or other recreational use (the median is a Hetch Hetchy right-of-way).

Chilco Street

- Restrict hours for parking on one side of the road on Chilco St. because the roadway is very narrow.
- School parking needs to be limited during peak commute times.
- The road is too narrow for parking on both sides of the street near the school.
- Cut-through traffic is very bad north of Hamilton Ave. and connecting to Hamilton Ave.
- The four-way stop on Chilco at Facebook is terrible! Could Facebook move its bus stop to a different location to reduce pedestrian crossing impacts on the neighborhood?

Chilco Street and Hamilton Avenue Intersection

- Should the NO LEFT sign be eliminated? Demographics have changed; a crossing guard would be more effective.

Hamilton Avenue

- Hamilton Ave. is more of a traffic concern than Ivy Dr.
- On-street parking, trucks, and traffic congestion between Carlton Ave. and Willow Rd. are dangerous in the mornings and afternoons.
- Need a speed bump to slow traffic between Chilco St. and Henderson Ave.
- There's an opportunity for landscaping between Henderson Ave. and Windermere Ave.

Willow Road and Newbridge Street Intersection (not part of walkshop)

- Current signal timing can trap people in the neighborhood for three or four light cycles at peak times.
- Heavy pedestrian crossing cuts into the number of cars that can turn right.
- Two lanes of left turn traffic onto Willow Rd. from EPA and only one right turn lane onto Willow Rd. makes morning departure from neighborhood really hard.
- Newbridge St. needs cameras because cars ignore the lights.

General Comments

- Commuter traffic cutting through local streets to avoid Willow Rd. Drivers often speed and run stop signs on side streets including Carlton, Madera, Sevier, and Hollyburne avenues.
- Traffic during rush hour is gridlocked on Willow Rd., Hamilton Ave., and other neighborhood streets. Queues on Ivy Dr. and Hamilton Ave. extend to Hollyburne Ave. Congestion has increased since Facebook.
- Need green marking for bike lanes.
- Shuttle signs are confusing; shuttles take a while to show.

Maintenance and Enforcement Issues

Additionally, participants noted some issues that may have maintenance or enforcement-based solutions. These included:

- The news racks are in disorder at the Willow Rd. and Hamilton Ave. intersection.
- Attend to the trash can at Willow Rd. and Hamilton Ave.
- Connector sidewalk at Soleska Market is in poor condition.
- The bike lane along Willow Rd. has debris in it and should be cleaned.
- A dirt lot at O'Brien looks neglected.
- Low-hanging tree branches at Sevier Ave. should be trimmed.
- Curbs at Belle Haven Elementary should be painted/refreshed.
- Trim trees blocking speed limit signs at Ivy Dr. and Chilco St.
- Repaint crosswalks at Ivy Dr. and Chilco St.

- The Chilco St. and Hamilton Ave. intersection needs more policing/enforcement from 3:30/4 pm to 7 pm.
- The new Hamilton stop signs are obscured.
- A new speed limit sign is needed on Hamilton Ave. between Hollyburne and Sevier avenues to replace one that is too low.
- The infrastructure on this side of town looks shabbier. Can anything be done to improve maintenance, such as painting utility boxes (as in Redwood City and Santa Cruz), removing graffiti, adding garbage receptacles and doggie pick-up bags, increasing street-cleaning frequency, removing chain link fences, adding more trees?
- The Starbucks plaza needs power washing.
- Pavement in poor condition on side streets.

WEST MENLO PARK/SAND HILL

The West Menlo Park/Sand Hill walkshop was held at 1:30 pm on Saturday, September 9. The walkshop began at the intersection of Sand Hill Rd. and Santa Cruz Ave., followed the west side of Sand Hill Rd. north towards Oak Ave., then followed Oak Ave. north to end at Oak Knoll Elementary School. Eleven community members attended the walkshop.



Sand Hill Rd. and Santa Cruz Ave.



Walkshop participants

Primary concerns for this group included safety at the intersection of Sand Hill Rd. and Santa Cruz Ave., pedestrian and bicyclist safety on the west side of Sand Hill Rd., and safe bike and pedestrian connections across Sand Hill Rd., as well as the lack of a sidewalk along Oak Ave. At the Sand Hill Rd. and Santa Cruz Ave. intersection, participants pointed out speeding cars and distracted driving, noting that drivers will often get lost while searching for Stanford, the hospital, or Downtown Menlo Park. The intersection is dangerous for bicyclists and pedestrians because many drivers will not yield, or will ignore “no turn on red” signs. In some cases, Santa Cruz Ave. may not be the best route for bicyclists, who might benefit from being directed onto safer roads nearby.

On the west side of Sand Hill Rd., sidewalks are narrow with encroaching vegetation. Leland Ave. and Stanford Ave. are cut-through routes during commute times. Cut-through drivers are often speeding, which is dangerous for pedestrians and cyclists crossing at those streets. For pedestrians and bicyclists crossing Sand Hill Rd., the only signalized crossing is at Oak Ave., where the waiting time for a signal can be long and the time allotted for crossing is short. Along Oak Ave., including the area around Oak Knoll Elementary School, participants found that pedestrian infrastructure was minimal, with no sidewalks and colored crosswalks that can be difficult to see.



Santa Cruz Ave. at Sand Hill Rd.



Sand Hill Rd.



Sand Hill Rd. and Oak Ave.



Oak Ave.



Major Concerns by Location

The following notes summarize major safety and traffic concerns noted by participants related to the design of transportation facilities or transportation policies.

Sandhill Road and Santa Cruz Avenue Intersection

- The wall against the northwest sidewalk makes many feel unsafe.
- Drivers ignore the “no turn on red” signage, which endangers pedestrians and pedestrians.
- Directional signage is recommended to reduce confusion for drivers seeking Stanford, the campus hospital, Downtown Menlo Park, and the Stanford SLAC lab.
- Drivers do not yield to bicyclists.
- The speed limit on Santa Cruz Ave. should be lower. Drivers are often speeding.
- Pedestrians do not have enough time to cross at the signal.
- Consider adding two-stage left turn boxes for bicyclists.
- This intersection connects to bicycle trails and Stanford.

Sand Hill Road

- Trees block sight lines for cars driving northbound toward Oak Rd. and for pedestrians crossing Sand Hill Rd.
- Stanford Ave. and Leland Ave. intersections are dangerous for pedestrians during commute times because commuting cars will cut through the neighborhoods at high speeds.

- Stanford Ave. and Leland Ave. need to be kept clear during the pm peak times.
- Widen sidewalk.

Sand Hill Road and Oak Avenue Intersection

- Bicycles coming from the Stanford bike path are directed to the wrong side of Oak St.
- It is a dangerous pedestrian crossing, without enough time to cross. It takes too long to get a pedestrian signal to cross Sand Hill Rd.
- There should be wayfinding signage for the San Mateo bike bridge and Stanford West.
- Bicycles need to turn left at this intersection. A bicycle left turn lane may help.
- Northbound traffic will run red lights.

Oak Avenue

- The crosswalk at Vine St. has no stop limit.
- The school can give permission for pathway.
- There are no sidewalks, even next to Oak Knoll Elementary School.
- Add BMUPL signs.

Santa Cruz Avenue

- Speeds on Santa Cruz Ave. are too high; should be 25 or 35 mph.
- It's important to consider the split at Alameda de las Pulgas and Santa Cruz Ave. Merging lanes at this intersection are dangerous for pedestrians. Bicycles need to be safely conveyed through the split. There should be better speed feedback at the split to prevent speeding.
- There are missing bicycle lanes and poor bike connectivity.
- There is too much traffic on this street that can be limited through signal timing.

Maintenance and Enforcement Issues

Additionally, participants noted some issues that may have maintenance or enforcement-based solutions. These included:

- Pavement maintenance on Santa Cruz Ave.
- Bushes and other vegetation are encroaching on the sidewalk along the west side of Sand Hill Rd.
- Oak Ave. needs maintenance. Dirt and debris are creeping down the sides of the road into the gutter and street. Landscaping needs to be trimmed.



City of Menlo Park Transportation Master Plan

PHASE 2 OUTREACH REPORT – DRAFT December 2019

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Introduction

In September and October 2019, the city of Menlo Park hosted a series of in-person and digital outreach activities for people to learn about the Transportation Master Plan (TMP) purpose and project review process, and share feedback on how projects were prioritized. This feedback will help inform the city's Transportation Master Plan, which is planned to be adopted by the Menlo Park City Council in 2020.

This document provides an overview of the outreach activities and feedback results.

Activity	Date	Number of participants
Online open house	Sept. 6 – Oct. 17	1,015
Public meeting	Sept. 17	13
Tabling at Farmer's Market	Sept. 22	55
Tabling at Belle Haven Elementary	Sept. 25	20
Tabling at Off the Grid food truck fair	Sept. 25	60
Total:		1,163

Summary of in-person outreach

The team hosted an in-person open house and had a presence three different community events by staffing a booth to share information and engage with visitors. Summarized comments from these events is included in [Appendix A](#).

Public meeting: Sept. 17

- Purpose: To provide a dedicated forum at which the project team could update and inform the public about the TMP and the project team's process for evaluating projects and receive input on the prioritization of Tier 1 and Tier 2 projects.
- Number of participants: 13
- Materials: Business card-sized handouts with the online open house URL, frequently-asked questions, and display boards with the following information:
 - Board #1: What is the Transportation Master Plan? What are the goals of the TMP?
 - Board #2: What is the process to develop the TMP?
 - Board #3: How were projects evaluated and prioritized?



- Board #4: Tier 1 projects map and list
- Board #5: Tier 2 projects map and list
- Board #6: Information on how to comment on the TMP

Tabling at Community Events: Sept. 22 and 25

- Purpose: To meet people where they already go and share high level information about the TMP, engaging with them if they were interesting in discussing at the time, and directing them to the online open house for further participation.
- Number of participants: 141
- Materials: Business card-sized handouts with the online open house URL, frequently-asked questions, and display boards with the following information:



- Board #1: What is the Transportation Master Plan? What are the goals of the TMP?
- Board #4: Tier 1 projects map and list
- Board #5: Tier 2 projects map and list

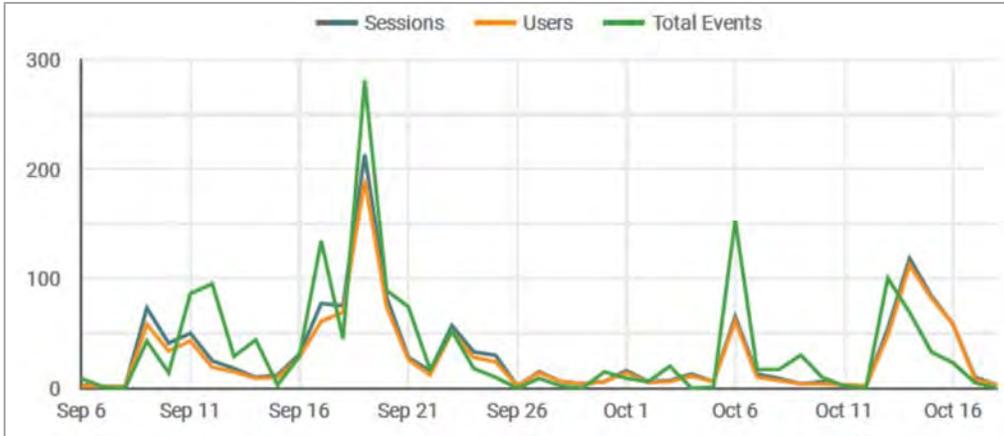
Online open house site analytics

Site analytics for the online open house from Sept. 6 to Oct. 17, 2019 included:

- Unique users: 1,015
- Sessions: 1,389
- Pages of online open house visited per session: 2.3
- Average session duration: approximately 3 minutes

Sessions, users, and events over time:

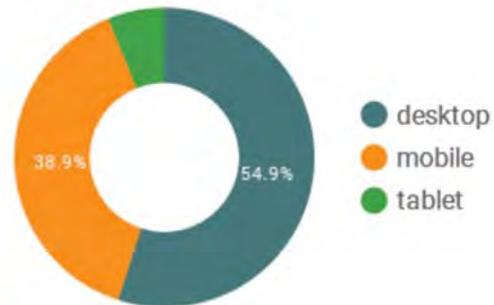
Users represents unique number of visitors; sessions are the number of times the site was visited; and events are the interactions within the site, such as complete a survey or providing input on the map.



Device:

The device used to access the site.

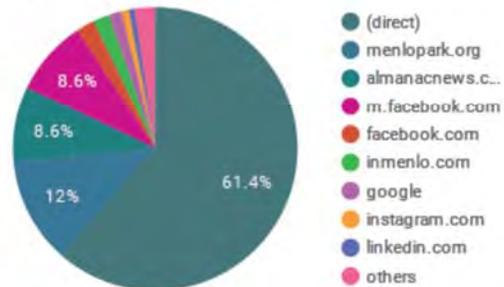
Device



Source:

How users are accessing the site. Direct means typing or copying and pasting the URL directly into a web browser; t.co is via Twitter.

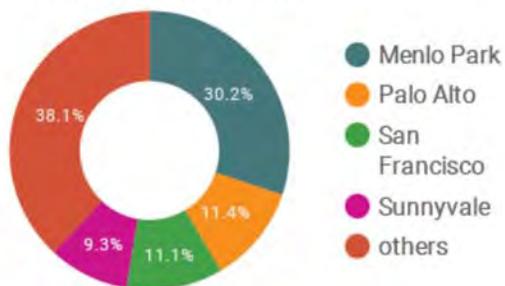
Traffic Source



Location:

Physical location of user when visiting the site, based on IP address.

Visitor Location

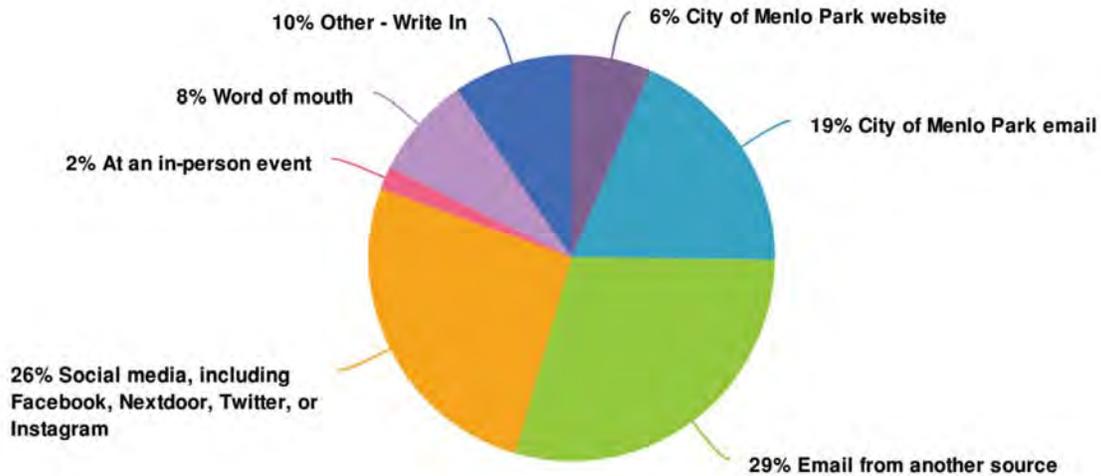


Welcome survey

A survey on the first page of the online open house asked visitors to tell the city about themselves. 103 respondents provided their names and email addresses; to maintain confidentiality, these were provided to the City of Menlo Park in a separate document for future outreach purposes.

How did you hear about this online open house?

222 responses



Other – write in responses:

- Almanac
- almanac
- Almanac
- Almanac Express Online article/link
- Almanac News
- Almanac News
- Almanac Newspaper
- City employees approached me during farmers' market
- flyer at public library
- Friend
- From city staff during Complete Streets Commission meeting
- Google news
- Lee duboc
- news
- News
- News item on google news feed
- News, google
- Next door
- On TMP OOC
- The Almanach

What is your home zip code?

214 responses

Zip code	Count
94025	184
94063	5
94301	3

Zip code	Count
94587	2
94560	2
77384	1

Zip code	Count
94041	1
94022	1
94062	1

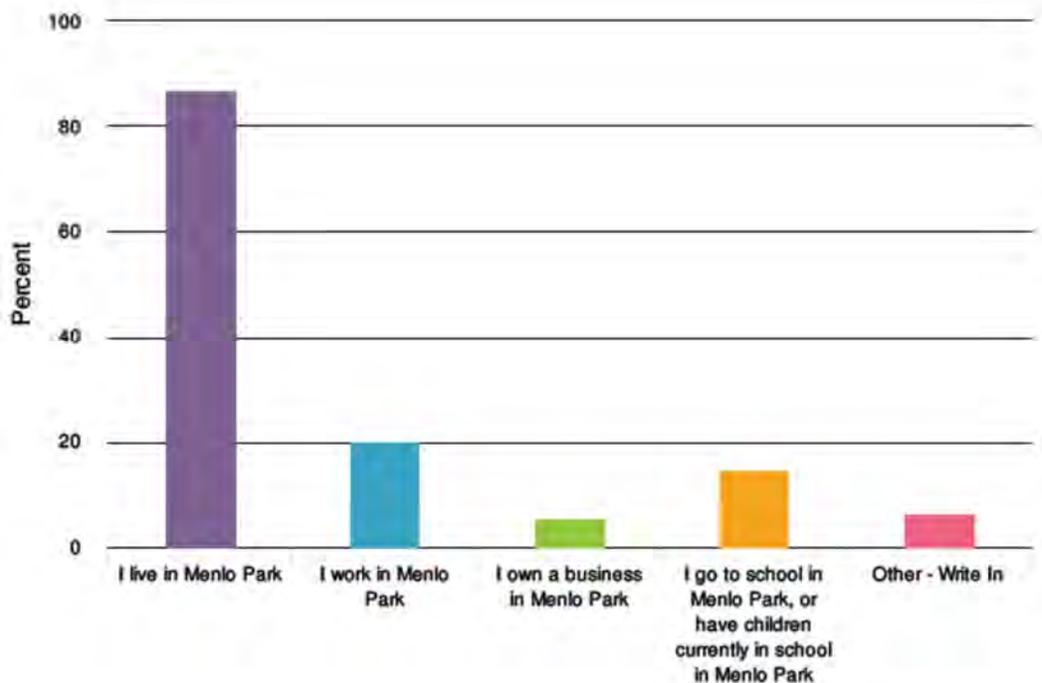
Zip code	Count
94040	3
94027	3
95129	2

Zip code	Count
95035	1
94125	1
94303	1

Zip code	Count
94061	1
94925	1
95040	1

What brings you to Menlo Park?

Shown in percentages; respondents could select more than one response.

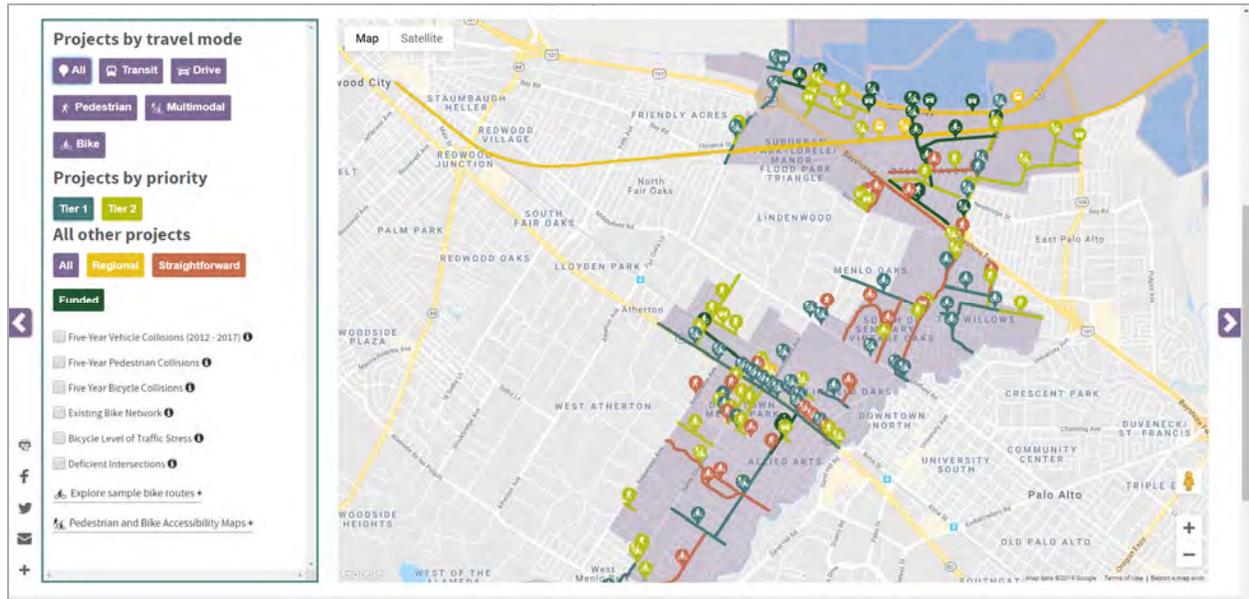


Other – write in responses:

- 1) I take care of my elderly father who lives in Menlo Park 2) I own a rental house in MP
- commute through city
- I AM OFTEN IN MENLO PARK
- I commute through Menlo Park by bike
- I homeschool in Menlo Park. My family goes to church in Menlo Park.
- I live in an adjacent community which will be significantly impacted by some of the proposed changes.
- I live in East Palo Alto, off of Willow
- I live in unincorporated San Mateo County next to Menlo Park
- I rode Caltrain and my son worked for Facebook at the time. Great company too. Good luck with everything. I think more cities need Transportation initiatives.
- I shop in MP, visit friends in MP, and drive through to other places
- I used to live in Menlo Park and like to keep up with what's going on.
- involved in Menlo Park politics
- Live right next by...like right there
- Shopping and Restaurants

Interactive project map

The online open house included an interactive project map (screenshot shown below), that allowed visitors to view the projects proposed in the TMP, sorting them by travel mode or priority. Visitors could also share what they think about how Tier 1 and Tier 2 projects are prioritized when they click on Tier 1 and Tier 2 projects.



Do you agree with this project's priority level?

This question received 711 responses. Users were able to indicate whether they agree with the priority level for Tier 1 and Tier 2 project using “yes,” “no,” or “unsure” responses. Users could provide their responses on multiple projects. In evaluating the responses, it appears that multiple, identical responses were provided under the same IP addresses for some projects. The project team did not restrict duplicate responses from the same household to allow multiple people in the same household to provide responses, however there is no way to know if the feedback was provided by the same or different people using the same IP address.

The full set of map responses is attached as [Appendix B](#). The number of responses per project varied widely and many projects received at least a few responses. Projects that received over 10 total responses are shown below.

Tier 1 projects: Do you agree with this project's priority level?

For Tier 1 projects that received over 10 responses, the majority of responses show agreement that the project should be a Tier 1 priority. On some projects, identical feedback was provided from the same IP address, though it is unclear whether this was provided by the same person or different people using the same IP address.

- Project 59 – The Willows
16 respondents agree; 2 do not agree with this priority level.
- Project 61 – Coleman Ave from Ringwood Ave to Willow Rd
15 respondents agree; 2 do not agree with this priority level.

- Project 75 – Laurel St from Burgess to Willow
8 respondents agree; 3 do not agree with this priority level.
- Project 86 – El Camino Real & Glenwood Ave-Valparaiso Ave
7 respondents agree; 5 do not agree with this priority level.
- Project 88 – El Camino Real & Santa Cruz Ave
12 respondents agree; 2 do not agree with this priority level.
- Project 92 – El Camino Real & Middle Ave
8 respondents agree; 4 do not agree with this priority level.
- Project 118 – Middle Ave from University Dr to Olive St
9 respondents agree; 5 do not agree with this priority level.
- Project 129 – Olive St from Oak Ave to Santa Cruz Ave
8 respondents agree; 3 do not agree with this priority level.

Tier 2 projects: Do you agree with this project’s priority level?

For Tier 2 projects that received over 10 responses, the majority of these responses show disagreement that the project should be a Tier 2 priority, implying that most respondents would prefer these projects to be Tier 1 projects.

On multiple projects, identical feedback was provided from the same IP address, though it is unclear whether this was provided by the same person or different people using the same IP address. For some projects, as indicated below, the responses suggest that the question may have been misunderstood – the respondents may have felt that they did not want the project and responded “no” to indicate this while not realizing that the response means they did not agree with the Tier 2 priority level. Despite the potential misunderstanding, the data is provided for informational purposes.

- Project 71 – Laurel St from Encinal Ave to Glenwood Ave
2 respondents agree; 35 do not agree with this priority level.
- Project 72 – Laurel St & Glenwood Ave
5 respondents agree; 18 do not agree with this priority level; 1 is unsure.
- Project 179 – Encinal Ave between Middlefield Ave and Train Tracks
6 respondents agree; 122 do not agree with this priority level; 1 is unsure. There were a significant number of duplicates for this project, including a high number from individual IP addresses, indicating that the same person likely submitted multiple responses.
- Project 180 – Encinal Ave & Laurel Way
5 respondents agree; 43 do not agree with this priority level.

Thank you survey

On the final page of the online open house, visitors had the option of providing their comments on what successful implementation of the TMP looks like to them, and completing some demographic questions.

What does successful implementation of the TMP look like to you?

There were 31 responses to this question, which are provided verbatim in [Appendix C](#). This word cloud, auto-populated through the survey platform from the responses, demonstrates some of the common themes.



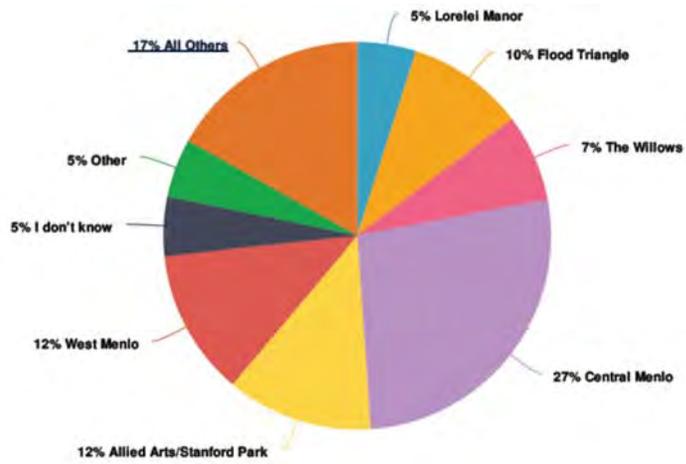
Common themes from this question include:

- The TMP does not do enough to address traffic congestion.
- Support for bike and pedestrian projects, especially those that would benefit kids.
- Frequent discussion of El Camino Real, with agreement that traffic on El Camino is an issue.
- Mixed opposition to and support for bicycle infrastructure on El Camino.
- Concern for maintaining parking downtown and for businesses along El Camino.
- Desire for traffic calming projects to be included in the TMP.
- Desire for improved transit service.
- Desire for Menlo Park to work with regional agencies and jurisdictions to improve traffic congestion.
- Desire for improvements to Caltrain grade crossings.

Demographic questions included:

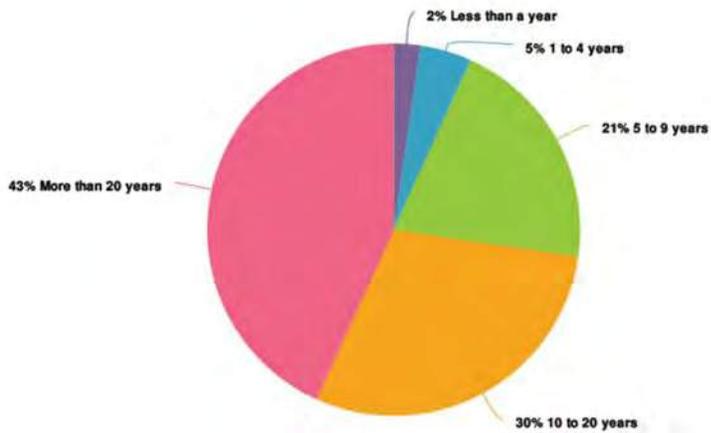
In which neighborhood do you live?

41 responses



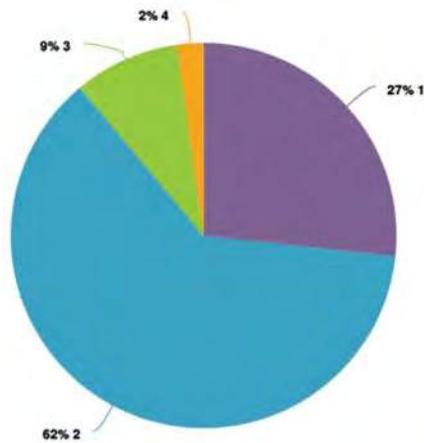
How long have you lived in Menlo Park?

44 responses

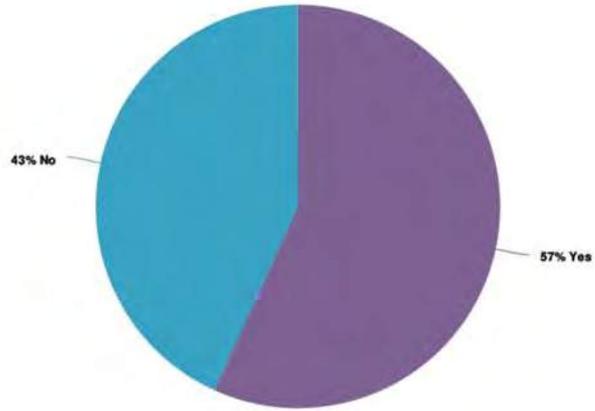


How many cars are in your household?

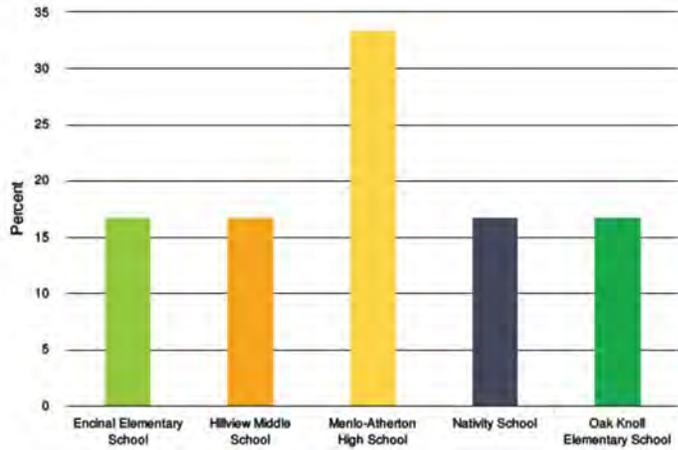
45 responses



Do you have children?
44 responses



If your children attend school in or near Menlo Park, where do they attend?
Respondents could make multiple selections.



Appendix A: Summarized comments from in-person outreach

- Sept. 17, 2019 Open House – specific questions from the station about project evaluation and prioritization:
 - How will this information be incorporated into project level EIRs?
 - Does this mean all Tier 1 projects would need to be completed before working on Tier 2 projects?
- General planning and coordination
 - Like the idea of a citywide plan
 - Neighborhood cut through traffic and NTMP related topics
 - Interested in how the plan will integrate with the Climate Action Plan
 - Better connections to close walking and bicycling gaps
 - The plan does not do enough to fix traffic today as there are too many cars on the road, and too many cars driving through Menlo Park
 - It's good to have a balanced approach that considers those of us that bike and walk around town and not just cars all the time
- Comments regarding pedestrian improvements:
 - My neighbors and I are concerned about having sidewalks added to Encinal Avenue
- Suggestions regarding transit:
 - Would like to see a shuttle that took people to one end of the Ringwood Avenue pedestrian bridge (for example, coming from Belle Haven, a shuttle would pick up people on the Van Buren side and take them downtown, civic center)
 - More shuttle routes connecting neighborhoods
 - Facebook should do more to keep buses out of our neighborhood
- Comments about El Camino Real:
 - Concerns about bike lanes on El Camino
 - Congestion on Willow Rd and ECR
 - One person spoke against reducing ECR vehicular capacity over bike lanes
 - Observations that the TMP isn't solving for car traffic on El Camino Real
- Biking in Menlo Park is not intuitive. Suggestions for improving this include:
 - Safety improvements for crossing El Camino Real by bike.
 - Continuing the Palo Alto bike path along the Caltrain corridor into Menlo Park.
 - Making it more straightforward to get to Palo Alto and across the train tracks.
- Comments related to parking:
 - More parking is needed in downtown Menlo Park, although there is a concern with more people coming if there is more available parking.
 - All the developments along El Camino Real should include little to no parking.

Appendix B: Interactive project map comments

Project No.	Project location	Proposed Tier	Proposed			Total
			Yes	No	Unsure	
1	Haven Ave from Marsh Rd to Haven Court	Tier 1	1	0	0	1
2	Bayfront Expy & Marsh Rd	Tier 1	8	0	0	8
8	Bayfront Expy & Willow Rd	Tier 1	4	2	0	6
14	Marsh Rd from Bay Rd to Scott Dr	Tier 1	7	3	0	10
17	Chrysler Dr & Jefferson Dr	Tier 2	1	1	1	3
18	Chrysler Dr & Independence Dr	Tier 2	5	1	0	6
19	Constitution Dr from Independence Dr to Chilco St	Tier 2	2	0	0	2
20	Jefferson Dr from Jefferson Court to Constitution Dr	Tier 2	1	0	0	1
27	Ivy Dr from Willow Rd to Chilco St	Tier 2	1	0	0	1
30	Adams Dr from O'Brien Dr to University Ave	Tier 2	0	2	0	2
31	University Ave & Adams Dr	Tier 2	1	2	0	3
32	O'Brien Dr from Willow Rd to University Ave	Tier 2	1	3	0	4
37	Willow Rd from Dumbarton Rail Corridor to Newbridge Rd	Tier 2	1	5	1	7
38	Willow Rd & Hamilton Ave	Tier 2	0	3	0	3
39	Willow Rd & Ivy Dr	Tier 1	3	2	0	5
40	Willow Rd & O'Brien Dr	Tier 1	4	0	0	4
41	Willow Rd & Newbridge St	Tier 1	3	1	0	4
43	Willow Rd & Bay Rd	Tier 2	1	1	1	3
44	Willow Rd from Bay Rd to O'Keefe St	Tier 1	5	0	0	5
45	Willow Rd & Coleman Ave	Tier 2	1	2	1	4
46	Willow Rd & Gilbert Ave	Tier 2	1	1	0	2
47	Willow Rd & Middlefield Rd	Tier 1	4	2	0	6
51	Bay Rd from Del Norte Ave to Ringwood Ave	Tier 2	3	1	0	4
53	Bay Rd & Ringwood Ave-Sonoma Ave	Tier 2	3	5	1	9
56	Bay Rd from Van Buren Rd to Willow Rd	Tier 2	1	1	0	2
59	The Willows	Tier 1	16	2	0	18
61	Coleman Ave from Ringwood Ave to Willow Rd	Tier 1	15	2	0	17
63	Middlefield Rd & Ravenswood Ave	Tier 1	6	0	0	6
64	Middlefield Rd & Ringwood Ave-D St	Tier 1	3	0	0	3
65	Middlefield Rd & Linfield Dr-Santa Monica Ave	Tier 1	3	0	1	4
66	Santa Monica Ave from Middlefield Rd to Nash Ave	Tier 2	0	1	0	1
69	Middlefield Rd from Willow Rd to Palo Alto Ave	Tier 1	5	2	0	7
70	Middlefield Rd & Woodland Ave	Tier 1	3	1	0	4
71	Laurel St from Encinal Ave to Glenwood Ave	Tier 2	2	35	0	37
72	Laurel St & Glenwood Ave	Tier 2	5	18	1	24
74	Ravenswood Ave & Laurel St	Tier 1	6	0	0	6
75	Laurel St from Burgess to Willow	Tier 1	8	3	0	11

Project No.	Project location	Proposed Tier	Proposed			Total
			Yes	No	Unsure	
77	Alma St from Oak Grove Ave to Ravenswood Ave	Tier 2	1	1	0	2
79	Alma St from Ravenswood Ave to Burgess Dr	Tier 1	3	1	0	4
80	Burgess Park	Tier 2	5	1	0	6
81	Middle Ave Caltrain Crossing	Tier 1	9	0	0	9
82	Encinal Ave from Garwood Wy to El Camino Real	Tier 2	3	12	1	16
84	El Camino Real within City Limits	Tier 1	2	0	0	2
85	El Camino Real & Encinal Ave	Tier 1	6	3	0	9
86	El Camino Real & Glenwood Ave-Valparaiso Ave	Tier 1	7	5	0	12
87	El Camino Real & Oak Grove Ave	Tier 1	6	4	0	10
88	El Camino Real & Santa Cruz Ave	Tier 1	12	2	0	14
89	El Camino Real & Ravenswood Ave-Menlo Ave	Tier 1	6	2	0	8
90	El Camino Real & Live Oak Ave	Tier 1	4	1	0	5
91	El Camino Real & Roble Ave	Tier 1	6	3	0	9
92	El Camino Real & Middle Ave	Tier 1	8	4	0	12
95	El Camino Real & Cambridge Ave	Tier 1	4	3	0	7
97	El Camino Real & Creek Dr	Tier 2	3	3	0	6
107	Oak Grove Ave from Middlefield Rd to Crane St	Tier 1	5	1	0	6
108	Oak Grove Ave & Hoover St	Tier 2	3	2	0	5
110	Oak Grove Ave & University Dr	Tier 2	1	0	0	1
111	Santa Cruz Ave between El Camino Real and University Dr	Tier 2	2	6	1	9
112	Santa Cruz Ave & University Dr (North)	Tier 2	2	1	0	3
113	University Dr & Menlo Ave (South)	Tier 1	2	2	0	4
118	Middle Ave from University Dr to Olive St	Tier 1	9	5	0	14
120	Blake St from Middle Ave to College Ave	Tier 2	0	1	0	1
123	Arbor Rd from Valparaiso Ave to Santa Cruz Ave	Tier 2	1	1	0	2
125	Santa Cruz Ave & San Mateo Dr	Tier 2	2	3	0	5
127	San Mateo Dr & Middle Ave	Tier 2	0	2	0	2
128	Elder Ave from Valparaiso Ave to Elder Ct	Tier 2	0	1	0	1
129	Olive St from Oak Ave to Santa Cruz Ave	Tier 1	8	3	0	11
130	Santa Cruz Ave & Sharon Rd-Oakdell Dr	Tier 2	4	2	0	6
132	Santa Cruz Ave from Olive St to Orange Ave	Tier 2	3	3	0	6
133	Santa Cruz Ave & Orange Ave-Avy Ave	Tier 2	2	4	0	6
134	Avy Ave from Santa Cruz Ave to Monte Rosa Dr	Tier 1	8	2	0	10
135	Harkins Ave from Altschul Ave to 170 feet east of Altschul Ave	Tier 2	2	0	0	2
137	Altschul Ave & Harkins Ave	Tier 2	1	1	0	2
138	Altschul Ave from Avy Ave to Sharon Rd	Tier 2	2	2	0	4
142	Oak Ave from Oak Knoll Ln to Sand Hill Rd	Tier 2	2	0	0	2
143	Sand Hill Rd & Oak Ave	Tier 2	2	1	0	3
144	Sand Hill Rd & Santa Cruz Ave	Tier 1	2	2	0	4

Project No.	Project location	Proposed Tier	Proposed			Total
			Yes	No	Unsure	
145	Sand Hill Rd & Santa Cruz Ave Pedestrian Network Improvements	Tier 2	1	2	0	3
146	Sand Hill Rd & Sharon Park Dr	Tier 1	1	3	0	4
148	Sand Hill Rd & Saga Wy	Tier 2	1	0	0	1
152	Sand Hill Rd & I-280 Northbound Ramps	Tier 2	4	0	0	4
178	Marsh Rd between Independence Dr to Scott Dr	Tier 1	2	2	0	4
179	Encinal Ave between Middlefield Ave and Train Tracks	Tier 2	6	122	1	129
180	Encinal Ave & Laurel Way	Tier 2	5	43	0	48
182	Sharon Rd & Eastridge Ave	Tier 2	1	0	0	1
184	Marsh Rd between Page St and Florence St	Tier 2	4	0	0	4
186	Chrysler Dr between Constitution Dr and Commonwealth Dr	Tier 2	0	0	1	1
188	El Camino Real between Creek Dr and Cambridge Ave	Tier 2	3	1	0	4
189	University Dr between Oak Grove Ave and Santa Cruz Ave	Tier 1	7	1	0	8
190	O'Connor St between Elliot Dr and City Limits	Tier 2	0	0	1	1
191	Menalto Ave between O'Connor St and Haight St	Tier 2	1	0	1	2
193	Menlo Ave between University Dr and El Camino Real	Tier 2	6	4	0	10
194	University Dr between Menlo Ave and Live Oak Ave	Tier 2	3	1	0	4

Appendix C: Open-ended comments on successful TMP implementation

What does successful TMP implementation look like to you?

Respondents' comments are verbatim and have not been corrected for typographical or grammatical errors.

A less convoluted plan

Thank you for the excellent work! Bicycle and pedestrian improvements seem key to reducing congestion. The Middle Avenue Caltrain underpass is a big win! I hope the signal at Middle and El Camino Real will also be very pedestrian and bike friendly. I'm surprised how much use the Homer Avenue Caltrain underpass in Palo Alto gets.

#1 milestone of success is that there is clear and frequent communication to drivers via traffic calming infrastructure and messaging that pedestrians and bicyclists have priority, allowing Menlo Park to achieve Vision Zero by 2030 (not 2040). Milestones not listed that should be are: city wide enforced 25MPH speed limit on demand free shuttle service for residents and low cost or free for MP workers (similar to San Diego & Venice Beach)

It would become part of any overall plan for our City! I'm so disappointed that the City continues with these individual plan efforts. The City lacks an overall strategic plan that goes about planning in a holistic way. Instead, we have "master plans," such as this one and the Parks & Recreation one, but not one overall plan that will guide our City for the next 20 years. ConnectMenlo is not an authentic general plan given its narrow focus on maximizing development for it's revenue stream. It's time to start doing things differently in Menlo Park. The Staff should be staying up on better practices from other leading municipalities and making recommendations to our Council that they start adopting these. The Council's annual goal-setting session is also not a substitute for an authentic strategic plan. The CIP planning process isn't strategic planning either. Our planning processes are broken, but nothing is done. Apparently some are too used to the general dysfunction. Sorry to sound so negative. I also don't see how the below questions will be of any help. My children are also grown, and there is no space to note this. I am also a walker although I like bike riding. You also don't ask me about the broader issues concerning residents such as the serious jobs/housing imbalance that gets worse with each new office development that's approved without enough housing.

The successful implementation of the TMP would be an efficient, well-done project that would truly benefit people. This comprehensive project would keep kids truly safe using tools such as the separated bike paths that are being built. For example, in order to help alleviate traffic, I suggest that the city implement an extra step in traffic lights where bikes have their own lights and would, therefore, reduce the risk of being hit by a car. In my opinion, there are some gaps, especially with grade-separating the trains, but it is mainly comprehensive, so as long as it is executed correctly, then I think it will work for all people, not just one group of people.

I was not able to indicate my preferences since The list of projects are visually organized and are not accessible to me as a blind person. I was not able to indicate that there are no cars in my household. I hope the frequency of Shuttles on Glenwood Avenue improve significantly in the future.

Specifically about Middle Ave. bike/pedestrian lanes Olive to ECR and across ECR to future plaza: The outreach to the community has been poor, and the TMP splits the problem into

pieces: 1) Olive to University; 2) University to ECR; 3) RR underpass. There is an extreme need to see one complete plan on paper so bicycling students' parents can review. The fact that construction is phased by budget is OK, PROVIDED that there is a time line to completion in 2021. DO NOT wait for the RR bicycle underpass because MP is so slow on projects like that. Middle bike lanes will be used immediately. Another problem is the Middle Olive-to-University as Tier 1 needs to be implemented as one complete project, NOT "as properties are redeveloped" because that will take 20 years.

Some missing items: -Three grade separations at our at-grade level train crossings - a priority as promised. Not just Ravenswood. Tier 1. (I read that this has become a regional goal - better late than never. But what will this mean to the timing?) -Traffic lights/walk signals/bike signals at Sonoma, Bay and Ringwood. Tier 1. -Proper sidewalks and lights on Bay rd. -More frequent public transportation in and out of this part of the city to encourage less driving - particularly more frequent transportation to Cal Trans. -More frequent CalTrains service for local public transportation, not just job commuters - Or consider extending the rail service from Mountain View up the Peninsula -- they actually have real public transportation south of us. (If you really want local people to get out of their cars, create real, robust public transportation options.) - Traffic mitigation along Bay Rd at peak hours. And Traffic and noise mitigation when the new Flood Park is opened (including on weekends). -A completed soundwall on Van Buren to Bay to shield the neighborhood from the noise, pollution, and eyesore from the *new* Willow/101 interchange ramps that Caltrain constructed. They say they put back what they took down. Maybe so, but they didn't cover the new construction.

While the overall plan seems to want to improve traffic flow, in reality, it will reduce it with the restriction of road area and opening and widening of ped and bike space. This coupled with the large expansion of housing in the central part of Menlo and the Eastern side things will slow.

Less grid lock in key spots, easier ways to get across town (both over caltrain tracks and across 101), safer bike routes for our kids.

absolutely no improvement in traffic flow in Menlo Park; little improvement in preventing accidents

3 through lanes for vehicular traffic on El Camino from creek to Atherton border. NO bicycle lanes on El Camino - traffic speed is too high for both to co-exist. Bike lane takes up needed traffic lane. Most other cities have 3 lanes along El Camino. Stop the bottleneck. Bicycle lanes on secondary streets ONLY - University, San Mateo to the bike bridge, Alma to the bike bridge.

I may be mistaken, but I do not see any attempts at alleviating the aggressive and onerous traffic issues on El Camino Real and throughout most of West Menlo Park. Our residential streets are being used as cut-through paths because the main arteries are so clogged. Drivers are so desperate that they are risking lives by running red lights, not stopping fully at stop signs and not properly obeying basic automobile etiquette. Instead of wasting money on bulbouts that everyone hates, consider something more drastic, like completely blocking and redirecting traffic at Santa Cruz/University (ie like when downtown has block parties); and blocking traffic from entering San Mateo Drive from Middle Avenue towards the bike bridge. Another option would be to add a crosswalk traffic light on Middle at San Mateo Drive. As for El Camino, I would love our little city to stand up to Palo Alto and Stanford and force them to allow SandHill to cross over to Alma. That alone would alleviate our Northbound congestion at rush hour. If they refuse, then shut down all U-turns on ECR except at Middle Ave. Lastly, I would love the city to

address the Safeway ingress/egress situation. Yesterday alone, I almost hit a car trying to leave the parking lot in the entry lane as I was entering the lot! Then as I returned from the mall in the afternoon, I sat through three cycles of the light hoping to turn left (ECR onto West bound Middle Ave) because so many cars exiting Middle Ave onto Northbound on ECR ran the red light.

Cars, bikes, and pedestrians can get through Menlo Park quickly and efficiently. I like the IDEA of having buffered bike lanes on El Camino but the businesses there need places for their customers to park or they'll go out of business (already too many empty storefronts/empty lots in Menlo!!). Also, the traffic is embarrassingly bad. Don't do anything that MIGHT make it more difficult than it already is to drive through Menlo Park. I grew up here and, even though I'm a teacher, I've managed to stay here. It's easy to get through surrounding towns but once you get to Menlo Park, forget it. You'll be on El Camino for way too long. A bike corridor on Alma would be a GREAT place for bike traffic. Even if bikes could get through Menlo Park on El Camino easily, it's still way too dangerous to bike on the street in Palo Alto and Redwood City. The only reason it's easy in Atherton is because there are hardly any businesses so the street is wider. Maybe we should mimic Atherton instead if a safe way to bike down HIGHWAY 82 is your priority. Also, isn't there already a blinking cross-walk at San Mateo Dr and Santa Cruz? It was just put in. Already you want to put something else? That seems wasteful of residents' resources.

It seems to me that the new plan considers bike routes, important for kids and younger adults, but does nothing about traffic congestion (Argh! El Camino Real!). And it does not seem to take into account that many of us can no longer ride bicycles. (Note: I lived here long enough ago to remember riding on El Camino with a kid in a backpack, no helmets on either of us. Not even safe enough then . . . but surely better than now). You must consider that as seniors we have to drive, and thus have to be able to park in downtown. Otherwise, we are home-bound.

Thank you for making this information available in this format and for soliciting ideas and feedback from residents. A successful plan looks at the whole picture and takes into consideration not just targeted improvements. Traffic is the number 1 problem in Menlo Park. However, adjusting for transportation issues has domino effects on other areas such as parking and use of local businesses. By adding expanded bike lanes, something has to give. This is apparent on Oak Grove Ave downtown; that coupled with the encroachment from local restaurants more parking spaces are gone. These effects should be considered. The plan seems to focus much on adding bike lanes, etc. I am bike rider and was able to navigate my way well before there were dedicated widened lanes. The plan is missing parking concerns, as I listed above, as well as traffic on El Camino. To me the flow of traffic would alleviate some of the traffic problems. As I have previously emailed the City Councils, these two easy fixes 1) synchronize sequential or near-by traffic lights, and 2) install flashing yellow arrows at left turn lights (similar to other states) to allow for left turn when no on-coming traffic is coming. This would be very useful at Middlefield and Ringwood which is frequently a bottleneck from Ravenswood traffic. While the plan addresses some issues, it misses other apparent ones. While I think it's ambitious to encourage bike usage, we need to recognize there are more times that using a car works better, grocery shopping for the family for example. I haven't seen a sizable increase in bike traffic because of the new bike lanes, but I have heard more complaints because of the elimination of parking spaces. I also know that people have shifted their shopping habits away from Menlo Park to places with more accommodating parking. As

successful plan looks at the whole picture. Recent visitors to the area suggested turning Santa Cruz Ave from El Camino to University into a plaza. I thought that was an interesting idea. It would affect parking and traffic. One would have to weigh the pros and cons. If you have gotten this far, thanks for reading. I hope my feedback has been useful. Bart Spencer - 25 year resident

Parking garages in the downtown area. It is VERY difficult to find parking space between 11:00 and 2:00 downtown and traffic after 3:00 along the El Camino is very congested

This is a bicycle improvement process and will make traffic worse for autos...the "Y" at the meeting of Alameda and Santa Cruz ran smoothly once and is now a boondoggle for everyone, including bikes and just made everything about getting around Menlo Park worse. None of the traffic problems for autos was even mentioned. This fixes no traffic problem but will cause more frustration for drivers and every one.

Make traffic feasible through Menlo Park, for cars also, possibly by making El Camino two levels, thus avoiding traffic lights for through traffic. Make it safe for bicycles and pedestrians

Pedestrian traffic can be quickly improved with little cost by trimming vegetation back to the sidewalk line. We often have to go single file because flowers, bushes, hedges, and low tree branches impeded walking on the sidewalk. A simple first step is to remind the folks doing the trimming to pull vegetation back. Start with a little public relations outreach (newspapers, etc.), but then also require the businesses licensed by Menlo Park who do this work in the City, and landlords licensed by the City, that they are responsible for keeping sidewalks clear. That outreach would also be a good time to remind corner lots about traffic visibility rules.

Glad to see projects 165, 166, 195 and 196, included in the TMP, but the TMP is otherwise generally lacking in traffic calming measures impacting specific neighborhoods. The TMP does not address recognized traffic calming infrastructure projects along the residential section of Willow Road between Middlefield and Gilbert. The City of Menlo Park has data documenting that traffic chronically exceeds the 25 mph speed limit yet has refused to enforce this speed limit. A 25 mph speed limit is consistent with the residential zoning and large number of driveways in this area. Traffic calming such as electronic speed reporting signage, reflectors and reflective paint on medians and bulb outs, and crosswalks are inexpensive by any measure. They are effective in slowing traffic and thus critical to the safety of school children, pedestrians, cyclists, and transit riders, all of whom are currently being exposed to needless danger from speeding vehicles. A crosswalk is needed at Willow and Nash as there is considerable pedestrian activity at this intersection. Menlo Park needs to enforce its truck traffic laws on Willow Road - again, refusal by the police department to actively enforce. We expect the City of Menlo Park and the city staff whom we fund to advocate for and act in the interests of its residents - including those on Willow Road - over concerns about the speed/convenience of commuters driving through Menlo Park.

more train service stops in Menlo Park

Successful traffic management should provide the city with safe and efficient multi-mode transportation within and through Menlo Park. The dramatic increase in traffic congestion and widespread frustration among city residence because of this is largely due to overcrowding on the peninsula. Not all of this is within the control of the City, but some is. Before infrastructure changes are made, the City should take immediate and dramatic measures to delay/stop

major commercial development in the city. It should use practical and common sense limits to accessory dwelling units and look for ways to block, stay or change the State laws which are allowing their widespread deployment. Once the amount of commercial space is stabilized, then, consider implementing the following: - continued deployment of safe bike lines with physical separations from traffic when possible - work with cities to our north and south to form a unified approach to high speed rail / grade separation and establishing bike/pedestrian paths along the railroad tracks - continue to keep cars off sidewalks at night.

I think a lot of the projects on the map should not be done at all. For example, converting stop signs to traffic lights at two intersections on Chrysler Drive, traffic light at Laurel/Glenwood. These intersections are adequately served by stop signs, and I think traffic lights would slow overall traffic progression rather than improve it. Also so many of the projects install bike lanes at the expense of street parking -- we won't be left with anywhere to park the cars! Hundreds or thousands of on-street parking spaces will vanish with this plan, and the plan doesn't provide any alternative location. Bike lanes on El Camino seem like a bad idea. It's a really busy street with lots of turning traffic, driveways, etc. Adding bicycle traffic will cause lots of conflict between cars and bikes, likely leading to accidents.

Please electrify both current and future rail. I also prefer not to elevate the trains. The impact is great and the community is never the same. Better to get the funding now and do it right at the start. Safer and an aesthetic that reflects our community. Think of the long term legacy of these decisions to keep the charm and character of Menlo Park. Thank you!

More walking and biking trips. Fewer short distance car trips. Better roads just attract more cars, so focus should be on better biking and walking infrastructure. A walking bike path along Dumbarton corridor should be installed ASAP since it's lower cost and not dependent on fixing the bridge across bay. No reason to wait on other aspects of the project to get this part started.

Fewer people who has to drive to commute. Please remove as much parking as possible along El Camino to turn them into bike lanes. Most of businesses have parking lots in the back already and there is temporary parking opportunities in nearby side streets. The curb in front of the office complex that Stanford is building is a prime candidate for that. Please do not leave parking spots there, the complex will already have surface and underground parking lots. A pedestrian bridge over Caltrain tracks would also help a lot of people reach Stanford campus and downtown without extending their walk/bike distance and lead them to drive instead.

I'm a bicycle rider so I appreciate the attention given to two-wheeled transport, however, with the exception of the Dumbarton Rail Project, successful implementation of the TMP looks like it will do little to address traffic congestion issues that concern those of us who live on the bay side of El Camino. I am retired so I can choose what time of day NOT to go somewhere, but my heart goes out to the working folks who are stuck in their cars on Willow Rd. every afternoon or on El Camino (especially as it will get worse when the new office and Stanford construction are complete and drawing in more cars). Seems backwards thinking to allow these major constructions to start when they will only worsen an already bad traffic situation... forcing the city to create a TMP to solve a problem that, at the very least, could have been mitigated before making it worse. Of course, the traffic issue is more regional than local, but seems to me that nearly all of Menlo Park's efforts should be devoted to working regionally.

Safer bike routes to school from East to West; Solve for Caltrain crossing around Ravenswood intersection. Major death zone; Solve for Willow and Marsh rush hour congestion; Proactively

address future traffic congestion due to stanford development in el camino (across from safeway); since for Downtown parking with garages as new developments come online (eg Guild Theater)

Bikes: need to follow (with enforcement) any of these: a) bike lanes , bike rules b) road lanes (strictly follow vehicle code...full stops, safe merging, traffic speed, signals, etc.), or c) pedestrian rules (walk at intersections, etc.) Bikes are good, but important to follow safety rules (e.g. don't expect cars to stop to allow riding across at intersections & crosswalks)

Santa Cruz Ave @ Chester and Crane “ some different texture brick to distinguish the transition from sidewalk to street. Santa cruz Avenue Streetscape “ design should be for visual impaired, share design with vista center for the blind in Palo Alto. Oak Grove and Chestnut “ upgrade the curb ramp at the same time as the crosswalk. Doyle St, Curtis St “ sidewalk and ramps should be improve, especially the west side. A new Crosswalk crossing Glenwood at Mill St (the east leg). Alma St between Oak Grove and Ravenswood “ sidewalk should be widen. Merrill St should have continuous sidewalk on the train track side. Laurel and Ravenswood signal “ should have audible ped signals.

APPENDIX V. PRIORITIZED PROJECT LIST

LARGE INFRASTRUCTURE TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
8	Bayfront Expy & Willow Rd	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Install bike signals across north Bayfront Expy leg and west Willow Rd leg Install high-visibility crosswalks and cross-bike markings Reconstruct eastbound Willow Rd right-turn channelizing island to improve pedestrian access and provide space for shoulder-running bus lane Remove southbound Bayfront Expy channelizing island to provide space for shoulder-running bus lane and restripe with a right-turn lane and add right-turn overlap phase Modify traffic signal to accommodate channelized right turn modifications Install Transit Signal Priority (TSP) for queue jumps by shoulder-running buses on northbound and southbound Bayfront Expy approaches 	●	●	●	●		●	
1	Haven Ave from Marsh Rd to Haven Court	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Construct Class I Multi-Use Path from Marsh Rd to Atherton Channel Establish Class II Bicycle Lanes from Haven Court to Atherton Channel Install Bicycle and Pedestrian crossing upgrades 	●		●	●	●		●
81	Middle Ave Caltrain Crossing	Downtown Mobility Improvements	<ul style="list-style-type: none"> Construct pedestrian and bicycle crossing at El Camino Real/Middle Ave intersection Connect to future plaza, to be funded and constructed via private development (Middle Plaza) Install pedestrian crossing improvements across Alma St from Caltrain Crossing to Burgess Park 	●		●	●	●		●

Prioritization Legend: ● = Fully Met Criteria ○ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

LARGE INFRASTRUCTURE TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
47	Willow Rd & Middlefield Rd	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Remove westbound Willow Rd channelized right turn, and modify signal to include westbound right-turn overlap Modify traffic signal to included protected northbound and southbound left-turn phasing. Restripe northbound Middlefield Rd approach to include one left-turn lane, one through lane, one bike lane, and one right- turn lane. Restripe southbound Middlefield Rd approach to include one left-turn lane, one through lane, one through-right turn lane, and one bike lane. Extend bike box on northbound Middlefield Rd approach to encompass both the left-turn lane and the through lane. Install bike boxes on the eastbound and westbound Willow Rd approaches. Construct pedestrian facilities on east side of Middlefield Rd between Woodland Ave and Willow Rd 	●	●	●	●			●
2	Bayfront Expy & Marsh Rd	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Modify southbound Haven Ave to left turn, shared through- right and right-turn lane Install Bicycle and Pedestrian crossing upgrades 	●	●	●	●		●	
14	Marsh Rd from Bay Rd to Scott Dr	Marsh Rd Bicycle	<ul style="list-style-type: none"> Bay Rd to Florence St: Establish Class II Buffered Bicycle Lanes in both directions (requires removal of parking on the north side of street) 	●	●		●			

Prioritization Legend: ● = Fully Met Criteria ● = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

LARGE INFRASTRUCTURE TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
		Network Improvement	<ul style="list-style-type: none"> Florence St to Scott Dr: Establish Class II Buffered Bicycle Lanes in both directions. Remove or modify existing median to allow the eastbound bike lane to be transitioned to the left of the right-most eastbound through lane at Scott Dr 							
84	El Camino Real within City Limits	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Encinal Ave to Valparaiso Ave-Glenwood Ave: Remove parking along east side of El Camino Real. Remove rightmost southbound travel lane on El Camino Real, no parking lane present southbound. Valparaiso Ave-Glenwood Ave to Oak Grove Ave: Remove parking along both sides of El Camino Real. Oak Grove Ave to Santa Cruz Ave: Remove parking along both sides of El Camino Real. Santa Cruz Ave to Ravenswood Ave-Menlo Ave: Remove parking along west side of El Camino Real. Designate Class III Bicycle Route northbound along segment due to right-of-way constraints in lieu of Class II Buffered Bicycle Lane. Ravenswood Ave-Menlo Ave to Roble Ave: Remove median for entire length of segment. Widen sidewalk facility on east side of El Camino Real to 15 feet for a Class I Multi-Use Path in lieu of Class II Buffered Bicycle Lane. Roble Ave to Middle Ave: Remove parking along east side of El Camino Real. Middle Ave to Cambridge Ave: Remove parking along both sides of El Camino Real. 	●		●	●	●	●	

Prioritization Legend: ● = Fully Met Criteria ○● = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

LARGE INFRASTRUCTURE TIER 1

TRANSPORTATION MASTER PLAN



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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
			<ul style="list-style-type: none"> Cambridge Ave to Creek Dr: Remove parking along both sides of El Camino Real. Creek Dr to Sand Hill Rd: Widen existing bridge over San Fransquito Creek or construct a pedestrian and bicycle bridge to install a Class 1 Multi-Use Path west of El Camino Real to connect from Sand Hill Rd to Creek Dr. 							
178	Marsh Rd between Independence Dr to Scott Dr	Marsh Road Corridor Mobility Project	<ul style="list-style-type: none"> Establish Class II Bike Lanes Support Caltrans District 4 Bike Plan Project Number SM- 101-X14 that calls for the construction of an additional bicycle and pedestrian bridge over US 101 north of Marsh Road. 	●		●	●	●		

Prioritization Legend: ● = Fully Met Criteria ● = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

DESIGN-COMPLEX TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
65	Middlefield Rd & Linfield Dr-Santa Monica Ave	Middlefield Rd Safety Improvements	<ul style="list-style-type: none"> Install Pedestrian Hybrid Beacon (HAWK) or traffic signal with emergency pre-emption on Middlefield Rd at Linfield Dr-Santa Monica Ave Install "Keep Clear" striping at Menlo Fire Protection District Station No. 1 Close sidewalk/pathway gap on eastern side of Middlefield Rd between Linfield Dr and Santa Monica Ave Coordinate with Menlo Fire Protection District 	●	◐	◐	●	●		◐
63	Middlefield Rd & Ravenswood Ave	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Remove eastbound Ravenswood Ave channelized right-turn lane, install right-turn overlap phase, modify signal timing Install crosswalk and cross-bike markings on north Middlefield Rd leg, install bike signal Construct "jughandle" bicycle left-turn on east side of Middlefield Road to allow bicycle left-turns onto Ravenswood Ave Install "bicycle leaning rail" with push button for bicycles to initiate crossing phase on "jughandle" left-turn Coordinate with Town of Atherton 	●		◐	●	●		◐
59	The Willows	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install right-turn overlap on southbound Ivy Dr and restrict eastbound Willow Rd U-turns Widen pedestrian refuge island to match crosswalk width on east Willow Rd leg Convert existing crosswalks to high-visibility crosswalks Extend pedestrian crossing time 	●		◐	●	●		

Prioritization Legend: ● = Fully Met Criteria ◐ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

DESIGN-COMPLEX TIER 1

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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
39	Willow Rd & Ivy Dr	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install right-turn overlap on southbound Ivy Dr and restrict eastbound Willow Rd U-turns Widen pedestrian refuge island to match crosswalk width on east Willow Rd leg Convert existing crosswalks to high-visibility crosswalks Extend pedestrian crossing time 	●	◐	◐	◐	●		
40	Willow Rd & O'Brien Dr	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install curb ramps at all corners of intersection Install high-visibility crosswalks on all legs and add pedestrian signals (including new crosswalks crossing Willow Rd) Install bulb-outs into O'Brien Dr on northeast and southeast corners 	●		◐	◐	●	●	
44	Willow Rd from Bay Rd to O'Keefe St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Bicycle Lane on eastbound Willow Rd from O'Keefe St to Bay Rd, connecting to US 101 Willow Rd interchange bicycle facilities Establish Class II Bicycle Lane on westbound Willow Rd from Bay Rd to Durham St Remove or reconstruct existing median to allow for Class II Bicycle Lanes where right-of-way is insufficient 	●		◐	●	◐		
70	Middlefield Rd & Woodland Ave	Middlefield Rd Multimodal Improvements	<ul style="list-style-type: none"> Install a traffic signal Install crosswalks on all intersection approaches Install bicycle crossing improvements to connect Woodland Ave, Middlefield Rd, and Palo Alto Ave 	●		◐	●			

Prioritization Legend: ● = Fully Met Criteria ◐ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

DESIGN-COMPLEX TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA							
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE	
79	Alma St from Ravenswood Ave to Burgess Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install sidewalk on the east side of Alma St to connect to Burgess Park path Upgrade crosswalks to high-visibility Ensure project is consistent and provides connectivity to Middle Ave Pedestrian and Bicycle Rail Crossing Construct green infrastructure 	●			●				●
41	Willow Rd & Newbridge St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Convert existing crosswalks to high-visibility crosswalks Modify signal timing to lead-lag operation on Newbridge St with the leading left-turn phase on the southbound Newbridge St approach and lagging left-turn phase on the northbound Newbridge St approach 	●	◐	◐	◐	◐		●	
64	Middlefield Rd & Ringwood Ave-D St	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Remove southbound Middlefield Rd channelized right turn Reconstruct curb ramp and reduce curb radius on northwest corner Replace crosswalks on north and west legs Install Two-Stage Left-Turn Queue Boxes for cyclists traveling from Middlefield Rd to Ringwood Ave 	●	◐	◐	◐				
69	Middlefield Rd from Willow Rd to Palo Alto Ave	Middlefield Rd Multimodal Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (City has a plan line to allow for widening as properties are redeveloped) Coordinate with future potential Peninsula Bikeway planning efforts 	●		◐	◐		◐		

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DESIGN-COMPLEX TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
113	University Dr & Menlo Ave (South)	Downtown Mobility Improvements	<ul style="list-style-type: none"> Remove westbound Menlo Ave right turn lane Install bulb-out at northeast corner into Menlo Ave Replace crosswalk with straightened crossing 	●		●	●	●		
144	Sand Hill Rd & Santa Cruz Ave	Sand Hill Rd Corridor Project	<ul style="list-style-type: none"> Install high-visibility crosswalks Install LED sign for southbound Santa Cruz Ave right-turn on red restriction Coordinate with San Mateo County 	●			●	●		
146	Sand Hill Rd & Sharon Park Dr	Sand Hill Rd Corridor Project	<ul style="list-style-type: none"> Upgrade existing crosswalks to high-visibility Install high-visibility crosswalk and pedestrian signal heads on west leg of Sand Hill Rd Would require construction of curb ramps and reconstruction of existing median on west Sand Hill Rd leg Reconstruct nose in front of traffic signal on east Sand Hill Rd leg to provide clear crosswalk 	●			●	●		

Prioritization Legend: ● = Fully Met Criteria ● = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

OUTREACH-COMPLEX TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
74	Ravenswood Ave & Laurel St	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Remove parking south of Ravenswood Ave on west side of Laurel St for a distance of 150 feet and shift northbound Laurel St lanes to add bicycle lane to the left of right-turn lane Widen and modify eastbound Ravenswood Ave to shared thru-left lane and a right turn lane with the bicycle lane transitioning to the left of the right turn lane Upgrade existing crosswalks to high-visibility 	●	●	◐	●			●
61	Coleman Ave From Ringwood to Willow Rd	Menlo Oaks Bicycle Network Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes from Willow Rd to City Limits (requires removal of parking on one side of the street) Coordinate with San Mateo County between City Limits and Ringwood Ave regarding bicycle facilities 	●		◐	●	●		
118	Middle Ave from University Dr	Middle Ave Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of on-street parking on one side of the street) Install new sidewalk or replace existing asphalt pathway on both sides of Middle Ave, to be completed in phases 	●	◐	◐	●	◐		
129	Olive St from Oak Ave to Santa Cruz Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes between Santa Cruz Ave and Middle Ave (requires parking removal on at least one side of the street) Designate Class III Bicycle Route between Middle Ave and Oak Ave Implement Bicycle Boulevard design features 	●	◐	◐	●	◐		

Prioritization Legend: ● = Fully Met Criteria ◐ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

OUTREACH-COMPLEX TIER 1

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
			<ul style="list-style-type: none"> Install High visibility crosswalk across the north leg of the intersection at Stanford Ave and Olive Ave 							
75	Laurel St from Burgess to Willow	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking on both sides of the street) 	●		◐	●		●	
134	Avy Ave from Santa Cruz Ave to Monte Rosa Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (parking removal required) Coordinate with County on bicycle facility connectivity 	●		◐	◐	●		
107	Oak Grove Ave from Crane St to University Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on Oak Grove Ave between Crane St and University Dr (requires parking removal on the north side of the street) 	●		◐	◐	●		
189	University Dr between Oak Grove Ave and Santa Cruz Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on University Dr (requires removal of parking on at least one side of University Dr) 	●		◐		◐		

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ALL TIER 2 PROJECTS

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
16	Constitution Dr & Chrysler Dr	Menlo Gateway Mitigation	<p>Recommended Improvements</p> <ul style="list-style-type: none"> Install westbound Chrysler Dr left turn lane (widening of Chrysler Dr west of Constitution Dr may be required pending final design) Install crosswalks across all legs <p>Funded Improvements</p> <ul style="list-style-type: none"> Install traffic signal Modify and add lane on eastbound Chrysler Dr approach to shared left/through lane and shared though/right lane 	●	●	●	●	●	●	
17	Chrysler Dr & Jefferson Dr	Chrysler Dr Intersection Improvements	<ul style="list-style-type: none"> Install traffic signal 	●	●	●	●	●	●	
18	Chrysler Dr & Independence Dr	Chrysler Dr Intersection Improvements	<ul style="list-style-type: none"> Install traffic signal 	●	●	●	●	●	●	
20	Jefferson Dr from Chrysler Dr to Constitution Dr	Jefferson Dr Multimodal Network Improvement	<ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases as the properties on Jefferson Dr are redeveloped Establish Class II Bicycle Lanes (requires removal of on-street parking) 	●		●	●	●	●	

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ALL TIER 2 PROJECTS

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
27	Ivy Dr from Willow Rd to Chilco St	Ivy Dr Pedestrian Network Improvement	<ul style="list-style-type: none"> Widen sidewalks on both sides of Ivy Dr and narrow existing median Coordinate with San Francisco Public Utilities Commission 	●		●	●	●	●	
28	Newbridge St from Market Pl to Carlton Ave	Newbridge St Pedestrian Network Improvement	<ul style="list-style-type: none"> Widen sidewalks on both sides of the roadway by narrowing the travel lanes 	●		●	●	●	●	
29	Pierce Road	Pierce Road Multimodal Improvements	<ul style="list-style-type: none"> Remove travel land and change configuration from two-way to one-way street. Install separated bike lanes to calm traffic and enhance connection to US 101 Ringwood pedestrian overcrossing. 	●		●	●	●	●	
30	Adams Dr from O'Brien Dr to University Ave	Adams Dr Pedestrian and Bicycle Network Improvements	<ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases, as the properties are redeveloped Establish Class II Bicycle Lanes 	●		●	●	●	●	
31	University Ave & Adams Dr	University Ave & Adams Dr Intersection Improvements	<ul style="list-style-type: none"> Install traffic signal Coordinate with City of East Palo Alto and Caltrans 	●	●	●	●	●	●	

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ALL TIER 2 PROJECTS

TRANSPORTATION MASTER PLAN



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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
32	O'Brien Dr from Willow Rd to University Ave	O'Brien Dr Pedestrian Network Improvement	<p>Funded Improvements</p> <ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases, as the properties on O'Brien Dr are redeveloped Establish Class II Bicycle Lanes (requires removal of on-street parking) 	●		●	●	●	●	
37	Willow Rd b/w Bayfront Expy & US 101	Willow Rd Corridor Improvement Project – Alternative C	<ul style="list-style-type: none"> Install eastbound Willow Rd one-way Class IV separated bikeway between Hamilton Ave and US 101 Willow Rd interchange Install westbound Willow Rd one-way Class IV separated bikeway between Dumbarton Rail Corridor and US 101 Willow Rd interchange 	●	●	●	●	●	●	
38	Willow Rd & Hamilton Ave	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Modify southbound Hamilton Ave to shared left-thru lane and time of day right turn lane Implement evening peak period parking restriction on west side of southbound Hamilton Ave for 400 feet to increase right-turn storage Modify northbound and southbound Hamilton Ave to split phase 	●	●	●	●	●	●	

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ALL TIER 2 PROJECTS

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43	Willow Rd & Bay Rd	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Modify southbound Bay Rd to two left turn lanes and a right-turn lane Narrow existing median on north Bay Rd leg Install westbound Willow Rd right-turn lane Install high-visibility crosswalk on east Willow Rd leg with curb ramps Install pedestrian signals 	●	●	●	●	●		
45	Willow Rd & Colman Ave	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install right-turn lane on southbound Coleman Ave approach (requires removal of on-street parking for 150 feet along the west side of Coleman Ave) Refresh decorative crosswalk Install bike detection on the southbound Coleman Ave approach Evaluate protected-permitted left-turn phasing on Willow Road 		●	●	●	●	●	
46	Willow Rd & Gilbert Ave	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install a painted median and vertical traffic control device (e.g. planters, bollards) around heritage oak on Gilbert Ave 150 feet north of Willow Rd Prohibit parking for a distance of 40 feet to the north and south of the oak tree on the east side of Gilbert Ave Restrict on-street parking on Gilbert Ave South of Willows Rd during school hours Evaluate protected-permitted left-turn phasing on Willow Road 	●	●					

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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
51	Bay Rd From Del Norte Ave to Ringwood Ave	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Install sidewalk along east side of Bay Rd to provide access to Flood County Park 	●		●	●			
53	Bay Rd & Ringwood Ave-Sonoma Ave	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Convert the west legs Sonoma Ave and Ringwood Ave to one-way couplets with Ringwood Ave serving eastbound traffic and Sonoma Ave serving westbound traffic Bay Rd/Ringwood Ave becomes a four-legged intersection Add left-turn lanes, as deemed necessary during design phase, on eastbound Ringwood Ave and northbound Bay Rd approaches (requires full use of public right-of-way and this would require the removal of existing landscaping and the relocation of existing utilities) Install traffic signal 	●	●	●	●	●		
56	Bay Rd from Van Buren Rd to Willow Rd	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Upgrade existing off-street path to Class I Multi-Use Path along west side of Bay Rd and integrate into proposed bicycle improvements on Willow Rd Coordinate with Veterans Administration Medical Center 	●		●	●			
66	Santa Monica Ave from Middlefield Rd to Nash Ave	Santa Monica Ave Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk or asphalt pathway on the north side of Santa Monica Ave 	●		●	●	●		

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ALL TIER 2 PROJECTS

TRANSPORTATION MASTER PLAN



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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
77	Laurel St from Encinal Ave to Glenwood	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Install traffic signal Coordinate with Town of Atherton 	●	●		●	●		●
80	Burgess Park	Downtown Mobility Improvements	<ul style="list-style-type: none"> Widen existing path to meet current Class I Multi-Use Path design standards 	●		●	●			
82	Encinal Ave from Garwood to El Camino Real	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking on both sides of the street) 	●		●	●	●		
97	El Camino Real & Creek Dr	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install "bulb-outs" and curb ramps on northwest and southwest corners of intersection Install high-visibility crosswalk on west Creek Dr leg Install ADA compliant curb ramp for southbound bridge crossing 	●		●	●			
108	Oak Grove Ave & Hoover St	Downtown Mobility Improvements	<ul style="list-style-type: none"> Remove on-street parking space located on Oak Grove Ave in the middle of the intersection on the south side of Oak Grove Ave Install high-visibility crosswalk on north Hoover St leg 	●			●	●		

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TRANSPORTATION MASTER PLAN



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110	Oak Grove Ave & University Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Evaluate the installation of a westbound Oak Grove Ave left turn lane during Bicycle Lane design process Install high-visibility crosswalks on all three legs of intersection 	●	●	●	●	●		
111	Santa Cruz Ave Between El Camino Real and University Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Convert all angled parking to parallel on-street parking Install parklets on each block Designate at least 60 feet toward flexible curb use on each block face for passenger loading and commercial loading with complementary time restrictions for each activity Widen sidewalks and update streetscape design standards 	●		●	●			●
112	Santa Cruz Ave & University Dr (North)	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install traffic signal Install a bike boxes on the north and west legs 	●	●	●	●	●		
120	Blake St from Middle Ave to College Ave	Allied Arts Neighborhood Project	<ul style="list-style-type: none"> Install sidewalk or asphalt pathway on at least one side of Blake St 	●		●	●			
123	Arbor Rd from Valparaiso Ave to Santa Cruz Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install asphalt pathway on the north side of Arbor Rd 	●		●	●	●		

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ALL TIER 2 PROJECTS

TRANSPORTATION MASTER PLAN



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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
125	Santa Cruz Ave & San Mateo Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install more prominent wayfinding signage for bike bridge Install bulb-out on southwest corner into San Mateo Dr Install high-visibility crosswalk on south San Mateo Dr leg 	●		●	●	●		
127	San Mateo Dr & Middle Ave	West Menlo Mobility Improvements	<p>Recommended Improvements</p> <ul style="list-style-type: none"> Install bulb-outs on the northwest and northeast corners into Middle Ave Install a high visibility crosswalk across the east leg Install curb ramps on the northeast and southeast corners Move existing curb ramp into extended area. Restripe existing high-visibility crosswalk to reduce crossing distance <p>Funded Improvement</p> <ul style="list-style-type: none"> Install Rapid Rectangular Flashing Beacon (RRFB) 	●		●	●			
128	Elder Ave from Valparaiso Ave to Elder Ct	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Restrict on-street parking on the north side of Elder Ave during school hours to provide a clear walkway 	●		●	●	●		
130	Santa Cruz Ave & Sharon Rd-Oakdell Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Evaluate relocation of existing crosswalk 	●		●	●	●		

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ALL TIER 2 PROJECTS

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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
132	Santa Cruz Ave from Olive St to Orange Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install new sidewalk or replace existing asphalt pathway on both sides of Santa Cruz Ave, to be completed in phases as properties are redeveloped 	●		●	●	●		
132	Santa Cruz Ave & Orange Ave-Avy Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install traffic signal Reduce curb radius at southeast corner of intersection Bring bicycle lane to the left of the northbound Santa Cruz Ave right- turn lane 	●	●	●	●			
135	Harkins Ave from Altschul Ave to 170 feet east of Altschul Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Close pedestrian infrastructure gap on northern side of Harkins Ave with sidewalk or asphalt pathway 	●		●	●	●		
137	Altschul Ave & Harkins Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install curb ramp at southeast corner with extended curb into Altschul Ave Extend curb into Altschul Ave at existing ramp at southwest corner such that resulting path of travel is 24 feet across south leg of Altschul Ave 	●		●	●			
138	Altschul Ave from Avy Ave to Sharon Rd	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate southbound Class III Bicycle Route Establish contraflow Class II Bicycle Lane northbound (may require additional pavement) 	●		●	●	●		

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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
140	Sharon Park Dr from Klamath Dr to Eastridge Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Restrict on-street parking on Sharon Park Dr during school hours to provide a clear walkway 	●		●	●	●		
142	Oak Ave from Oak Knoll Ln to Sand Hill Rd	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Restrict on-street parking on the east side of Oak Ave during school hours to provide a clear walkway 	●		●	●	●		
143	Sand Hill Rd & Oak Ave	Sand Hill Rd Corridor Project	<ul style="list-style-type: none"> Reconstruct northwest corner and move pedestrian signal pole and signal pole for westbound traffic to meet ADA requirements Increase pedestrian crossing time Convert existing north Oak Ave leg crosswalk to high-visibility Install wayfinding signage to trail Install high-visibility crosswalks on west Sand Hill Rd leg Remove finger median located within intersection Install two-stage left-turn boxes on westbound Sand Hill Rd and southbound Oak Ave Install two-way bicycle signals on northwest and southwest corners Prohibit southbound Oak Ave and westbound Sand Hill Rd right- turns on red 	●	●	●	●	●		

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ALL TIER 2 PROJECTS

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NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
145	Sand Hill Rd & Santa Cruz Ave Pedestrian Network Improvements	Sand Hill Rd Corridor Project	<ul style="list-style-type: none"> Repair existing asphalt path along the south side of Sand Hill Rd for a length of 400 feet west of Santa Cruz Ave Reconstruct path east of Santa Cruz Ave, south of Sand Hill Rd to meet current Class I Multi-Use Path design standards 	●		●	●	●		●
152	Sand Hill Rd & I-280 Northbound Ramps	Sand Hill Rd Corridor Project	<ul style="list-style-type: none"> Modify the signal-timing plan during the p.m. peak hour to increase the maximum allocation of green time to the westbound Sand Hill Rd approach Add northbound right-turn lane on the I-280 northbound off-ramp 		●					
179	Encinal Ave between Middlefield Ave and Train Tracks	Encinal Ave Corridor Mobility Project	<ul style="list-style-type: none"> Install sidewalk or pathway on the north side of the street (requires removal of parking and landscaping) 	●		●	●	●		
180	Encinal Ave & Laurel Way	Encinal Ave Corridor Mobility Project	<ul style="list-style-type: none"> Install a bulb-out on the southwest corner extending into Encinal Ave 	●		●	●	●		
182	Sharon Rd & Eastridge Ave	Sharon Road Corridor	<ul style="list-style-type: none"> Stripe east curb face red 	●		●	●	●		

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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
		Mobility Project	<ul style="list-style-type: none"> Install bulb-out on northeast corner extending into Sharon Rd Install high visibility crosswalk across the west leg 							
184	Marsh Rd between Page St and Florence St	Marsh Rd Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk on north side of Marsh Rd (requires the removal of parking and existing landscaping). 	●		●	●			
185	Dumbarton Rail Corridor	Dumbarton Corridor Project	<ul style="list-style-type: none"> Construct pedestrian and bicycle crossing over the Dumbarton Rail Corridor at the Onetta Harris Community Center from Chilco St to Terminal Ave 	●		●	●	●	●	
186	Chrysler Dr between Constitution Dr and Commonwealth Dr	Chrysler Dr Bicycle Network Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking) 	●		●	●	●		
188	El Camino Real between Creek Dr and Cambridge Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Widen existing sidewalk on east side of El Camino Real (requires relocation of existing landscaping) 	●		●	●			

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190	O'Connor St between Elliot Dr and City Limits	The Willows Pedestrian Network Project	<ul style="list-style-type: none"> Construct sidewalk on the east and west side of O'Connor St (requires removal of parking and landscaping) 	●		●	●	●	●	
191	Menalto Ave between O'Conner St and Haight St	The Willows Pedestrian Improvement Project	<ul style="list-style-type: none"> Construct sidewalk on the south side of Menalto Ave (requires removal of parking and landscaping) 	●		●	●	●	●	
193	Menlo Ave between University Dr and El Camino Real	Downtown Mobility Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on Menlo Ave (requires the removal of on-street parking on one side of the street) 	●		●	●	●		

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TIER 1 CITYWIDE PROJECTS

TRANSPORTATION MASTER PLAN



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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
176	Citywide	Willow Road Relinquishment	<ul style="list-style-type: none"> Evaluate relinquishment of Willow Road by Caltrans from Bayfront Expressway to Bay Road 	●	●		●		●	●
157	Citywide	Enhanced Bicycle and Pedestrian Detection	<ul style="list-style-type: none"> Install bicycle and pedestrian detection at intersections to efficiently serve residents and visitors traveling via alternative modes Adjust signal phasing and timing to include bike and pedestrian crossing time to safely accommodate traveling via alternative modes 	●	●		●			
154	Citywide	Prepare Citywide Bicycle Map	<ul style="list-style-type: none"> Prepare citywide bike map to provide residents and visitors with a big picture look of prioritized bicycle routes characterized by low to moderate stress levels throughout the City 	●		●	●			
198	Citywide	Safe Routes to School walk audits	<ul style="list-style-type: none"> Evaluate pedestrian environment and identify potential improvements near all Menlo Park schools 	●				●	●	
167	Citywide	Establish Shared Mobility Program	<ul style="list-style-type: none"> Adopt an ordinance and permitting process for dockless bikeshare providers and other rolling modes, building on processes put in place by other mid-peninsula cities 		●	●	●			

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TIER 1 CITYWIDE PROJECTS

TRANSPORTATION MASTER PLAN



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				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
159	Citywide	Automated Traffic Signal Performance Measurement	<ul style="list-style-type: none"> Automated Traffic Signal Performance Measurement (ATSPM), provides way to collect data for use in evaluating performance measures. Data from the ATSPM software is used to provide more efficient signal timing plans, targeted repairs and maintenance resulting in increased safety and improved traffic operations. 	●	●					
158	Citywide	Adaptive Traffic Control System Operations & Maintenance	<ul style="list-style-type: none"> Adaptive Traffic Control System O&M to better serve residents and guests traveling throughout the city. Adaptive signaling utilizes real-time data at signalized intersections rather than conventional pre-programmed, daily signal timing schedules. 		●	●				
160	Citywide	Create Policy Advocating for Variable Pricing on the Dumbarton Bridge	<ul style="list-style-type: none"> Create policy to advocate congestion/variable pricing on the Dumbarton Bridge. Congestion/variable pricing would incorporate a pricing scheme which would charge higher prices during periods of higher traffic demand, and lower prices during periods of less traffic demand. Pricing schemes as such have the potential to encourage motorists to use alternative modes during peak periods. 		●	●				
170	Citywide	Establish Voucher Program for Shared Mobility Services from Transit	<ul style="list-style-type: none"> Explore voucher system for first-mile/last-mile connections to transit, including shared mobility (car share, bike share, ride share, other roller share) 		●	●				

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TIER 1 CITYWIDE PROJECTS

TRANSPORTATION MASTER PLAN



NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
177	Citywide	Update street lights	<ul style="list-style-type: none"> Evaluate lighting levels at crosswalks and update street lights as necessary 	●						
165	Citywide	Update NTMP Guidelines	<ul style="list-style-type: none"> Update Neighborhood Traffic Management Program guidelines to make resident requests for traffic calming more streamlined 	●						
166	Citywide	Progressive Safety Enforcement	<ul style="list-style-type: none"> Work with local law enforcement agencies to establish a program to increase spot specific enforcement of potentially unsafe behavior 	●						
195	Citywide	Radar Speed Feedback Signs	<ul style="list-style-type: none"> Establish Policies to identify locations and best practices for radar speed feedback sign installation 	●						
196	Citywide	Update Crosswalk Policy	<ul style="list-style-type: none"> Update crosswalk policy to identify potential RRFB locations and priority 	●						
197	Citywide	Update Sharrow Policy	<ul style="list-style-type: none"> Update sharrow policy to include toolkit and best practices for signage 	●						

Prioritization Legend: ● = Fully Met Criteria ○ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

TIER 2 CITYWIDE PROJECTS

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NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THRUPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
153	Citywide	Establish Bike Repair Workshop Program	<ul style="list-style-type: none"> Set up bike repair workshops to educate residents on how to repair and maintain their bicycles 				●			
155	Citywide	Establish Bike-Friendly Business Program	<ul style="list-style-type: none"> Provide incentives to bike-friendly businesses such as city sponsored bicycle facilities, quarterly bicycle roundtables with business owners, etc. 				●			
156	Location TBD	Visible Bicycle Counter	<ul style="list-style-type: none"> Install physical/visible bike counter to provide real time data on the number of cyclists traveling along the roadway 				●			
161	Citywide	ITS Infrastructure Operations & Maintenance	<ul style="list-style-type: none"> Intelligent Transportation Systems infrastructure operations & maintenance, ensures upkeep and up-to-date signal systems to preserve acceptable traffic conditions throughout Menlo Park. Examples of ITS infrastructure include vehicle counters, connected parking garages, variable message displays, real-time transit vehicle arrival. 		●					
162	Citywide	Signal Phase and Timing (SPaT) Data Dissemination	<ul style="list-style-type: none"> Signal Phase and Timing (SPaT) Data Dissemination, provides real-time data that equipped (connected) vehicles can utilize to control speeds and improve flow along boulevards, thoroughfares and highways to avoid “stop-and-go” travel patterns on major roadways. 		●					

Prioritization Legend: ● = Fully Met Criteria ○ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

TIER 2 CITYWIDE PROJECTS

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NO.	LOCATION	PROJECT	PROJECT DETAILS	PRIORITIZATION CRITERIA						
				SAFETY	CONGESTION MANAGEMENT	GHG REDUX / PERSON THURPUT	TRANSPORTATION SUSTAINABILITY	SCHOOL NEARBY	SENSITIVE POPULATION	GREEN INFRASTRUCTURE
163	Citywide	Bluetooth Readers	<ul style="list-style-type: none"> The installation of bluetooth readers throughout the city could collect and analyze data via mobile devices, connected and autonomous vehicles, 		●					
164	Citywide	Transportation Data Hub	<ul style="list-style-type: none"> A Transportation Data Hub would allow city staff to more accurately track projects and their impacts. The data hub would also provide decision makers with context 		●					
168	Citywide	Incentivize Unbundled Residential Parking	<ul style="list-style-type: none"> Modify Municipal Code parking requirements to allow for appropriate parking reductions for developments which demonstrate adequate parking supply citywide 		●					
169	Citywide	Establish Carshare Program	<ul style="list-style-type: none"> Prepare Request for Proposal (RFP) to disseminate to carshare services or form public-private partnership with carshare services to identify locations and spaces for implementation 		●					
175	Downtown	Implement Paid and Technology-Driven Parking Management	<ul style="list-style-type: none"> Monitor downtown parking and assess best practices such as dynamic pricing schemes and residential parking permits 		●					

Prioritization Legend: ● = Fully Met Criteria ○ = Partially Met Criteria Empty = Did Not Meet Criteria for Prioritization

APPENDIX VI. TMP PROJECT LIST

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NO.	LOCATION	PROJECT	PROJECT DETAILS
1	Haven Ave from Marsh Rd to Haven Court	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Construct Class I Multi-Use Path from Marsh Rd to Atherton Channel. Establish Class II Bicycle Lanes from Haven Court to Atherton Channel. Install Bicycle and Pedestrian crossing upgrades.
2	Bayfront Expy & Marsh Rd	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Recommended Improvements: Modify southbound Haven Ave approach to reduce delay. Install Bicycle and Pedestrian crossing upgrades. Funded Improvements: Widen eastbound Marsh Rd and add additional right turn lanes. Install Class I Multi-Use Path along eastbound Marsh Rd.
3	Bayfront Expy & Chrysler Dr	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Install a second northbound Chrysler Dr left-turn lane. Install crosswalk and pedestrian signal heads on north Bayfront Expy Leg. Install bicycle crossing markings on Bayfront Expy. Install high-visibility crosswalk on west Chrysler Dr leg.
4	Bayfront Expy & Chilco St	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Install additional eastbound Chilco St left-turn lane and extend existing right turn lane. Install high-visibility crosswalk on west Chilco St leg. Install Bicycle crossing markings on Bayfront Expy.
5	Bicycle and Pedestrian Crossing	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Construct Pedestrian and Bicycle Crossing over Bayfront Expy between Chilco St and Willow Rd.
6	Bayfront Expy & Facebook Bldg 21	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Install a traffic signal and widen northbound Bayfront Expy to include two left-turn lanes.
7	Bayfront Expy & Facebook Bldg 20	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> Restrict the use of left turn lane to shuttles only on northbound Bayfront Expy with private vehicles restricted to right-in-right-out operations.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
8	Bayfront Expy & Willow Rd	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> • Install bike signals, high-visibility crosswalks and cross-bike markings. • Reconstruct eastbound Willow Rd right-turn channelizing island to improve pedestrian access. • Remove southbound Bayfront Expy channelizing island to provide space for shoulder-running bus lane and implement a right-turn overlap phase. • Modify traffic signal to accommodate channelized right turn modifications. • Install Transit Signal Priority (TSP) for queue jumps by shoulder-running buses.
9	Bayfront Expy	Bayfront Expy Multimodal Corridor Project	<ul style="list-style-type: none"> • Install shoulder-running peak hour bus lane on Bayfront Expy. • Install Transit Signal Priority (TSP) at signalized intersections.
10	Willow Rd from Dumbarton Rail Corridor to Hamilton Ave	Willow Rd Corridor Improvement Project - Facebook Mitigation	<ul style="list-style-type: none"> • Construct Class I Multi-Use Path on north side of Willow Rd.
11	Bayfront Expy	Dumbarton Corridor Project	<ul style="list-style-type: none"> • Implement Dumbarton Transportation Corridor Study alternative with improved mixed flow and managed lane connections, including grade separations with revised access at University Ave, Willow Rd, Chilco St, Marsh Rd, and Chrysler Dr. to include City and Neighborhood involvement in the project development.
12	Dumbarton Rail	Dumbarton Corridor Project	<ul style="list-style-type: none"> • Support reactivation of Dumbarton Rail service between East Bay and Peninsula.
13	Dumbarton Rail Corridor Trail from Marsh Rd to University Ave	Dumbarton Corridor Project	<ul style="list-style-type: none"> • Construct Class I Multi-Use Path.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
14	Marsh Rd from Bay Rd to Scott Dr	Marsh Rd Bicycle Network Improvement	<ul style="list-style-type: none"> Bay Rd to Florence St: Establish Class II Buffered Bicycle Lanes in both directions (requires removal of parking on the north side of street). Florence St to Scott Dr: Establish Class II Buffered Bicycle Lanes in both directions. Remove or modify existing median at Scott Dr.
15	Constitution Dr from Chrysler St to Independence Dr	Constitution Dr Bicycle Network Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lane.
16	Constitution Dr & Chrysler Dr	Menlo Gateway Mitigation	<ul style="list-style-type: none"> Recommended Improvements: Install westbound Chrysler Dr left turn lane (widening of Chrysler Dr west of Constitution Dr may be required pending final design). Install crosswalks across all legs. Funded Improvements: Install traffic signal. Add a lane and modify configuration of eastbound Chrysler Dr to accommodate shared thru/turn lanes
17	Chrysler Dr & Jefferson Dr	Chrysler Ave Intersection Improvements	<ul style="list-style-type: none"> Install traffic signal.
18	Chrysler Dr & Independence Dr	Chrysler Ave Intersection Improvements	<ul style="list-style-type: none"> Install traffic signal.
19	Constitution Dr from Independence Dr to Chilco St	Constitution Dr Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases as the properties on Constitution Dr are redeveloped.
20	Jefferson Dr from Jefferson Court to Constitution Dr	Jefferson Dr Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases as the properties on Jefferson Dr are redeveloped. Establish Class II Bicycle Lanes (requires removal of on-street parking)

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NO.	LOCATION	PROJECT	PROJECT DETAILS
21	Chilco St & Constitution Dr	Facebook Mitigation	<ul style="list-style-type: none"> • Install traffic signal and two westbound Chilco St left turn lanes. Install eastbound Chilco St left turn lane. • Widen Chilco St from Constitution Dr to Bayfront Expy to five lanes (three westbound and two eastbound).
22	Facebook from Chilco St to Bicycle and Pedestrian Crossing	Facebook Mitigation	<ul style="list-style-type: none"> • Construct Class I Multi-Use Path.
23	Hamilton Ave from Chilco St to Market Pl	Facebook Mitigation	<ul style="list-style-type: none"> • Designate Class III Bicycle Route.
24	Chilco St from Hamilton Ave to Ivy Dr	Facebook Mitigation	<ul style="list-style-type: none"> • Establish Class II Bicycle Lanes from Dumbarton Rail Right-of-Way to Hamilton Ave. • Designate Class III Bicycle Route from Hamilton Ave to Ivy Dr.
25	Ivy Dr from Willow Rd to Market Pl	Belle Haven Bicycle Network Improvement Project	<ul style="list-style-type: none"> • Designate Class III Bicycle Route.
26	Hamilton Ave from Willow Rd to Chilco St	Belle Haven Bicycle Network Improvement Project	<ul style="list-style-type: none"> • Designate Class III Bicycle Route. • Implement Bicycle Boulevard design features.
27	Ivy Dr from Willow Rd to Chilco St	Ivy Dr Pedestrian Network Improvement	<ul style="list-style-type: none"> • Widen sidewalks on both sides of Ivy Dr and narrow existing median (requires coordination with SFPUC).

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NO.	LOCATION	PROJECT	PROJECT DETAILS
28	Newbridge St from Market Pl to Carlton Ave	Newbridge St Pedestrian Network Improvement	<ul style="list-style-type: none"> Widen sidewalks on both sides of the roadway by narrowing the travel lanes.
29	Pierce Rd	Pierce Rd Multimodal Improvements	<ul style="list-style-type: none"> Remove travel land and change configuration from two-way to one-way street. Install separated bike lanes to calm traffic and enhance connection to US 101 Ringwood pedestrian overcrossing.
30	Adams Dr from O'Brien Dr to University Ave	Adams Dr Pedestrian and Bicycle Network Improvement	<ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases, as the properties are redeveloped. Establish Class II Bicycle Lanes.
31	University Ave & Adams Dr	University Ave & Adams Dr Intersection Improvements	<ul style="list-style-type: none"> Install traffic signal (requires coordination with City of East Palo Alto and Caltrans).
32	O'Brien Dr from Willow Rd to University Ave	O'Brien Dr Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk on both sides of the roadway, to be completed in phases, as the properties on O'Brien Dr are redeveloped. Establish Class II Bicycle Lanes (requires removal of on-street parking).
36	Willow Rd b/w Bayfront Expy & US 101	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Buses allowed to use existing right turn lane at O'Brien location for queue jump with TSP. Implement peak hour left-turn restrictions.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
37	Willow Rd from Dumbarton Rail Corridor to Newbridge Rd	Willow Rd Corridor Improvement Project – Alternative C	<ul style="list-style-type: none"> • Install eastbound Willow Rd one-way Class IV separated bikeway between Hamilton Ave and US 101 Willow Rd interchange. • Install westbound Willow Rd one-way Class IV separated bikeway between Dumbarton Rail Corridor and US 101 Willow Rd interchange.
38	Willow Rd & Hamilton Ave	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> • Modify southbound Hamilton Ave to shared left-thru lane and time-of-day limited right turn lane. • Implement evening peak period parking restriction on west side of southbound Hamilton Ave. • Modify northbound and southbound Hamilton Ave to split phase.
39	Willow Rd & Ivy Dr	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> • Install right-turn overlap on southbound Ivy Dr and restrict eastbound Willow Rd U-turns. • Widen pedestrian refuge island to match crosswalk width on east Willow Rd leg. • Convert existing crosswalks to high-visibility crosswalks. • Extend pedestrian crossing time.
40	Willow Rd & O'Brien Dr	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> • Install curb ramps at all corners of intersection. • Install high-visibility crosswalks on all legs and add pedestrian signals (including new crosswalks crossing Willow Rd). • Install bulb-outs into O'Brien Dr on northeast and southeast corners.
41	Willow Rd & Newbridge St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> • Convert existing crosswalks to high-visibility crosswalks. • Modify signal timing to lead-lag operation on Newbridge St with the leading left-turn phase on the southbound Newbridge St approach and lagging left-turn phase on the northbound Newbridge St approach.
42	Willow Rd & US 101 Interchange	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> • Reconstruct interchange to partial cloverleaf design with Class IV Separated Bikeway and Class II Bicycle Lanes and install two new traffic signals (Under Construction).
43	Willow Rd & Bay Rd	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> • Modify southbound Bay Rd to two left turn lanes and a right-turn lane. • Narrow existing median on north Bay Rd leg. • Install westbound Willow Rd right-turn lane. Install high-visibility crosswalk on east Willow Rd leg with curb ramps. • Install pedestrian signals.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
44	Willow Rd from Bay Rd to O'Keefe St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Bicycle Lane on eastbound Willow Rd from O'Keefe St to Bay Rd, connecting to US 101 Willow Rd interchange bicycle facilities. Establish Class II Bicycle Lane on westbound Willow Rd from Bay Rd to Durham St. Remove or reconstruct existing median to allow for Class II Bicycle Lanes where right-of-way is insufficient.
45	Willow Rd & Coleman Ave	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install right-turn lane on southbound Coleman Ave approach (requires removal of on-street parking for 150 feet along the west side of Coleman Ave). Refresh decorative crosswalk. Install bike detection on the southbound Coleman Ave approach. Evaluate protected-permitted left-turn phasing on Willow Road.
46	Willow Rd & Gilbert Ave	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install a painted median and vertical traffic control device (e.g. planters, bollards) around heritage oak on Gilbert Ave 150 feet north of Willow Rd. Prohibit parking for a distance of 40 feet to the north and south of the oak tree on the east side of Gilbert Ave. Restrict on-street parking on Gilbert Ave South of Willows Rd during school hours. Evaluate protected-permitted left-turn phasing on Willow Road.
47	Willow Rd & Middlefield Rd	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Remove westbound Willow Rd channelized right turn, and modify signal to include westbound right-turn overlap. Modify traffic signal to include protected northbound and southbound left-turn phasing. Restripe northbound Middlefield Rd approach to include one left-turn lane, one through lane, one bike lane, and one right-turn lane. Restripe southbound Middlefield Rd approach to include one left-turn lane, one through lane, one through-right turn lane, and one bike lane. Extend bike box on northbound Middlefield Rd approach to encompass both the left-turn lane and the through lane. Install bike boxes on the eastbound and westbound Willow Rd approaches. Construct pedestrian facilities on east side of Middlefield Rd between Woodland Ave and Willow Rd.
49	Willow Rd	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Install new green bike paint treatments from Bayfront Expy to Bay Rd and refresh existing green bike paint treatments from Bay Rd to Middlefield Rd at interaction zones on Willow Rd.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
50	Willow Rd between Bayfront & Newbridge St	Willow Rd Corridor Improvement Project	<ul style="list-style-type: none"> Work with Caltrans to modify signal timing at Caltrans intersections to include All-Red clearance time.
51	Bay Rd from Del Norte Ave to Ringwood Ave	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Install sidewalk along east side of Bay Rd to provide access to Flood County Park.
52	Sonoma Ave & Oakwood Pl	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Install compact roundabout or neighborhood traffic circle (or other vertical delineator) around existing tree to increase visibility.
53	Bay Rd & Ringwood Ave-Sonoma Ave	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Install traffic signal. Convert Bay Rd/Ringwood Ave to four-legged intersection by converting the west legs Sonoma Ave and Ringwood Ave to one-way couplets with Ringwood Ave serving eastbound traffic and Sonoma Ave serving westbound traffic. Add left-turn lanes, as deemed necessary during design phase, on eastbound Ringwood Ave and northbound Bay Rd approaches (requires full use of public right-of-way and this would require the removal of existing landscaping and the relocation of existing utilities).
54	Ringwood Ave from Bay Rd to Van Buren Rd	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Designate Class III Bicycle Route. Implement Bicycle Boulevard design features.
55	Van Buren Rd from Iris Ln to Bay Rd	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Designate Class III Bicycle Route.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
56	Bay Rd from Van Buren Rd to Willow Rd	Flood Park Triangle Improvement Project	<ul style="list-style-type: none"> Upgrade existing off-street path to Class I Multi-Use Path along west side of Bay Rd and integrate into proposed bicycle improvements on Willow Rd (requires coordination with the Veterans Administration Medical Center).
57	Menalto Ave from US 101 to O'Keefe St	The Willows Bicycle Network Improvement Project	<ul style="list-style-type: none"> Designate Class III Bicycle Route. Implement Bicycle Boulevard design features.
58	Durham St from Willow Rd to Menalto Ave	The Willows Bicycle Network Improvement Project	<ul style="list-style-type: none"> Designate Class III Bicycle Route. Implement Bicycle Boulevard design features.
59	The Willows	The Willows Bicycle Network Improvement Project	<ul style="list-style-type: none"> Designate Class III Bicycle Route. Implement Bicycle Boulevard design features on Gilbert Ave, Pope St, Walnut/O'Connor streets, O'Keefe St, and O'Connor St. Construct Class I Multi-Use Path from Willow Oaks Park to Pope Street (coordinate with Ravenswood School District).
61	Coleman Ave from Ringwood Ave to Willow Rd	Menlo Oaks Bicycle Network Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes from Willow Rd to City Limits (requires removal of parking on one side of the street). Coordinate with San Mateo County between City Limits and Ringwood Ave regarding bicycle facilities.
62	Seminary Dr from Middlefield Rd to Santa Monica Ave	Menlo Oaks Bicycle Network Improvement	<ul style="list-style-type: none"> Designate Class III Bicycle Route.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
63	Middlefield Rd & Ravenswood Ave	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Remove eastbound Ravenswood Ave channelized right-turn lane, install right-turn overlap phase, modify signal timing. Install crosswalk and cross-bike markings on north Middlefield Rd leg, install bike signal. Construct “jughandle” bicycle left-turn on east side of Middlefield Road to allow bicycle left-turns onto Ravenswood Ave. Install “bicycle leaning rail” with push button for bicycles to initiate crossing phase on “jughandle” left-turn. Coordinate with Town of Atherton.
64	Middlefield Rd & Ringwood Ave-D St	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Remove southbound Middlefield Rd channelized right turn. Reconstruct curb ramp and reduce curb radius on northwest corner. Replace crosswalks on north and west legs. Install Two-Stage Left-Turn Queue Boxes for cyclists traveling from Middlefield Rd to Ringwood Ave.
65	Middlefield Rd & Linfield Dr-Santa Monica Ave	Middlefield Rd Safety Improvements	<ul style="list-style-type: none"> Install Pedestrian Hybrid Beacon (HAWK) or traffic signal with emergency pre-emption on Middlefield Rd at Linfield Dr-Santa Monica Ave. Install "Keep Clear" striping at Menlo Fire Protection District Station No. 1. Close sidewalk/pathway gap on eastern side of Middlefield Rd between Linfield Dr and Santa Monica Ave. Coordinate with Menlo Fire Protection District.
66	Santa Monica Ave from Middlefield Rd to Nash Ave	Santa Monica Ave Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk or asphalt pathway on the north side of Santa Monica Ave.
67	Santa Monica Ave from Coleman Ave to Middlefield Rd	Santa Monica Ave Bicycle Network Improvement	<ul style="list-style-type: none"> Designate Class III Bicycle Route.
68	Linfield Dr from Waverley St to Laurel St	Linfield Oaks Bicycle Network Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
69	Middlefield Rd from Willow Rd to Palo Alto Ave	Middlefield Rd Multimodal Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (City has a plan line to allow for widening as properties are redeveloped). Coordinate with future potential Peninsula Bikeway planning efforts.
70	Middlefield Rd & Woodland Ave	Middlefield Rd Multimodal Improvements	<ul style="list-style-type: none"> Install a traffic signal. Install crosswalks on all intersection approaches. Install bicycle crossing improvements to connect Woodland Ave, Middlefield Rd, and Palo Alto Ave.
71	Laurel St from Encinal Ave to Glenwood Ave	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Install sidewalk or asphalt pathway on western side of Laurel St.
72	Laurel St & Glenwood Ave	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Install traffic signal. Coordinate with Town of Atherton.
74	Ravenswood Ave & Laurel St	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Recommended Improvements: Remove parking south of Ravenswood Ave on west side of Laurel St for approximately 150 feet and shift northbound lanes to establish a Class II Bicycle Lane. Widen and modify eastbound Ravenswood Ave to shared thru-left lane and a right turn lane. Upgrade existing crosswalks to high-visibility. Funded Improvements: Modify southbound Laurel St to a left-turn lane and a shared thru-right lane. Maintain existing Class II Bicycle Lanes. Remove parking on west side of Laurel St north of Ravenswood Ave for approximately 100 feet.
75	Laurel St from Burgess to Willow	Laurel St Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking on both sides of the street).

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NO.	LOCATION	PROJECT	PROJECT DETAILS
76	Garwood Way from Encinal Ave to Oak Grove Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.
77	Alma St from Oak Grove Ave to Ravenswood Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Convert angled on-street parking on both sides of street to parallel parking; designate some parking spaces as passenger loading zones from 6:30 a.m. to 7:30 p.m. weekdays and from 9 a.m. to 4 p.m. Saturdays and Sundays; unrestricted time limit parking otherwise; install at least three unrestricted ADA spaces. Remove duplicate driveway curb cuts. Designate Class III Bicycle Route.
78	Downtown Caltrain Crossings	Downtown Mobility Improvements	<ul style="list-style-type: none"> Safety improvement to remove the at-grade railroad crossings on Ravenswood Avenue, Oak Grove Avenue, and Glenwood Avenue by partially raising the Caltrain tracks and partially lowering the roadways. Establish Class II Bicycle Lanes on Ravenswood Avenue from Noel Drive to El Camino Real.
79	Alma St from Ravenswood Ave to Burgess Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install sidewalk on the east side of Alma St to connect to Burgess Park path. Upgrade crosswalks to high-visibility.
80	Burgess Park	Downtown Mobility Improvements	<ul style="list-style-type: none"> Widen existing path to meet current Class I Multi-Use Path design standards.
81	Middle Ave Caltrain Crossing	Downtown Mobility Improvements	<ul style="list-style-type: none"> Construct pedestrian and bicycle crossing at El Camino Real/Middle Ave intersection. Connect to future plaza, to be funded and constructed via private development (Middle Plaza). Install pedestrian crossing improvements across Alma St from Caltrain Crossing to Burgess Park.
82	Encinal Ave from Garwood Wy to El Camino Real	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking on both sides of the street).

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NO.	LOCATION	PROJECT	PROJECT DETAILS
83	Merrill St from Ravenswood Ave to Oak Grove Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.
84	El Camino Real within City Limits	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Establish Class II Buffered Bicycle Lanes (requires removal of parking, reconstruction of median, and intersection configuration changes).
85	El Camino Real & Encinal Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Transition bicycle lane into bicycle route and install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane. Install crosswalk on south El Camino Real leg. Upgrade all crosswalks to high-visibility. Replace existing southbound El Camino Real shared thru-right turn lane with right-turn lane.
86	El Camino Real & Glenwood Ave-Valparaiso Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Restripe crosswalk on south El Camino Real leg to straighten. Upgrade all crosswalks to high visibility. Transition bicycle lane into bicycle route and install green-backed sharrows in right-turn lane and green conflict striping approaching the right-turn lane on northbound El Camino Real. Remove median on north El Camino Real leg for a distance of approximately 300 feet. Install bicycle lane line extensions through intersection in the eastbound Valparaiso Ave and westbound Glenwood Ave directions.
87	El Camino Real & Oak Grove Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Lengthen existing medians to install pedestrian refuge islands on El Camino Real legs. Upgrade crosswalks on all legs to high-visibility. Transition bicycle lane into bicycle route and install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane on northbound and southbound El Camino Real.
88	El Camino Real & Santa Cruz Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Transition bicycle lane into bicycle route; install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane on southbound El Camino Real

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NO.	LOCATION	PROJECT	PROJECT DETAILS
89	El Camino Real & Ravenswood Ave-Menlo Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Widen sidewalk facility to 15 feet to provide a Class I Multi-Use Path on east side of El Camino Real. Install northbound El Camino Real right-turn overlap and bike signal; prohibit right-turn on red movements. Remove median on south leg of El Camino Real and install an additional northbound El Camino Real right-turn lane. Transition bicycle lane into bicycle route and install green-backed sharrows on right-turn lane and green conflict striping approaching the right-turn lane on southbound El Camino Real. Establish Class II Bicycle Lanes on westbound Ravenswood Ave approach (requires fire hydrant relocation and widening).
90	El Camino Real & Live Oak Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install bicycle lane line extensions through intersection in the southbound El Camino Real directions. Install high-visibility crosswalk across Live Oak Ave.
91	El Camino Real & Roble Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install bicycle lane line extensions through intersection in the northbound and southbound El Camino Real directions. Install high-visibility crosswalk on north El Camino Real leg.
92	El Camino Real & Middle Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Recommended Improvements: Continue buffered bicycle lane striping through intersection. Install bicycle crossing improvements in the eastbound and westbound Middle Ave directions. Funded Improvements: Lengthen existing median on north leg of El Camino Real to install pedestrian refuge island. Install high-visibility crosswalk on south El Camino Real leg. Upgrade all crosswalks to high visibility. Install southbound left-turn lane. Install median on south El Camino Real leg.
93	El Camino Real & College Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install high-visibility crosswalk across College Ave.
94	El Camino Real & Partridge Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install high-visibility crosswalk across Partridge Ave.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
95	El Camino Real & Cambridge Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Recommended Improvement: Continue buffered bicycle lane striping through intersection. Funded Improvements: Lengthen existing medians to install pedestrian refuge islands on north and south El Camino Real legs. Install crosswalk on south El Camino Real leg. Upgrade all crosswalks to high-visibility.
96	El Camino Real & Harvard Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install high-visibility crosswalk across Harvard Ave.
97	El Camino Real & Creek Dr	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Install "bulb-outs" and curb ramps on northwest and southwest corners of intersection. Install high-visibility crosswalk on west Creek Dr leg. Install ADA compliant curb ramp for southbound bridge crossing.
107	Oak Grove Ave from Middlefield Rd to Crane St	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on Oak Grove Ave between Crane St and University Dr (requires parking removal on the north side of the street).
108	Oak Grove Ave & Hoover St	Downtown Mobility Improvements	<ul style="list-style-type: none"> Remove on-street parking space located on Oak Grove Ave in the middle of the intersection on the south side of Oak Grove Ave. Install high-visibility crosswalk on north Hoover St leg.
109	Oak Grove Ave & Chestnut St	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install high-visibility crosswalk across south Chestnut St leg.
110	Oak Grove Ave & University Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Evaluate the installation of a westbound Oak Grove Ave left turn lane during Bicycle Lane design process. Install high-visibility crosswalks on all three legs of intersection.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
111	Santa Cruz Ave between El Camino Real and University Dr	Downtown Mobility Improvements	<ul style="list-style-type: none"> Convert all angled parking to parallel on-street parking. Install parklets on each block. Designate at least 60 feet toward flexible curb use on each block face for passenger loading and commercial loading with complementary time restrictions for each activity. Widen sidewalks and update streetscape design standards.
112	Santa Cruz Ave & University Dr (North)	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install traffic signal. Install a bike boxes on the north and west legs.
113	University Dr & Menlo Ave (South)	Downtown Mobility Improvements	<ul style="list-style-type: none"> Remove westbound Menlo Ave right turn lane. Install bulb-out at northeast corner into Menlo Ave. Replace crosswalk with straightened crossing.
114	University Dr & Valparaiso Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Convert existing crosswalks to high-visibility crosswalks.
115	University Dr & Florence Ln	Downtown Mobility Improvements	<ul style="list-style-type: none"> Install high-visibility crosswalk.
116	University Dr & Middle Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Convert existing crosswalks to high-visibility crosswalks.
117	Middle Ave from El Camino Real to University Dr	Middle Ave Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of on-street parking on one side of the street).

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NO.	LOCATION	PROJECT	PROJECT DETAILS
118	Middle Ave from University Dr to Olive St	Middle Ave Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of on-street parking on one side of the street). Install new sidewalk or replace existing asphalt pathway on both sides of Middle Ave, to be completed in phases as properties are redeveloped.
119	Middle Ave & Blake St	Middle Ave Mobility Improvements	<ul style="list-style-type: none"> Install RRFB and reconstruct curb ramp and landing area.
120	Blake St from Middle Ave to College Ave	Allied Arts Neighborhood Project	<ul style="list-style-type: none"> Install sidewalk or asphalt pathway on at least one side of Blake St.
123	Arbor Rd from Valparaiso Ave to Santa Cruz Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install asphalt pathway on the north side of Arbor Rd.
124	San Mateo Dr from Valparaiso Ave to City Limit	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.
125	Santa Cruz Ave & San Mateo Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install more prominent wayfinding signage for bike bridge. Install bulb-out on southwest corner into San Mateo Dr. Install high-visibility crosswalk on south San Mateo Dr leg.
126	Wallea Dr from San Mateo Dr to San Mateo Drive	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
127	San Mateo Dr & Middle Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Recommended Improvements: Install bulb-outs on the northwest and northeast corners into Middle Ave. Install a high visibility crosswalk across the east leg. Install curb ramps on the northeast and southeast corners. Move existing curb ramp into extended area. Restripe existing high-visibility crosswalk to reduce crossing distance. Funded Improvement: Install Rapid Rectangular Flashing Beacon (RRFB).
128	Elder Ave from Valparaiso Ave to Elder Ct	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Restrict on-street parking on the north side of Elder Ave during school hours to provide a clear walkway.
129	Olive St from Oak Ave to Santa Cruz Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes between Santa Cruz Ave and Middle Ave (requires parking removal on at least one side of the street). Designate Class III Bicycle Route between Middle Ave and Oak Ave. Implement Bicycle Boulevard design features. Install High visibility crosswalk across the north leg of the intersection at Stanford Ave and Olive Ave.
130	Santa Cruz Ave & Sharon Rd-Oakdell Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Evaluate relocation of existing crosswalk.
131	Oakdell Dr from Olive St to Santa Cruz Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route. Implement Bicycle Boulevard design features.
132	Santa Cruz Ave from Olive St to Orange Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install new sidewalk or replace existing asphalt pathway on both sides of Santa Cruz Ave, to be completed in phases as properties are redeveloped.
133	Santa Cruz Ave & Orange Ave-Avy Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install traffic signal. Reduce curb radius at southeast corner of intersection. Bring bicycle lane to the left of the northbound Santa Cruz Ave right-turn lane.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
134	Avy Ave from Santa Cruz Ave to Monte Rosa Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (parking removal required). Coordinate with County on bicycle facility connectivity.
135	Harkins Ave from Altschul Ave to 170 feet east of Altschul Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Close pedestrian infrastructure gap on northern side of Harkins Ave with sidewalk or asphalt pathway.
136	Sharon Rd from Altschul Ave to Alameda de las Pulgas	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install sidewalk on the north side of Sharon Rd (requires parking removal on one side of the street).
137	Altschul Ave & Harkins Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install curb ramp at southeast corner with extended curb into Altschul Ave. Extend curb into Altschul Ave at existing ramp at southwest corner such that resulting path of travel is 24 feet across south leg of Altschul Ave.
138	Altschul Ave from Avy Ave to Sharon Rd	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate southbound Class III Bicycle Route. Establish contraflow Class II Bicycle Lane northbound (may require additional pavement).
139	Sharon Rd from Sharon Park Dr to Alameda de las Pulgas	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.
140	Sharon Park Dr from Klamath Dr to Eastridge Ave	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Restrict on-street parking on Sharon Park Dr during school hours to provide a clear walkway.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
141	Monte Rosa Dr from Avy Ave to Sharon Park Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Designate Class III Bicycle Route.
142	Oak Ave from Oak Knoll Ln to Sand Hill Rd	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Restrict on-street parking on the east side of Oak Ave during school hours to provide a clear walkway.
143	Sand Hill Rd & Oak Ave	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Reconstruct northwest corner and move pedestrian signal pole and signal. Relocate pole for westbound traffic signal to meet ADA requirements. Increase pedestrian crossing time. Convert existing north Oak Ave leg crosswalk to high-visibility. Install wayfinding signage to trail. Install high-visibility crosswalks on west Sand Hill Rd leg. Remove finger median located within intersection. Install two-stage left-turn boxes on westbound Sand Hill Rd and southbound Oak Ave. Install two-way bicycle signals on northwest and southwest corners. Prohibit southbound Oak Ave and westbound Sand Hill Rd right-turns on red.
144	Sand Hill Rd & Santa Cruz Ave	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Install high-visibility crosswalks. Install LED sign for southbound Santa Cruz Ave right-turn on red restriction (requires coordination with San Mateo County).
145	Sand Hill Rd & Santa Cruz Ave Pedestrian Network Improvements	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Repair existing asphalt path along the south side of Sand Hill Rd for a length of 400 feet west of Santa Cruz Ave. Reconstruct path east of Santa Cruz Ave, south of Sand Hill Rd to meet current Class I Multi-Use Path design standards.
146	Sand Hill Rd & Sharon Park Dr	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Upgrade existing crosswalks to high-visibility. Install high-visibility crosswalk and pedestrian signal heads on west leg of Sand Hill Rd. Reconstruct nose in front of traffic signal on east Sand Hill Rd leg to provide clear crosswalk.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
147	Sand Hill Rd & Branner Dr	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Widen pedestrian refuge islands to match crosswalk widths on north and south Branner Dr legs. Reconstruct nose in front of traffic signal on east Sand Hill Rd leg to provide clear crosswalk. Upgrade crosswalks to high-visibility.
148	Sand Hill Rd & Saga Wy	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Widen pedestrian refuge islands to match crosswalk widths on north and south Saga Wy legs. Reconstruct nose in front of traffic signal on west Sand Hill Rd leg to provide clear crosswalk. Reduce curb radius of southwest and southeast corners and reconstruct curb ramps. Upgrade existing crosswalks to high-visibility.
149	Sand Hill Rd & Monte Rosa Wy	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Reconstruct channelizing island to match pedestrian refuge area to width of crosswalk on Monte Rosa Dr leg. Upgrade crosswalks to high-visibility.
150	Sand Hill Rd & 2725-2775 Sand Hill Rd	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Upgrade crosswalks to high-visibility.
151	Sand Hill Rd & 2882-2884 Sand Hill Road	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Upgrade crosswalks to high-visibility.
152	Sand Hill Rd & I-280 Northbound Ramps	Sand Hill Road Corridor Project	<ul style="list-style-type: none"> Modify the signal-timing plan during the p.m. peak hour to increase the maximum allocation of green time to the westbound Sand Hill Rd approach. Add northbound right-turn lane on the I-280 northbound off-ramp.
153	Citywide	Establish Bike Repair Workshop Program	<ul style="list-style-type: none"> Set up bike repair workshops to educate residents on how to repair and maintain their bicycles
154	Citywide	Prepare Citywide Bicycle Map	<ul style="list-style-type: none"> Prepare citywide bike map to provide residents and visitors with a big picture look of prioritized bicycle routes characterized by low to moderate stress levels throughout the City

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NO.	LOCATION	PROJECT	PROJECT DETAILS
155	Citywide	Establish Bike-Friendly Business Program	<ul style="list-style-type: none"> Provide incentives to bike-friendly businesses such as city sponsored bicycle facilities, quarterly bicycle roundtables with business owners, etc.
156	Citywide	Visible Bicycle Counter	<ul style="list-style-type: none"> Install physical/visible bike counter to provide real time data on the number of cyclists traveling along the roadway
157	Citywide	Enhanced Bicycle and Pedestrian Detection	<ul style="list-style-type: none"> Install bicycle and pedestrian detection at intersections to efficiently serve residents and visitors traveling via alternative modes Adjust signal phasing and timing to include bike and pedestrian crossing time to safely accommodate traveling via alternative modes
158	Citywide	Adaptive Traffic Control System Operations & Maintenance	<ul style="list-style-type: none"> Adaptive Traffic Control System O&M to better serve residents and guests traveling throughout the city. Adaptive signaling utilizes real-time data at signalized intersections rather than conventional pre-programmed, daily signal timing schedules.
159	Citywide	Automated Traffic Signal Performance Measurement	<ul style="list-style-type: none"> Automated Traffic Signal Performance Measurement (ATSPM), provides way to collect data for use in evaluating performance measures. Data from the ATSPM software is used to provide more efficient signal timing plans, targeted repairs and maintenance resulting in increased safety and improved traffic operations.
160	Citywide	Create Policy Advocating for Variable Pricing on the Dumbarton Bridge	<ul style="list-style-type: none"> Create policy to advocate congestion/variable pricing on the Dumbarton Bridge. Congestion/variable pricing would incorporate a pricing scheme which would charge higher prices during periods of higher traffic demand, and lower prices during periods of less traffic demand. Pricing schemes as such have the potential to encourage motorists to use alternative modes during peak periods.
161	Citywide	ITS Infrastructure Operations & Maintenance	<ul style="list-style-type: none"> Intelligent Transportation Systems infrastructure operations & maintenance, ensures upkeep and up-to-date signal systems to preserve acceptable traffic conditions throughout Menlo Park. Examples of ITS infrastructure include vehicle counters, connected parking garages, variable message displays, real-time transit vehicle arrival.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
162	Citywide	Signal Phase and Timing (SPaT) Data Dissemination	<ul style="list-style-type: none"> Signal Phase and Timing (SPaT) Data Dissemination, provides real-time data that equipped (connected) vehicles can utilize to control speeds and improve flow along boulevards, thoroughfares and highways to avoid “stop-and-go” travel patterns on major roadways.
163	Citywide	Bluetooth Readers	<ul style="list-style-type: none"> The installation of bluetooth readers throughout the city could collect and analyze data via mobile devices, connected and autonomous vehicles,
164	Citywide	Transportation Data Hub	<ul style="list-style-type: none"> A Transportation Data Hub would allow city staff to more accurately track projects and their impacts. The data hub would also provide decision makers with context
165	Citywide	Update NTMP Guidelines	<ul style="list-style-type: none"> Update Neighborhood Traffic Management Program guidelines to make resident requests for traffic calming more streamlined
166	Citywide	Progressive Safety Enforcement	<ul style="list-style-type: none"> Work with local law enforcement agencies to establish a program to increase spot specific enforcement of potentially unsafe behavior
167	Citywide	Establish Shared Mobility Program	<ul style="list-style-type: none"> Adopt an ordinance and permitting process for dockless bikeshare providers and other rolling modes, building on processes put in place by other mid-peninsula cities
168	Citywide	Incentivize Unbundled Residential Parking	<ul style="list-style-type: none"> Modify Municipal Code parking requirements to allow for appropriate parking reductions for developments which demonstrate adequate parking supply citywide
169	Citywide	Establish Carshare Program	<ul style="list-style-type: none"> Prepare Request for Proposal (RFP) to disseminate to carshare services or form public-private partnership with carshare services to identify locations and spaces for implementation
170	Citywide	Establish Voucher Program for	<ul style="list-style-type: none"> Explore voucher system for first-mile/last-mile connections to transit, including shared mobility (car share, bike share, ride share, other roller share)

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NO.	LOCATION	PROJECT	PROJECT DETAILS
		Shared Mobility Services from Transit	
175	Downtown	Implement Paid and Technology-Driven Parking Management	<ul style="list-style-type: none"> Monitor downtown parking and assess best practices such as dynamic pricing schemes and residential parking permits
176	Citywide	Willow Road Relinquishment	<ul style="list-style-type: none"> Evaluate relinquishment of Willow Road by Caltrans from Bayfront Expressway to Bay Road
177	Citywide	Update street lights	<ul style="list-style-type: none"> Evaluate lighting levels at crosswalks and update street lights as necessary
178	Marsh Rd between Independence Dr to Scott Dr	Marsh Road Corridor Mobility Project	<ul style="list-style-type: none"> Establish Class II Bike Lanes. Implement Caltrans District 4 Bike Plan Project Number SM-101-X14 that calls for the construction of an additional bicycle and pedestrian bridge over US 101 north of Marsh Road.
179	Encinal Ave between Middlefield Ave and Train Tracks	Encinal Ave Corridor Mobility Project	<ul style="list-style-type: none"> Install sidewalk or pathway on the north side of the street (requires removal of parking and landscaping).
180	Encinal Ave & Laurel Way	Encinal Ave Corridor Mobility Project	<ul style="list-style-type: none"> Install a bulb-out on the southwest corner extending into Encinal Ave.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
181	Santa Cruz Ave & University Ave (south)	Santa Cruz Ave Corridor Mobility Project	<ul style="list-style-type: none"> Add a leading pedestrian phase at the intersection.
182	Sharon Rd & Eastridge Ave	Sharon Road Corridor Mobility Project	<ul style="list-style-type: none"> Stripe east curb face red. Install bulb-out on northeast corner extending into Sharon Rd. Install high visibility crosswalk across the west leg.
183	Sharon Rd & Sharon Park Dr	West Menlo Mobility Improvements	<ul style="list-style-type: none"> Install high visibility crosswalks on all legs. Install curb ramps at all corners.
184	Marsh Rd between Page St and Florence St	Marsh Rd Pedestrian Network Improvement	<ul style="list-style-type: none"> Install sidewalk on north side of Marsh Rd (requires the removal of parking and existing landscaping).
185	Dumbarton Rail Corridor	Dumbarton Corridor Project	<ul style="list-style-type: none"> Construct pedestrian and bicycle crossing over the Dumbarton Rail Corridor at the Onetta Harris Community Center from Chilco St to Terminal Ave.
186	Chrysler Dr between Constitution Dr and Commonwealth Dr	Chrysler Dr Bicycle Network Improvement	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes (requires removal of parking).
187	Ringwood Ave & Arlington Wy	Menlo-Atherton High School Safe Routes to School	<ul style="list-style-type: none"> Evaluate location for the construction of a new crosswalk across Ringwood Ave.

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NO.	LOCATION	PROJECT	PROJECT DETAILS
188	El Camino Real between Creek Dr and Cambridge Ave	El Camino Real Corridor Improvement Project	<ul style="list-style-type: none"> Widen existing sidewalk on east side of El Camino Real (requires relocation of existing landscaping).
189	University Dr between Oak Grove Ave and Santa Cruz Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on University Dr (requires removal of parking on at least one side of University Dr).
190	O'Connor St between Elliot Dr and City Limits	The Willows Pedestrian Network Improvement Project	<ul style="list-style-type: none"> Construct sidewalk on the east and west side of O'Connor St (requires removal of parking and landscaping)
191	Menalto Ave between O'Connor St and Haight St	The Willows Pedestrian Network Improvement Project	<ul style="list-style-type: none"> Construct sidewalk on the south side of Menalto Ave (requires removal of parking and landscaping)
193	Menlo Ave between University Dr and El Camino Real	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on Menlo Ave (requires the removal of on-street parking on one side of the street)
194	University Dr between Menlo Ave and Live Oak Ave	Downtown Mobility Improvements	<ul style="list-style-type: none"> Establish Class II Bicycle Lanes on University Dr (requires the removal of on-street parking on both sides of the street)

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NO.	LOCATION	PROJECT	PROJECT DETAILS
195	Citywide	Radar Speed Feedback Signs	<ul style="list-style-type: none">Establish Policies to identify locations and best practices for radar speed feedback sign installation
196	Citywide	Update Crosswalk Policy	<ul style="list-style-type: none">Update crosswalk policy to identify potential RRFB locations and priority
197	Citywide	Update Sharrow Policy	<ul style="list-style-type: none">Update sharrow policy to include toolkit and best practices for signage
198	Citywide	Safe Routes to School walk audits	<ul style="list-style-type: none">Evaluate pedestrian environment and identify potential improvements near all Menlo Park schools.

APPENDIX VII. ADDITIONAL RESOURCES

Appendix V. Additional Resources

Menlo Park Resources

Bicycling Resources	https://www.menlopark.org/1081/Bicycling
Climate Action Plan	https://www.menlopark.org/305/Climate-Action-Plan
Connect Menlo	https://www.menlopark.org/739/ConnectMenlo
General Plan	https://www.menlopark.org/146/General-Plan
Green Infrastructure Plan	https://www.menlopark.org/DocumentCenter/View/22043/Green-stormwater-infrastructure-plan
Safe Routes to School	https://www.menlopark.org/737/Safe-Routes-to-School-program
Shuttle Services	https://www.menlopark.org/156/Shuttle-services
Transportation Project Information	https://www.menlopark.org/160/Transportation-projects

County and Regional Resources

City/County Association of Governments	https://www.ccag.ca.gov/
Dumbarton Rail Corridor	https://www.menlopark.org/747/Dumbarton-rail-corridor
Caltrain	https://www.caltrain.com
Caltrans District 4 Bike Plan	https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-bike-plan
Metropolitan Transportation Commission	https://mtc.ca.gov/
Plan Bay Area 2050	https://www.planbayarea.org
SamTrans	https://www.samtrans.com/home.html
San Francisco Bay Trail	https://baytrail.org/
San Mateo Countywide Transportation Plan 2040	https://ccag.ca.gov/programs/countywide-transportation-plan/

