

DRAFT

# BEVERLY HILLS

## COMPLETE STREETS PLAN





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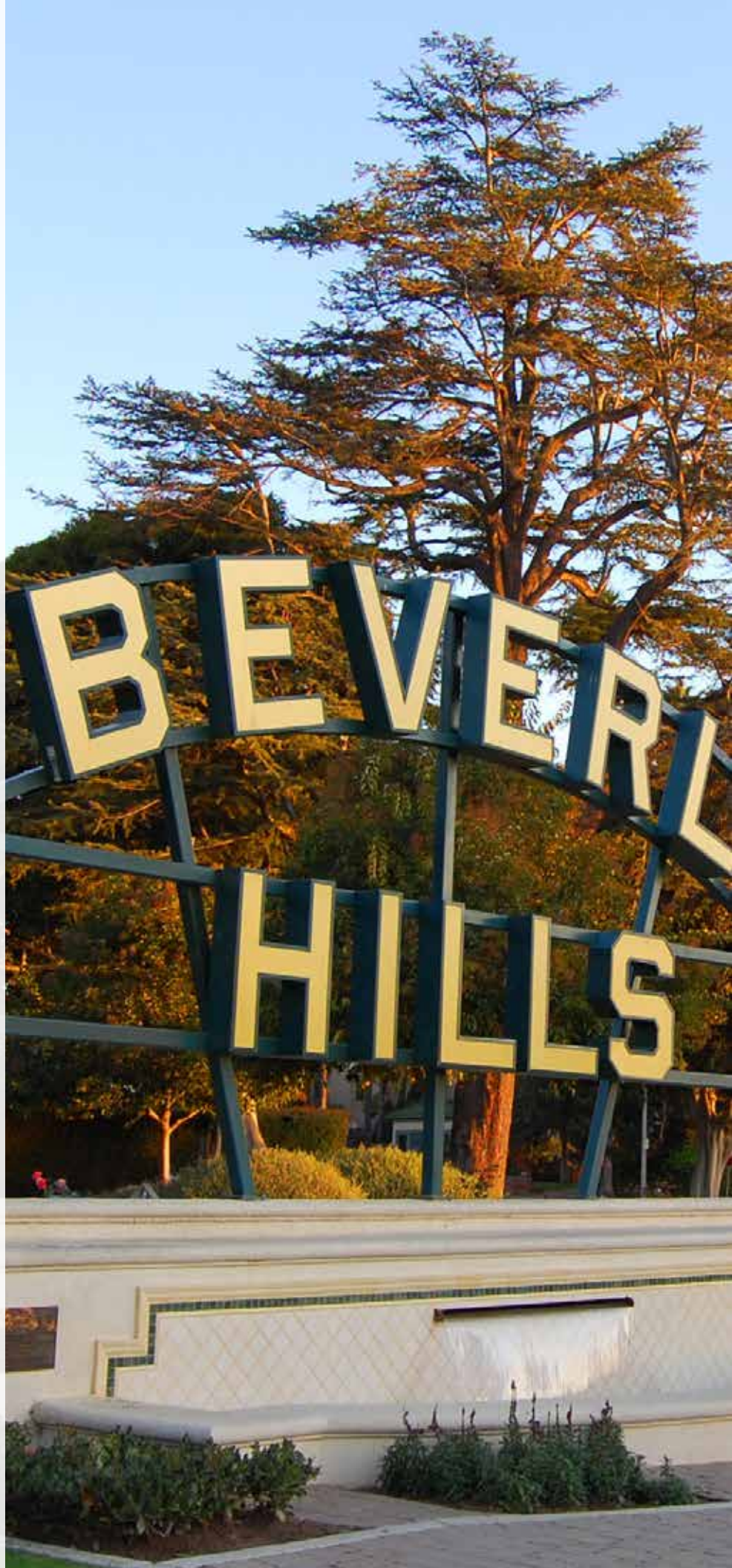
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# Purpose + Vision

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## Plan Purpose

Beverly Hills is renowned for its iconic shops, dining, parks, and landmarks that draw millions of visitors each year. It is a vibrant, innovative city home to hundreds of businesses and thousands of residents. What connects all of these people and destinations to one another? The sidewalks, streets, and soon, rails that make up the City's transportation network.

Beverly Hills has one of the highest densities of population and employment in Los Angeles County —the 5.7-square mile city has 35,000 permanent residents with a daytime population estimated between 150,000 and 200,000. This produces high volumes of traffic across all modes and often results in congestion. As a built-out city we cannot redesign the city grid from scratch to improve efficiency – but we can improve the network we have to be smarter and better balanced across mobility modes to increase access to the many destinations the city has to offer.



*We love living in the City of Beverly Hills. And we love to walk within our beautiful city.*

– SURVEY PARTICIPANT

The Beverly Hills Complete Streets Plan represents a year-long, community-driven planning effort. It presents a framework for programs, policies, and infrastructure projects that will make navigating the city easier, more enjoyable, and more equitable across modes: people on foot, on wheels, riding transit, and in cars.

Plan goals include:

- Upgrading the City to best-practice mobility standards across all modes, which will enhance safety for all
- Positioning the City for competitive implementation funding
- Preparing for the Metro Purple Line, by considering first/last mile connections
- Considering ways to prepare the City for connected and autonomous vehicles as we know them today, providing flexibility for new innovations on the horizon





## What Is A Complete Street?

There is no one-size-fits-all definition of a Complete Street, rather, it is a design approach that integrates people and place in the planning, design, construction, operation, and maintenance of our transportation networks. This results in a connected network where certain streets prioritize different modes of travel and helps to create streets that are accessible for people of all ages and abilities; balances the needs of different modes; and supports local land uses, economies, cultures, and natural environments.

Complete Streets and the tools they employ have been proven to yield positive economic, environmental, public health, and safety benefits. Complete Streets provide greater access to businesses, improve transportation options, increase physical activity, create new space for plantings and street trees, and holistically improve community livability.

In the pages that follow, you'll learn more about how these concepts can be put to work for Beverly Hills. This first chapter provides a high-level executive summary of the planning process and recommendations, and the technical report provides additional details about best practices, emerging trends, and implementation strategy.









## What We Heard

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*“I am encouraged to see the city is interested in improving walking, biking and public transportation - it would certainly improve the traffic problems.”*

– SURVEY PARTICIPANT



## Community Engagement

Community outreach and engagement have played a direct role in shaping the recommendations of this Plan. This planning effort came to be in part because of community advocates who have encouraged City leadership to develop policies and plans to improving the walkability and bikeability of Beverly Hills. Input and feedback from community members has been gathered in a variety of formats, including:

- Via the comments feature of the project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)), which received 65 comments through April, 2019
- By developing a video that explains the concept of a “complete street,” available on the project website and broadcast on local TV
- Via an online survey, which received 250 unique responses
- Through a variety of different events: three workshops, a pop-up event, and a walk audit. Each event was attended by between 20 and 60 people.

At the start of the planning effort, staff held a community workshop to establish and prioritize guiding values and goals, and was attended by 40 community members, Council and Commission Members. For those who were unable to attend that event in person, the online survey also provided an opportunity to provide input on the Plan’s values and goals.

### COMMUNITY VALUES

Values are broad statements that represent guiding ideas or approaches. Community members prioritized the plan’s values as follows:

- 1 **ENHANCE SAFETY** for all roadway users
- 2 Improve the overall **QUALITY OF LIFE** in Beverly Hills
- 3 **IMPROVE TRAFFIC FLOW** for all roadway users
- 4 Improve the **ENVIRONMENTAL HEALTH AND SUSTAINABILITY** of Beverly Hills
- 5 **INCREASE AND DIVERSIFY** transportation choices



## COMMUNITY GOALS

Goals are actionable and when met, result in tangible outcomes. Community members identified the following goals:

- **Improve and prioritize bike and pedestrian spaces**
  - Plan proposes 52.9 miles of new bikeways
  - Plan identifies 11.5 miles of pedestrian-focused corridors
- **Improve first/last mile connections to transit**
  - Provides bike and pedestrian network connections to destinations near Metro Purple Line stations
- **Harness the power of data**
  - Proposes flexible policies and programs that will allow the City to keep pace with emerging trends and future innovations
- **Reduce traffic congestion**
  - Recommends policies to better manage curb space
  - Recommends strategies to harness technology, such as signal system upgrades, preparation for connected/autonomous vehicles, and data governance
- **Incorporate green infrastructure**
  - Proposes to develop streetscape guidelines for Wilshire Boulevard as a first step to a city-wide approach to enhancing the public right-of-way







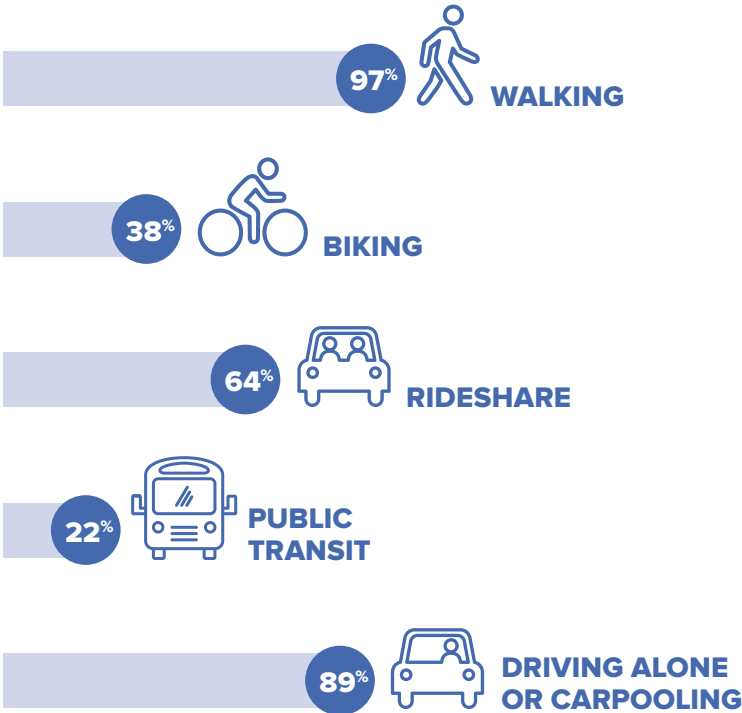
## Community Feedback Highlights

A project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)) served as a central resource for project information and a forum to submit comments and participate in the online survey. The goal of the survey was to gather input about the way Beverly Hills’ streets and networks function today and how community members want them to function in the future. Respondents were asked questions about each modality: walking, biking, public transit, driving, and the role of new/emerging technologies. Additionally, comments have been recorded and received via all in-person events and workshops.

Several major themes emerged among comments from the 250 unique survey responses:

### PEOPLE ARE ALREADY USING A VARIETY OF MODES TO NAVIGATE THEIR CITY.

When asked about the different ways people travel about the City, respondents answered that they always or sometimes use the following modalities when traveling within Beverly Hills:







### PEOPLE ARE EAGER FOR EASIER AND MORE MULTI-MODAL CHOICES.

When asked what would make it easier and more attractive to use different modes more frequently, we heard:

- **48%** of people would use transit more frequently if it connected to destinations of interest, indicating a strong desire for **first/last mile connections**
- **61%** of respondents want to see **more dedicated bikeways**
- **50%** of respondents want to see **pedestrian safety enhancements**
- **51%** of respondents are eager for **flexible curb space** that can change to meet vehicular demands and accommodate emerging technology

### PLACEMAKING AND THE EXPERIENCE OF THE STREET IS IMPORTANT TO THIS COMMUNITY.

- **66%** of respondents want to see the City incorporate **green infrastructure** into the streetscape, such as **rain gardens, bioswales, and native plantings**
- Write-in online survey comments and comments received at in-person workshops are supportive of initiatives that promote a “village-like” atmosphere, such as **Open Streets events, bicycle-friendly business districts, and traffic calming**
- **36%** of people want to see **more amenities at transit stops**, such as shade structures and benches



Survey respondents also provided feedback specific to each modality, summarized below.

**WALKING:** Responses suggest that residents prefer walking when possible. Traffic calming and improved infrastructure would encourage this mode of travel.

**50%**  
WANT SAFER CONDITIONS  
FOR WALKING



**29%**  
PREFER WALKING TO  
OTHER MODES



**21%**  
ALWAYS WALK TO DESTINATIONS  
WITHIN BEVERLY HILLS

**50%**  
WALK FOR EXERCISE  
AND RECREATION



**TRANSIT:** Feedback collected suggests a desire for improved transit options. To augment Metro-controlled services, the City may consider supporting micro-transit routes to key areas of the City to bridge service gaps.

**30%**  
FIND TRANSIT LOCATIONS  
EITHER INCONVENIENT AND/OR  
CONSIDER TRANSIT UNRELIABLE



**48%**  
WOULD USE TRANSIT MORE  
IF IT TRAVELED TO DESTI-  
NATIONS OF INTEREST



**42%**  
WOULD USE IF  
SERVICE WERE MORE FREQUENT



**77%**  
DESCRIBE EXISTING PUBLIC TRANSIT  
SERVICE AS “POOR” OR “FAIR”



**BIKING:** Many community members noted lack of existing infrastructure and safety concerns as deterrents to riding a bike. Nearly a third of those surveyed would consider biking more with new bikeways.

**68%**  
WANT SAFER CONDITIONS FOR BIKING

**49%**  
CITE SAFETY CONCERNS AS A  
DISCOURAGEMENT TO BIKING



**61%**  
CITE LACK OF DEDICATED BIKEWAYS  
AS A DISCOURAGEMENT TO BIKING

**77%**  
DESCRIBE EXISTING CONDITIONS  
FOR BIKING AS “POOR” OR “FAIR”



**DRIVING + RIDESHARE:** Driving and ride-share remain popular and are viewed as the fastest mode of travel by community members. Respondents indicated improving traffic flow and reducing congestion are important goals to be addressed in the Plan.

**59%**  
WANT IMPROVED TRAFFIC FLOW  
FOR ALL ROADWAY USERS



**65%**  
BELIEVE THE PLAN SHOULD  
REDUCE CONGESTION



**93%**  
DRIVE OR USE RIDESHARE BECAUSE  
IT IS FASTER THAN OTHER MODES



**27%**  
USE A RIDESHARE SERVICE BECAUSE  
PARKING IS TOO TIME CONSUMING, COM-  
PARABLE TO STATE-WIDE TRENDS.



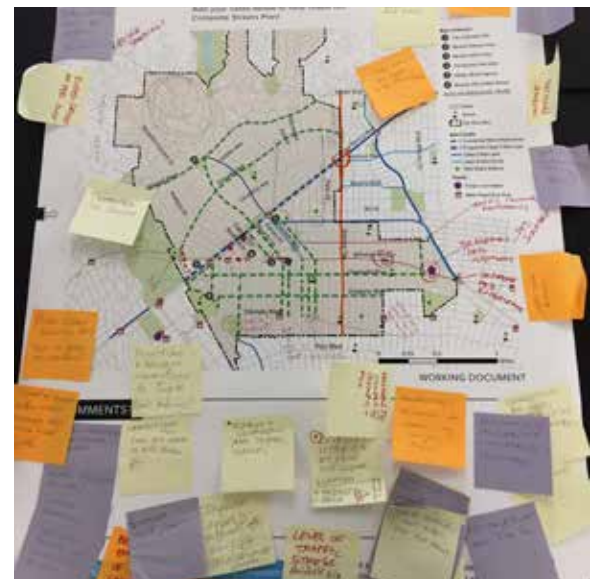
## Refining Plan Recommendations

In addition to the visioning and goal-setting exercise, community members had multiple opportunities to provide feedback on the complete streets network improvement maps throughout the planning process: at a pop-up event at the Earth Day Farmers' Market, which focused on the City-scale; at a walk audit attended by 25 community members that focused on 1-mile corridors along Crescent Drive and South Santa Monica Boulevard; and at Workshops 2 and 3, which provided initial Plan recommendations.

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**Placemaking and the experience of the street is important to this community.**

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# Complete Streets Recommendations

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*“We should be encouraging more people to walk more places - and making sure they have safe streets and sidewalks to walk on.”*

– SURVEY PARTICIPANT



## Recommendations

The development of the complete streets network has been a collaborative process between the community, numerous City departments, the Traffic and Parking Commission, and the consultant team.

The Plan recommendations are the result of an assessment of existing physical characteristics of the roadways, the current and future transportation system, land use patterns, adjacent cities' policies, and emerging trends. Recommendations have been made that are in-line with the guiding values and goals established by the community.

The proposed policies, programs, and infrastructure projects identified in this Plan will create an improved network for all the users of today and prepare for emerging trends and technologies of the future. The City cannot always predict what new technologies will develop or have staying power, but can be forward-thinking and proactive in its approach to not miss future opportunities. For example, the City's current initiative to upgrade the signal system is a first step in preparing for connected and autonomous vehicles. Planning for infrastructure that will be compatible with new emerging options and not preclude any future options is an imprecise exercise. The City will continue to make it a priority to be aware of new trends in transportation, such as expanding electric vehicle infrastructure, supporting efforts for new underground regional transit options, studying new micromobility options, and autonomous vehicle technology.



## Proposed Infrastructure Recommendations

The maps that follow show the locations for potential infrastructure improvements in Beverly Hills. These maps are intended to identify conceptually where the City can focus its efforts to enhance bicycle, pedestrian, and transit corridors. Recommended improvements for vehicles are not tied to specific corridors as with other modal recommendations. Rather, vehicular improvements will be applied city-wide, such as upgrades to the signal system; will be informed by neighborhood-level targeted community outreach; or tied to other improvements, such as the Metro Purple Line extension.

After this Plan is adopted, each project recommended in these maps will go through its own community outreach and design process. Specific design features and details will be determined with public feedback before implementation. Before and after studies, the efficient and creative use of available data, and transparent reporting will help communicate to the public how these projects work to achieve the intended goals and provide an opportunity to refine and revise projects as needed to fit the needs of the community.

*Designated, high-visibility areas for walkers and bicyclists will help drivers pay attention to them. **Once safety increases, more people will do it and there will be a snowball effect.***

– SURVEY PARTICIPANT





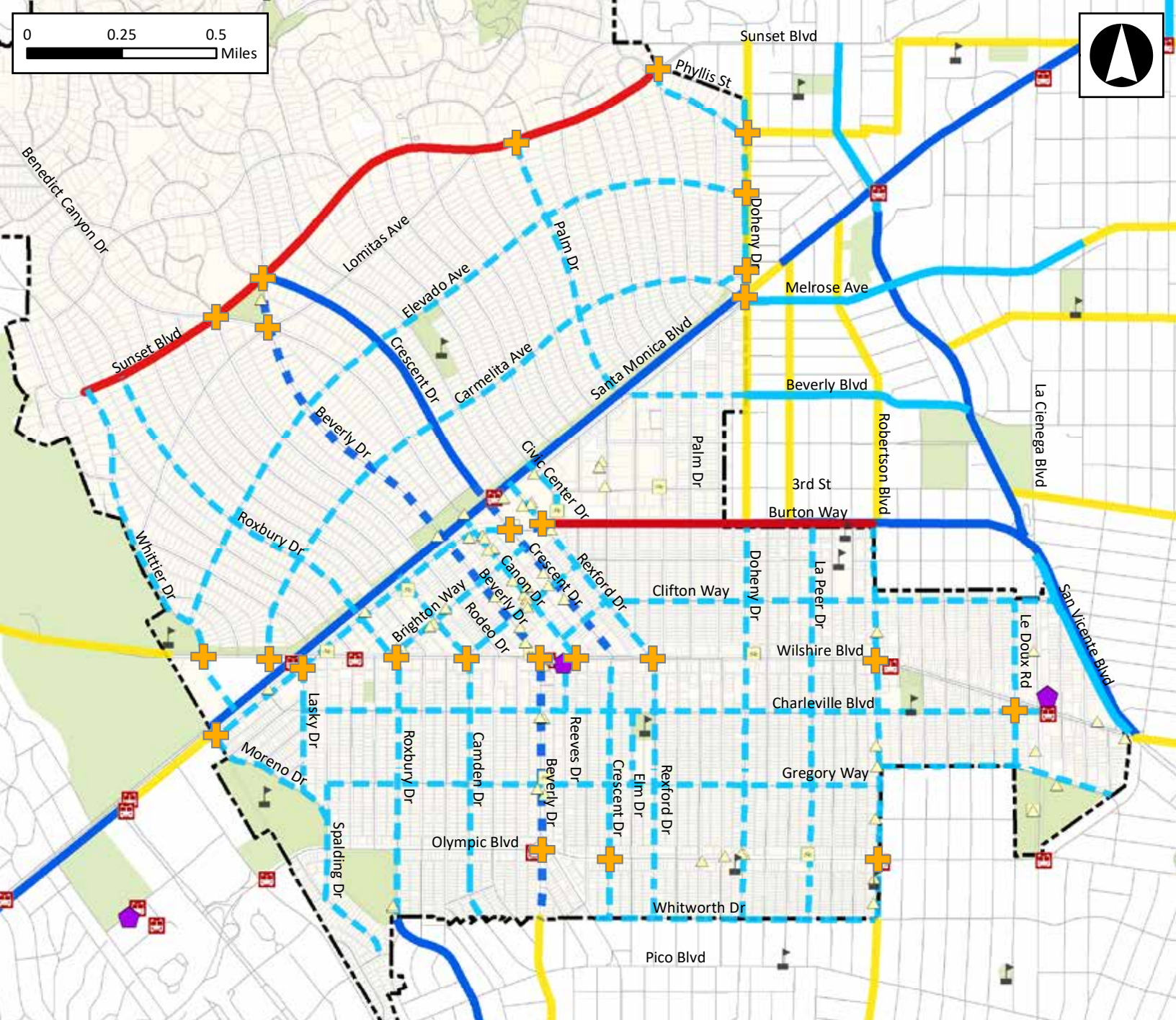
## PROPOSED BIKEWAYS

The map on the next page shows locations for potential bikeways in Beverly Hills, including bike lanes (Class II), protected bike lanes (Class IV), and bike routes/bike boulevards (Class II or Class III), which are described in detail in Chapter 3. These locations address public feedback by providing more separation from motor vehicle traffic and prioritizing low-stress facilities. Implementing this Plan will deliver a bike network geared towards people of all ages and abilities that connects key destinations, including commercial areas, schools, parks, and transit stops and stations.

*If you build proper bike infrastructure that is **safe, convenient and enjoyable** people will start biking more often.*

– SURVEY PARTICIPANT





## Legend

### Existing Bike Facilities

- Existing Bike Lanes (Class II)
- Existing Bike Routes (Class III)
- City of LA & City of West Hollywood Future Bike Facility
- ▲ Existing bike parking
- Existing bike share station

### Proposed Bike Facilities

- - - Proposed Bike Lanes (Class II)
- - - Proposed Bike Route/Boulevard (Class II/III)
- Proposed Protected Bike Lane (Class IV)
- + Proposed Intersection Crossing Treatment
- ◆ Purple Line Station

### Transit Stop/Station

- Metro Rapid Bus Stop



During the public outreach process, 68 percent of survey respondents said they want safer conditions for biking. Safety concerns and a lack of dedicated bikeways were cited as a top discouragement from biking. Because the City's streets are built out, providing dedicated space for bicyclists is challenging as it can mean reallocating space from parking or travel lanes. The aim of this Plan is to consider the needs of all modes, including vehicles. As such, potential bikeways are concentrated largely on lower-volume, lower-speed residential streets. In the short-term, bikes may share travel lanes with vehicles. An example of what this might look like is shown in the rendering below along Clifton Way at Le Doux Road.

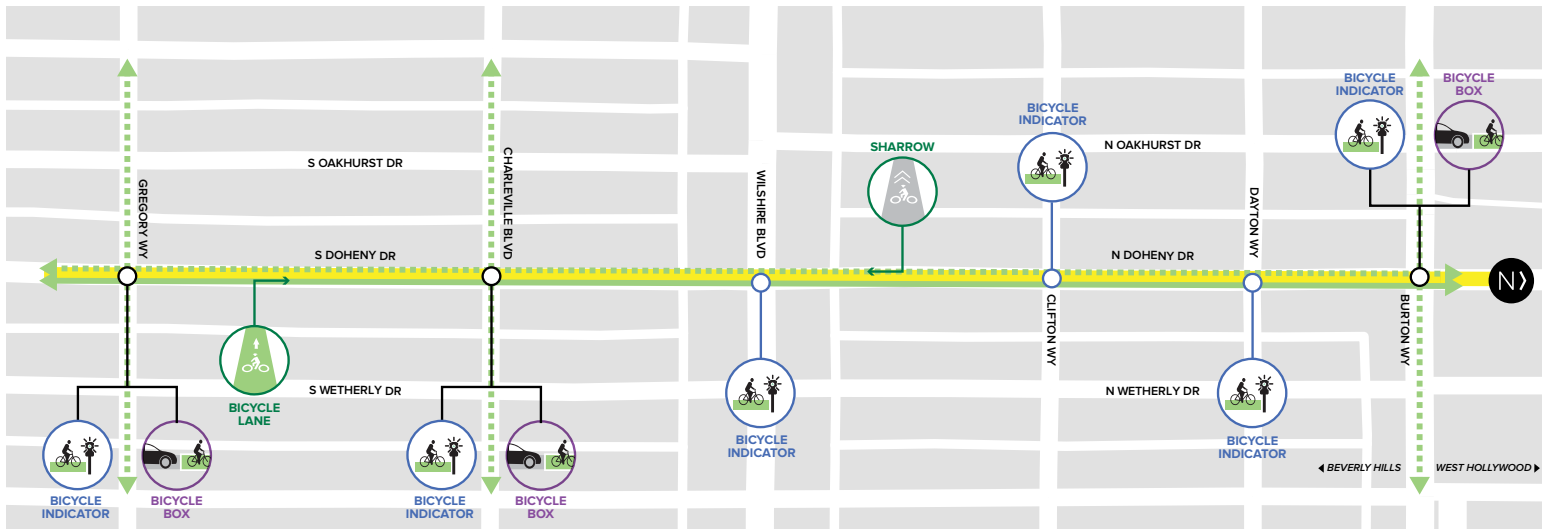
Another solution, as shown in the Doheny Drive Case Study on the next page, a climbing bike lane can be employed when space within the roadway is restricted. Climbing bike lanes place a dedicated bike lane on the uphill side of the street, and on the downhill side of the street bike riders share the travel lane with vehicles. It is predicted that in the future autonomous vehicles will reduce the need for privately owned vehicles and in turn the need for parking; if that proves true, reduced on-street parking demand will provide more opportunities to install dedicated bike facilities.







## DOHENY DRIVE CASE STUDY



*Bike box on North Santa Monica Blvd in Beverly Hills*



*Bicycle lanes and intersection markings on North Santa Monica Blvd in Beverly Hills*



*Bicycle indicator, photo via Iteris*



*Green-backed sharrows, photo via Alta*

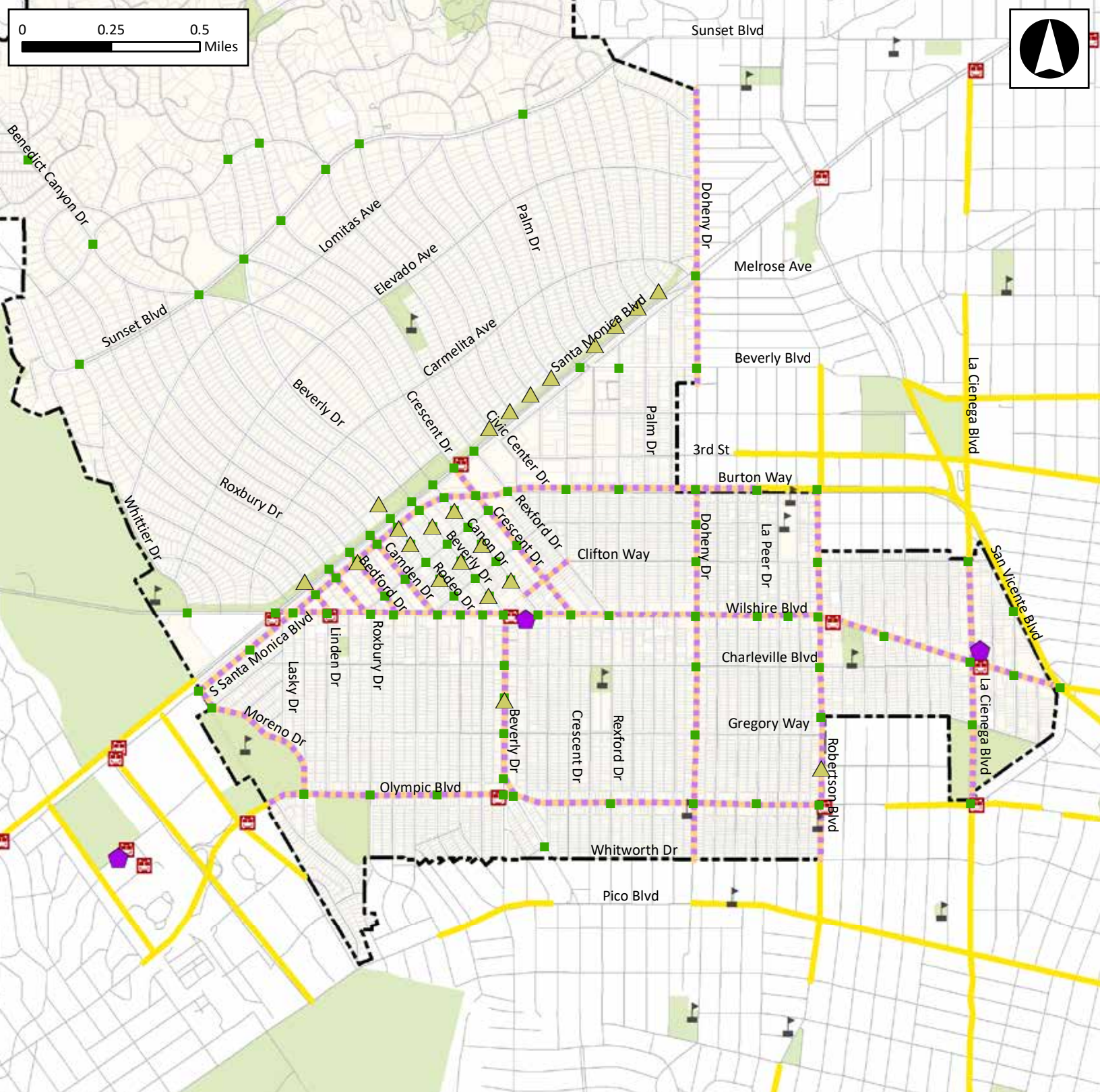




## PEDESTRIAN CORRIDOR IMPROVEMENTS

The map below identifies recommended priority corridors for pedestrian improvements in Beverly Hills. The Business Triangle in Beverly Hills is one of the most walkable neighborhoods within the City, and many of its downtown streets have been improved to enhance the pedestrian experience. There is room for improvement on commercial corridors outside the heart of the Business Triangle. During the public outreach process, improving safety conditions for walking, enhancing crossings, and focusing on key corridors like Olympic Boulevard and Wilshire Boulevard were some of the top community concerns. The corridors identified on the next page are opportunities to employ both safety enhancements and placemaking tools such as green infrastructure, street trees, and people-scaled lighting and amenities.







## Legend

-  Existing Mid-Block Crossing
-  Existing Signalized Intersection
-  Proposed Pedestrian Corridor Improvements
-  City of Los Angeles Pedestrian Enhanced Districts

## Transit Stop/Station

-  Purple Line Station
-  Enhanced Bus Stop Amenities



## TRANSIT ENHANCEMENTS

The map on the next page shows potential locations for standard (low ridership stop) and enhanced (high ridership stop) bus stop amenities in Beverly Hills along the potential transit enhanced network, which are streets with existing transit routes. Routes may change with the opening of the Metro Purple Line extension or as a result of Metro's in-progress Next Gen Bus Study. Best practices for transit enhancements are included in Chapter 4 and Appendix B includes details on

transit stop/station design, placement, and first/last mile connections. This includes design ideas such as floating bus islands, which reduce conflicts between bike facilities, buses, and vehicles by shifting the bike lane behind a dedicated bus boarding island, and then shifting the bike lane back to its regular alignment. See the image below for how this might look along Burton Way.







- BEVERLY HILLS COMPLETE STREETS PLAN ES-27



This Plan does not recommend service changes as the City does not operate the existing transit services. It makes recommendations to the public right-of-way that can improve transit reliability and enhance the user experience.

During the public outreach process, 77 percent of survey respondents describe the existing transit service in Beverly Hills as poor or fair. Community workshop participants were enthusiastic about improvements to transit stop amenities, including more benches, shaded areas, and trash bins. The rendering below shows a Metro Rapid bus stop with enhanced pedestrian amenities on Wilshire Boulevard.

## VEHICULAR UPGRADES

The recommendations in this Plan to enhance vehicle infrastructure are aimed at making the roadways more efficient for drivers through improvements to major corridors and neighborhood traffic management. As Mobility-as-a-Service providers evolve and autonomous vehicles become more ubiquitous, constraints on curbsides will become more acute, particularly at key transit nodes that generate demand for pick-ups and drop-offs. As such, this Plan also recommends implementing curbside management for major retail corridors.

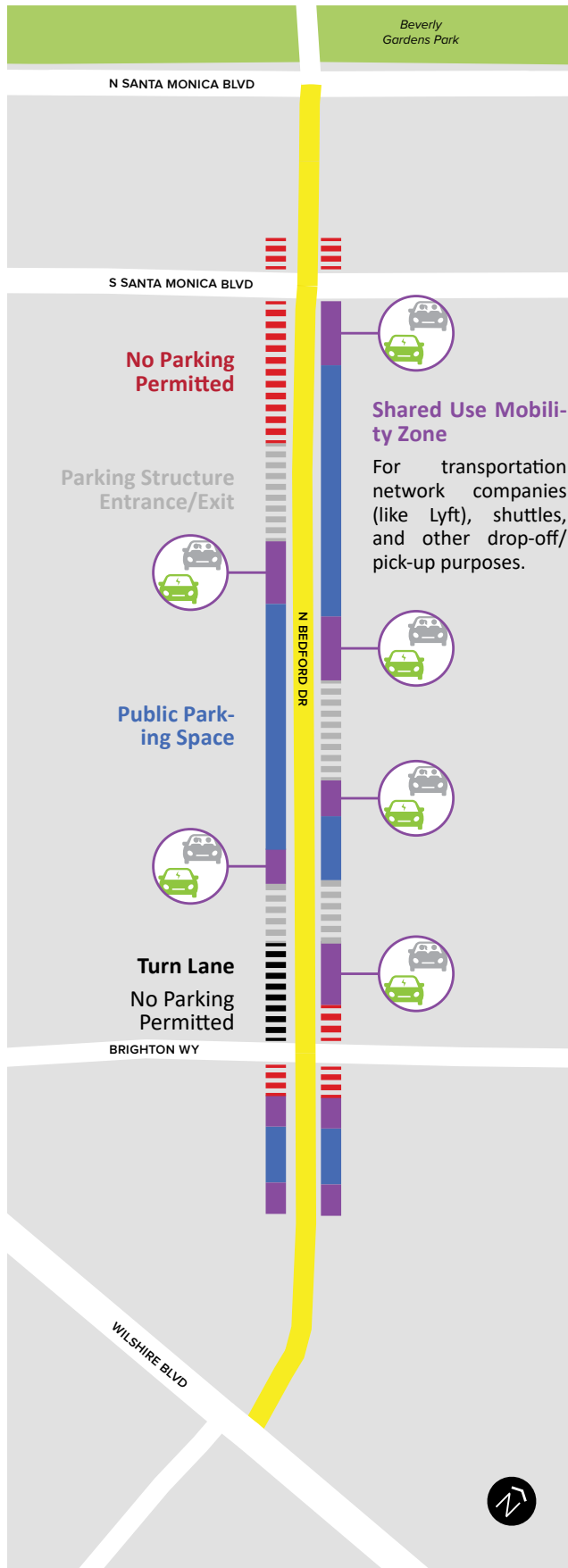
See the North Bedford Drive case study on the next page for an example of how shared use mobility zones might be used to better manage curb space.







# NORTH BEDFORD DRIVE CASE STUDY



*Lyft-sponsored furniture, West Palm Beach*



*Mobility hub, Downtown Los Angeles*



*Mobility hub, Downtown Los Angeles*

*All photos via Alta*



## Policy and Program Recommendations Summary

The programs and policies recommended by this Plan are informed by the larger project values and goals and designed to guide the work of elected officials, City staff, partner agencies, and private developers to support safe, convenient, and environmentally-friendly transportation infrastructure. The goal is to make it easier and more enjoyable to navigate Beverly Hills, and to increase choice in transportation modes through the adoption of these programs and policies. For a detailed description of all policies and programs, refer to chapters 8 and 9.

## Key Policies

### CROSSWALK POLICY

Determining where to install marked crosswalks requires a comprehensive evaluation of a variety of traffic elements, such as collision history, traffic volumes, traffic speeds, roadway characteristics, surrounding land uses, and major points of origin/destination. As part of Plan development and in coordination with the City's Traffic and Parking Commission, the City developed a crosswalk policy for Beverly Hills (Appendix C), which includes the following elements:

- When and where to install marked crosswalks at uncontrolled locations
- Supplemental elements to enhance crosswalks (markings alone will not be installed)
- Decorative and creative crosswalks
- Crosswalk removal



## **FIRST/LAST MILE SUPPORTIVE POLICIES**

Combining bicycle and walking trips with high-quality transit trips can provide a level of mobility that is more affordable and faster than driving, and reduces greenhouse gas emissions, the need for parking, and the number of vehicles on the roadway. This includes policies related to:

- Transportation Network Company (TNC) and microtransit partnerships, such as an autonomous shuttle
- Streetscape guidelines and standards, such as incorporating green infrastructure, new mobility zones, and other elements to create an aesthetically pleasing pedestrian environment
- Bus stop standards and guidelines
- Bike share and bike parking improvements
- Car sharing

## **PRIORITIZE IMPLEMENTATION OF LOW-STRESS BIKEWAYS**

Low-stress bikeways, those with few conflicts with fast-moving vehicles, would make bicycling more attractive in Beverly Hills, especially when implemented in conjunction with adequate crossings of arterial streets and signage/wayfinding for all road users to be aware of this low-stress bikeway network.

## **PARKING AND ELECTRIC VEHICLE POLICIES**

A range of policies are outlined to promote the use of non-vehicular transportation to discourage single-occupancy vehicle trips in an effort to alleviate congestion and improve equitable access to jobs and housing. Additional policies are outlined to expand EV infrastructure and accelerate EV adoption among Beverly Hills residents and employees to reduce the City's carbon footprint and reduce GHG emissions.

## **ADDITIONAL POLICY RECOMMENDATIONS**

- Transportation demand management
- Prioritizing ongoing and future infrastructure requests
- Considering a permit process for dockless bike share and scooters



## Key Programmatic Recommendations

### DATA GOVERNANCE

The age of big data is upon us, and it is incumbent upon public agencies to collect, analyze, and use data to better plan, design, and operate its streets. Many transportation professionals are establishing data governance within their agencies to better manage and leverage the vast amounts of data available today. As part of expanding data governance and purchasing a software program to more efficiently manage collision data (in progress), the City should biannually report on the status of collisions in Beverly Hills to expand on monthly reports BHPD provides, and continue to deploy improvements at the most critical locations.

This data governance program will allow Beverly Hills to use data to inform decision making and better evaluate proposed projects.

### CURBSIDE MANAGEMENT PILOT PROGRAM

Due to recent changes in technology and travel behavior, and anticipated changes from autonomous vehicle deployment, there has been an increased demand for curbspace in Beverly Hills and many other cities nationally. The City should implement a curbside management pilot program to address passenger loading around Metro Purple Line stations, and test concepts like shared use/autonomous vehicle mobility zones and digitized curbspace near stations and/or along commercial corridors. This would help to bring more order to the curbside, minimizing conflicts between modes and improving traffic flow.



## **BICYCLE AND PEDESTRIAN AWARENESS CAMPAIGN**

Effective awareness/promotional campaigns can help shift community attitudes toward walking and bicycling and motivate people to give active transportation a try. The City was awarded \$141,000 (anticipated to be available in FY 2018–19 or FY 2019–20) to organize an awareness campaign to create safer and healthier cities through education, advocacy, information sharing, and events that help residents re-envision their neighborhoods.

## **OPEN STREETS EVENTS**

Throughout the outreach process, we heard community members express interest in these sorts of events, which temporarily devote roadways to exclusive walking and biking spaces for one-day events.

## **ELECTRIC VEHICLE PROGRAM**

Electric vehicle (EV) programs help to guide the implementation and expansion of electric vehicles and associated infrastructure. The City should evaluate potential priority locations to install additional EV charging stations and hydrogen fuel-cell stations at major employment centers, retail centers, and in proximity to Metro Rapid bus stops and Purple Line stations.

## **ADDITIONAL PROGRAMMATIC RECOMMENDATIONS**

- Bike valet
- Rideshare week, which will encourage people to try a new mode of travel to reduce congestion
- Pilot parklet/plaza program
- Car share program
- Safe Routes to Parks program
- Safe Routes for Seniors program
- Reverse angle parking pilot program
- Bicycle friendly-business districts
- TDM ordinance
- Congestion pricing
- Wilshire Boulevard bus lane pilot program
- City as a Role Model program









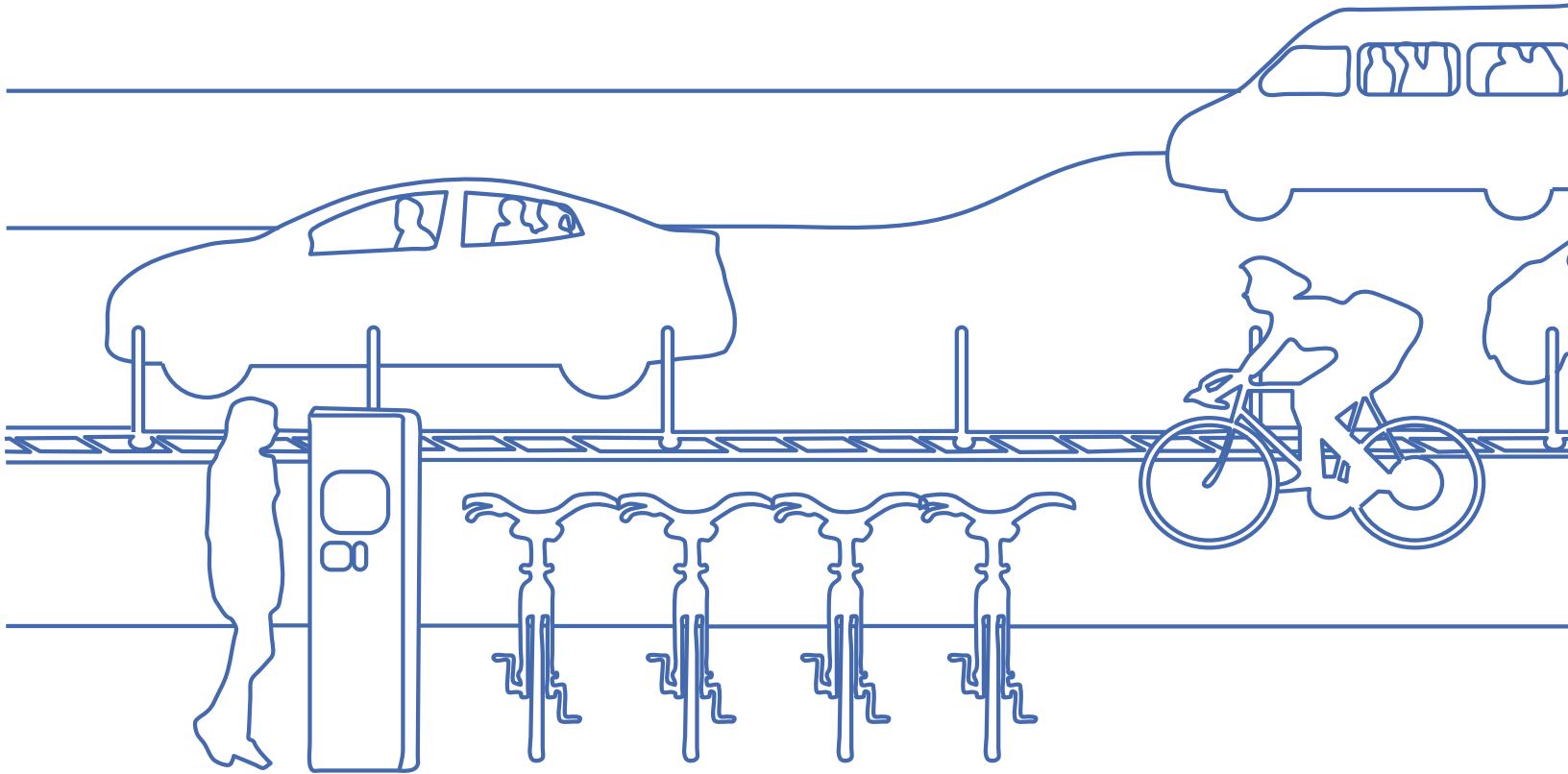
## Next Steps

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*“Transportation is changing. Don’t plan your streets around today. Plan for tomorrow.”*

– SURVEY PARTICIPANT

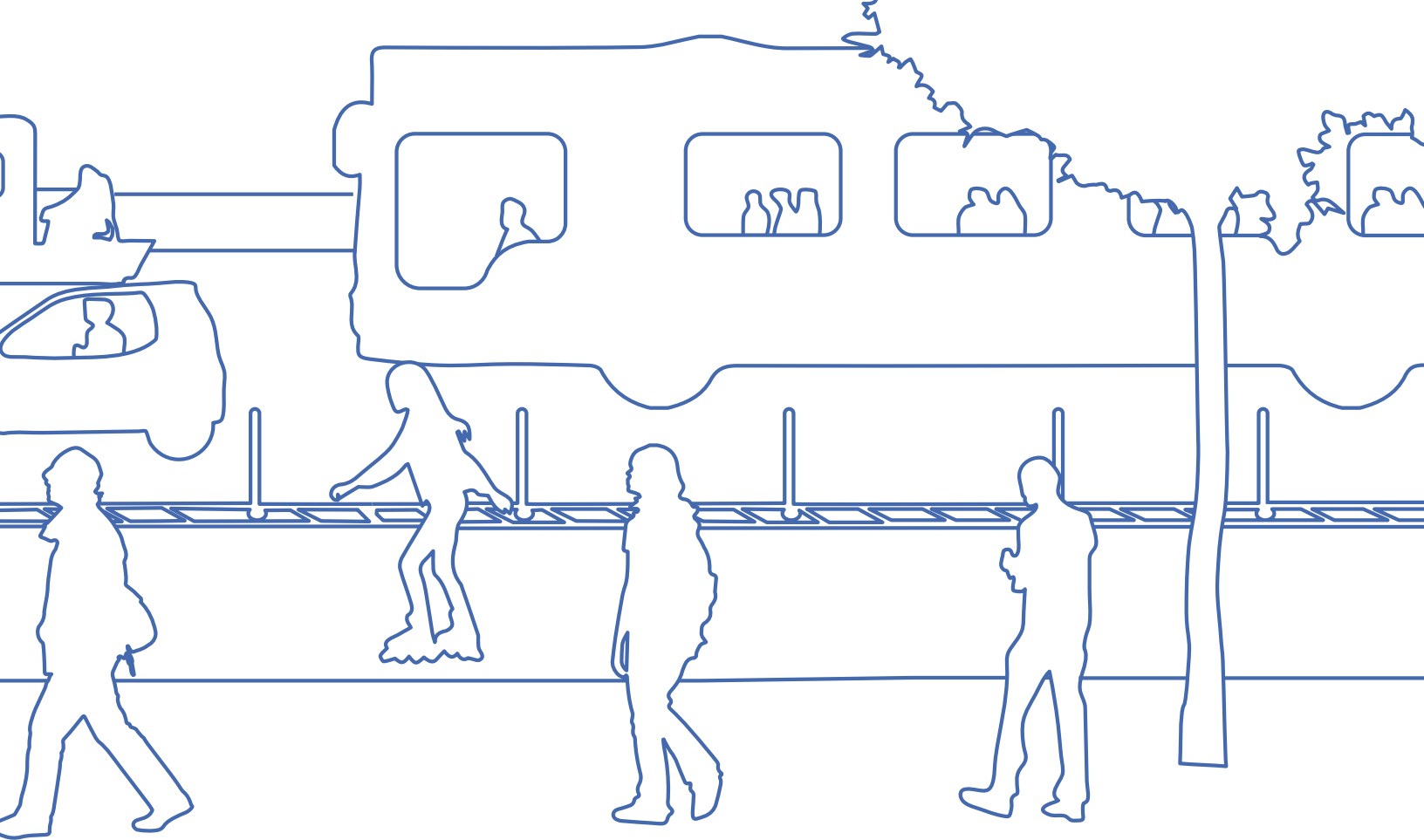




The Implementation Chapter of this Plan will guide transportation planning and the installation of infrastructure, policies, and programs in the short-, medium-, and long-term.

The development of the implementation plan took into account both immediate need and community vision; it prioritizes first/last mile connections as the City prepares for the opening of the Metro Purple Line and for emerging trends in transportation that will come to Beverly Hills, such as the deployment of autonomous vehicles. City staff plans to provide annual status reports to City Council on progress made implementing the action plan.





In addition to installing the projects included in the action plan, the City will continue implementing ongoing transportation maintenance, such as:

- Optimizing signal timing to improve active transportation (leading pedestrian intervals, bicycle clearance time, enhancing bicycle detection, etc.)
- Considering a permit process for dockless bike share and scooters
- Upgrading street name signs
- Ongoing striping
- Updating crosswalks to continental during repaving
- Repairing sidewalks
- Expanding electric vehicle infrastructure
- Improving roadway efficiency (such as turn restrictions on major arterials)





If changes in the transportation and mobility landscape occur that bring about new priority projects, this action plan does not preclude adding projects that are not included in the initial projects slated for implementation (or projects that are not in the Complete Streets Plan due to the technology not yet existing).











**TIER 1 PROJECTS**, such as bikeways connecting to the La Cienega subway station, are projects identified for short-term implementation because they are a City Council priority, have a defined timeline, or have been funded through City or grant funds. Infrastructure projects in Tier 1 with defined timelines are listed at the top of the table and shown with an asterisk. The projects that will be addressed first are those that should be completed before the Wilshire/La Cienega station opening, anticipated in 2023.

The Metro Purple Line extension into Beverly Hills will be a major change to the City’s mobility network. The City of Beverly Hills will revisit and update the action plan once Section 2 of the Purple Line opens (anticipated 2025).



















MODE ICONS:

-  Pedestrian
-  Transit
-  Bicycle
-  Vehicle

TIER 1		
STATUS	MODE	PROJECT
New*		Install green-backed sharrows and wayfinding signage on South Santa Monica Boulevard-Roxbury Drive between Moreno Drive and North Santa Monica Boulevard to close gap in the bikeway network between planned bike lanes in Los Angeles and existing green bike lanes in Beverly Hills
New*	 	La Cienega Subway Connection bike routes/boulevards: Class II or III bikeways on Clifton Way, Le Doux Road, Charleville Boulevard, and Gregory Way
New*	 	Rodeo Subway Connection bike routes/boulevards (after monitoring of Canon Closure): Class II or III bikeways on Reeves Drive, Crescent Drive, Canon Drive, and Beverly Drive
New*	  	Implement projects identified in Metro’s First/Last Mile Plan for the Wilshire/Rodeo Purple Line Station, which will build upon conceptual recommendations in the Complete Streets Plan and recommend more detailed design changes around the station, including passenger loading







Continued on next page



TIER 1		
STATUS	MODE	PROJECT
New*	 	Treatments to reduce bus/bicycle conflicts and add physical separation between bicyclists and motorists/ transit vehicles, such as floating bus islands, on Burton Way from Rexford Drive to eastern City limits
New*	 	Implement a curbside management pilot program to address passenger loading around Metro stations, test shared use mobility zones, and/or digitized curb zones, and prepare for the deployment of autonomous vehicles
New*	  	Develop a Wilshire Boulevard Streetscape Plan, including design guidelines, for streetscape amenities as first/last mile connections to the Metro Purple Line stations; produce construction drawings for enhancements adjacent to the stations to tie into ongoing Metro construction activities
New*	 	Implement standard and enhanced citywide bus stop improvements building upon recommendations in the Wilshire Boulevard Streetscape Plan
New*	 	Implement Bicycle and Pedestrian Awareness Campaign (grant funding anticipated to be available in FY 2018/19 or FY 2019/20) to educate and encourage Beverly Hills residents and businesses on safe biking and walking, such as through media and training courses
New*	 	Conduct an autonomous vehicle demonstration project to explore options for an autonomous shuttle to/from the Metro Purple Line
New*		Pedestrian enhancements, including midblock crossings, pedestrian refuge islands, flashing beacons, curb extensions, and continental crosswalks, on Bedford Drive, Camden Drive, South Beverly Drive, and Robertson Boulevard (grant funding anticipated to be available in FY 2019/20)
New	   	Establish data governance to better inform decision making and analyze project results; develop a biannual traffic safety report (after BHPD purchases new software and signal upgrades are completed)



















*Continued on next page*



TIER 1		
STATUS	MODE	PROJECT
New	  	Conceptual design and guidelines for streetscape amenities and pedestrian enhancements along South Santa Monica Boulevard-Burton Way for project construction upon completion of subway
New		Prioritize the implementation of low-stress bikeways that have the fewest conflicts with motor vehicles; prioritize ongoing and future capital improvement projects that make biking, walking, and taking transit competitive with driving
Continued		Continue the implementation of citywide signal upgrades to prepare for advancement in technologies, such as connected and autonomous vehicles
Continued		Continue development, implementation, and evaluation of a Southwest Traffic Calming pilot project to reduce cut-through traffic and vehicle speeds, and inform a citywide traffic calming program










**TIER 2 PROJECTS**, such as applying for grants to host open streets events, are to be implemented in the medium-term, as they have less critical timelines or depend on the implementation of Tier 1 projects.

TIER 2		
STATUS	MODE	PROJECT
New		Neighborhood Connections bike routes/boulevards: Class II or III bikeways on Camden Drive, Crescent Drive, Doheny Drive, Elm Drive, La Peer Drive, Lasky Drive, Robertson Boulevard, Spalding Drive, and Whitworth Drive
New		Enhancements to key routes to the Metro Purple Line stations, like Crescent Drive and La Cienega Boulevard
New	 	The City should consider additional policies and programs to improve first/last mile, such as integrating TAP into bikeshare
New	 	Implement autonomous shuttle to/from the Metro Purple Line, based on demonstration project
New	 	Establish a car share program as a first/last mile strategy and to reduce the need for resident car ownership
New	  	Promote the City as a role model by encouraging employees to commute by single-occupancy vehicles less often, such as by providing subsidized transit passes and purchasing a fleet of electric cars for site visits to minimize reliance on personal vehicles
New	  	Encourage City and community participation in Rideshare Week to reduce single-occupancy commuting
New	 	Apply for a grant to host an Open Streets event, like CicLAvia
New		Institute an electric vehicle program to expand charging stations
New		Narrow the median on Sunset Boulevard to address vehicle turning movement conflicts and add protected bike lanes (or buffered bike lanes if protected are not feasible) from Whittier Drive to Cinthia Street (grant funding anticipated to be available in FY 2019/20)













**TIER 3 PROJECTS** are lower priority because they require a longer planning and coordination period or are less critical in terms of addressing pressing mobility enhancements. These items are meant to be implemented in the long-term, once Tier 1 and Tier 2 projects have been completed.

TIER 3		
STATUS	MODE	PROJECT
New		North of Santa Monica Boulevard: Class II or III bikeways on Carmelita Avenue, Elevado Avenue, Palm Drive, Beverly Boulevard, Roxbury Drive, Whittier Drive, Cinthia Street, and Doheny Drive
New		Downtown: Class II or III bikeways on Brighton Way, Camden Drive, Civic Center, Dayton Way, Moreno Drive, Rexford Drive, and South Santa Monica Boulevard
New		Bike lanes on Beverly Drive from Sunset Boulevard to Whitworth Drive, and Crescent Drive from Santa Monica Boulevard to Wilshire Boulevard
New		Enhancements to streets in the Business Triangle without recent upgrades, including Linden Drive and Roxbury Drive
New		Enhancements to major or commercial corridors: Doheny Drive, Robertson Boulevard, and Olympic Boulevard
New		Enhancements to Moreno Drive-Spalding Dr to improve access to the high school
New		Implement bus route improvements to enhance transit service, such as bus bulbs (curb extensions for loading), prohibiting ride hailing activity on major transit corridors, flexible curb zones, etc.

*Continued on next page*



TIER 3		
STATUS	MODE	PROJECT
New		Develop a transportation demand management (TDM) ordinance to guide how infrastructure is used and minimize single-occupancy vehicle trips
New		Consider updating parking policies to reduce requirements for mixed-use developments and those with adequate TDM programs, expand the parking supply through shared-use agreements, and adopting a bike parking ordinance
New		Initiate a parklet and plaza pilot program to expand sidewalks and public space
New		Organize a Safe Routes for Seniors program to help older adults safely and conveniently travel without vehicles
New		Organize a Safe Routes to Parks program to increase access to parks and greenspaces in the city
New		Implement bike friendly business districts that support people who travel on bikes
New		Establish a bike valet program at large public events
New		Consider a reverse angled parking pilot program to educate the community on the benefits and determine appropriate locations
New		Consider a pilot program to extend the Wilshire Boulevard bus lanes into Beverly Hills
New		Consider partnering with regional agencies that may pursue congestion pricing









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# CHAPTER 1

## INTRODUCTION

This chapter introduces the concept of Complete Streets, and the purpose and vision of the Beverly Hills Complete Streets Plan.



The City of Beverly Hills is located in west-central Los Angeles County in the middle of a high-density travel corridor between Downtown Los Angeles and the City of Santa Monica. The city encompasses roughly 5.7 square miles and was documented in the 2010 U.S. Census with a population of approximately 35,000 residents<sup>1</sup>; during the day, however, the number of people in the city climbs to between 150,000 and 200,000 as Beverly Hills is a major regional employment hub and tourist destination.

Residents, visitors, and businesses in Beverly Hills contend with a substantial amount of daily “through traffic” that has no origin or destination within the city due to its regional location surrounded by other cities, as shown in **Figure 1-1**. Beverly Hills has one of the highest densities of population and employment in Los Angeles County<sup>2</sup> and produces high volumes of vehicle, bus transit, and pedestrian traffic along arterial and local streets. As the city is mature and largely built-out, the provision of bigger and wider roadways is not a feasible option to improve mobility or reduce congestion.

As such, the Beverly Hills Complete Streets Plan focuses on utilizing creative methods of re-purposing the existing pavement space to offer more diverse mobility options and increase access to the many destinations the city has to offer. This chapter introduces the plan’s purpose and vision, which guides the recommendations presented in later chapters.

### 1.1 What is a Complete Street?

There is no one-size-fits-all definition of a Complete Street, rather, it is a design approach that integrates people and places in the planning, design, construction, operation, and maintenance of our transportation networks. This results in a connected network where certain streets prioritize different modes of travel and help create streets that are accessible for people of all ages and abilities; that balances the needs of different modes; and supports local land uses, economies, cultures, and natural environments.

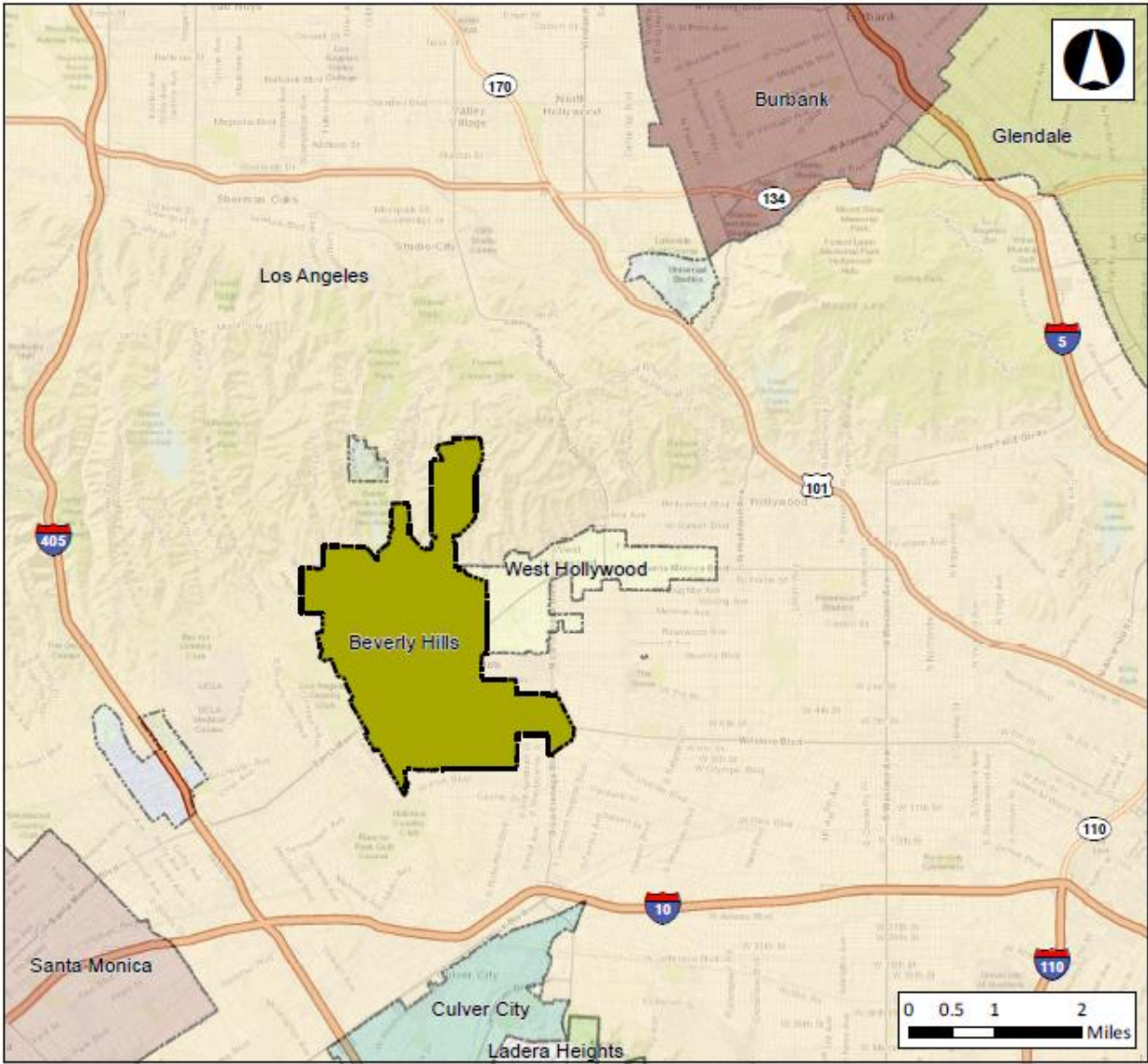
Complete Streets and the tools they employ have been proven to yield positive economic, environmental, and public health and safety benefits. Complete Streets provide greater access to businesses, improve transportation options, increase physical activity, create new space for plantings and street trees, and holistically improve community livability. The pages that follow explain how these concepts can be put to work for Beverly Hills.

<sup>1</sup> <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

<sup>2</sup> [https://www.transit.dot.gov/sites/fta.dot.gov/files/CA\\_\\_Los\\_Angeles\\_Westside\\_Purple\\_Line\\_Extension\\_Section\\_2\\_Profile\\_FY16.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/CA__Los_Angeles_Westside_Purple_Line_Extension_Section_2_Profile_FY16.pdf)



Figure 1-1: Regional Location of Beverly Hills





## 1.2 Plan Purpose

As part of the fiscal year 2016/2017 City Council Priority Exercise, the City Council identified the preparation of a Bicycle Mobility Plan as the first step of developing a citywide mobility plan. On May 4, 2017, the City Council/Traffic and Parking Commission Liaison Committee supported expanding the scope of the Bicycle Mobility Plan to include a Complete Streets approach that includes a comprehensive analysis of pedestrian, bicycle, and street networks, and emerging transportation modes and technologies, such as autonomous vehicles. In addition to highlighting enhancements to bicycle infrastructure through the identification of an updated bicycle network, the Beverly Hills Complete Streets Plan embraces a more holistic approach to transportation planning, including multi-modal and active transportation recommendations, and technology.

The Beverly Hills Complete Streets Plan will provide a blueprint for implementing a transportation network that balances the needs of all road users: bicyclists, pedestrians, transit riders, and motorists. Once implemented, it will provide more options for people to choose the mode that best works for their trip type, and a network of streets where individual modes will be prioritized. By adoption of this plan, City staff and leaders will have the policies and tools to incorporate Complete Streets into day-to-day decision-making and into all transportation projects, large and small.

The types of improvements included in the Complete Streets Plan will (1) bring the City up to current mobility standards and best practices, such as by providing a comfortable on-street bicycling environment, and (2) prepare the City for emerging transportation trends, such as installing the necessary traffic signal and communications upgrades to allow for connected and autonomous vehicles in the future. Recommendations include basic infrastructure not currently provided in Beverly Hills, infrastructure to enhance current facilities, and programs and policies to support mobility. While it is challenging to predict what future innovations and technologies will be, this plan recommends a proactive approach to transportation planning that embraces new opportunities as they come along.

The plan has a focus on preparing for the opening of the future Metro Purple Line subway stations through recommendations for first/last mile connections, which includes development of policies for streetscape and street repair projects. Trip making options will change significantly with the projected 2023 opening of the Wilshire/La Cienega Purple Line station, followed by the anticipated 2025 station opening of the Wilshire/Rodeo station. These new subway stations are major investments with the ability to reduce congestion and substantially increase accessibility and mobility. As such, connections between the stations and major activity centers, such as retail centers, hotels, schools, parks, and the Civic Center, require a balanced street network designed and operated for all modes of travel. Having an adopted Complete Streets Plan will make the City eligible for grant opportunities that provide funding for projects included in a transportation or mobility plan, including first/last mile projects.

The plan includes an implementation action plan to guide transportation planning and installation of plan recommendations after plan adoption. The infrastructure, policies, and programs are prioritized based on immediate need, connections to the Metro Purple Line and key destinations, and ability to prepare for emerging technologies, as well as the vision of the community, Traffic and Parking Commission, and City Council. The implementation plan is intended to be updated after the subway opens to continue providing a realistic and transparent forecast of complete street efforts.

## 1.3 Plan Vision

At the start of the planning process, the City held a kick-off community workshop and distributed an online survey (discussed in detail in **Chapter 6**) to hear the community's thoughts on goals and values that should guide the development of the Complete Streets Plan. The most common responses were:

- Values: Values are broad statements that represent guiding ideas or approaches. Community members prioritized plan values as follows:
  - Enhance safety for all roadway users



- Improve the overall quality of life in Beverly Hills
  - Improve traffic flow for all roadway users
  - Improve the environmental health and sustainability of Beverly Hills
  - Increase and diversify transportation choices
- Goals: Goals are actionable and when met, result in tangible outcomes. Community members identified the following goals:
    - Improve and prioritize bike and pedestrian spaces
      - Plan proposes 52.9 miles of new bikeways
      - Plan identifies 11.5 miles of pedestrian-focused corridors
    - Improve first/last mile connections to transit
      - Provides bike and pedestrian network connections to destinations near Metro Purple Line stations
    - Harness the power of data
      - Proposes flexible policies and programs that will allow the City to keep pace with emerging trends and future innovations
    - Reduce traffic congestion
      - Recommends policies to better manage curb space
      - Recommends strategies to harness technology, such as signal system upgrades, preparation for connected/autonomous vehicles, and data governance
    - Incorporate green infrastructure
      - Proposes to develop streetscape guidelines for Wilshire Boulevard as a first step to a citywide approach to enhancing the public right-of-way

Based on community feedback, the following guiding principles were used to inform the plan vision and identify the recommendations:

- Provide a balanced, connected street network that offers increased travel choices
- Create safe and accessible roadways for people of all ages and abilities
- Develop a network that provides for all travel modes – bicyclists, pedestrians, transit users, and drivers
- Prioritize transportation options that are reliable and convenient
- Emphasize equitable transportation options that demonstrate the legitimacy of all modes and their users

To achieve this vision, the plan identifies specific corridors for new facilities and upgrades, as well as transportation policies and programs to supplement infrastructure. Upon implementation, these recommendations will help improve access to employment centers, educational opportunities, and key community destinations in Beverly Hills, and demonstrate the City’s commitment to adequately addressing the needs of all road users.



## CHAPTER 2 POLICY SETTING

The Complete Streets Plan complements and expands on existing policies established by the City of Beverly Hills, which are included in the City's General Plan, the 2009 Beverly Hills Sustainable City Plan, the City's Bicycle Master Plan, the 2012 Bicycle Pilot Feasibility Analysis, and the City's Municipal Code, as well as policies established by overlapping governmental jurisdictions. This chapter presents a summary of existing policies and plans that the Complete Streets Report is consistent with, and a discussion of State and Federal policies that could be constraints for implementation.



### 2.1 2010 General Plan Update

The City's 2010 General Plan Update is the long-term vision for growth in Beverly Hills. It discusses increasing traffic congestion and costs for services, and a push toward reduced resource consumption, pollution, and greenhouse gas emissions. A number of overarching themes listed in the General Plan Update's introduction – such as growing smarter, reducing carbon footprints, and addressing global climate change – are consistent with the concept of complete streets, which are defined in the document as:

*Streets that include facilities and designs that enable safe access for all users (i.e., pedestrians, bicyclists, motorists and transit riders) of all ages and abilities with characteristics such as a comprehensive, integrated, and connected network; balanced design; variety of uses and activities that create a varied streetscape; design that relates well to bordering uses and allows for continuous activity; pedestrian and biking facilities that promote safety and maximize access to bordering uses; aesthetically designed street lights that provide sufficient illumination of sidewalks; consistent landscaping that includes street trees and landscaped medians and sidewalks; sustainable design that minimizes runoff, minimizes heat island effects, responds to climatic demands, and conserves scarce resources; and well-maintained facilities.*

The Beverly Hills Complete Streets Plan provides guidance that complements the adopted goals and policies outlined in the City's General Plan.

#### 2.1.1 CIRCULATION ELEMENT

The Circulation Element of the General Plan Update describes the regional transportation setting for all modes, and sets goals and policies for the “safe and efficient” use of the City's circulation system. This element emphasizes multimodal mobility and regional connectivity, and stresses that functional traffic patterns hinge on coordinated land use and transportation development where alternatives to driving are realistic options for the community. The 2010 Circulation Element Amendment puts greater emphasis on walking, biking, and transit and regional connectivity, which sets a policy groundwork for Complete Streets initiatives.

In 2001, the City supported a Neighborhood Traffic Management Plan (NTMP) pilot that tested the viability of traffic calming measures for the neighborhoods between Wilshire and Olympic Boulevards, and Beverly and Doheny Drives. Goal 3 of the 2010 Circulation Element Update calls for the implementation of a NTMP with the goal to improve community character and quality of life.

Goals 7 and 8 respectively are for a “safe and comfortable pedestrian environment that results in walking as a desirable travel choice” and an “integrated, complete, and safe bicycle system to encourage bicycling within the City.”



### 2.1.2 OPEN SPACE ELEMENT

The Open Space Element of the General Plan is the principal guide for “maintenance and conservation of natural resources, open space, and recreation and park lands in the City of Beverly Hills.” The Open Space Element evaluates the demand for open space and recreational facilities in the City and uses this research “as a basis for program priorities and recommendation for changes.”

Goals and policies from the Open Space Element related to and consistent with the Complete Streets Plan include the following:

- OS 7 Improved air quality:
  - OS 7.1 Promote transit ridership
  - OS 7.3 Encourage City employees to use rideshare for their daily work commute
  - OS 7.4 Encourage the use of zero-emission and low emission vehicles
- OS 9 Park and recreation preservation
  - OS 9.2 provide adequate parking supply around Roxbury and La Cienega parks
- OS 12 Use of recreation resources
  - OS 12.4 Development of a jogging trail/route system. The City should consider redesigning certain intersections to improve safety and encourage additional uses
  - OS 12.5 Development of a bikeway/route system, which can serve both transportation and recreation needs

The La Cienega Park and Recreation Complex is currently being studied to determine which amenities and activities residents might like to see included in the future. This public engagement project is seeking feedback and ideas from current park and facility users, stakeholder groups, and residents through focus groups, a community survey, interviews, community presentations, and targeted outreach. One possible approach to the OS 9.2 policy to provide adequate parking supply around the park may be to reduce demand at the park by improving pedestrian connectivity with a pedestrian/bicycle bridge over La Cienega Boulevard.

The Open Space Element also includes a Bicycle Master Plan, which is discussed in detail in **Section 2.2**.

### 2.1.3 IMPLEMENTATION PROGRAM

The Implementation Programs chapter lists programs that shall be used to implement the goals and policies described in the General Plan. *Program 3.7 Circulation, Mobility, and Parking* indicates that streets shall be improved to complete streets standards. Other actions within this program include the following:

- Implementation of Intelligent Transportation Systems (ITS)
- Development of a Parking Master Plan
- Development and implementation of a Bicycle Master Plan
- Monitor and improvement of traffic conditions as necessary
- Work with Metro on the subway extension and to improve transit ridership
- Expand transportation demand management programs (TDMP)
- Development of a Neighborhood Traffic Management Program (NTMP)



## 2.2 Bicycle Master Plan

The Beverly Hills Bicycle Master Plan is a sub-element to the Open Space Element in the 2010 General Plan Update. This sub-element identifies the City's desire to provide bicycle connectivity between major commercial, recreational, educational, and employment facilities and land uses via the shortest safest possible route.

The City's original Bicycle Master Plan, adopted in 1977 and shown in **Figure 2-1**, recommended a 22-mile bikeway system that could accommodate recreational and transportation needs. The Bicycle Master Plan was amended in 2010 along with the General Plan Update, detailing the existing bikeways in the City and providing recommendations for development of a bikeway system. The document also calls for the implementation of the Traffic Segregation Plan, which calls to reduce cut-through traffic on local roadways, in order to have a more fluid bikeway system with fewer stop signs. If fully implemented, the system "would connect the major commercial, recreation, educational and employment facilities in the City by the shortest safest possible routes." The Bicycle Master Plan lists three objectives:

- Reevaluate/build upon City's Goals and policies associated with bikeways
- Recommend a bikeway plan responsive to long-range needs of various users
- Recommend programs for acquisition, development, and use of bikeways to meet the City's needs

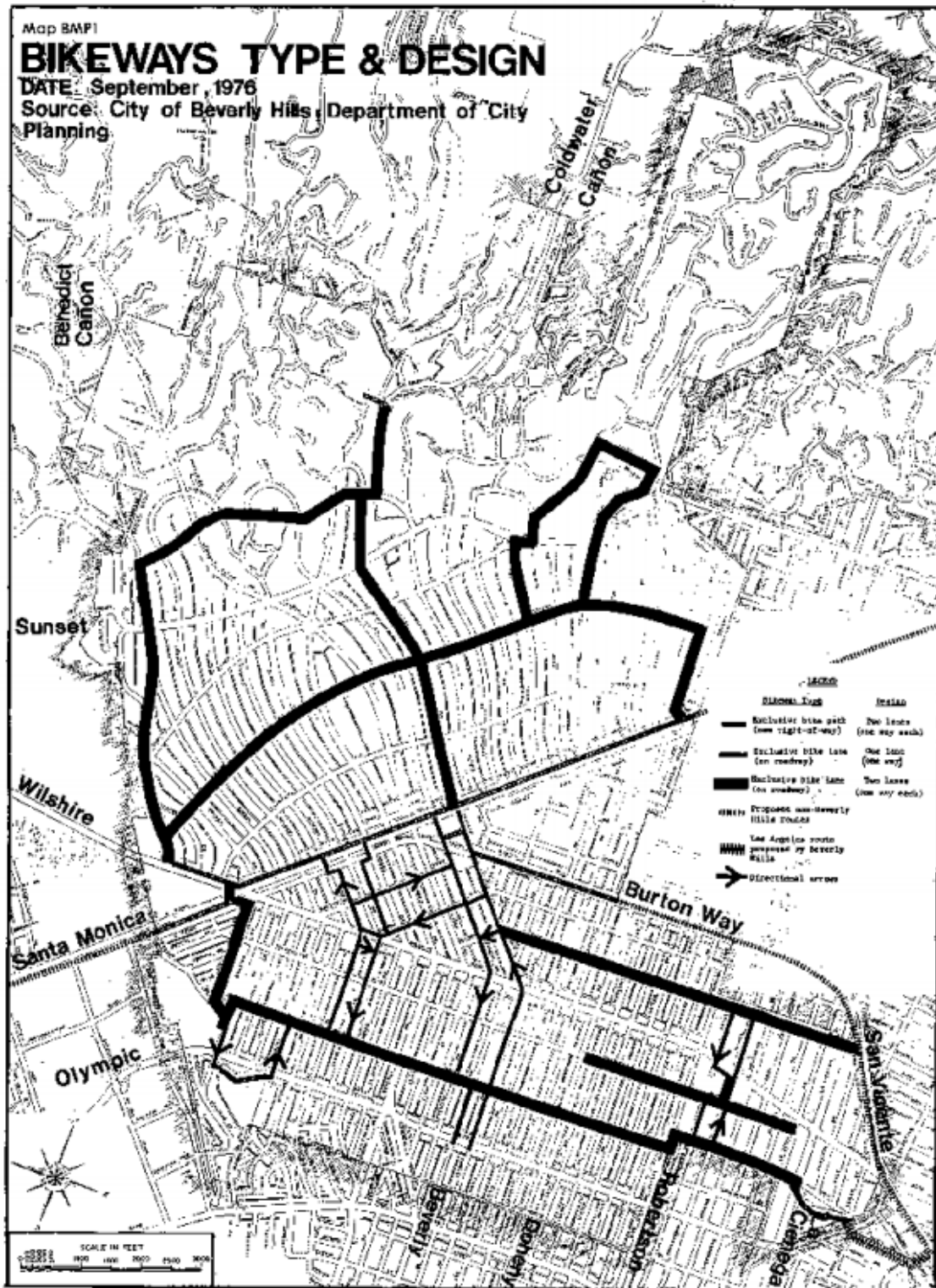
The following facilities are recommended for further evaluation in the Bicycle Master Plan and were considered during the development of the Complete Streets Report. Not all recommendations were carried over into the Complete Streets Plan as indicated with asterisks below.

- Separated Bike Paths
  - Beverly Gardens Park\*
  - Burton Way median strip\*
  - Sections through Roxbury, La Cienega and Coldwater Canyon Parks, and the City Hall grounds\*
- On-Street Bike Facilities
  - South of Santa Monica Boulevard
    - On-street bikeways (may require removing parking)
    - Development of two-way couplets on adjacent parallel streets (may potentially not impact parking)
  - North of Santa Monica Boulevard
    - Bike lanes adjacent to parked cars
  - Business Triangle
    - Bikeways along one side of mid-block alleys and/or on left side of one-way streets (parking and loading in alleys limited to one side so that bikeway can be accommodated on the other side of the alley)\*
  - Connect to bike systems proposed or developed by neighboring jurisdictions

Bike paths through parks and through City Hall are not included in the Beverly Hills Complete Streets Plan recommendations because of potential conflicts with pedestrians and lack of available space to provide paths for bicyclists only. Instead, high quality bikeways are recommended on adjacent streets. The plan also does not include a recommendation for a bike path along Beverly Gardens Park because North Santa Monica Boulevard was widened to include high visibility bike lanes adjacent to the park.



Figure 2-1: Bicycle Master Plan





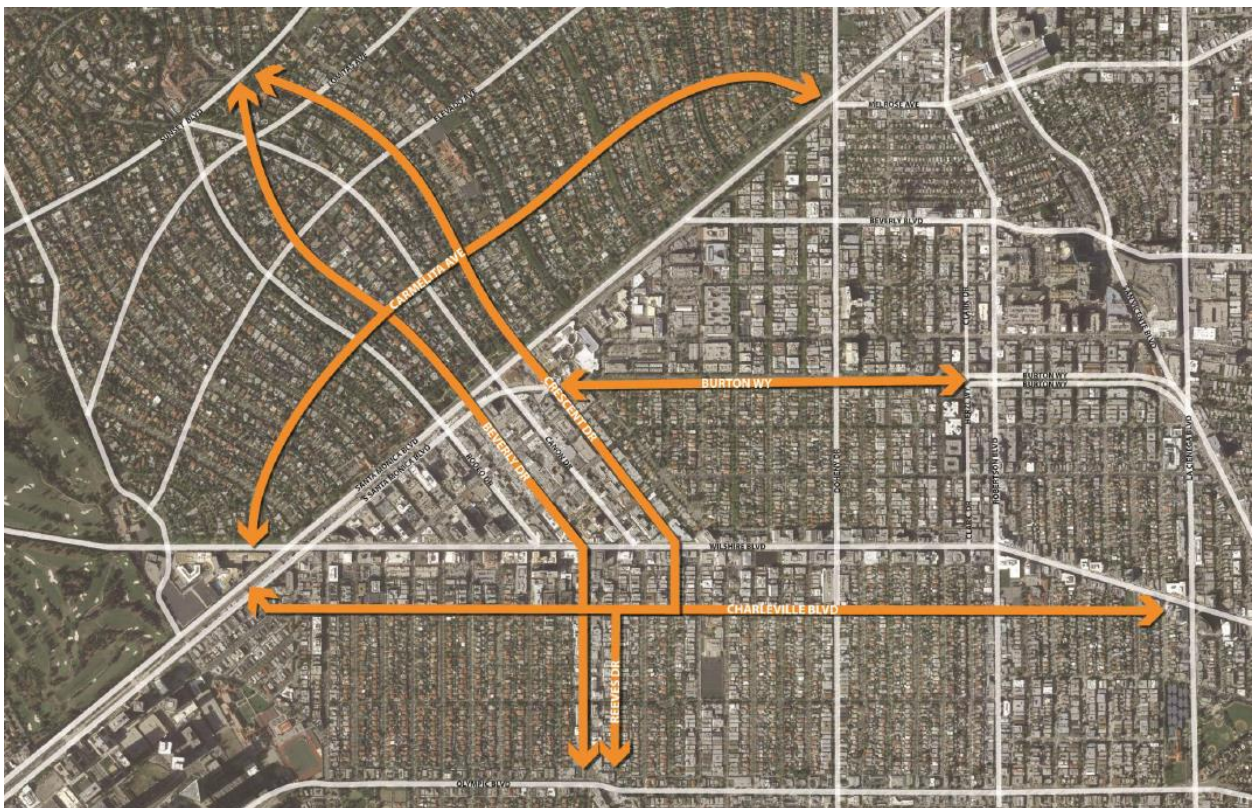
The Complete Streets Plan also does not include a recommendation for a bike path in the Burton Way median due to the inconvenience it would create for bicyclists to access, as well as potential conflicts with vehicles turning. Instead, this plan recommends upgrading the existing bike lanes on Burton Way to make them more comfortable for bicyclists on the street.

In addition, bikeways in alleys through the Triangle are not included due to potential conflicts with trucks, visibility issues, and reduced accessibility to key destinations. Instead, a robust network of on-street bikeways is recommended to provide bicyclists with a level of facilities comparable to what is provided to drivers.

## 2.3 Bicycle Feasibility Study

The 2012 Bicycle Feasibility Study evaluated the potential implementation of bikeways identified in the 2010 Bicycle Master Plan (discussed above) in accordance with adopted design standards by the City of Beverly Hills. Recommendations are presented for six corridors, taking into account traffic elements such as roadway speeds, average daily traffic (ADT), parking, and roadway right-of-way. **Figure 2-2** shows the recommended corridors for bicycle improvements and **Table 2-1** summarizes the details of each.

**Figure 2-2: Bicycle Facilities – Recommended Corridors**



Source: Bicycle Feasibility Study, Fehr & Peers 2012



**Table 2-1: 2012 Bicycle Feasibility Study - Recommended Bicycle Facilities**

LOCATION	FACILITY TYPE	DESIGN DETAILS
Burton Way	Class II bike lanes	Restripe roadway (in both directions) to provide: <ul style="list-style-type: none"> <li>• Two 11' travel lanes</li> <li>• 13' shared parking/bike lane allowing 7-8' for parking and 5-6' for bicyclists</li> </ul>
Charleville Blvd	Class III bike route	<ul style="list-style-type: none"> <li>• Designated bike route signage</li> <li>• Sharrow striping</li> </ul>
Carmelita Ave	Class III bike route	<ul style="list-style-type: none"> <li>• Designated bike route signage</li> <li>• Sharrow striping</li> </ul>
Crescent Dr (north of Santa Monica Blvd)	Class II bike lanes	Retain existing striping
Crescent Dr (Santa Monica Blvd to Charleville Blvd)	Class III bike route	<ul style="list-style-type: none"> <li>• Designated bike route signage</li> <li>• Sharrow striping</li> </ul>
Reeves Dr (Charleville Blvd to Olympic Blvd)	Class III bike route	<ul style="list-style-type: none"> <li>• Designated bike route signage</li> <li>• Sharrow striping</li> </ul>
Beverly Dr (north of Santa Monica Blvd)	Class II bike lanes	Restripe roadway (in both directions) to provide: <ul style="list-style-type: none"> <li>• One 11' travel lane per direction</li> <li>• One 7' parking lane per direction</li> <li>• One 12' lane for bicyclists per direction, which include a 6' cycling area and striped buffers of 3' each to separate bicyclists from both parking and travel lanes</li> </ul>
Beverly Dr (south of Santa Monica Blvd)	Class III bike route	<ul style="list-style-type: none"> <li>• Designated bike route signage</li> <li>• Sharrow striping</li> <li>• Diagonal parking</li> </ul>

It's important to note that the 2012 study was completed before the inclusion of Class IV protected bike lanes in Caltrans facility typology, and before widespread use of striping buffers to further separate bicyclists from motorists. The Complete Streets Plan revisits the designations listed in **Table 2-1** above and recommends upgraded facility types where appropriate and feasible, as well as supplemental traffic calming measures and pedestrian improvements.

All corridors recommended in the 2012 study are carried over into the Complete Streets Plan with the exception of Reeves Drive, which is replaced by Crescent Drive to connect with the recommended bikeway on Crescent Drive north of Wilshire Boulevard. Reeves Drive between Wilshire Boulevard and Charleville Boulevard remains in the plan as a first/last mile connection to the Metro Purple Line Wilshire/Rodeo station.

## 2.4 Sustainable City Plan

In 2009, the City adopted its Sustainable City Plan to combat climate change, improve air quality, and develop a sustainability strategy. The plan defines sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” To the City of Beverly Hills, this involves maintaining a strong economy, promoting social equity, and ensuring sensitivity to the natural environment. The following are the guiding principles of the Sustainable City Plan that will help the City with decision-making and move towards sustainability:

- City policy will be guided by a long-term vision of sustainability
- The City will lead by example
- The City recognized that environmental, economic, and social equity are mutually dependent



- Economic, environmental and social impacts will be key considerations in City policy and actions
- The City will inform and inspire all community members to take action
- The City recognizes that partnerships are essential to achieving a sustainable community
- The City recognizes its linkage with the regional, national, and global community

A significant portion of the City's goals and policies that promote sustainability both directly and indirectly involve transportation and relate to the Complete Streets Plan. Topic area #5 of the Sustainable City Plan's list of goals highlights the importance of promoting an energy efficient, walkable, and bikeable community that reduces traffic congestion and its negative effects while encouraging alternative forms of travel.

## 2.5 Municipal Code

The City of Beverly Hills Municipal Code includes regulations for pedestrian and bicycle use. The Code includes policies that seek to encourage and accommodate pedestrian and bicycle activity, as well as restrict use along certain thoroughfares. Relevant policies are listed below in **Table 2-2**.

**Table 2-2: Municipal Code Policies Related to Complete Streets**

SECTION	POLICY
10-3-1653	Defines "pedestrian oriented areas" within the City restricting land uses to promote pedestrian usage. There are six designated pedestrian oriented areas within the City: <ul style="list-style-type: none"> <li>• Rodeo Drive from South Santa Monica Boulevard to Wilshire Boulevard</li> <li>• North Beverly Drive from South Santa Monica Boulevard to Wilshire Boulevard</li> <li>• South Beverly Drive from Wilshire Boulevard to Gregory Way</li> <li>• North Canon Drive from South Santa Monica Boulevard to Wilshire Boulevard</li> <li>• Brighton Way from Wilshire Boulevard to North Canon Drive</li> <li>• Dayton Way from Wilshire Boulevard to North Canon Drive</li> </ul>
5-6-801	The operator of a bicycle shall not ride on the public sidewalk in any business district, where "business district" is defined in section 235 of the California Vehicle Code (CVC) as: <i>A portion of a highway and the property contiguous thereto (a) upon one side of which highway, for a distance of 600 feet, 50 percent or more of the contiguous property fronting thereon is occupied by buildings in use for business, or (b) upon both sides of which highway, collectively, for a distance of 300 feet, 50 percent or more of the contiguous property fronting thereon is so occupied.</i>
5-6-802	It is considered unlawful to operate skateboards, roller skates, in-line skates, and scooters on the grounds of any public school. However, the code does not explicitly prohibit bicycles on public school grounds.
8-1-104	Riding a bicycle (or similar type of device) is prohibited within parks and recreational facilities except where specially authorized by posted signs.
10-7-301	For non-residential developments with a total area greater than or equal to 25,000 square feet, the developer is required to provide bicycle racks (or other secure bicycle parking) to accommodate four (4) bicycles for the first 50,000 square feet of development. Further, accommodation for one (1) additional bicycle is required for each additional fifty thousand (50,000) square feet of nonresidential development.
18-O-2757	Temporarily bans dockless bicycles and scooters from being placed in any public right-of-way or public property and prohibits operators from offering these devices in Beverly Hills.

At the January 10, 2019 Traffic and Parking Commission Special Meeting (discussed in detail in Chapter 6), City staff presented an option to consider revising the City's Municipal Code to allow bicyclists on some sections of commercial sidewalks as a way to reduce vehicle/bicyclist conflicts and improve bicycle access until infrastructure was built out, using Santa Monica Boulevard in the City of West Hollywood as an example: when a bicycle lane is present, sidewalk riding is prohibited, but where there isn't adequate street width to accommodate on-street bikeways, sidewalk riding is permitted. Revising the code is not included as a formal recommendation in this plan due to concern of the Commission and community with regards to bicycle/pedestrian conflicts; however, allowing sidewalk riding on a



limited case-by-case basis on commercial corridors where a gap in the first/last mile network may be present, such as on Wilshire Boulevard near the future La Cienega Metro Purple Line station, may be considered.

## 2.6 Los Angeles County Policies

### 2.6.1 METRO COMPLETE STREETS POLICY

In 2014, the Los Angeles County Metropolitan Transportation Authority (Metro) adopted a Complete Streets Policy to guide multimodal design in Los Angeles County. The policy identifies opportunities and actions for Metro to support local complete streets implementation with partner organizations and agencies. Per the policy, Metro requires all jurisdictions to adopt a complete streets policy to be eligible for Metro Capital Grant funds. The goals of Metro's Complete Streets Policy include:

- Maximize the benefits of transit service and improve access to public transit by making it convenient, safe, and attractive for users
- Maximize multi-modal benefits and efficiencies
- Improve safety for all users on the transportation network
- Facilitate multi-jurisdictional coordination and leverage partnerships and incentive programs to achieve a complete and integrated transportation system that serves all users
- Establish active transportation improvements as integral elements of the countywide transportation system
- Foster healthy, equitable, and economically vibrant communities where all residents have greater mobility choices<sup>3</sup>

Implementation steps set forth by the Policy include:

- **Design:** Design and evaluate projects with the latest design standards and options
- **Network/Connectivity:** Work with partner agencies and local jurisdictions to incorporate complete streets infrastructure with the goal of creating a larger connected network of facilities across jurisdictional boundaries and corridors that can accommodate, as well as anticipate, the future demands of bicyclists and pedestrians. Adjacent intersections, interchanges, and bridges shall accommodate bicyclists and pedestrians in a manner that is safe and accessible.
- **Implementation Next Steps:** Ensure consistency with other relevant plans and engage stakeholders
- **Performance Measures:** Develop performance metrics and track progress toward achieving sustainability policies and priorities, including complete streets implementation<sup>3</sup>

### 2.6.2 METRO FIRST/LAST MILE STRATEGIC PLAN

Transit travelers often must first walk, bike, or drive themselves to and from the nearest station or stop. This is referred to as the first and last mile of the user's trip, or "first/last mile" (FLM) for short. Bus and rail services often form the core of a trip, but users complete the first and last portion on their own.

The Metro FLM Plan is an approach for identifying barriers and planning and implementing improvements for the first/last mile portions of an individual's journey. It provides an adaptable vision for addressing FLM improvements in a systematic way, and results in data and information to justify taking those actions. FLM expands the transit experience, improves safety, and enhances visual aesthetics. Examples of FLM improvements include the following:

<sup>3</sup> [http://media.metro.net/projects\\_studies/sustainability/images/policy\\_completestreets\\_2014-10.pdf](http://media.metro.net/projects_studies/sustainability/images/policy_completestreets_2014-10.pdf)



- Infrastructure for walking, rolling, and biking (e.g. bike lanes, bike parking, sidewalks, and crosswalks)
- Shared use services (e.g. bike share and car share)
- Facilities for making modal connections (e.g. kiss and ride and bus/rail interface)
- Signage and way-finding, and information and technology that eases travel (e.g. information kiosks and mobile apps)

### 2.6.3 METRO LONG RANGE TRANSPORTATION PLAN

Metro is currently working to update its Long Range Transportation Plan (LRTP) that was last adopted in 2009. Once approved by the Metro Board of Directors, the LRTP serves as a blueprint for how Metro will spend anticipated revenues in the coming decades to:

- Operate and maintain our current and planned system
- Continue to deliver on our commitments from the 2009 LRTP
- Identify any new projects, programs, or initiatives

### 2.6.4 METRO ACTIVE TRANSPORTATION STRATEGIC PLAN

The Active Transportation Strategic Plan (Plan) is Los Angeles Metro's effort to identify strategies to increase walking, bicycling and transit use in Los Angeles County. It presents policy and infrastructure recommendations that will require collaboration between Metro, local and regional agencies, and other stakeholders to ensure implementation. The Active Transportation Strategic Plan will focus on improving first and last mile access to transit and propose a regional network of active transportation facilities, including shared-use paths and on-street bikeways, and develop a funding strategy to get them built.

The funding strategy should be closely monitored by the City of Beverly Hills, as future regional investments should be attracted to the City's Purple Line station areas for improved FLM connectivity.

## 2.7 State Policies

The Caltrans Complete Streets Implementation Action Plan 2.0 (CSIAP 2.0) establishes the California Department of Transportation's complete streets policy framework and provides an overview of Caltrans' complete streets implementation efforts. The plan defines a complete street as:

A transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility.<sup>4</sup>

The Plan identifies the benefits of complete streets as:

- Increased Transportation Choices
- Economic Revitalization
- Improved Return on Infrastructure Investments
- Livable Communities
- Improved Safety

<sup>4</sup> [http://www.dot.ca.gov/hq/tpp/offices/ocp/docs/CSIAP2\\_rpt.pdf](http://www.dot.ca.gov/hq/tpp/offices/ocp/docs/CSIAP2_rpt.pdf)



- More Walking and Bicycling
- Greenhouse Gas Reduction and Improved Air Quality<sup>5</sup>

The basis for the plan is the California Complete Streets Act (AB 1358) of 2008, which requires cities and counties to include complete streets policies in their general plans to provide safe roadway design for all users. It also complements an existing Caltrans policy (California Department of Transportation revised version of Deputy Directive 64, an internal policy document that explicitly embraces Complete Streets as the policy covering all phases of state highway projects, from planning to construction to maintenance and repair) to “fully consider the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products.”<sup>6</sup>

The State of California also administers the California edition of the Manual on Uniform Traffic Control Devices (MUTCD), the California Vehicle Code, ADA Accessibility Code, and related programs that dictate minimum standards. At the City’s discretion, minimum standards may be exceeded, but the standards presented in these documents limit the City’s ability to install devices. For example, devices like pedestrian hybrid beacons must meet specific warrants to justify installation per the MUTCD.

## 2.8 Federal Policies

In 2010, Secretary of Transportation Ray LaHood and the United States Department of Transportation (USDOT) issued the Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations. The statement calls for transportation projects to incorporate “safe and convenient walking and bicycling facilities.”<sup>7</sup> Recommended actions include:

- Considering walking and bicycling as equals with other transportation modes
- Ensuring that there are transportation choices for people of all ages and abilities, especially children
- Going beyond minimum design standards
- Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges
- Collecting data on walking and biking trips
- Setting mode share targets for walking and bicycling and tracking them over time
- Improving non-motorized facilities during maintenance projects<sup>8</sup>

In 2018, the National Complete Streets Coalition updated its Complete Streets framework, which identifies 10 elements of an ideal complete streets policy and a tiered point system to benchmark local policies. The elements, listed below, provide a national model for best practices of new and revised policies. The Beverly Hills Complete Streets Plan incorporates these policies into its recommendations.

- **Vision and intent:** Includes an equitable vision for how and why the community wants to complete its streets. Specifies need to create complete, connected, network and specifies at least four modes, two of which must be biking or walking.
- **Diverse users:** Benefits all users equitably, particularly vulnerable users and the most underinvested and underserved communities

<sup>5</sup> [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/policy\\_accom.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/policy_accom.cfm)

<sup>6</sup> <https://www.smartgrowthamerica.org/app/legacy/documents/cs/media/cs-ca-pressrelease.pdf>

<sup>7</sup> [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/policy\\_accom.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/policy_accom.cfm)

<sup>8</sup> Ibid



- **Commitment in all projects and phases:** Applies to new, retrofit/reconstruction, maintenance of, and ongoing projects
- **Clear, accountable expectations:** Makes any exceptions specific and sets a clear procedure that requires high-level approval and public notice prior to being granted
- **Jurisdiction:** Requires interagency coordination between government departments and partner agencies on complete streets
- **Design:** Directs the use of the latest and best design criteria and guidelines, and sets a time frame for their implementation
- **Land use and context sensitivity:** Considers surrounding communities' current and expected land use and transportation needs
- **Performance measures:** Establishes performance standards that are specific, equitable, and available to the public
- **Project selection criteria:** Provides specific criteria to encourage funding prioritization for complete streets implementation
- **Implementation steps:** Includes specific next steps for policy implementation<sup>9</sup>

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<sup>9</sup> <https://smartgrowthamerica.org/resources/elements-complete-streets-policy/>



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## CHAPTER 3 EXISTING CONDITIONS

This chapter presents a summary of existing bikeways, pedestrian amenities, transit facilities, and roadway condition opportunities and challenges within the City of Beverly Hills, as well as an analysis of current gaps in the multimodal transportation network and existing collision patterns.



### 3.1 Existing Bikeways

Caltrans identifies four classifications of bikeways in the Highway Design Manual, described in **Table 3-1**: Class I bike paths, Class II bike lanes, Class III bike routes, and Class IV separated bikeways. **Table 3-1** and **Figure 3-1** identify the locations of each existing bike facility type in Beverly Hills.

The existing bikeway network in Beverly Hills consists of approximately 3.6 miles of Class II on-street striped bike lanes and 0.5 miles of Class III signed shared travel lanes with sharrows. In 2012, the City completed a Bikeway Feasibility Study to evaluate the potential implementation of bikeways on Beverly Drive, Crescent Drive, Carmelita Avenue, Burton Way, Charleville Boulevard, and Reeves Drive. That effort led to the installation of bike lanes on Crescent Drive between Sunset Boulevard and North Santa Monica Boulevard, shared lane markings (shared travel lane between bicyclists and drivers) on Crescent Drive between North Santa Monica Boulevard and Wilshire Boulevard, and bike lanes on Burton Way between Crescent Drive and eastern City limits. Additionally, the City installed high visibility green bike lanes on North Santa Monica Boulevard between western City limits and Doheny Drive as part of the North Santa Monica Boulevard Reconstruction Project.

While the bike lanes on North Santa Monica Boulevard and Burton Way create great east-west backbones, there is a lack of east-west bikeways in both the northern and southern portions of Beverly Hills. In addition, the only north-south bikeway in the city is on Crescent Drive. Outside the City boundaries in Los Angeles to the west and West Hollywood to the east, there are existing gaps in the North Santa Monica Boulevard bikeway, but the City of Beverly Hills is currently coordinating with these neighboring cities to extend their bike lanes and close the gaps.

Because the City's streets are built out, providing dedicated space for bicyclists is challenging, as it means reallocating space from parking or travel lanes. In addition, the majority of the City's streets are two-lane, residential streets where options for reallocating space are substantially more limited. However, it is predicted that in the future, autonomous vehicles will reduce the need for privately owned vehicles and in turn the need for parking; if that proves true, reduced on-street parking demand will provide more opportunities to install bike lanes in the long-term, especially on neighborhood streets. Implementing a car-sharing program may also reduce demand for on-street parking.

Because the majority of streets in the city are residential streets, they could create a robust bicycle boulevard network that serves the needs of bicyclists with a wide range of abilities. Bicycle boulevards can take the form of shared travel lanes between bicyclists and drivers with extensive traffic calming or can provide dedicated bike lanes in one or two directions when on-street space permits. With the construction of the Metro Purple Line extension underway, a comprehensive network of bikeways of varying types to connect with the future Wilshire/La Cienega and Wilshire/Rodeo station will help bicyclists safely and conveniently navigate to the subway.



Table 3-1: Existing Bikeways

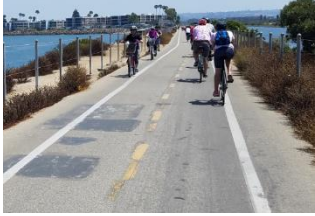



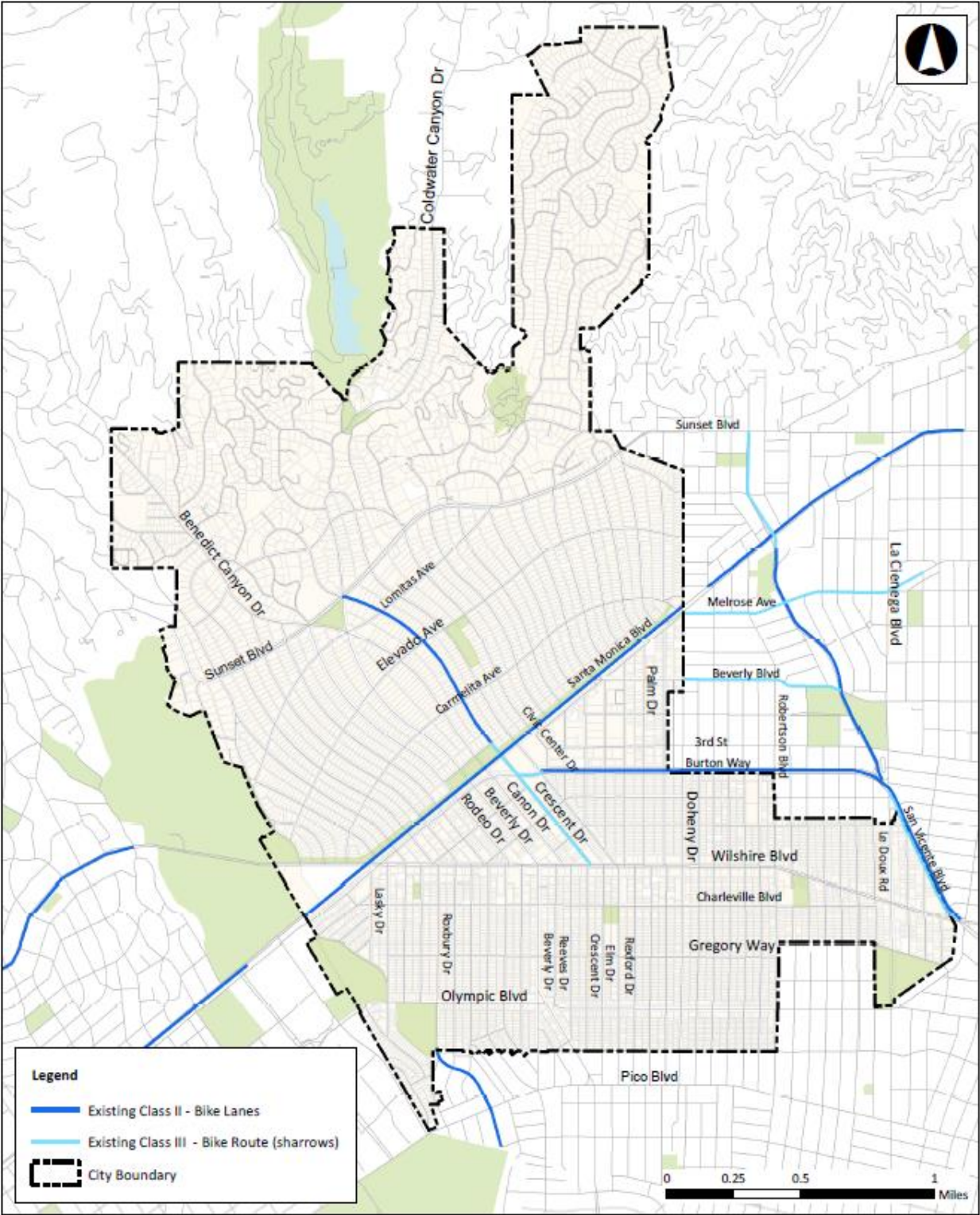
CLASS	DESCRIPTION	PHOTO	EXISTING FACILITIES
Class I Bike Paths	<ul style="list-style-type: none"> <li>Off-street, completely separate from the roadway</li> <li>Provide exclusive right-of-way for bicyclists (and pedestrians)</li> <li>Cross flow by motor traffic is minimized</li> <li>May provide separate pedestrian lanes</li> </ul>		None
Class II Bike Lanes	<ul style="list-style-type: none"> <li>On-street, striped lane for one-way bicycle travel</li> <li>Typically adjacent to vehicle traffic traveling in the same direction</li> <li>Can include buffers for separation from moving traffic and parked vehicles</li> <li>Can be placed in one direction in constricted rights-of-way</li> </ul>		<ul style="list-style-type: none"> <li>Burton Way from Rexford Drive to eastern City limits</li> <li>Crescent Drive from Sunset Blvd to Park Way</li> <li>North Santa Monica Boulevard from western City limits to Doheny Drive</li> </ul>
Class III Bike Routes	<ul style="list-style-type: none"> <li>Designated preferred route for bicyclists on streets shared with motor vehicles</li> <li>Established by signage and optional pavement markings</li> <li>Can include traffic calming to create a bike boulevard</li> </ul>		<ul style="list-style-type: none"> <li>Crescent Drive from Park Way to Wilshire Boulevard</li> <li>South Santa Monica Boulevard from Crescent Drive to Rexford Drive</li> </ul>
Class IV Separated Bikeways	<ul style="list-style-type: none"> <li>On-street bike lane physically separated from motor vehicle traffic through bollards, planters, or other vertical delineation</li> <li>Often accompanied by bicycle signals through intersections</li> </ul>		None



Figure 3-1: Existing Bikeways



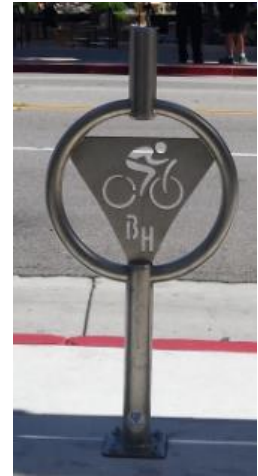


### 3.1.1 BIKE PARKING

The City manages a Bike Rack On-Request Program for business owners to request installation of bike parking adjacent to their businesses at no charge. Applications must be submitted to the City Traffic Engineer for review and approval. The following pre-requisites must be met for bike rack installation:

- Bike rack will be installed in the public right-of-way only
- Bike rack will be installed on concrete sidewalk only, not on cement surfaces
- Bike rack will be installed where space allows

**Figure 3-2** shows the locations of bike racks in Beverly Hills. Bike racks are most appropriate for short-term storage of bicycles, approximately two hours or less. Long-term storage of bicycles requires more secure amenities, such as lockers or enclosed mobility hubs. There are no public long-term bike parking facilities in Beverly Hills. Opportunities exist for this program to encourage “rock star” parking for bikes, where spaces are very convenient to encourage use and very visible to discourage theft.



This may even consider reallocation of choice on-street parking spaces for conversion to bicycle corrals. Bicycle corrals are an on-street bicycle parking facility that can accommodate up to 16 bicycles in the same area as a single vehicle parking space. They work best where sidewalks are too narrow to accommodate bicycle racks and in areas with both high levels of people bicycling and demand for bicycle parking. When placed near street corners, a corral also creates an additional buffer between people walking and people driving.



### 3.1.2 BIKE SHARE

Bike share is a form of public transportation where bicycles are made available 24/7 for rent for short, point-to-point trips. The City has operated Beverly Hills Bike Share since 2016. The system started with 11 bike share stations and more than 100 bikes, and expanded in April 2018 to include access to the bike share systems in Santa Monica, West Hollywood, and UCLA. Together, these four bike share systems make up Bike Share Connect, which has a coverage area of 35 square miles, 135 stations, and 830 GPS-connected smart bikes. Members of Bike Share Connect can pick up and drop off bikes within any of the four bike share systems without an additional fee. **Figure 3-3** shows the locations of bike share stations in Beverly Hills, which includes:

- City Hall – North Crescent Drive and South Santa Monica Boulevard
- North Camden Drive and South Santa Monica Boulevard
- South Beverly Drive and Gregory Way
- Third Street and North Maple Drive
- Civic Center Drive and Burton Way
- Wilshire Boulevard and Beverly Drive
- Wilshire Boulevard and South Santa Monica Boulevard
- La Cienega Tennis Center
- Wilshire Boulevard and Doheny Drive
- South La Peer Drive and Olympic Boulevard





Figure 3-2: City of Beverly Hills Bike Rack Locations

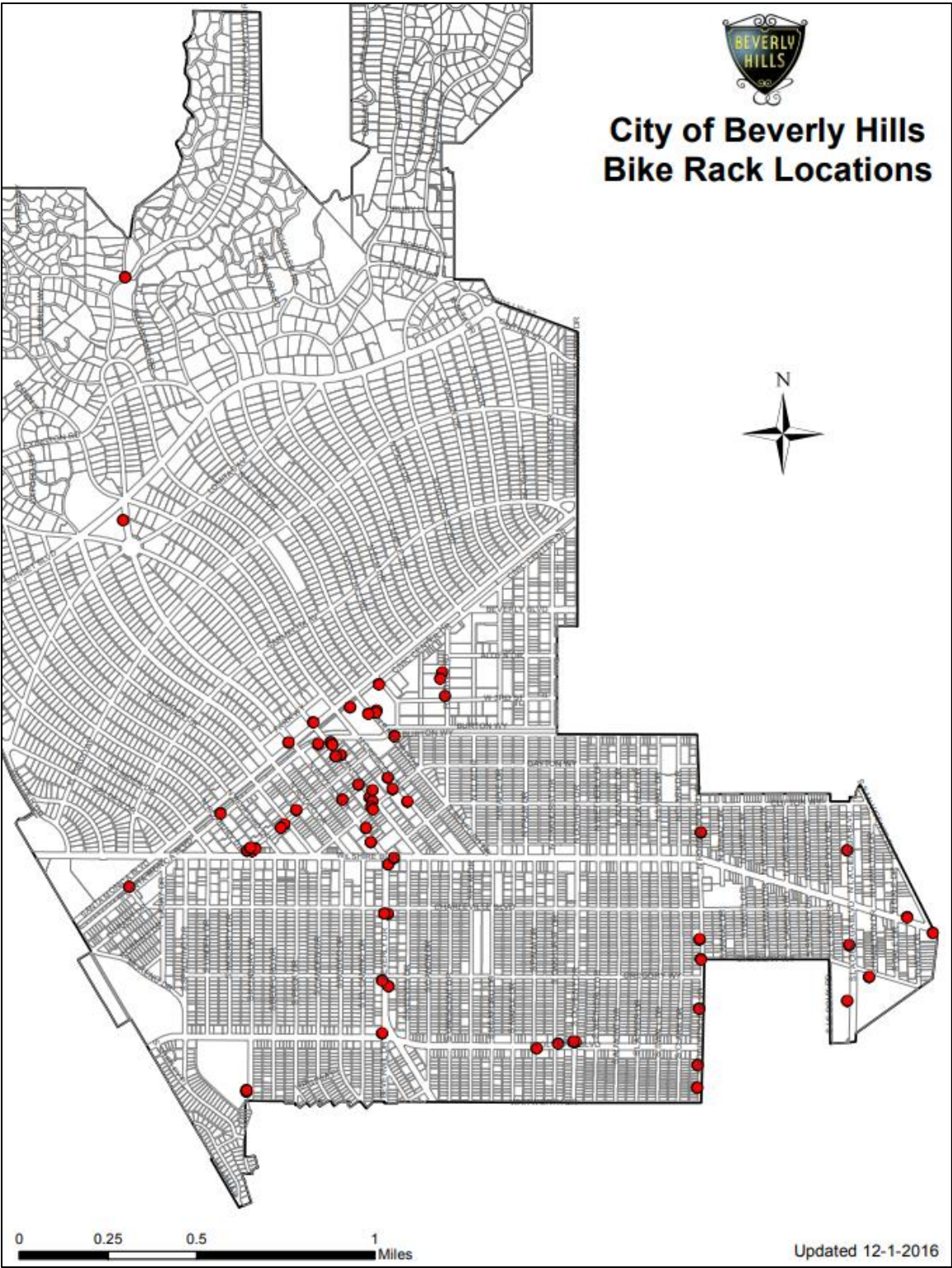




Figure 3-3: Bike Share System Area





The City uses average trips per bike per day to evaluate performance of the bike share system. Under this metric, a score of 1.0 means that all bikes were used at least once in a 24-hour period. From September 2016 to September 2017, the average trips per bike per day in Beverly Hills was 0.29, which is considered low based on industry best practices. Successful bike share systems have stations located adjacent to low-stress bicycle infrastructure; it is possible that with the implementation of bikeway infrastructure recommendations in the Complete Streets Plan, average trips per bike per day could increase. Another opportunity may be to provide electric bikes in the bike share fleet to promote use by older adults or less fit individuals. Providing bike share membership as part of any car share program undertaken by the City may also grow usage. The City may further consider establishing a program to reward residents who choose to use the bike share to bicycle for short trips with incentives meaningful to residents for programs operated by the City.

In September 2018, Metro began offering free transfers between their countywide bike share system, Metro Bike Share, and Metro buses and trains via TAP card integration. In the future, Metro plans to expand free transfers from Metro transit to the Bike Share Connect system, though the partner organizations would be responsible for the cost of system enhancements necessary to facilitate this integration.

A shortcoming of Bike Share Connect is that it may not be accessible to low-income users. The cost to ride is \$3.50 per 30 minute trip and there is no direct cash payment option available, which poses a significant obstacle for unbanked individuals. However, discounted memberships are currently available for students and low-income residents. In September 2018, Metro Bike Share implemented a fare reduction of its single-ride bike-share passes from \$3.50 to \$1.75 per 30 minutes, equivalent to the price of a local transit fare. Bike Share Connect should consider matching these rates, which may also increase usage.

Another challenge of Bike Share Connect is it is not inter-operable with Metro Bike Share because the two systems use different vendors and technologies. If Metro Bike Share were to expand to communities surrounding Beverly Hills, the City would need to work with Metro to educate members on the two systems to reduce confusion.

### 3.1.3 BICYCLE PROGRAMS

The City of Beverly Hills has instituted a number of programs designed to promote bicycle use, described in **Table 3-2** below.

**Table 3-2: Beverly Hills Bicycle Programs**

PROGRAM	DESCRIPTION
Bike Smart	In 2016, the City of Beverly Hills collaborated with Hawthorne Elementary School to provide weekly bicycle safety classes to children between 3 and 8 years old. The program is not currently active.
Bike Share Helmet Pilot Program	The City of Beverly Hills offers bike share members a free helmet, based on availability/inventory. Members must sign a waiver to receive a helmet.
Bicycle and Pedestrian Awareness Program	In 2017, the Southern California Association of Governments awarded the City of Beverly Hills \$141,000 through its 2017 Active Transportation Call for Proposals for a Bicycle and Pedestrian Awareness Program that will educate residents about safety and promote walking and biking.
Bike Rack-on-Request Program	The City of Beverly Hills provides business owners the opportunity to request a bike rack to be installed adjacent to their place of business in the public right-of-way (if feasible). The bike racks are available free of charge.
Beverly Hills Police Department Bicycle Patrol	The City of Beverly Hills' Police Department has a unit that conducts enforcement by bicycle.
Bike Month	The City of Beverly Hills has proclaimed the month of May as Bike Month and celebrated national events like Bike to Work Day.
Large-scale Bike Events	The City of Beverly Hills provides support to large-scale bike events like the Amgen Tour of California Bike Race, Gran Fondo Italia Bike Event, and AIDS/LifeCycle Bike Ride that come through the city.



## 3.2 Existing Pedestrian Facilities

The Business Triangle in Beverly Hills is one of the most walkable neighborhoods in the Los Angeles region. The City was one of the first communities in the United States to implement pedestrian scrambles, and has since enhanced many downtown streets with wider sidewalks, midblock crossings, wayfinding signage, decorative lighting, and curb extensions to improve the pedestrian experience.

In 2015, the City received a Metro Call for Projects grant to improve pedestrian crossings at intersections throughout Beverly Hills (funding anticipated to be available in 2019/2020). The grant will fund new midblock crossings on the 400 blocks of Bedford and Camden Drives; curb extensions at the existing midblock crossing on the 200 block of South Beverly Drive; pedestrian refuge islands at the existing crosswalks at Wilshire Boulevard/Palm Drive and Robertson Boulevard/Chalmers Drive; enhanced crosswalks at Wilshire Boulevard and Beverly, Roxbury, Camden, and Bedford Drives; and upgrades to continental crosswalks at 20 additional intersections. In 2018, as part of the North Santa Monica Boulevard Reconstruction Project, the City completed the implementation of eight raised crosswalks connecting the decomposed granite pedestrian path through Beverly Gardens Park across intersections.

Recently, the City identified the standard crosswalk style in Beverly Hills as continental in an effort to make pedestrians in intersections more visible and is currently working to upgrade existing crosswalks citywide through maintenance. Through the Complete Streets Plan process, staff developed a crosswalk policy (**Appendix C**) that identifies appropriate locations for marked crosswalks and supporting infrastructure enhancements that will be applied to all future crosswalk installations. **Table 3-3** describes and identifies the locations of enhanced midblock, scramble, and raised crosswalks in Beverly Hills.



In 2017, the City's Public Works Department conducted a Sidewalk Inventory Report that evaluated the conditions of sidewalks based on existing conditions and rehabilitation plans, as shown in **Figure 3-4**. The locations coded as good or very good (green lines) are ADA-compliant sidewalks with minimal rehab required. Locations coded as poor (orange lines) or very poor (red lines) are deficient and require more rehab. The report provides details on rehab priorities at each location. The average sidewalk condition index (CSI) for the City was determined to be 72, which is fair.

While the pedestrian environment is robust in the Business Triangle with well-maintained sidewalks and marked crosswalks, there is room for improvement on commercial corridors outside the heart of downtown. Consistent landscaping, pedestrian-scale lighting, and street furniture, especially along key corridors that access the future Metro Purple Line subway stations, will dramatically improve the walkability of other parts of Beverly Hills and improve first/last mile connections. Continuing to improve sidewalks identified as in need of repair will help increase accessibility and encourage walking more often.



Table 3-3: Existing Enhanced Crosswalks





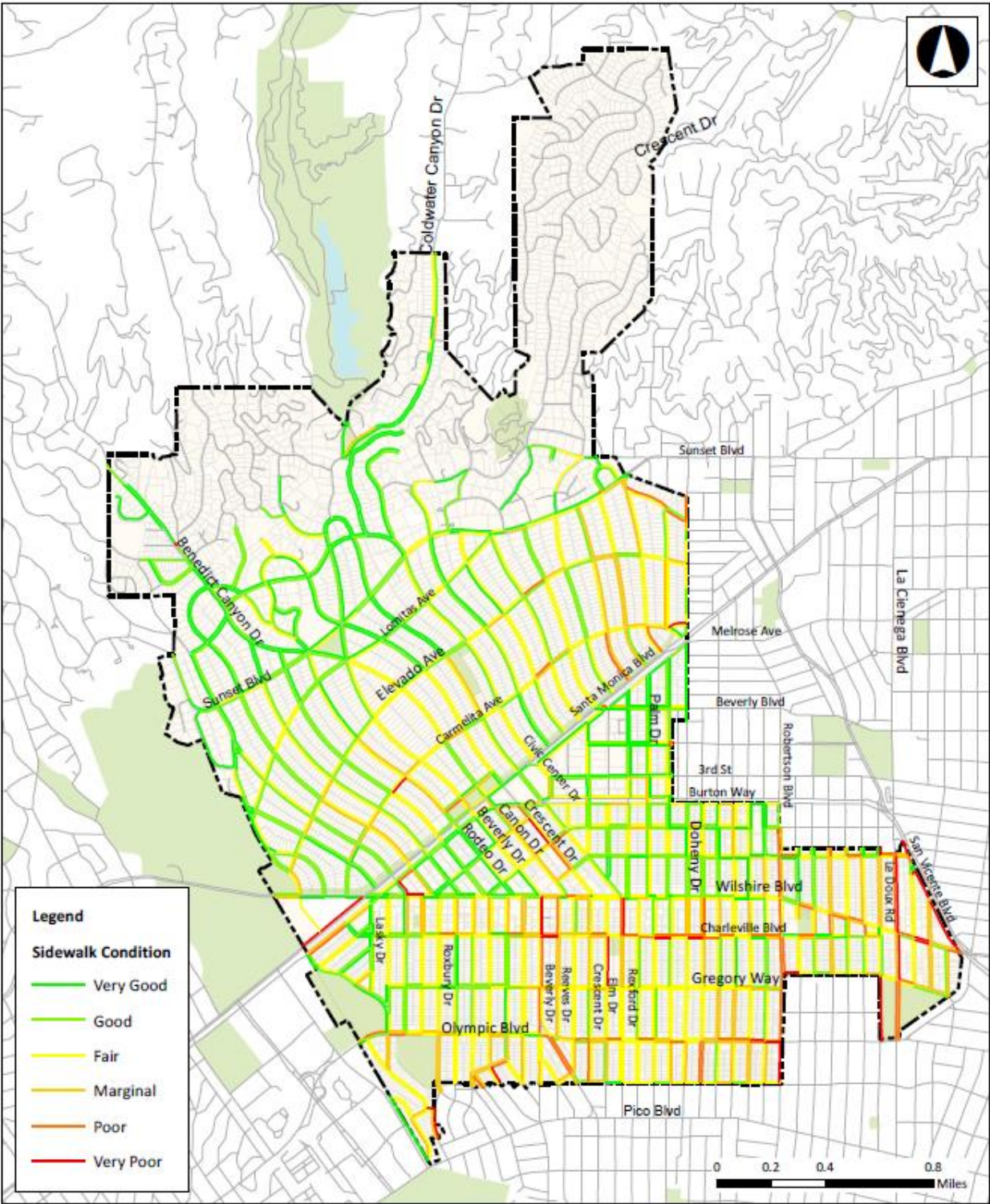
TYPE	DESCRIPTION	PHOTO	EXISTING FACILITIES
Midblock Crosswalks	<ul style="list-style-type: none"> <li>Crosswalks located between two intersections</li> <li>Are accompanied by traffic control</li> </ul>		<p>Canon Drive</p> <ul style="list-style-type: none"> <li>Between South Santa Monica Boulevard and Brighton Way</li> <li>Between Brighton Way and Dayton Way</li> <li>Between Dayton Way and Wilshire Boulevard</li> </ul> <p>Beverly Drive</p> <ul style="list-style-type: none"> <li>Between South Santa Monica Boulevard and Brighton Way</li> <li>Between Brighton Way and Dayton Way</li> <li>Between Dayton way and Wilshire Boulevard</li> <li>Between Charleville Boulevard and Gregory Way</li> </ul> <p>Rodeo Drive</p> <ul style="list-style-type: none"> <li>Between South Santa Monica Boulevard and Brighton Way</li> <li>Between Brighton Way and Dayton Way</li> </ul> <p>Robertson Boulevard</p> <ul style="list-style-type: none"> <li>Between Chalmers Drive and Olympic Boulevard</li> </ul> <p>Wilshire Boulevard</p> <ul style="list-style-type: none"> <li>Between Clark Drive and Swall Drive</li> </ul>
Scramble Crosswalks	<ul style="list-style-type: none"> <li>All red pedestrian signal phase</li> <li>Allows pedestrians to cross in any direction</li> </ul>		<ul style="list-style-type: none"> <li>Brighton Way and Bedford Drive</li> <li>Brighton Way and Camden Drive</li> <li>Brighton Way and Rodeo Drive</li> <li>Brighton Way and Canon Drive</li> <li>Dayton Way and Rodeo Drive</li> <li>Dayton Way and Canon Drive</li> </ul>
Raised Crosswalks	<ul style="list-style-type: none"> <li>Extends the sidewalk across the road</li> <li>Brings motor vehicles up to the pedestrian level</li> <li>Serves as a traffic calming device</li> </ul>		<ul style="list-style-type: none"> <li>Alpine Drive</li> <li>Foothill Road</li> <li>Elm Drive</li> <li>Maple Drive</li> <li>Hillcrest Road</li> <li>Arden Drive</li> <li>Alta Drive</li> <li>Sierra Drive</li> <li>Oakhurst Drive</li> <li>Third Street (in progress)</li> </ul>
Enhanced Crosswalks	<ul style="list-style-type: none"> <li>Marked crosswalks at intersections with supplemental measures to improve access and safety</li> </ul>		<ul style="list-style-type: none"> <li>Lasky Dr and South Santa Monica Boulevard</li> <li>South Palm Drive at Wilshire Boulevard (planned)</li> </ul>



Figure 3-4: Citywide Sidewalk Conditions





### 3.2.1 PEDESTRIAN PROGRAMS

The City of Beverly Hills has instituted several programs designed to promote walking, described in **Table 3-4** below.

**Table 3-4: Beverly Hills Pedestrian Programs**

PROGRAM	DESCRIPTION
Bicycle and Pedestrian Awareness Program	In 2017, the Southern California Association of Governments awarded the City of Beverly Hills \$141,000 through its 2017 Active Transportation Call for Proposals for a Bicycle and Pedestrian Awareness Program that will educate residents about safety and promote walking and biking.
Walk With the Mayor	To promote health and wellness, former Mayor Lili Bosse hosted weekly Monday morning walks leaving from City Hall.

## 3.3 Existing Transit

The transit system serving Beverly Hills is primarily comprised of bus service provided by Metro local and rapid lines. Additional bus service is operated by the Antelope Valley Transit Authority (AVTA) and Santa Monica's Big Blue Bus. Bus routes serving Beverly Hills are listed in **Table 3-5**.

**Table 3-5: Bus Routes in the City of Beverly Hills**

SERVICE AGENCY	ROUTE NAME	STREETS	SERVICE AREA	PEAK HOUR FREQUENCY (MINUTES)	
				AM	PM
Metro Local and Limited	2/302	Sunset Blvd	Westwood - Downtown Los Angeles	20-30	20-25
Metro Local	4	Sunset Blvd	Santa Monica/ West Los Angeles - Downtown Los Angeles	15-20	10-15
Metro Local	14	Canon Dr, Beverly Dr, Beverly Blvd, Burton Way & Doheny Dr	Larchmont Village - Downtown Los Angeles	10-20	5-10
Metro Local	16/316	Burton Way & Robertson Blvd	Century City - Downtown Los Angeles	5-15	5-10
Metro Local	17	Robertson Blvd	Culver City - Downtown Los Angeles	25-30	30-40
Metro Local	20	Wilshire Blvd	Santa Monica/ Westwood - Downtown Los Angeles	10-15	10-20
Metro Local	28	Olympic Blvd	Century City - Eagle Rock	10-20	10-25
Metro Local	30/330	San Vicente Blvd	West Hollywood - Downtown Los Angeles/ East Los Angeles	25-30	30-45
Metro Local	105	La Cienega Blvd	West Hollywood - Vernon	15-25	15-20
Metro Local	220	Robertson Blvd	Culver City - Beverly Center	Limited	Limited
Metro Rapid	704	Santa Monica Blvd	Santa Monica - Union Station	15-20	10-15
Metro Rapid	705	La Cienega Blvd	West Hollywood - Vernon	10-30	15
Metro Rapid	720	Wilshire Blvd	Santa Monica - City of Commerce	8-11	3-5
Metro Rapid	728	Olympic Blvd	Century City - Union Station	10-20	10-20
Antelope Valley Transit Authority	786	Rodeo Drive & Wilshire Blvd	Century City/ West Los Angeles - Palmdale/Lancaster	Limited	Limited
Big Blue Bus	5	Olympic Blvd	Santa Monica - Palms	20	20
LADOT Commuter Express	534	Olympic Blvd	Union Station - Westwood	Limited	Limited



**Figure 3-5** presents the average weekday Metro boardings and alightings at the 72 local bus stops in the City of Beverly Hills. The stops with the highest average weekday boarding are observed at:

- South Santa Monica Boulevard and Crescent Drive
- La Cienega Boulevard and Wilshire Boulevard
- North Santa Monica Boulevard and Crescent Drive

The stops with the highest average weekday alightings are observed at:

- Sunset Boulevard and Canon Drive
- Doheny Drive and Beverly Boulevard
- South Santa Monica Boulevard and Canon Drive



**Figure 3-6** presents the average weekday Metro boarding and alightings at the 15 rapid bus stops in the City of Beverly Hills. The stops with the highest average weekday boarding and alighting are observed at:

- Wilshire Boulevard and Santa Monica Boulevard
- Wilshire Boulevard and Rodeo Drive
- Wilshire Boulevard and Robertson Boulevard



The City of Beverly Hills has 119 total bus stops, but only one bus shelter. Some bus stops have seating, trash receptacles, or other amenities, but many others do not. The City has a tremendous opportunity to improve the transit user experience and attract new riders by adding amenities to bus stops.

While the draft Complete Streets Plan does not recommend service changes because the City does not operate the existing transit services, it makes recommendations to the public right-of-way that could improve transit reliability and enhance the user experience.

### 3.3.1 METRO PURPLE LINE EXTENSION

Two subway stations are under construction in Beverly Hills as part of the Metro Purple Line Extension from Koreatown in Los Angeles to the VA Hospital in Westwood, shown in **Figure 3-7**. The stations will be located at Wilshire Boulevard/La Cienega Boulevard and Wilshire Boulevard/Reeves Drive (known as the Wilshire/Rodeo station). The Metro Purple Line is currently 6.4-miles and will extend another approximately nine miles west when completed.

In 2023, the Wilshire/La Cienega station of the Metro Purple Line extension is anticipated to open, followed by the Wilshire/Rodeo station in 2025. While it will fall under Metro's jurisdiction to operate the subway line and manage the station plazas at street level, it will fall under the City's jurisdiction to improve the routes leading to and from the future stations, providing quality first/last mile connections.

In early 2019, the City and Metro began the development of a First-Last Mile Plan for the Wilshire/Rodeo station to improve biking, walking, and bus connections to the future station. That effort will be closely coordinated with recommendations made in this Complete Streets Plan.



Figure 3-5: Average Weekday Boarding and Alighting at Metro Local Stops

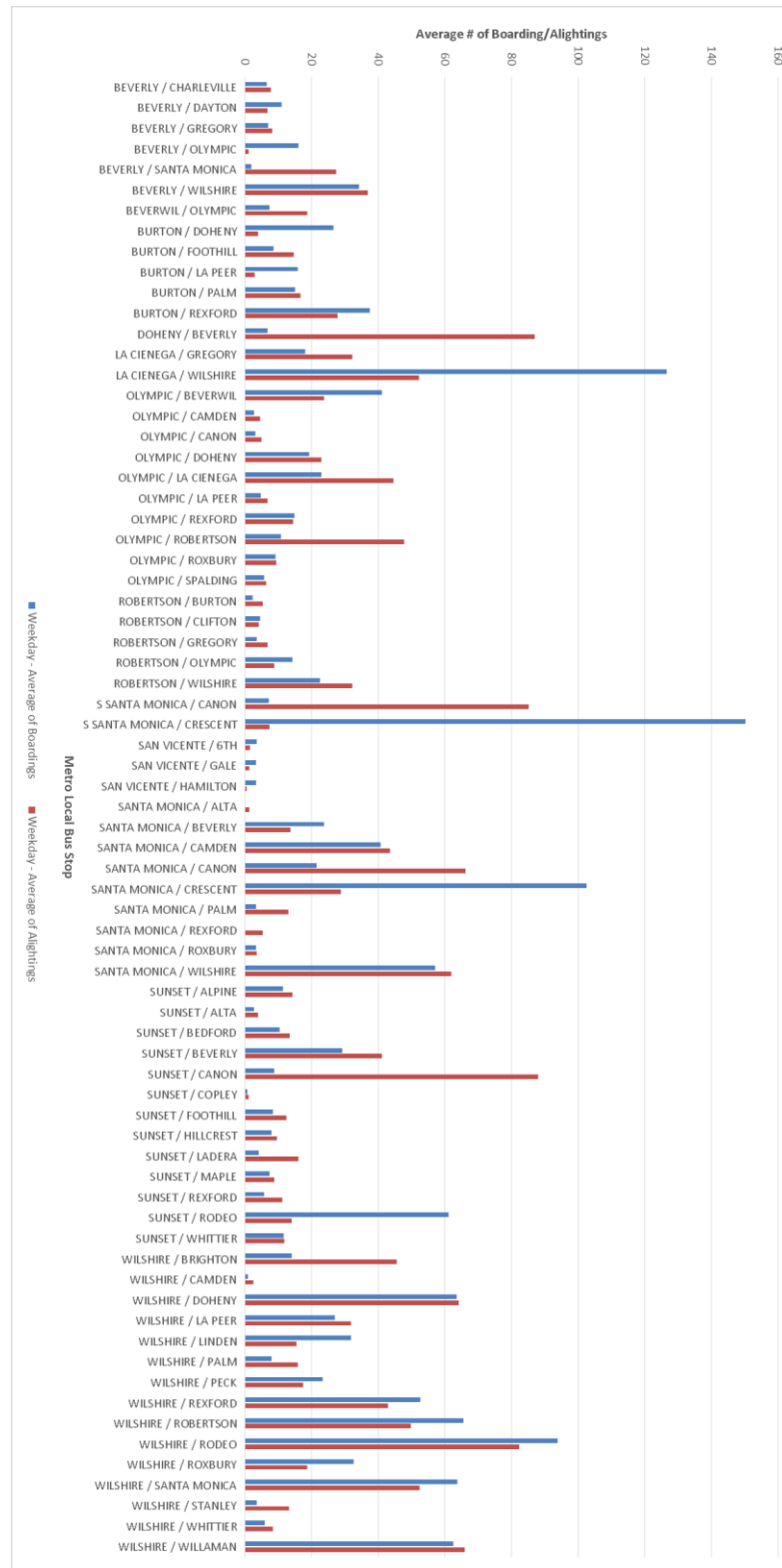




Figure 3-6: Average Weekday Boarding and Alighting at Metro Rapid Bus Stops

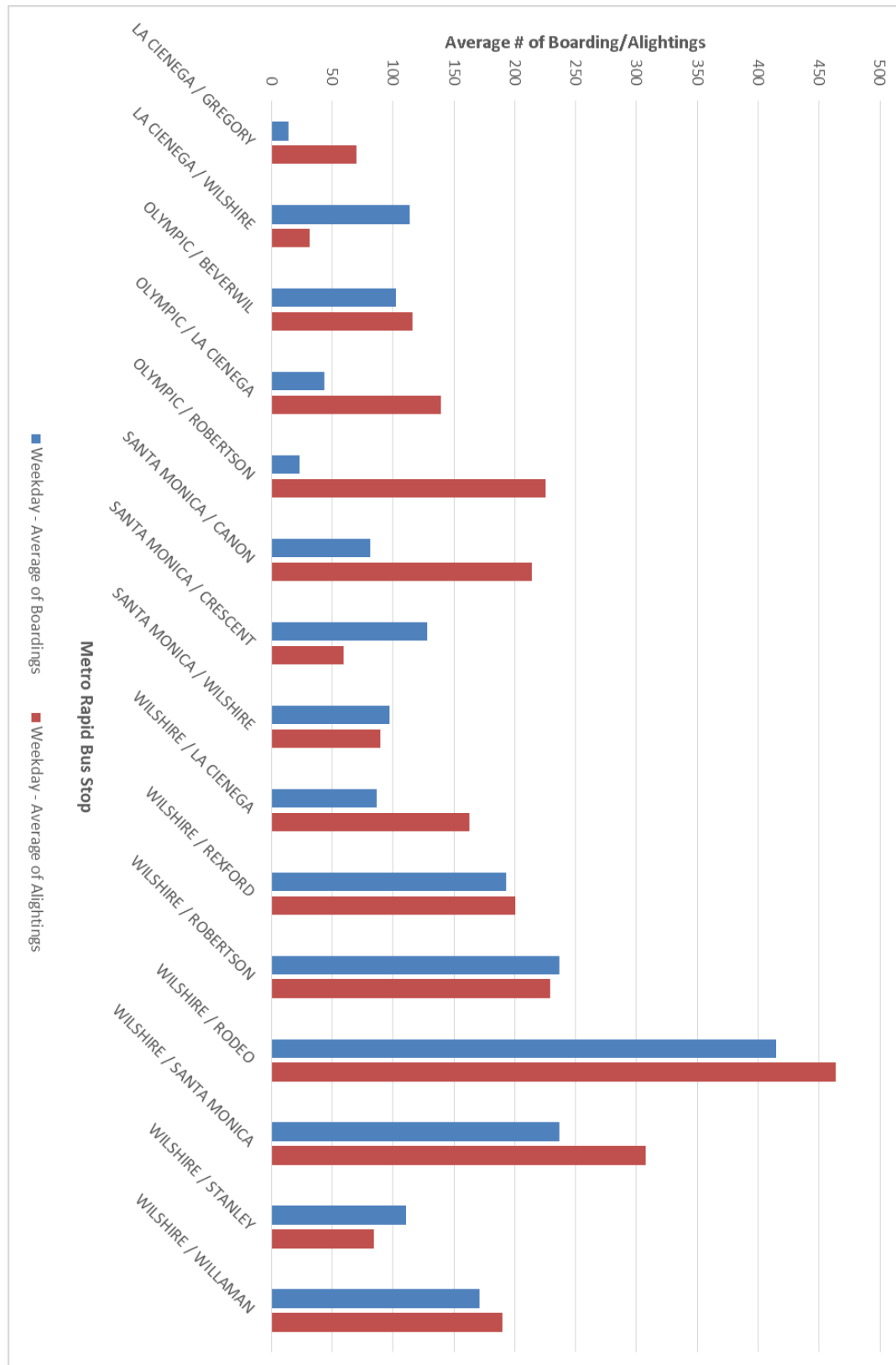
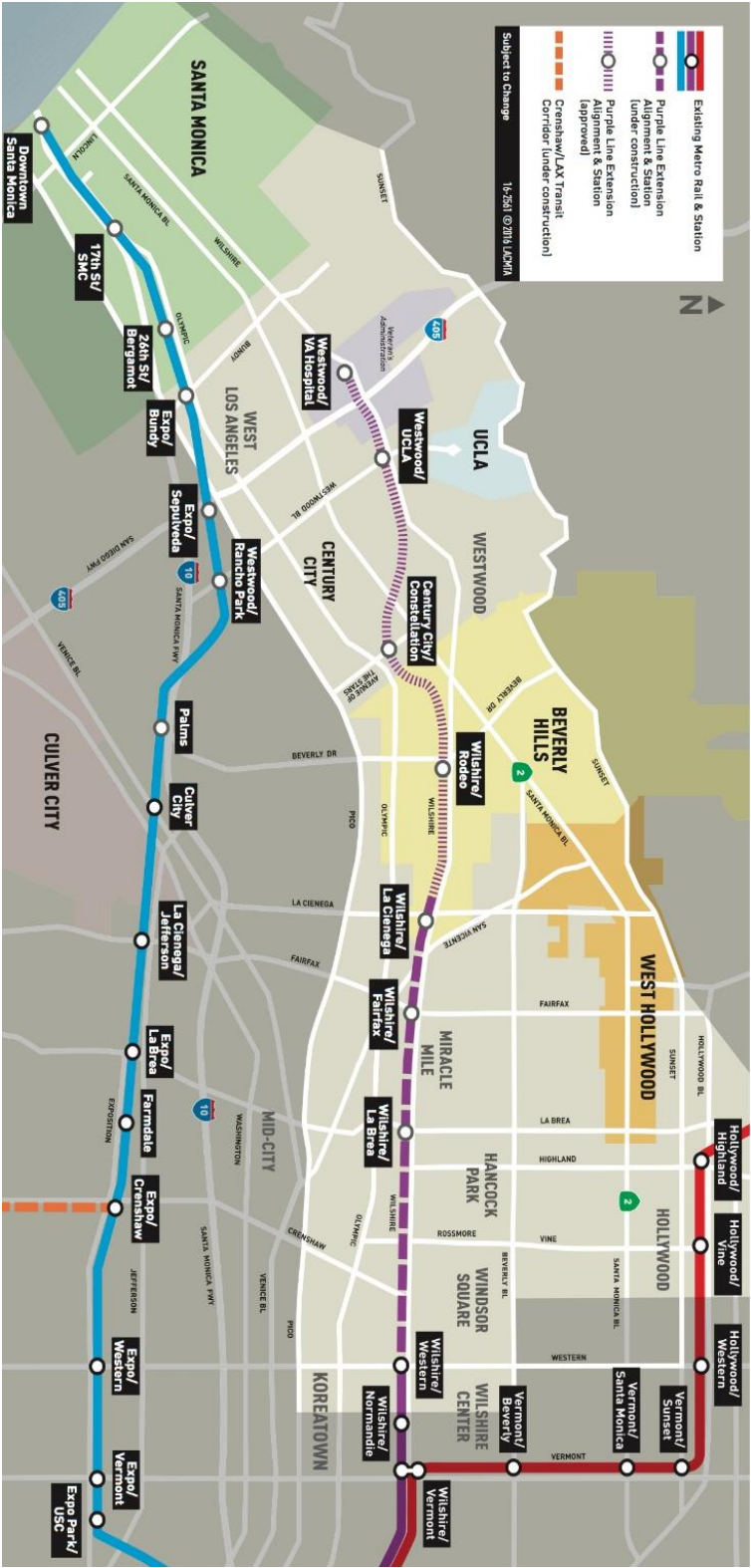




Figure 3-7: Metro Purple Line Extension and Station Locations





### 3.3.2 TRANSIT PROGRAMS

The City of Beverly Hills has instituted several programs designed to promote transit use, described in **Table 3-6** below.

**Table 3-6: Beverly Hills Transit Programs**

PROGRAM	DESCRIPTION
Trolley	The City of Beverly Hills offers free trolley service between the Third Street tour bus location and Rodeo Drive on Saturdays and Sundays from 11 a.m. to 5 p.m. During high traffic seasons, such as summer, service is expanded.
Dial-A-Ride	The City of Beverly Hills provides curb to curb pick-up and drop-off for Dial-A-Ride and Supermarket shuttles. The service is for seniors age 62 and older and people with disabilities.
Metro Bus Pass Senior Discount Program	Beverly Hills residents age 62 or older, and disabled residents of any age, are eligible for a 30-day discounted bus passes for \$7.00.
New Employee Metro Pass Program	The City of Beverly Hills in collaboration with Metro provides seven days of unlimited transit services to new City employees.

## 3.4 Existing Vehicle Infrastructure

In conjunction with the Complete Streets Plan, the City is in the process of updating its signal system and reevaluating operations to prepare for advancements in vehicle/signal technology. Through Metro Call for Projects grants, the City has synchronized signals on all major corridors starting in the 1990s. Much of the equipment is approaching the life cycle for replacement. A new software system will allow the City to store signal timing data in a robust database, which would provide greater capabilities for the City to optimize signal operations; reduce the likelihood of system crashes; and allow for implementation of future technology, such as connected and autonomous vehicles, that cannot operate on the City's current system.

The City developed a planning document which includes city staff/consultant roles, planning, implementation, and operations for the upgraded traffic signal system. The project is currently in the planning phase. The City retained KOA Corporation to conduct inventories at each signalized intersection, which includes the hardware/software in the cabinet, signals poles, and signal infrastructure on the poles. The Traffic Management Center located in the Public Works Department is also included as part of the inventory for upgrade. Following the inventory, KOA Corporation will provide the City a narrative on their findings, make recommendations, and provide bidding documents for implementing a new traffic management system and layout of a new Traffic Management Center.

The City is currently working on a Southwest Traffic Calming pilot project with residents in the Southwest neighborhood of Beverly Hills. The pilot is exploring potential traffic calming devices and device locations to both slow speeds and reduce commuter cut-through traffic.

Roadways in Beverly Hills are classified as arterials and collectors (roadways carrying primarily regional traffic), or local streets. Roadways carrying regional traffic through the City of Beverly Hills are listed in **Table 3-7**.



Table 3-7: Roadway Classification

ROADWAY	CLASSIFICATION	DIRECTION	LANES		ON-STREET PARKING	BIKE FACILITY	MEDIAN TYPE	SPEED LIMIT
			NB/EB	SB/WB				
Beverly Blvd	Principal Arterial	East/West	2	2	No	-	Striped	25 mph
Burton Way	Principal Arterial	East/West	2	2	Yes	Class II	Raised	25 mph
La Cienega Blvd	Principal Arterial	North/South	2**	2**	Yes**	-	Striped	35 mph
N Santa Monica Blvd	Principal Arterial	East/West	2	2	No	-	Striped	35 mph
Olympic Blvd	Principal Arterial	East/West	2**	2**	Yes**	-	Striped	35 mph
Sunset Blvd	Principal Arterial	East/West	2	2	No	-	Raised	35 mph
Wilshire Blvd	Principal Arterial	East/West	2-3	2-3	Yes	-	Raised***	30 mph
Beverly Dr	Minor Arterial	North/South	1-2	1-2	Yes	-	-	25 mph
Robertson Blvd	Minor Arterial	North/South	2	2	Yes	-	-	25 mph
S Santa Monica Blvd	Minor Arterial	North/South	2	2	No	-	-	25 mph
Beverwil Dr	Collector Street	North/South	2	2	Yes	-	-	30 mph
Benedict Canyon Dr	Collector Street	North/South	1	1	Yes	-	-	35 mph
Coldwater Canyon Dr	Collector Street	North/South	1	1	No	-	-	30 mph
Doheny Dr	Collector Street	North/South	1	1-2	Yes	-	Striped	25 mph/ 35 mph

Note: Roadway classification is based on City of Beverly Hills General Plan

\*Only the portion of Canon Drive north of Santa Monica Boulevard is deemed by the City to carry regional traffic.

\*\*La Cienega Boulevard and Olympic Boulevard have curbside parking lanes. However, parking is not allowed during morning and evening peak periods, transforming them from two to three-lane arterials.

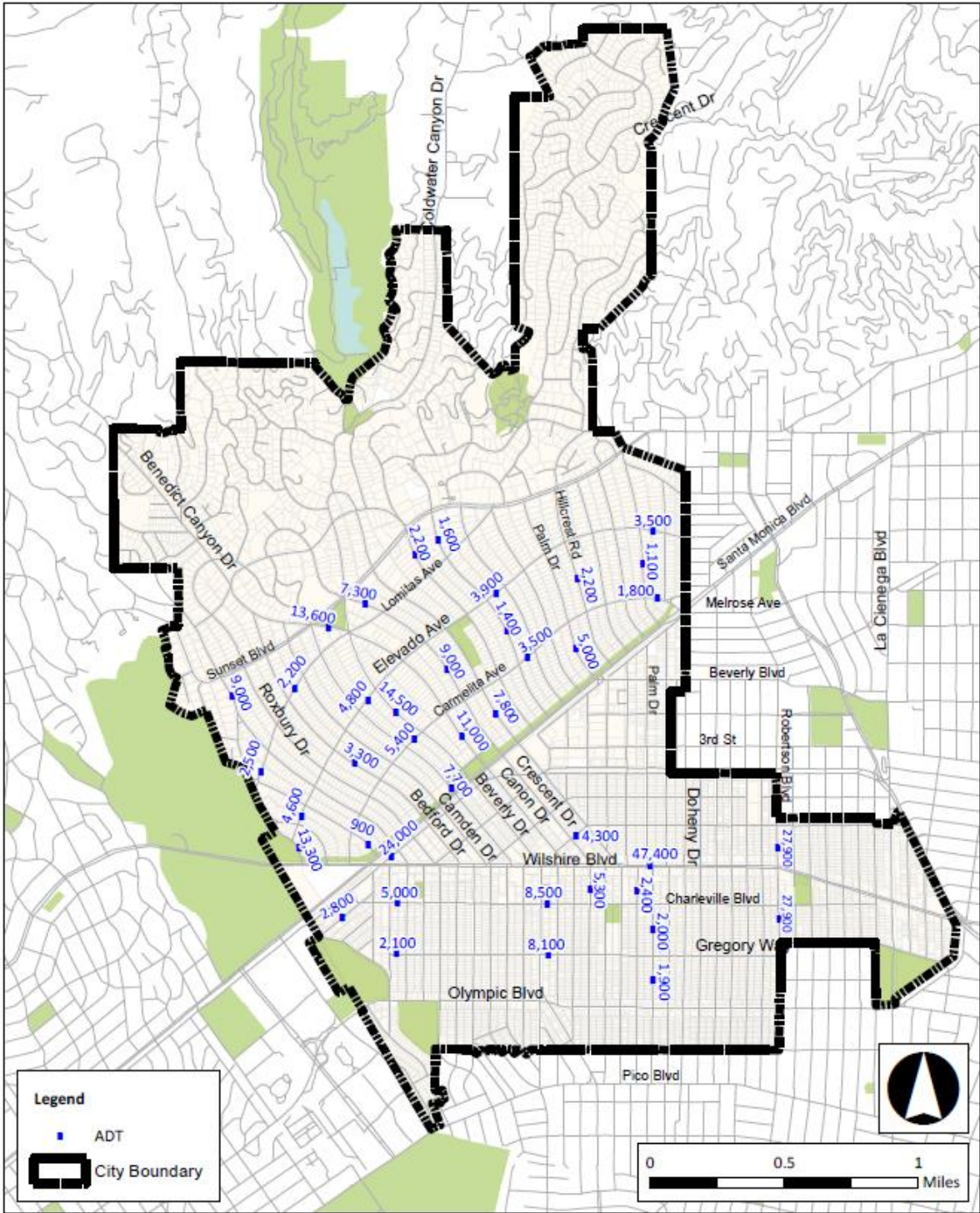
\*\*\*Some sections of Wilshire Boulevard contain raised median islands.

Figure 3-8 shows the average daily traffic (ADT) within the City. ADT is the total volume of vehicle traffic that passes along a highway or road in a typical 24-hour period. It is an important factor to consider when planning improvements to the roadway network and can be used to measure changes in travel patterns, such as increases in cut-through traffic.

Challenges with traditional ADT collection come with the variability of traffic patterns, which may be impacted by construction, events, emergency response incidents, weather, etc., on day(s) of collection. The related opportunity, increasingly embraced by transportation agencies, is to establish an ongoing traffic count data collection program using permanent count stations. Technology has progressed over the past 25 years to allow use of video detection cameras (i.e., smart sensors at traffic signals) to not only operate traffic signals, but also count vehicles, bicycles, and pedestrians. In this way, agencies know who is using their respective street segments, and they have the inputs necessary to operate the streets to assure safety for all users.



Figure 3-8: City of Beverly Hills Average Daily Traffic





### 3.4.1 PARKING

The City of Beverly Hills offers public parking through on-street meters and multiple off-street structures. **Figure 3-9** shows the locations for on-street metered parking and **Figure 3-10** shows the location of 18 parking structures within the City of Beverly Hills. Knowing the location and utilization of on- and off-street parking in the city will help inform future efforts to prepare for autonomous vehicles, as it is possible on-street parking stalls may need to be converted to loading zones along some commercial corridors.

The City provides 35 Electric Vehicle (EV) charging stations with 59 Level 2 ports, as shown in **Table 3-8**, to encourage the use of low-emission vehicles. Annual on-road sales of EVs are expected to reach eight percent of total new car sales by 2020 and ramp up to 15 percent in 2025.<sup>10</sup> Efforts should be made for similar percentages of parking spaces to be provided with EV chargers.



Parking in several residential neighborhoods is by permit-only on-street parking. Demand for use of public space to store private vehicles may be reduced through car share programs, which may also provide EV charging in the public right-of-way. Successful car share can reduce on-street parking and may free up pavement space for other uses, such as shared use mobility zones or bikeways.

**Table 3-8: Electric Vehicle Charging Stations**

ADDRESS	EV CHARGING STATIONS	# OF PORTS/LEVEL 2
345 N. Beverly Drive 4 7	4	7
216 S. Beverly Drive 2 2	2	2
9510 Brighton Way 2 4	2	4
440 N. Camden Drive 2 4	2	4
450 N. Rexford Drive 2 4	2	4
438 N. Beverly Dr. - 439 N. Canon Dr. 2 4	2	4
241 N. Canon Dr. - 242 N. Beverly Dr. 2 4	2	4
9333 W. Third Street 2 4	2	4
461 N. Bedford Drive 2 4	2	4
333 N. Crescent Drive 2 2	2	2
221 N. Crescent Drive 2 3	2	3
9361 Dayton Way 2 2	2	2
450 N. Crescent Drive 4 6	4	6
321 S. La Cienega Blvd. 2 4	2	4
City Council Parking Lot 1 1	1	1
Roxbury Park Community Center	2	4
<b>TOTAL</b>	<b>35</b>	<b>59</b>

Source: City of Beverly Hills

<sup>10</sup> <https://arb.ca.gov/cc/greenbuildings/pdf/tcac2018.pdf>, p 8.



Figure 3-9: On-Street Metered Parking

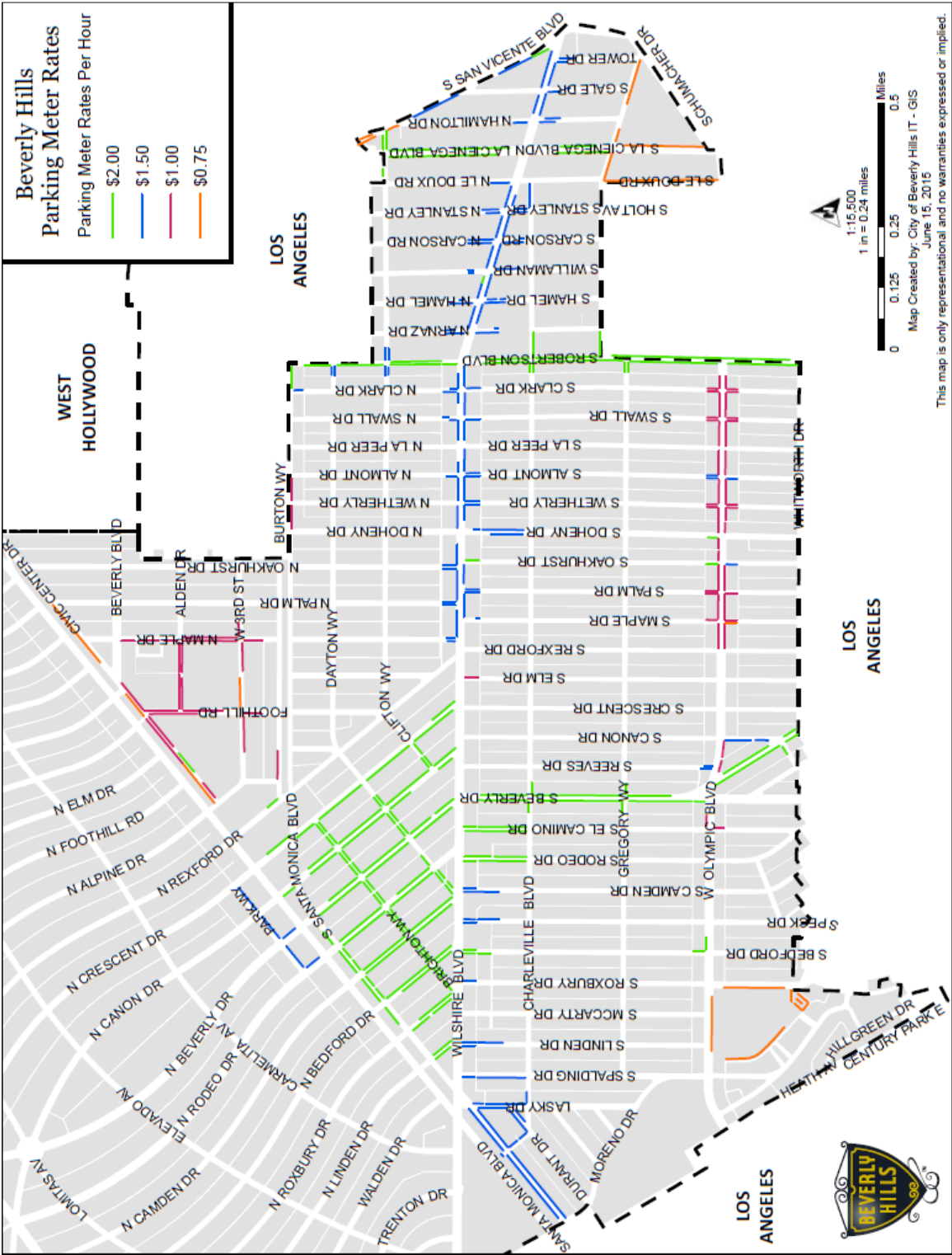




Figure 3-10: City of Beverly Hills Parking Structures

**First Two Hours Free Parking****Self Park Structures**

- 1** 345 N. Beverly Drive
- 2** 216 S. Beverly Drive
- 3** 9510 Brighton Way
- 5** 450 N. Rexford Drive
- 6** 438 N. Beverly Dr. - 439 N. Canon Dr.
- 321 S. La Cienega Blvd.** (not shown on map)
- 7** 241 N. Canon Dr. - 242 N. Beverly Dr.  
Public Gardens at Montage
- 9** 461 N. Bedford Drive

**Pay As You Go**

- 8** 9333 W. 3rd Street
- 18** 450 N. Crescent Drive



EV charging stations are available in all City non-metered parking structures

**First One Hour Free Parking****Self Park Structures**

- 4** 440 N. Camden Drive
- 10** 333 N. Crescent Drive
- 11** 221 N. Crescent Drive
- 12** 9361 Dayton Way

**3 Hour Meter Parking Structures**

- 13** **SM-1, 485 N. Beverly Drive**  
Beverly - Rodeo Drive
- 14** **SM-2, 485 N. Rodeo Drive**  
Rodeo - Camden Drive
- 15** **SM-3, 485 N. Camden Drive**  
Camden - Bedford Drive
- 16** **SM-4, 485 N. Bedford Drive**  
Bedford - Roxbury Drive
- 17** **SM-5, 485 N. Roxbury Drive**  
Roxbury - Linden Drive



### 3.5 Citywide Collisions

A 2011-2016 citywide collision analysis using data from the Statewide Integrated Traffic Records System (SWITRS), the Transportation Injury Mapping System (TIMS), and the City's police incident reports, identified initial observations about the collision landscape in Beverly Hills. The types of collisions occurring in the city are listed below.

- Broadside: 34 percent
- Rear-end: 23 percent
- Sideswipe: 18 percent
- Vehicle/pedestrian: 9 percent
- Hit object: 8 percent
- Head-on: 8 percent

**Figure 3-11** presents injury collision data by corridor in Beverly Hills. Slightly more than 70 percent of injury collisions over the six year period occurred on primary corridors (arterials and collectors). Wilshire Boulevard is one of the longest and busiest primary corridors within the city, and also has the highest number of collisions (19 percent of total injury collisions). Slightly more than one-third of injury collisions took place along the top three major corridors, Wilshire, Olympic, and Sunset Boulevards. Traffic congestion contributes to incidence of collisions, and these are also some of the most congested corridors in Beverly Hills. Due to the absence of collision management software, the City relies on manual tabulation of collision data.

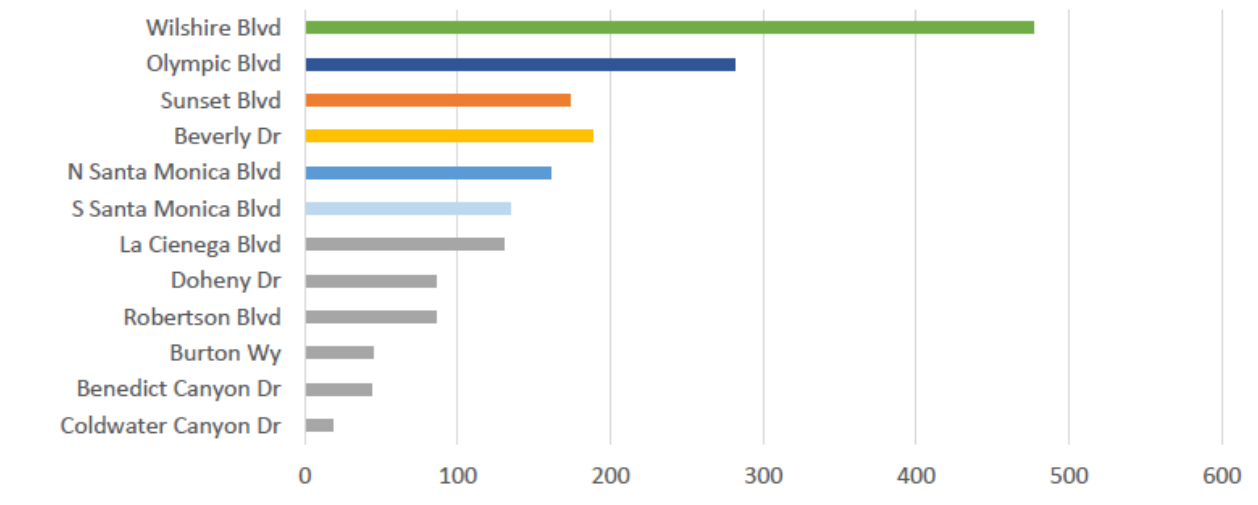
An average of 64 percent of injury collisions were very minor with a severity of “complaint of pain”, the lowest category, and about 34 percent with the next level of severity, “minor injury”. These averages are about the same for primary corridors and local streets in the city.

As shown in **Figures 3-12** and **3-13**, pedestrian and bicycle collision patterns along the primary corridors fluctuate from year to year, with no meaningful trend up or down over the six years. No one corridor disproportionately accounts for pedestrian or bicycle collisions compared to citywide totals. Citywide, pedestrian collisions fluctuated between 35 and 63 collisions each year. Bicycle collisions citywide fluctuated between 14 and 41 each year. Overall, pedestrian collisions in the City of Beverly Hills increased citywide from 2011 to 2016. There are no consistent trends for bicycle collisions citywide.

The City is in the process of procuring new collision management software to better track, analyze, and report on collisions in Beverly Hills. This software will help to prioritize improvements and communicate upgrades.

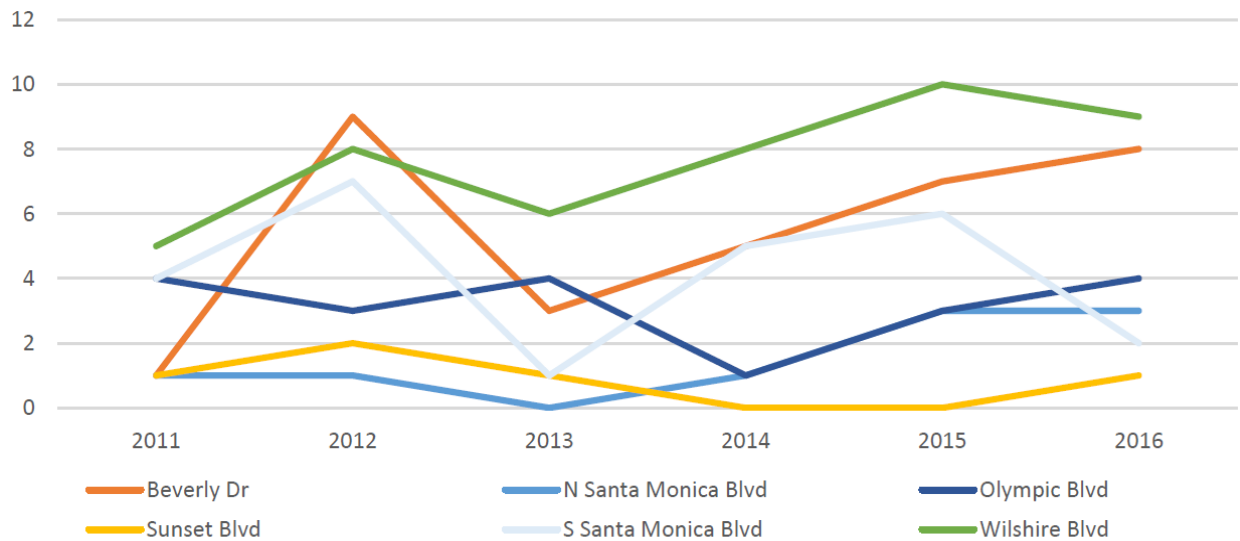


Figure 3-11: Total Injury Collisions by Corridor (2011-2016)



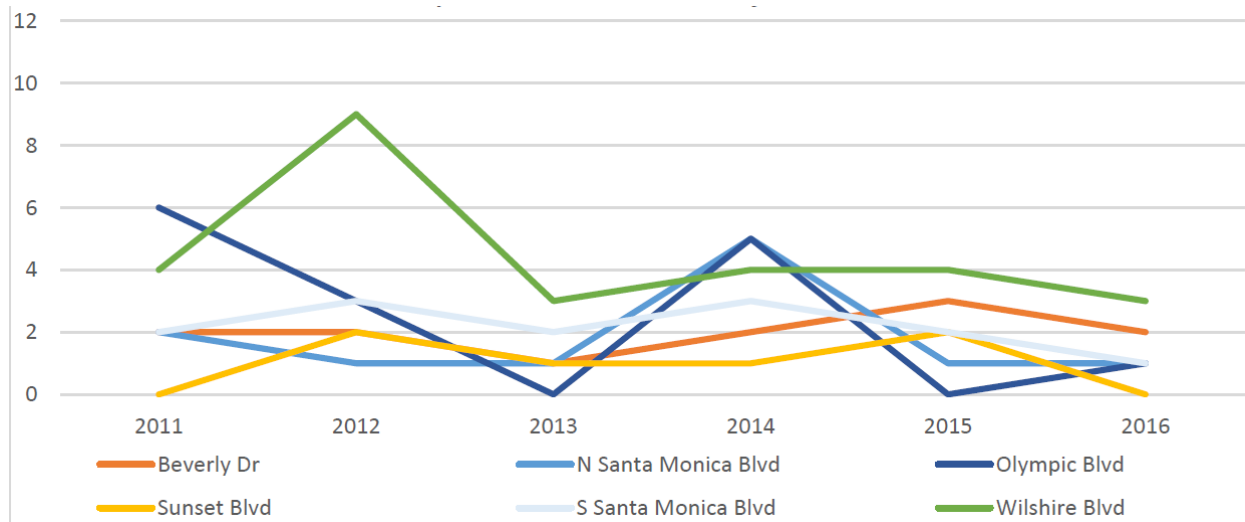
Source: Fehr & Peers, 2018

Figure 3-12: Pedestrian Collision Trends on Major Roads (2011-2016)



Source: Fehr & Peers, 2018



**Figure 3-13: Bicycle Collision Trends on Major Roads (2011-2016)**

Source: Fehr &amp; Peers, 2018

### 3.6 Key Destinations

Destinations within Beverly Hills, such as major employers, commercial areas, and schools, must be accessible via the transportation system, and thus inform the recommendations in this plan.

The City's 2016 Comprehensive Annual Financial Report<sup>11</sup> reported the top ten principal employers in Beverly Hills, which account for approximately 12 percent of the total city employment. Most of the employers are located in the Business Triangle. **Figure 3-14** shows the locations of major employers within the City of Beverly Hills, as well as the adjacent Cedars-Sinai Medical Center.

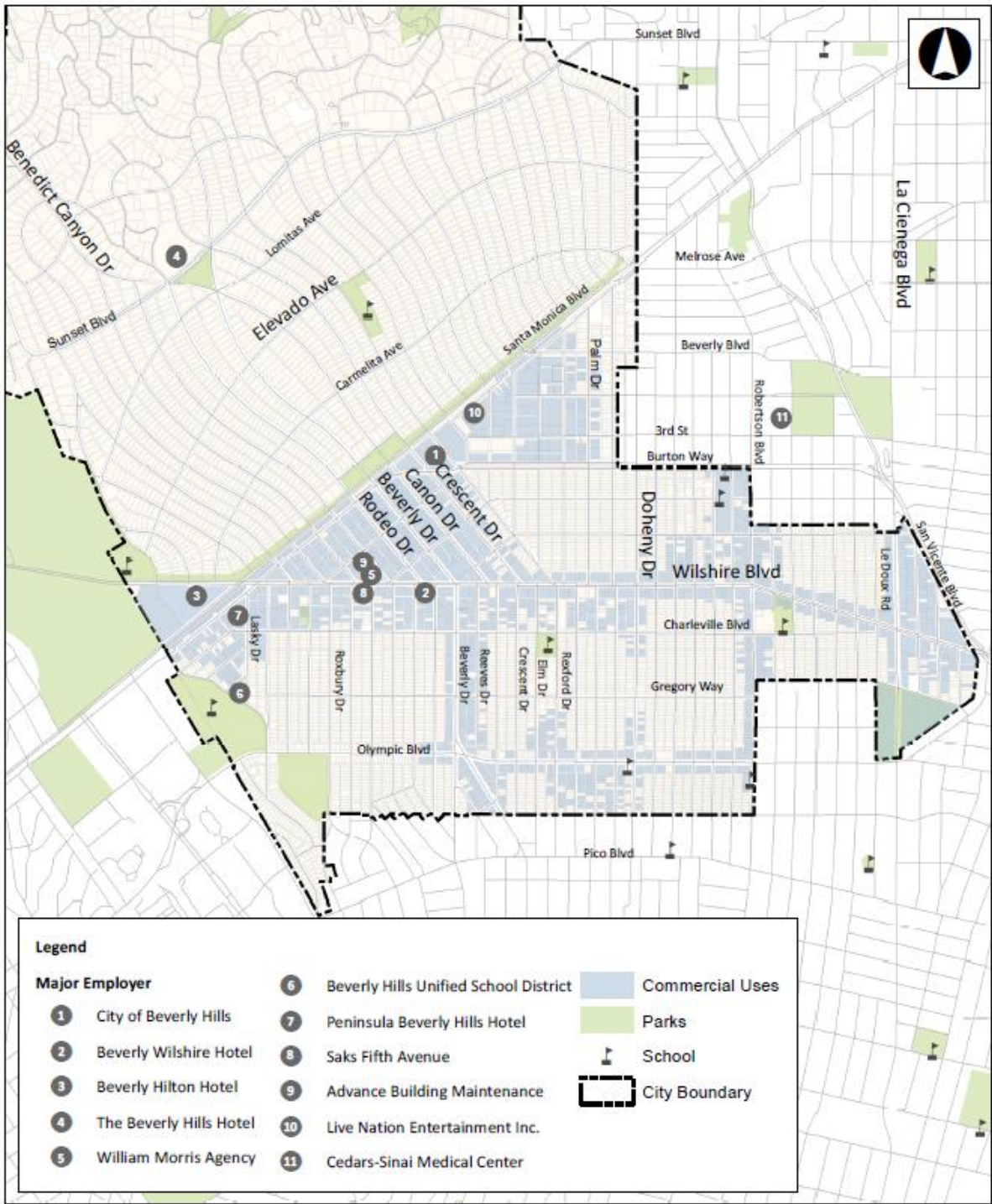
Commercial land uses in Beverly Hills are concentrated primarily within the Business Triangle and along major corridors, such as Wilshire Boulevard, La Cienega Boulevard, Robertson Boulevard, Beverly Drive, and Olympic Boulevard. These corridors are home to the retail destinations and employment centers that residents and visitors are often traveling to in Beverly Hills.

The Beverly Hills Unified School District operates four K-8 schools and two high schools within the city. The K-8 schools include Hawthorne School, El Rodeo School, Beverly Vista, and Horace Mann School. There are also two high schools, Moreno High School and Beverly Hills High School, which occupy a conjoined space at the southwest city border. Additionally, several private schools operate within the city, including religiously affiliated schools, such as the Good Shepherd Catholic School, a PreK-8 school at Charleville Boulevard and Linden Drive, a preschool at the Beverly Hills Presbyterian Church, and the Hillel Hebrew Academy, which serves children PreK-8.

<sup>11</sup> Source: [http://www.beverlyhills.org/cbhfiles/storage/files/1971549388165410520/CAFR\\_16\\_Draft9FINAL.pdf](http://www.beverlyhills.org/cbhfiles/storage/files/1971549388165410520/CAFR_16_Draft9FINAL.pdf)



Figure 3-14: Major Employers





Beverly Hills has many parks throughout the city, listed below and shown in **Figure 3-15**.

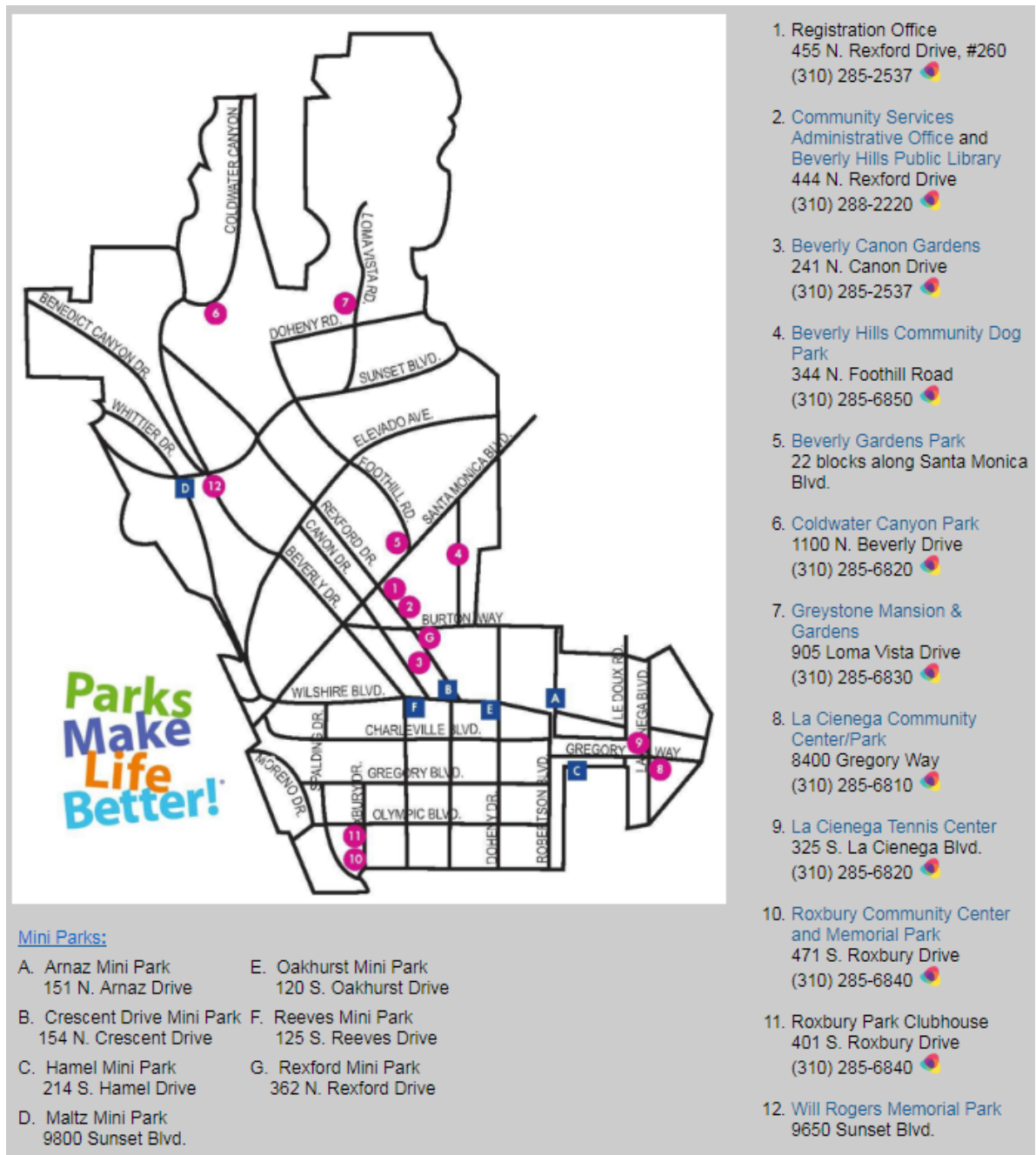
- Will Rogers Memorial Park located on Sunset Boulevard across from the Beverly Hills Hotel.
- Coldwater Canyon Park located at the intersection of Coldwater Canyon Drive and Beverly Drive
- Greystone Mansion between Loma Vista Drive, Doheny Road, and Schuyler Road
- Roxbury Park and Community Center located at Olympic Boulevard and Roxbury Drive
- La Cienega Park at La Cienega Boulevard and Gregory Way
- Beverly Gardens Park located along North Santa Monica Boulevard between Rodeo Drive and Canon Drive
- Beverly Canon Gardens north of Clifton Way between Canon Drive and Beverly Drive

The City of Beverly Hills is also home to a wealth of cultural attractions that have made it world-renowned, such as:

- **Rodeo Drive:** Street in the Business Triangle known for high-end retail, entertainment, and dining establishments
- **Greystone Mansion and Gardens:** Former home of billionaire oil tycoon and philanthropist Edward “Ned” L. Doheny and his wife Lucy; dates to 1927
- **Frederick R. Weisman Art Foundation:** Museum dedicated to preserving and displaying collections of modern and contemporary art from artists like Pablo Picasso and Andy Warhol
- **Virginia-Robinson Gardens:** Six-acre property with impeccably manicured gardens surrounding the early 20<sup>th</sup> Century mansion of the J.W. Robinson’s Department Store heiress
- **Paley Center for Media:** Former Museum of Television and Radio, and Museum of Broadcasting, offering special screenings
- **Margaret Herrick Library:** Contains a collection of books, periodicals, photographs, and scripts dating back to the early 1900s that showcase the development of the film industry
- **Wallis Annenberg Center for the Performing Arts:** Historic venue with music, theater, dance, and cinema performances



Figure 3-15: Parks and Recreation Centers within the City of Beverly Hills





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# CHAPTER 4

## BEST PRACTICES

This chapter summarizes research on best practices in traffic management, parking, bicycle and pedestrian infrastructure, and transit infrastructure.



### 4.1 Traffic Management

#### 4.1.1 ITS / TRAFFIC SIGNAL SYNCHRONIZATION

Intelligent Transportation Systems (ITS) are a broad group of technologies that provide information and automation for the transportation industry to deliver benefits of improved safety, mobility, and environmental outcomes for travelers. Agencies across the United States have deployed or are testing ITS technologies such as changeable message signs, advisory speed limits, transit signal priority, and adaptive traffic signal timing.

Changeable message signs are used in San Francisco to provide drivers with crucial information like emergency street closures, public service announcements (e.g., reminding drivers to slow down), special events where congestion is expected, and wayfinding around congestion. They are also used in Beverly Hills for notifying drivers to take alternative streets during Metro Purple Line construction.

Advisory speed limits have been used on Portland and Seattle freeways, primarily as a tool to alert drivers about upcoming incidents (e.g., crashes, inclement weather, or other sudden slowdowns). Innovative agencies are exploring options to communicate suggested variable speed limits, inclusive of explanations of why reduced speeds are suggested (e.g., high volumes of pedestrians and/or bicycle traffic ahead). This takes advantage of the increasing connectivity being built into new vehicles. General Motors, Ford, Toyota, Audi and Tesla all communicate posted speed limits on the vehicle instrument panel, and some communicate warnings to drivers.

Transit signal priority is a technology that provides an early green light or extends the existing green light so that transit vehicles can move through the intersection without delay if needed to maintain or regain schedule adherence.

Adaptive traffic signal timing is used in many cities with high vehicular traffic so that vehicles continuously arrive at a green light while traveling through a corridor. The number and speed of approaching vehicles on each intersection leg are known to the traffic signal controller, and traffic signal green time is adaptively reallocated to maximize throughput. A good example of this is the Mercer corridor in Seattle, which is a very wide eight-lane arterial that has intermittent yet significant bicycle traffic crossings. The City uses smart sensor video detection to distinguish when bicyclists are present and extends green time to assure slower moving bicyclists safely cross the intersection when they are present; when no bicycles are present that traffic signal green time is reallocated back to the main street for better vehicle flow. The City should evaluate adaptive signal technology for applicability in Beverly Hills.

Video detection at traffic signals is also more effective in maintaining signal coordination through construction zones. Detection zones are simply redrawn as lane assignments shift with various construction stages, and both communications and counting capabilities are maintained. The count data can be sent from the controller to the cloud to the agency staff desktop, in a format ready for direct input for programming optimal traffic signal coordination for construction-induced traffic pattern shifts.



### 4.1.2 CURB SPACE MANAGEMENT

The efficient use of curbside space is one of the most valuable and underutilized tools that cities have to manage freight, shuttle, and for-hire vehicle traffic. As technology continues to change, changes in demand at the curbside changes, as well. For example, in recent years there has been an increase in urban freight due to online shopping and personal deliveries, such as app-based meal purchasing.

The following are examples of curb space management strategies implemented in other cities to help better organize uses and address demand.

- **Flexible Curb Zones:** Cities with curbsides in high demand have adopted new strategies to accommodate a wide range of priorities. Washington, D.C. tested a pilot zone that removed on-street parking at the Golden Triangle Business Improvement District. This neighborhood attracts high transportation network company (TNC) traffic from 10 PM – 2 AM during the weekends resulting in traffic congestion and a higher likelihood of pedestrian/vehicle conflicts as many TNCs would pickup and drop-off in the travel lane. By prohibiting parking from 10 PM – 7 AM, business owners noted increased customer traffic and reduced dwell times for TNC vehicles. Flexible curb zones are likely to be a more common best practice as on-street parking demand gives way to increased pick-up and drop-off activities as a result of more shared rides.
- **TNC Geo-fencing:** Many commercial districts struggle with accommodating TNC (for example, Lyft and Uber) pickup/drop-off activity during high-demand periods. Lack of coordination among TNCs and the City controlling the curb space results in TNC vehicles blocking travel lanes and bike lanes, compromising bike and pedestrian safety. Cities are increasingly working with TNCs directly to set up “geofences” – restricted zones that require TNC drivers/riders to pick-up/drop-off only from dedicated locations. Users are instructed to set their desired pickup/drop-off locations at the predetermined locations within the respective TNC apps. Geofencing generally prohibits TNCs from pickup/drop-off at key transit stops/stations and where loading presents significant conflicts with other modes. Geofencing for TNCs is becoming increasingly prevalent at landmarks with surges in demand, such as at sports arenas. Geofencing areas around the future Metro Purple Line stations could help address issues with unloading and loading in travel lanes adjacent to the stations.
- **Off-peak loading:** Management of loading and deliveries aims to reduce heavy truck traffic and conflicts with other modes by discouraging commercial loading during peak travel periods. Cities such as Philadelphia and New York provide incentives for overnight freight deliveries, while parts of central Boston ban mid-day truck traffic altogether. The City requires commercial deliveries to occur in alleys, but this still invites truck traffic on city streets during peak hours.

### 4.1.3 AUTOMATED ENFORCEMENT

Automated enforcement measures can help reduce red light violations and control speeding without diverting law enforcement resources from other areas. Such measures are intended to reduce congestion and improve safety. A factor in road congestion is collisions and incidents, which some experts believe cause half of all traffic congestion due to related traffic backups.

Traffic cameras cannot be used for speed enforcement in California. Some other States use radar to identify and photograph drivers exceeding the speed limit or running red lights. They are often combined with signs warning drivers that traffic laws are photo enforced. Traffic cameras are usually implemented on major arterials with a history of crashes attributed to high speeds or red light violations. In Portland, Oregon, red light cameras have been found to reduce total crashes at intersections by an average of 40 percent and injuries by an average of 48 percent<sup>12</sup>.

<sup>12</sup> City of Portland, Bureau of Transportation



Radar speed signs can be either permanent or mobile signs that detect and display the speed of vehicles as they approach. The signs raise the awareness of people driving and encourage them to slow down if they are above the speed limit. They are best used on busy streets where people are frequently observed driving above the speed limit, and/or on approaches to school zones and other high pedestrian activity areas prioritized with data collected on pedestrian counts at traffic signals by smart sensors. The radar speed signs can be configured to alert enforcement officers of locations and times of flagrant speeding, so that patterns can be discerned and effective enforcement can be scheduled.



A major factor that can affect public perceptions and attitudes toward automated traffic enforcement for red light running is the way in which these programs are implemented. A well-designed implementation plan can maximize opportunities to garner community support and raise public awareness of the reasons for deployment, while poorly implemented programs can generate negative public reactions and harsh media attention right from the start, potentially leading to program termination. Many factors in automated speed enforcement development and delivery are thought to affect the level of public acceptance and the success of speed camera programs. These factors include:

- Having specific target sites for enforcement (e.g., school zones, work zones, etc.)
- Program funding and use of any excess revenue
- Nature of citations issued (citing vehicle owner vs. driver)
- Type of citation review (e.g., police officer, vendor)
- Penalties for violations (level of fines, points on license, etc.)
- Existence and results of program evaluations
- Media reports and level of media exposure
- Public perception of the program

## 4.2 Parking

### 4.2.1 REVERSE ANGLED PARKING

Reverse angled parking rotates head-in angled parking so that motorists instead back into stalls. This rotation improves sight distance of motorists exiting parking stalls so they can better see bicyclists and other motorists in the travel lanes. Reverse angled parking also has benefits to pedestrians as drivers can load cargo and children into vehicles from the sidewalk rather than the street.

Some United States cities that have installed reverse angled parking include Seattle, Tacoma, Olympia, Vancouver, Portland, Salem, Tucson, Austin, Salt Lake City, Washington, D.C., and Indianapolis. Tucson tracked data for bicycle/vehicle crashes before and after installing reverse angled parking and found that in the first four years after implementation it resulted in zero reported crashes, as compared to an average of three to four crashes associated with head-in angled parking.

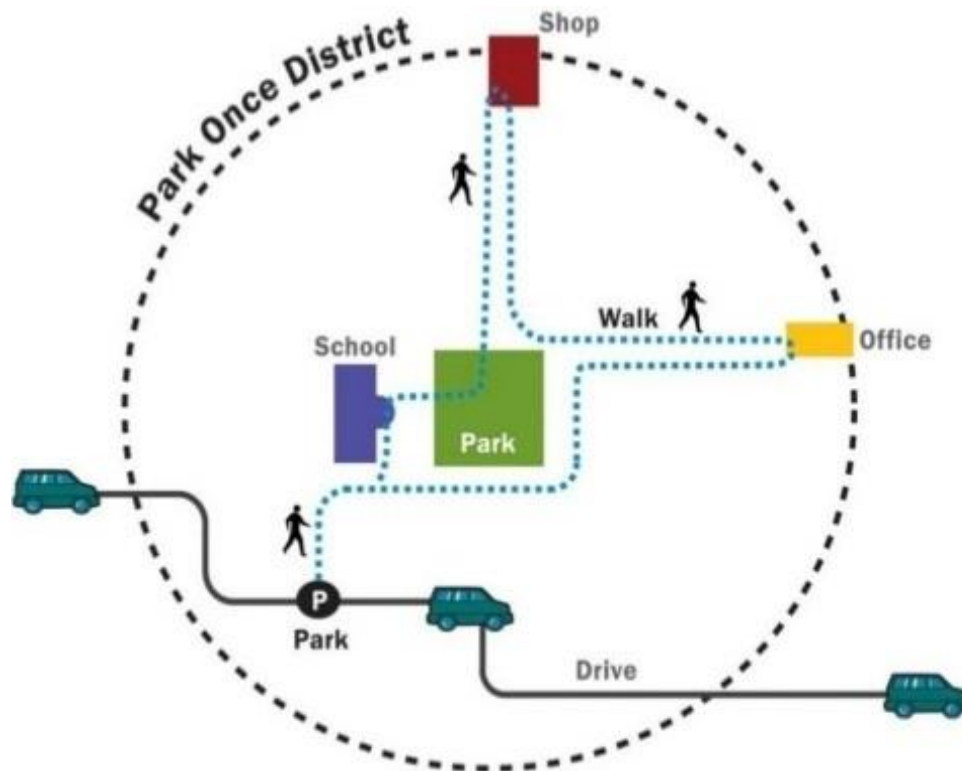




### 4.2.2 PARK ONCE DISTRICT

Park Once is a concept for a pedestrian-friendly district that allows people to park their cars once and walk through the area for errands/tasks instead of driving from destination to destination, as shown in **Figure 4-1**. Parking is located such that most visitors are within the walking distance of their destinations<sup>13</sup>. This parking program provides the users with information on space availability and cost of parking. It utilizes the existing parking capacity more efficiently through applications that can be downloaded to personal cellphones, available online on the City's website, and shown at the entrance of parking garages. The Park Once District can improve the mobility of pedestrians in the area, enhance the business viability, and reduce traffic congestion and fuel consumption. The Park Once strategy has been widely used in downtown mobility plans and implemented in cities such as Glendale<sup>14</sup> and Ventura<sup>15</sup>.

**Figure 4-1: Schematic Demonstration of Park Once District**



Source: Nelson\Nygaard, based on an illustration by Walter Kulash

### 4.2.3 REAL-TIME PARKING INFORMATION

Visibility of available parking in off-street lots is a common issue in dense, urban areas. In many cases, motorists drive around searching for on-street parking spaces because they cannot see other available options. Using dynamic signs that show real-time availability of parking in lots can make the stalls more visible to the motorists and reduce traffic congestion. The City of Santa Monica includes static signs directing motorists to available off-street parking

<sup>13</sup> <http://www.pedbikeinfo.org/>

<sup>14</sup> Glendale Downtown Mobility Study, 2007. <https://www.glendaleca.gov/home/showdocument?id=20140>

<sup>15</sup> Downtown Ventura Mobility & Parking Plan, 2006.

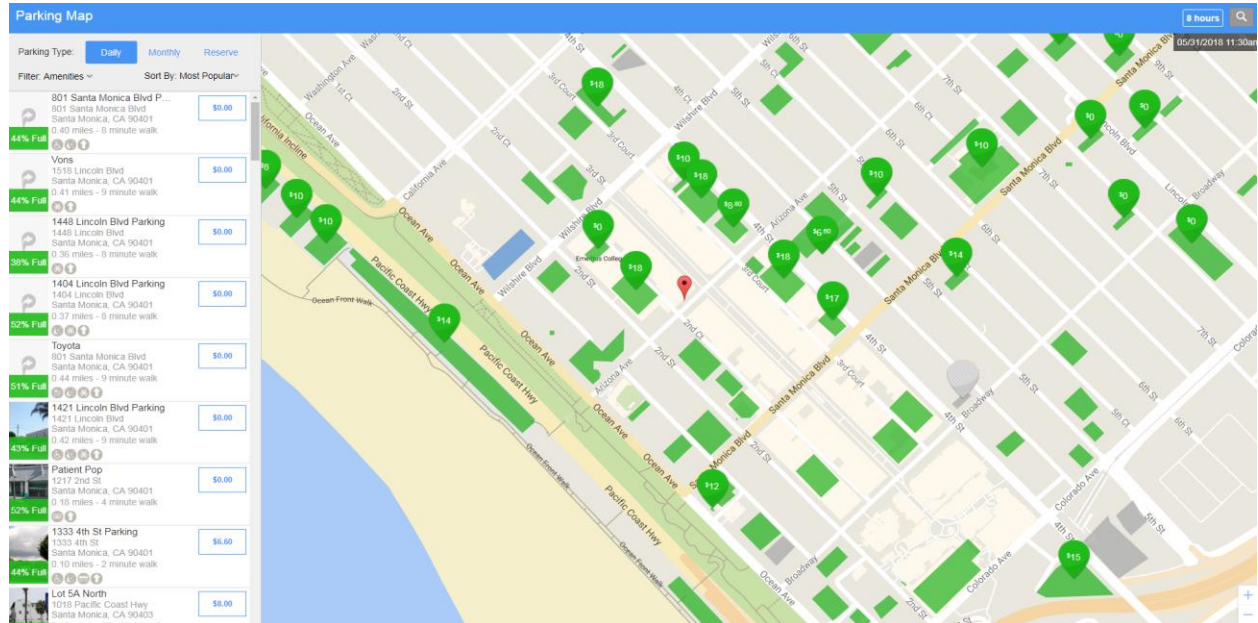
<https://www.cityofventura.ca.gov/DocumentCenter/View/1311/March-2006-Downtown-Ventura-Mobility-and-Parking-Plan-PDF>



and nearby parking lots, and digital signs that show the number of available parking stalls at public facilities.<sup>16</sup> The City of Beverly Hills provides indicator lighting over stalls in some parking structures to alert drivers of available parking stalls downstream.

Real-time information on parking availability and price can be collected to build an interactive parking map to provide to drivers, for example through the “ParkMe” website/application. **Figure 4-2** shows a screenshot of a ParkMe map, demonstrating the available parking in Santa Monica, CA along with the parking prices in real-time.

**Figure 4-2: ParkMe Website Snapshot**



Source: <https://www.parkme.com/>

## 4.3 Pedestrian Infrastructure

### 4.3.1 CURB EXTENSIONS

Curb extensions can improve safety for pedestrians by narrowing the roadway to slow traffic and increasing space for pedestrian- and transit-friendly infrastructure. Curb extensions can shorten the crossing distance for pedestrians, therefore reducing the conflict zone with drivers. They can increase pedestrian visibility and provide additional space for amenities like street furniture. Curb extension treatments can also be installed on a temporary basis with paint, bollards, and planters, like along Pico Boulevard in Los Angeles. Types of curb extensions include:



<sup>16</sup> City of Santa Monica, <https://www.smgov.net/Departments/PCD/>



- **Conventional:** Conventional curb extensions can be installed at corners or intersections where there is on-street parking to increase pedestrian visibility and reduce crossing distances.
- **Midblock:** Also known as pinch points or chokers, midblock curb extensions are useful for calming traffic at mid-block crossing locations on streets where there is on-street parking preceding and/or proceeding the crossing area.
- **Offset:** Also known as chicanes, offset curb extensions slow traffic speeds by requiring vehicles to move in a lateral motion.



Curb extensions may include pervious pavement to effectively treat, detain, and infiltrate stormwater runoff where landscape-based strategies are restricted or less desired. Pervious pavements have multiple applications, including sidewalks, street furniture zones, and entire roadways (or just their parking lane or gutter strip portions). Where landscape options are available, bioswales are recommended. They are vegetated, shallow, landscaped depressions designed to capture, treat, and infiltrate stormwater runoff as it moves downstream. They are typically sized to treat the water quality event, also known as the “first flush,” which is the first and often most polluted volume of water resulting from a storm event. Bioswales are the most effective type of green infrastructure facility in slowing runoff velocity and cleansing water while recharging the underlying groundwater table. They have flexible siting requirements, allowing them to be integrated with medians, cul-de-sacs, curb extensions, and other public space or traffic calming strategies.

### 4.3.2 INTERSECTION TREATMENTS

Most conflicts between roadway users occur at intersections where vehicles, bicyclists, and pedestrians cross paths. In general, intersections should be designed to avoid conflicts by making right-of-way clear and heightening the visibility of pedestrians and bicyclists. Types of intersection treatments include:

- **Tight Corner Radii:** Make the turning angles at corners as narrow as possible (10 to 15 foot radii) to reduce the crossing distance, increase visibility of pedestrians, and slow down turning vehicles.
- **Mitigate Skewed Intersections:** Reduce instances where vehicles approach a roadway at an obtuse angle rather than perpendicularly. Skewed intersections can increase crossing distances for pedestrians, require longer signal phases, encourage speeding, and reduce visibility of pedestrians. Mitigations include tightening corner radii, squaring off the intersection (90-degree angles), installing pedestrian refuge islands (discussed below), and striping guidelines for motorists and bicyclists through undefined areas. Skewed intersections are prevalent along Wilshire Boulevard in Beverly Hills.





- **Mitigate Multi-leg Intersections:** Reduce intersections with more than four legs because they have multiple conflict points and potentially longer crossing distances. Mitigations include traffic circles (roundabouts) or closing one leg to create a minor intersection further up or downstream.
- **Traffic Circles or Roundabouts:** Reduce vehicle-pedestrian conflicts, reduce vehicle speeds, and reduce crash severity. In particular, roundabouts eliminate the most common types of crashes at intersections, which are left-turning movements and right-angle crashes.
- **Advanced Limit Lines:** Reduce vehicle encroachment into crosswalks and improve visibility of pedestrians for motorists. Stop lines should be set back between four to six feet from the crosswalk at signalized intersections, up to 40 feet where right turn on red conflicts exist, and a minimum of 40 feet at signalized midblock crossings.
- **High visibility crosswalks:** Improve visibility of pedestrians. When complemented with curb extensions and advance stop lines, high visibility crosswalks reduce the incidences of vehicle and pedestrian conflicts at intersections. The City of Beverly Hills' new standard crosswalk style is high visibility continental.

### 4.3.3 PEDESTRIAN REFUGE ISLANDS

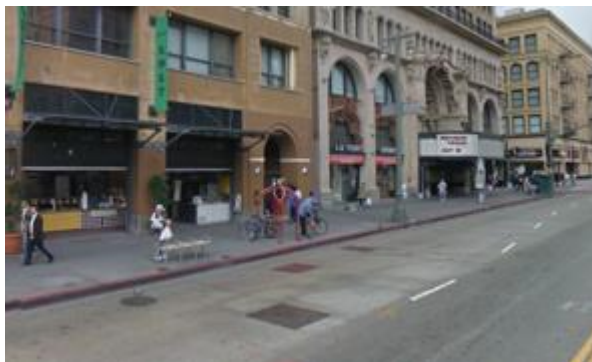
Pedestrian refuge islands reduce pedestrian exposure to vehicles and help people cross wide streets by allowing them to cross one approach at a time. Refuge islands should ideally be 8-10 feet wide with a cut-through accessible ramp equal to the width of the crosswalk. As shown in the image at right, islands should have a “nose” extending past the crosswalk and curbs and/or bollards to protect people waiting.



### 4.3.4 ROADWAY RECONFIGURATION

Roadway reconfigurations repurpose vehicle travel lanes to create space for people walking and riding bicycles. A typical reconfiguration converts a four-lane roadway to two travel lanes, a center turn lane, and space for active modes. The images below show an example of a roadway reconfiguration in Downtown Los Angeles, where the City converted the curb lane to public space. These restriping treatments are generally deemed feasible where average daily traffic volumes do not exceed 20,000 vehicles per day on streets with two lanes in each direction.

A key benefit of roadway reconfiguration is the creation of additional space in the roadway for pedestrian and/or bicycle amenities, such as pedestrian refuge islands, bike lanes, or wide sidewalks. Reducing the number of vehicle travel lanes shortens the crossing distance for pedestrians and can slow speeds by visually narrowing the roadway, thus also potentially reducing crash severity. Roadway reconfigurations can also improve traffic flow by moving left-turning vehicles to the center lane where they do not queue in front of through traffic.





### 4.3.5 SIGNAL MODIFICATIONS

Signal modifications can be made to better communicate pedestrian rights of way, both to the pedestrian and to conflicting traffic. Most vehicle collisions with pedestrians occur at intersections where turning vehicles conflict with people walking. Pedestrian safety at intersections can be improved through changes to signals, which are often designed to accommodate or maximize motor vehicle traffic with little to no considerations given for pedestrians. Types of signal enhancements include:

- Leading Pedestrian Intervals (LPIs):** Typically give pedestrians a 3 to 7 second head start before vehicles are permitted to proceed at an intersection. This makes pedestrians more visible in the intersection and reinforces their right-of-way over turning vehicles. LPIs can be relatively low cost to install because they typically only require adjustments to the existing signal timing. LPIs have been shown to reduce pedestrian-involved collisions by as much as 60 percent.
- Scramble Crossings:** Exclusive pedestrian phase that allows pedestrians to cross in any direction—including diagonally—while vehicles from all directions are stopped. The City of Beverly Hills has several pedestrian scrambles in the Business Triangle and was one of the first cities in Los Angeles County to install this treatment.
- Automated Pedestrian Detection:** Microwave and infrared devices are able to sense when a pedestrian is waiting at a crosswalk and automatically send a signal to switch to a pedestrian WALK phase. Some automated pedestrian detection devices are also able to determine whether a pedestrian needs more time to cross the roadway and will lengthen the crossing interval to accommodate the slower pedestrian. Automated pedestrian detection devices reduce the percentage of pedestrians who cross roadways at inappropriate times, such as when the DON'T WALK signal is visible. A delay can be built into either of the devices so that the Walk signal is called only if the pedestrian stays within the detection zone for a certain amount of time. The delay helps to prevent pedestrians who walk by the detection zone from accidentally activating the WALK signal.



### 4.3.6 FLASHING BEACONS

Long blocks or gaps between signalized intersections can create a challenging crossing situation for pedestrians and bicyclists. The following tools increase visibility of active modes at unsignalized crossings.

- Rectangular Rapid Flashing Beacons (RRFB):** Alert drivers to pedestrians crossing at unsignalized intersections via pedestrian push button. RRFBs have been shown to generate high yield compliance by drivers.





- Pedestrian Hybrid Beacons:** Alert drivers to people crossing through a pedestrian push button that activates an overhead warning light. Once activated, the signal turns yellow to notify vehicles that a pedestrian is preparing to cross, before moving to a steady red while the pedestrian is crossing, and a flashing red during the pedestrian clearance interval. A study on the safety effects of hybrid beacons showed a 69 percent reduction in pedestrian-involved collisions.



- In-roadway Flashing Lights:** Pedestrian-activated lights embedded in the pavement in front of the crosswalk that flash to notify drivers of pedestrians crossing. In-roadway flashing lights to date have degraded over time and require significant maintenance, but new technology appears to be improved.



- Toucan Signals:** Provide a protected crossing for bicyclists and pedestrians on roads that prioritize non-motorized traffic. Vehicle traffic is required to turn right or left, which can help calm traffic on streets with these signals.





### 4.3.7 PARKLETS

A parklet converts an on-street parking stall or underutilized roadway space into an extension of the sidewalk to provide additional public space. They are appropriate in areas with high pedestrian activity through most of the day and can effectively widen narrow sidewalks with limited space for pedestrian amenities like street furniture. Parklets can include seating, games, bike parking, or other amenities that activate the public realm.

### 4.3.8 PEDESTRIAN SCALE LIGHTING

Street lighting of lower height can improve accessibility and visibility by illuminating sidewalks, crosswalks, and signs. Pedestrian-scale lighting and vehicle-scale lighting should complement each other to ensure that both sidewalks and travel lanes are effectively illuminated. Lampposts are recommended to be staggered on opposite sides of the street to act as vertical buffers between the sidewalk and street and help define pedestrian areas.<sup>17</sup> Pedestrian-scale lighting can be applied to the following uses to enhance the public realm:

- Landscaping
- Transit stops
- Building entrances
- Edges of parks and plazas
- Retail displays
- Architectural details
- Signage
- Focal points
- Traffic calming



## 4.4 Bicycle Infrastructure

### 4.4.1 SHARED USE PATHS

Shared-use paths allow for two-way, off-street bicycle and pedestrian use. They are appropriate for riders of all abilities, particularly children and older adults, because they are completely separated from the roadway. If heavy use by pedestrians or other non-motorized users is expected, separated space for bicyclists may be appropriate.

### 4.4.2 BIKE LANE UPGRADES

Buffered bicycle lanes are on-street bike lanes with an additional buffer between either the bike lane and the travel lane, or the bike lane and the parking lane (or both). They are more comfortable for bicyclists because they provide more separation from moving traffic and can move bicyclists out of the door zone.



<sup>17</sup> [https://nacto.org/docs/usdg/best\\_practices\\_ped\\_master\\_planning\\_design\\_sacramento.pdf](https://nacto.org/docs/usdg/best_practices_ped_master_planning_design_sacramento.pdf)



A before and after study of buffered bicycle lane installation in Portland, OR found an overwhelmingly positive response from bicyclists, with 89 percent of bicyclists feeling safer riding after installation and 91 percent expressing that the facility made bicycling easier.<sup>18</sup>



Where pavement widths are constrained, consideration may be given to striping uphill bike lanes (to better protect the slower moving ascending bicyclists) and downhill sharrows (to position the faster descending cyclists in the right-third of the travel lane). This provides a bike lane in one direction, providing separation from vehicle traffic in the more critical direction.

Often due to roadway constraints, bike lanes drop at intersections and allow for right turning vehicle movements. Striping combined bike and right turn lanes like what is currently at several intersections on North Santa Monica Boulevard in Beverly Hills can encourage drivers and bicyclists to share space and move more slowly in conflict zones.

Advisory bike lanes provide for two-way motor vehicle and bicycle traffic using a central travel lane and “advisory” bike lanes on either side. The center lane is dedicated to, and shared by, motorists traveling in both directions. Cyclists are given preference in the bike lanes, but motorists can move into the bike lanes in order to pass other road users after yielding to cyclists. Advisory bike lanes are most appropriate for lower volume streets. They exist throughout the United States and Canada. Cities in the United States must apply for FHWA authorization for an experimental treatment to implement advisory bike lanes.



<sup>18</sup> National Cooperative Highway Research Program, 2014. Report #766: Recommended Bicycle Lane Widths for Various Roadway Characteristics.



Contra-flow bike lanes effectively convert one-way streets to two-way streets by allowing bicyclists to ride in the opposite direction of traffic in the bike lane (the street remains one-way for motorists). Contra-flow lanes can provide greater connectivity and access to bicyclists, as well as shorter trip distances and travel times. Contra-flow lanes can be placed next to the bike lane in the same direction as motor vehicle traffic to create two-way separated bike lanes.



#### 4.4.3 BIKE BOULEVARDS

Bicycle boulevards are bike routes on low volume streets that are enhanced with traffic calming and intersection treatments to prioritize active modes of travel. They are appropriate for all levels of bicyclists, especially children and older adults that may not feel comfortable biking on arterial streets. They are intended to bring vehicle travel speeds down to the approximate speed of cyclists, and work well to resolve speeding complaints along low volume local streets. If space permits, they can also include bike lanes in one or two directions.

#### 4.4.4 SEPARATED BIKEWAYS

Separated bikeways are one- or two-way bike lanes physically separated from moving traffic through bollards, planters, concrete, or other vertical delineation. Separated bikeways are significantly more comfortable for less confident bicyclists, especially children or older adults that do not feel comfortable riding adjacent to moving vehicles. Due to reduced conflict points, separated bikeways can reduce vehicle-bicycle collisions.



#### 4.4.5 SIGNAL MODIFICATIONS

Bicycle signals can facilitate safer and more convenient bicyclist crossings at intersections along shared use paths and separated bikeways by providing a bicycle signal phase, which minimizes bicycle-vehicle conflicts. An intersection with bicycle signals may reduce stress and delays for a crossing bicyclist, and discourage illegal and unsafe crossing maneuvers.<sup>19</sup>

Bicyclists typically need more time to travel through an intersection than motor vehicles. Green light times for bicycle signals should be determined using the bicycle crossing time for standing bicycles. In the United States, bicycle signal heads typically use standard three-lens signal heads in green, yellow, and red lenses. Further, push buttons, signage, and pavement markings may be used to highlight these facilities for both bicyclists and motorists.

At unsignalized intersection crossings, flashing amber warning beacons and signals, such as the Pedestrian Hybrid Beacon or Toucan signals discussed in earlier in this chapter, are often used to assist bicyclists crossing. Determining which type of signal or beacon to use depends on vehicle speed limits, vehicle traffic volumes, anticipated bicycle crossing traffic, and the configuration of planned or existing bicycle facilities.

Traffic signal detection should be provided with sensors that are smart enough to distinguish bicycles from vehicles, so that green times can be extended for safe passage of bicycles when they are present and green time can be reallocated to more congested approaches when they are not present. Detection with sensors that distinguish bicycles from vehicles can alert the signal controller of bicyclists waiting to cross the street. Supplemental bike indicators are available to communicate to waiting bicyclists that the signal knows they are waiting on red, and a green light will be provided long enough to safely clear them. A supplemental pavement marking may be used to

<sup>19</sup> NACTO, 2014. Urban Bikeway Design Guide.



instruct bicyclists where to position themselves to trigger the signal, although this is not necessary with video detection. For non-video detection the type of detection must be adjusted for bicycle metallic mass, and non-metallic bikes are not detected. All existing and new traffic signals should be timed for bicyclist speeds so that people on bikes can clear the intersection before the next signal phase begins, which minimizes vehicle-bicycle conflicts.



#### 4.4.6 CONFLICT ZONE AND INTERSECTION TREATMENTS

Green colored pavement can be used on bikeways, in conflict areas, in intersection treatments, and behind pavement markings (like shared lane markings) to increase awareness of bicyclists. Colored pavement application materials include paint, durable liquid pavement markings, and thermoplastic.

Bike boxes can be placed at the start of a travel lane at signalized intersections to provide bicyclists a separated space to queue during the red signal phase. They can increase the visibility of bicyclists, reduce bicyclist signal delay, assist with merges from bike lanes to shared travel lanes (like on eastbound North Santa Monica Boulevard at Doheny Drive in Beverly Hills), and facilitate bicyclist left turns. Bike boxes are appropriate at conflict zones, such as at vehicle right or left turn locations; at signalized intersections with high bicycle volumes; and at signalized intersections with high vehicle volumes.



Intersection crossing markings guide bicyclists through intersections, driveways, and ramps, and highlight the bicyclist path of travel to drivers, making bicyclists more predictable in conflict zones. They are best applied on streets with bike lanes or separated bikeways, at direct paths through intersections, on streets with high volumes of adjacent traffic, and in potential conflict zones.

The design of intersection crossing markings is an emerging practice area. The National Committee on Uniform Traffic Control Devices has submitted a request to include additional options for bicycle lane extensions through intersections as a part of future MUTCD updates. Their proposal includes the following options for striping elements within the crossing: bicycle lane markings, double chevron markings indicating the direction of travel, and green colored pavement.

Two-stage left turn queueing boxes offer bicyclists a safe way to make left turns at multi-lane signalized intersections from a separated bikeway or bike lane. Two-stage turn queue boxes may also be used at unsignalized intersections to simplify turns from a bicycle lane or separated bikeway, as for example, onto a bicycle boulevard.

The protected intersection is a way of accommodating separated bikeways at intersections. It is modeled after Dutch intersection design and includes features for corner refuge islands that put the stop bar for bicyclists ahead of the stop bar for vehicles and bicyclist crossings set back approximately one car length from the adjacent travel lane. Protected Intersection design has promise, yet there are some challenges in implementation. Known issues include:

- Intersection capacity implications of added bicycle signal phases
- Non-MUTCD compliant signalization schemes, such as the leading bicycle interval





- Truck turning requirements for freight movement
- Bicyclist deflection at corner islands and impacts to operating speed
- Interaction between bicyclists and pedestrians
- Pedestrian deflection at crossings
- Considerations for pedestrians with disabilities

#### 4.4.7 BICYCLE PARKING

High quality bicycle parking provides a secure place for people to leave their bicycles when they reach their destinations. Design guidance on short- and long-term bike parking can be found in the Association of Pedestrian and Bicycle Professionals' (APBP) *Bicycle Parking Design Guide*. Short-term bicycle parking is appropriate for storage of bicycles for up to 2 hours and typically takes the form of bike racks. Recommended bike rack styles that provide more security and stability include U-racks, post and ring racks, and staple racks. Bike racks should be placed as close as possible to destination entrances and ideally provide weather protection.

Where the placement of racks on sidewalks is not possible due to narrow sidewalk width or sidewalk obstructions, an on-street parking stall or underutilized roadway space can be converted to a bike corral, which contains multiple bike racks (typically space for 6-10 bicycles).

Long-term bike parking is appropriate for storage of bicycles for more than 2 hours, for example at work places or transit stations, so it must provide greater security and protection for people to feel comfortable leaving their bikes. Recommended long-term bike parking types include lockers, secure parking areas (SPAs), and closed rooms with in-person or TV monitoring. Long-term bike parking areas can include bike repair stations and changing facilities to encouraging bike commuting.



#### 4.4.8 BIKE SHARE

As discussed in Chapter 3, bike share is a form of public transportation where bicycles are made available 24/7 for rent for short, point-to-point trips. Should the City of Beverly Hills expand the existing bike share system, best practices in bike share programs include:

- Implement an integrated, connected network of low-stress bicycle facilities so bicyclists have a comfortable place to ride
- Deploy stations in areas where increased population and job densities, popular destinations such as parks, schools, public transit hubs, and retail centers positively impact ridership
- Locate stations no more than one-half mile apart to minimize distances users must walk to access the service
- Evaluate data, customer information, and feedback for system improvement
- Encourage helmet use
- Enhance functionality with mobile and web applications
- Integrate with other active transportation options to provide multiple choices



#### 4.4.9 WAYFINDING

Bicycle wayfinding signage and markings can help bicyclists efficiently navigate the bikeway network to reach their destinations. Wayfinding is especially helpful to guide bicyclists along bike boulevards where the routes may make frequent turns to keep bicyclist on low-stress streets. Types of wayfinding signs include:

- **Confirmation Signs:** Show bicyclists they are on a designated bikeway
- **Turn Signs:** Indicate where a bikeway turns from one street to another
- **Decision Signs:** Identifies the intersection of two bikeways or the route to key destinations

Wayfinding pavement markings can be used to supplement wayfinding signage that may be difficult to see and help bicyclists navigate routes that turn. Portland, OR, for example, uses shared lane markings with angled chevrons to tell bicyclists where to turn to stay on bike boulevards.

## 4.5 Transit Infrastructure

### 4.5.1 BUS ONLY LANES

Bus-only lanes are travel lanes dedicated exclusively to buses either during peak commute hours or all day to increase the efficiency of transit systems by improving bus travel speed and reliability<sup>20</sup>. As shown in the graphics below, bus lanes can be curb-adjacent or center-running. Curb-adjacent bus lanes are appropriate for bus lanes that are only available during peak hours, such as the existing bus-only lanes on Wilshire Boulevard in the Cities of Los Angeles and Santa Monica.

Shared bus-only and bike lanes can accommodate both modes when buses travel at slow speeds with moderate headways (applications should generally be limited to bus lanes with operating speeds of 20 mph or less and transit headways of 4 minutes or longer), where buses are discouraged from passing, and bicyclists pass buses only at stops. In appropriate conditions, bus-bike lanes are an option on streets where both dedicated bus and separate high-comfort bicycle facilities cannot be provided.



<sup>20</sup> When Are Bus Lanes Warranted?, Nov 2016, <http://www.vtpi.org/blw.pdf>



### 4.5.2 BUS BULBS AND PLATFORMS

Bus bulbs are curb extensions that put the bus stop in line with the parking lane, which enables buses to load/unload passengers without leaving the travel lane. Bus bulbs can help make buses more reliable and reduce travel time by not having to merge in and out of traffic. Where bike lanes are present, bike lane cut-outs should be provided to create floating bus islands, along with appropriate signage and markings to highlight bicycle-pedestrian conflict zones.

Where a bike lane is present without a parking lane, bus platforms should be considered. Bus platforms raise the bike lane up to sidewalk level, allowing the bus to load/unload passengers without pulling into the bike lane and reduce bus-bicycle conflicts.



### 4.5.3 ENHANCED BUS STOPS

Enhancing transit stops can improve the user experience and encourage people to take transit more often. Providing amenities like bus shelters, lighting, benches, and trash facilities where space is available, even at low-ridership stops, helps to provide a level of comfort for transit riders in line with that typically prioritized for drivers. Additionally, real-time travel information, like changeable signs displaying when the next bus is coming, or automated displays can help make transit more predictable and make transfers more convenient.

### 4.5.4 TRANSIT SIGNAL PRIORITY

Transit signal priority modifies traffic signal timing or phasing when buses (and trains) are present, either conditionally for vehicles that are behind schedule or unconditionally for all vehicles. This can improve transit reliability and travel time, especially on arterial streets with long signal cycles and distances between signals. In urban settings, transit signal priority has the largest benefits when implemented in conjunction with infrastructure like bus-only lanes.

### 4.5.5 MICROTRANSIT

Microtransit is a small-scale, demand responsive transit system, providing more flexibility over conventional public transit. Riders call the service when they want it, are picked up at/near their locations, and are dropped off at/near their destinations. Unlike conventional public transit, routes do not have to be fixed and can be modified based on real-time demand and real-time traffic conditions. Microtransit can offer amenities like Wi-Fi, USB, and chargers to enhance user comfort. Microtransit should be considered where it could fill in gaps in the existing transit system, not as a replacement. An opportunity for microtransit in Beverly Hills is providing an autonomous shuttle to/from the Metro Purple Line stations.



### 4.5.6 MOBILITY HUBS

Clustering transit stops with bike share stations, car share, and for-hire-vehicle zones to create neighborhood mobility hubs can make the best use of station and sidewalk investments and addressing ADA and accessibility through the design process. These concepts will be key to the two Metro Purple Line stations, where station area planning should be integrated with placemaking to capitalize on local assets, inspiration, and the potential to create public spaces that promote people's health, happiness, and wellbeing.



## CHAPTER 5

# EMERGING TRANSPORTATION TRENDS

This chapter synthesizes research of new and forthcoming transportation technologies that focus on improving transportation safety, mobility, and environmental sustainability. It informs the City of Beverly Hills' Complete Streets Plan and provides guidance on how to best prioritize investments in shared mobility and active transportation within existing City rights-of-way. This chapter also takes into account anticipated changes in emerging transportation technologies for the City to track progress of. Some of these emerging technologies are imminent while others are more speculative; the Complete Streets Plan considers foreseeable issues that may affect street design in Beverly Hills.



Technology applications in transportation have advanced rapidly in recent years, from the explosive growth in on-demand and ride-hailing services such as Uber and Lyft; to microtransit services such as Chariot and Via; to connected and autonomous vehicular technologies and drones. Technology advances have been characterized in multiple research studies as three transportation revolutions:<sup>21</sup>

- Electrification of Vehicles and Transportation Network,
- Connected and Autonomous Vehicles, and
- Widespread Shared Mobility (sharing of vehicle trips)

These revolutions give public agencies reasons to pause and reconsider how to design, operate, and maintain transportation networks to maximize the benefits of improved safety, mobility, convenience, and greenhouse gas emissions reduction while minimizing the negative externalities associated with these transformations. Without adequate public policies and infrastructure, technological changes may produce negative externalities such as increased vehicle miles traveled (VMT), reduced vehicle occupancy, increased congestion, reduced transit ridership, and an increase in intermodal conflicts.

### 5.1 Electrification of Vehicles and the Transportation Network

The internal combustion engine has dominated automobile propulsion for 100 years. The push to reduce vehicle greenhouse gas emissions as a primary means of mitigating the effects of climate change involves both shifting the fuel mix of the vehicle fleet to zero-emissions sources and reducing vehicle miles traveled.

The use of electric and hydrogen fuel-cell electric vehicles is encouraged through the California Air Resources Board's Zero Emission Vehicle (ZEV) program. The ZEV program supports the development of plug-in electric vehicle and hydrogen electric fuel cell stations throughout the state.

Electrify America, a subsidiary of Volkswagen created in the wake of the company's emissions scandal<sup>22</sup>, will invest \$2 billion in Zero Emission Vehicle (ZEV) infrastructure and education programs in the United States over a 10-year

<sup>21</sup> <https://its.ucdavis.edu/blog-post/how-to-combine-three-revolutions-in-transportation-for-maximum-benefit-worldwide/>, accessed 3/15/18.

<sup>22</sup> <https://www.epa.gov/vw/learn-about-volkswagen-violations>, accessed 07/26/18



period ending in 2027. Of this \$2 billion, \$800 million will be invested in California, the largest single ZEV market in the world.<sup>23</sup> This investment represents the largest of its kind ever made, and it will establish a network of approximately 2,000-3,000 non-proprietary chargers across 400+ individual stations in California. As part of Electrify America's first 30-month investment plan, approximately 350 new Level 2 charging stations<sup>24</sup> and 50 DC Fast Charging stations<sup>25</sup> will be built in six California regions: Los Angeles, Sacramento, San Francisco, San Diego, San Jose, and Fresno<sup>26</sup>. Of these charging stations, 75 percent will be located at workplaces and the remainder at apartment buildings, condominiums and other multi-family properties.

### 5.1.1 ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

A greater density of charging infrastructure makes electric vehicles (EVs) a more viable option for a wider range of vehicle trips. Fast, ubiquitous EV charging infrastructure in urban areas is necessary to ensure that vehicle fleets become not just increasingly electric, but also increasingly shared. Widespread availability of DC Fast Charging stations is necessary to facilitate the high vehicle turnover required to sustain car share fleets – and even more so for expected autonomous ride-hail fleets – and minimize recharging downtime. Car share and ride-hail fleets have lower handling costs if their vehicles are parked closer to electric vehicle (EV) charging. Overall, the technology and market outlook for EVs appears promising, though the timing of when the technology will become widely adopted remains to be seen. Continuing strong local, regional and federal policy will be needed for many years to achieve a full electrification of the vehicle fleet.<sup>27</sup>



The City should explore EV car sharing, especially in neighborhoods with permit parking, to nudge its transportation operations towards a more sustainable future. According to the study *The Impact of Carsharing on Household Vehicle Ownership*, for every car share vehicle up to 13 personally owned vehicles can be given up by their owners.<sup>28</sup> The cited research found that carsharing lowers the total number of vehicles owned by members. Across the sample, households owned 2,968 vehicles before carsharing, which translates to 0.47 vehicles per household. After carsharing, the sample owned 1,507 vehicles, or 0.24 vehicles per household. The difference between these means (–0.23) is statistically significant at the 99 percent confidence level. Notably, much of this shift involved households becoming carless: 80 percent of the sample owned no vehicle after joining carsharing. Most of this shift was the result of one-car households becoming no-car households. A smaller change occurred with two-car households becoming one-car households. Carsharing not only reduces the number of personal vehicles owned across the sample; it can also deter carless households from acquiring a vehicle. Most of the households that join carsharing are carless: 62 percent of households joining carsharing owned no vehicle when they joined, while 31 percent of households owned one vehicle. That is, some carsharing members who consider buying a car ultimately decide against it and use carsharing instead. This effect is hard to measure because a decision not to purchase something is difficult to observe. However, the survey conducted as part of this study asked respondents whether in the

<sup>23</sup> Electrify America 3Q 2017 Report to California Air Resources Board, Cycle 1, November 21, 2017.

<sup>24</sup> Level 2 chargers are used for both residential and commercial charging stations. They use a 240 V (for residential) or 208 V (for commercial) plug, and can deliver 20 to 25 miles of vehicle range per hour of charging.

<sup>25</sup> DC Fast Chargers, also known as Level 3 or CHAdeMO charging stations, can offer 60 to 100 miles of range for electric vehicles in just 20 minutes of charging. However, they are typically only used in commercial and industrial applications – they require highly specialized, high-powered equipment to install and maintain. DC Fast Chargers are not compatible with most plug-in hybrid electric vehicles.

<sup>26</sup> <https://www.electrifyamerica.com/our-plan>

<sup>27</sup> Three Revolutions in Global Transportation, UC Davis and the Institute for Transportation & Development Policy, May 2017, p 33.

<sup>28</sup> Martin, Elliot and Shaheen, Susan, *The Impact of Carsharing on Household Vehicle Ownership*, ACCESS Magazine, 1(38), p 22-27, UC Berkeley Transportation Center, 2011.



absence of carsharing they would buy a car. The available responses included “definitely not,” “probably not,” “maybe,” “probably,” and “definitely.” This question gives insight into the degree to which carsharing substituted for a personal vehicle that would have been purchased. About 25 percent of the total sample indicated that they “maybe,” “probably,” or “definitely” would buy a car in the absence of carsharing.

The implementation of electric vehicle charging infrastructure should be coordinated with the City’s Parking Manager.

### 5.1.2 HYDROGEN FUEL-CELL ELECTRIC VEHICLES

Hydrogen fuel-cell technology is an emerging partner in the electrification of California’s vehicle fleet. Whereas plug-in EVs use rechargeable lithium-ion batteries to power the vehicle, hydrogen fuel cells use a process of reverse electrolysis – combining compressed hydrogen on the anode side of the fuel-cell and oxygen on the cathode side – to create water and the electric energy used to power the vehicle’s motion. Like plug-in EVs, hydrogen fuel-cell vehicles create no greenhouse gas emissions; the only waste from its exhaust pipe is water vapor. Hydrogen fuel-cell vehicles can recharge in minutes and typically offer a vehicle range of about 300 miles of travel between charges, roughly equivalent to the range of internal combustion vehicles, and considerably greater than the average range of 200 miles on a typical plug-in EV model.<sup>29</sup> However, hydrogen fuel-cell technology is not nearly as advanced as that of plug-in EVs. Hydrogen fuel-cell vehicles currently sell for more than double the typical plug-in EV.<sup>30</sup> In addition, the hydrogen fuel supply network is in its infancy: there are currently just 35 hydrogen fuel stations in California. Due to the scarcity of fuel stations and high costs in the production of technical-grade hydrogen, hydrogen fuel currently costs at least twice as much as gasoline.<sup>31</sup>

The transport and storage of hydrogen costs about 13% of the energy in the best-case scenario. By contrast, Battery EVs only have to contend with grid losses, which average around 5% in the US. Once it’s in the vehicle, hydrogen has an efficiency of around 60% - much better than the dismal 20% efficiency of a gas or diesel engine, but lower than the 75% for a Battery EVs. So Hydrogen Fuel Cell Vehicles are less efficient than Battery EVs at every stage of the process: generating hydrogen; transportation and storage; and converting it back to energy in the vehicle. Considering all these steps together, in the best-case scenario, hydrogen is about half as efficient as battery technology. However, comparing the real-world costs of fuel, Real Engineering found that driving a Tesla Model 3 costs between 2 and 2.4 cents per kilometer, whereas the hydrogen to power a Toyota Mirai costs 17.7 cents per kilometer.<sup>32</sup>

Nevertheless, several automakers, including Volkswagen, Honda, Toyota, Mercedes-Benz, and GM are making strategic investments in hydrogen fuel-cell technologies as a hedge against the potential stabilization of the price of lithium-ion batteries used in plug-in EVs, which has plummeted in recent years<sup>33</sup>. As these investments mature, it is anticipated that a wider range of mass market, hydrogen fuel-cell vehicles (and fuels) will become available at prices more comparable to internal combustion vehicles by around 2025.

The ZEV program supports hydrogen fuel-cell vehicles in tandem with plug-in EVs, while recognizing that the supply chain and market adoption for plug-in EVs are far more mature. In response to pressure from CARB, Electrify America has committed to including hydrogen fuel-cell electric vehicle technologies in its public marketing and education campaigns, exploring opportunities to upgrade technical-grade hydrogen supply networks, and considering the installation of EV charging stations at existing hydrogen fuel stations. A hydrogen fuel cell station is in a pre-permit application as part of a retail development at 9988 Wilshire Boulevard according to the California Fuel Cell

<sup>29</sup> The Economist. 2017. “Electric Vehicles Powered by Fuel-Cells Get a Second Look,” September 25, 2017. <https://www.economist.com/science-and-technology/2017/09/25/electric-vehicles-powered-by-fuel-cells-get-a-second-look>

<sup>30</sup> Lee, Kristen. 2017, October 26. “Toyota Wants To Make Its Hydrogen Cars Cost The Same As Hybrids By 2025”

<sup>31</sup> <https://cafcp.org/content/cost-refill>

<sup>32</sup> <https://evannex.com/blogs/news/are-hydrogen-fuel-cells-competitive-with-battery-electric-technology>

<sup>33</sup> <https://jalopnik.com/toyota-wants-to-make-its-hydrogen-cars-cost-the-same-as-1819873773>



Partnership.<sup>34</sup> The State's Plug-in Electric Vehicle Resource Center offers a *ZEV Community Readiness Guidebook*<sup>35</sup> which offers example for building codes and zoning for Plug-In Electric Vehicle Charging and Plug-In Electric Vehicle Parking Codes.

## 5.2 Connected and Autonomous Vehicles

Connected and autonomous vehicles (C/AV) are a series of technologies in development and pilot deployment that allow communication among infrastructure and vehicles to provide more efficient operations. Some of the potential benefits of C/AVs are:

- **Collision reduction:** Removing human error increases the potential for collision-free driving. The resulting improvements in vehicle safety could dramatically improve traffic circulation and roadway capacity.
- **Reduced VMT and policy requirements to get there:** With appropriate regulation by public policies to limit the use of low- and zero-occupancy autonomous vehicles and reduce conflict at the curbside, autonomous vehicles have the potential to significantly reduce vehicle miles traveled (VMT). This outcome is more likely if autonomous vehicles are primarily deployed in shared vehicle fleets (e.g. ride-hailing or on-demand transit) rather than the personal vehicle market. Policies to limit the negative externalities of autonomous vehicles include VMT taxes (to supplement shrinking gas tax revenues), surcharges on low- and zero-occupancy vehicles, congestion charges to discourage low-occupancy travel on congested corridors, and demand-based parking pricing to ensure sufficient space availability at the curb. Mobility as a Service (MaaS) platforms – digital applications that provide integrated, multimodal trip planning, trip booking, and fare payment services – are also needed to incentivize public transit ridership, reduce VMT, advance shared mobility services, and increase vehicle occupancy in shared, autonomous vehicles.
- **Smaller roadway facilities due to reduced VMT and less conservative design requirements:** With the policies to reduce VMT above in place, autonomous vehicles can encourage more flexible, streamlined roadway designs. Safer, more efficient vehicle operations – due to the decline of crashes caused by human error, and lower traffic volumes due to higher vehicle occupancies in shared fleets – could result in a need for smaller, right-sized roadways that provide safer environments for people walking, biking, and riding transit. With declining VMT and traffic volumes, some travel lanes could be narrowed or reallocated to other uses, such as bike lanes, sidewalks, parklets, or loading zones.
- **Smaller parking portfolios as demand for personal vehicle storage declines:** C/AVs deployed in shared fleets are expected to become cost-competitive with conventional vehicles within several decades, causing average vehicle occupancies to rise and personal vehicle ownership to decline. Even without autonomous functions, current ride-hailing platforms like Uber and Lyft are already causing declines in parking demand of 5-20 percent at airport parking facilities, 70 percent in hotel parking from business travelers, and 80 percent from bar/restaurant valet services.<sup>36</sup> C/AV fleets are likely to cause more significant declines in parking demand, particularly in densely populated urban cores. Additionally, there can be an approximate 20 percent reduction in parking aisle and stall size where human ingress/egress is not needed. As a result, cities and parking managers will be compelled to densify existing parking supplies by spacing vehicles tightly together, or through increasing use of mechanical lifts and stackers. Falling parking demand will also create opportunities for adaptive reuse of some above-ground parking structures (with level floorplates) into offices, residences, or other more active uses. The growth of shared, ride-hailing fleets will reduce the need for on-street parking but increase the need for curbside loading zones, particularly at key destinations.
- **Travel time dependability:** The convergence of sensor-based technologies (e.g. LiDAR imaging) and connected-vehicle communications can substantially reduce uncertainty in travel times. These technologies

<sup>34</sup> <https://cafcpc.org/stationmap>

<sup>35</sup> [https://www.driveclean.ca.gov/pev/Resources\\_For\\_Cities.php](https://www.driveclean.ca.gov/pev/Resources_For_Cities.php)

<sup>36</sup> Marcut, Adina. 2018. "Parking Demand Trends: The Impact of Transportation Network Cos." Commercial Property Executive. April 2, 2018. <https://www.cpexecutive.com/post/parking-demand-trends-the-impact-of-transportation-network-cos/>



underpinning C/AVs are well-suited to provide real-time, predictive assessment of travel times on all routes and by all modes of travel, improving overall travel time dependability for travelers.

- **Productivity improvements:** C/AVs could allow travelers to make use of travel time productively, as they will no longer be occupied by operating the vehicle and keeping their attention on the road.
- **Improved energy efficiency:** C/AVs deployed in shared fleets could lead to reduced energy consumption in at least three ways: more efficient routing; lighter, more fuel-efficient vehicles (particularly if they are electric vehicles); and efficient infrastructure.
- **New models for mobility:** Autonomous vehicles could lead to a major shift from vehicle ownership to rides accessed on-demand, and expand opportunities for shared, on-demand transit fleets (e.g. shuttles, vans, or minibuses) as well as ride-hail fleets.
- **New business models and scenarios:** C/AV technologies may realign industries such that ecosystem participants need to compete and collaborate at the same time.

### 5.2.1 CONNECTED VEHICLES

Connected vehicles are vehicles that use any of a number of different communication technologies to communicate with the driver, other vehicles on the road (vehicle-to-vehicle [V2V]), roadside infrastructure (vehicle-to-infrastructure [V2I]), and the cloud computing systems. This technology can be used to improve vehicle safety, routing efficiency, and commute times. Although adding connectivity to vehicles has its benefits, it also has challenges. Connected vehicles raise issues of security, privacy, data analytics, and data aggregation due to the abundance of data being accessed and shared by vehicles. This technology may seem new, but the U.S. Department of Transportation (DOT), in a joint research effort with the Society of Automotive Engineers (SAE), has already started setting V2V and V2I communication standards, such as using a 5 GHz frequency for data transmission.

#### Vehicle-to-Vehicle

Vehicle-to-vehicle (V2V) communication's ability to wirelessly exchange information about the speed and position of surrounding vehicles shows great promise in helping to avoid collisions, ease traffic congestion and reduce emissions. But the greatest benefits can only be achieved when all vehicles can communicate with each other, which will require long-term vehicle fleet turnover.

V2V applications enable crash prevention, and require low latency/rapid communications via Dedicated Short Range Communications (DSRC) devices or future 5G services. V2I applications enable telecommunication, safety, mobility, and environmental benefits with DSRC or slower 4G communications. Their foundation of physical and digital infrastructure support data communications to enable real-time driver advisories and warnings of imminent threats and roadway hazards.

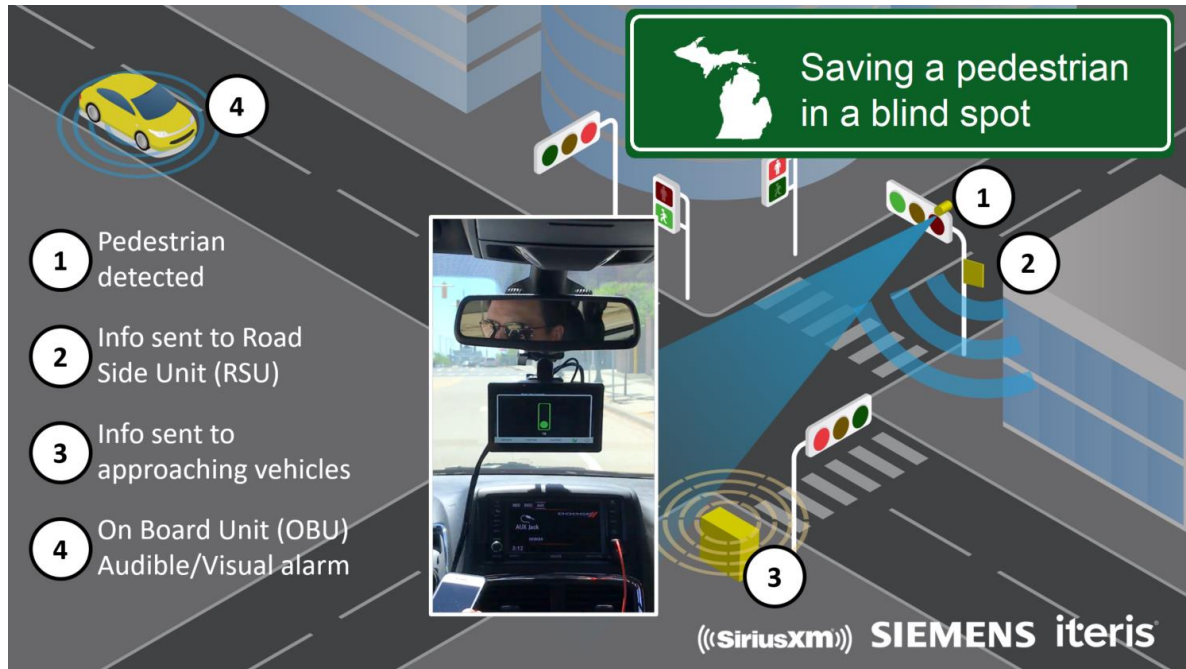
#### Vehicle-to-Infrastructure

Vehicle-to-Infrastructure (V2I) is the next generation of intelligent transportation system (ITS). V2I technologies capture vehicle-generated traffic data, wirelessly providing information such as advisories from the infrastructure to the vehicle that inform driver safety, mobility, or environment-related conditions. State and local agencies are likely to install V2I infrastructure alongside or integrated with existing ITS equipment. Because of this, the majority of V2I deployments may qualify for similar federal-aid programs as ITS deployments, if the managing agency meets certain eligibility requirements (the City would need to explore eligibility). Convenient V2I services like e-parking and electronic tolling are already in use. These communication technologies can be enhanced to provide better traffic and travel condition information to facilitate better decision-making among travelers and transportation managers.

V2I is part of V2X, where the vehicle is able to communicate with everything (the internet of things). Pedestrians are included in this, and it is becoming clear through V2I pilot deployments that pedestrian-carried devices using GPS to track their location, heading and speed are too imprecise (plus or minus several feet) to serve as a crash reduction



tool. The need to supplement on-vehicle sensors with video detection/smart sensors is key to delivery of pedestrian in crosswalk warning to connected (not yet automated) vehicles expected to have significant market penetration by 2022.



Together, V2V and V2I applications have the potential to significantly reduce many of the deadliest types of crashes through real time advisories alerting drivers to imminent hazards. Connected vehicles have the potential to detect hazards such as veering close to the edge of the road; vehicles suddenly stopped ahead; collision paths during merging; the presence of nearby communications devices and vehicles; sharp curves or slippery patches of roadway ahead.

Connected vehicle safety applications are designed to increase situational awareness and reduce or eliminate crashes through V2V and V2I data communications. Connected vehicle mobility applications provide a connected, data-rich travel environment. These communications may support driver advisories, driver warnings, and vehicle and/or infrastructure controls, by capturing real-time data from equipment located on-board vehicles (automobiles, trucks, and buses) and within the transportation infrastructure. A Connected Vehicle infrastructure deployment will generally include several elements such as:<sup>37</sup>

- Roadside sensors and communications equipment (for DSRC or other wire-less services) together with enclosures, mountings, power, and network backhaul. Smart sensor detection systems are needed at intersections to assure that pedestrian and bicycles are detected, regardless of whether they possess mobile devices. These systems are unlikely to improve safety outcomes on their own; the underlying pedestrian and bicycle safety issues, principally intersection designs that create unsafe conditions for people walking and biking, must first be addressed. National data shows 25 to 60 percent of pedestrian and 37 to 65 percent of bicycle injury and fatal crashes occur at intersections.<sup>38</sup>
- Backhaul communications are essential supporting infrastructure needed for V2I deployment. Both fiber and wireless broadband needs are expected to grow exponentially to accommodate the growth of CVs and

<sup>37</sup> Connected Vehicle Field Infrastructure Footprint Analysis: Preparing to Implement a CV Future, USDOT, 2013.

<sup>38</sup> [http://www.pedbikeinfo.org/pbcat\\_nc/](http://www.pedbikeinfo.org/pbcat_nc/), accessed March 24, 2018.



AVs. Organizations such as the National League of Cities encourage public agencies to be proactive in reaching out to the dominant providers in their region to plan the growth of wireless broadband and fiber optic infrastructure.

- The importance of maintenance of existing signage and markings is critical, as new materials are coming to market that provide better retro-reflectivity and “digitize” the infrastructure for better communications with CAVs. The City should prioritize and fund necessary operations and maintenance budgets for all transportation technology currently deployed, even at the basic level of signs and markings.
- Upgrade traffic signal controllers to Advanced Traffic Controllers (ATCs). These ATCs have the functionality and capabilities necessary to support future deployment of roadside units (RSUs) for V2I communications, for applications that require signal phase and timing (SPaT) data. As a part of an ongoing Traffic Signal Synchronization program, the City should focus on increasing the deployment of ATCs City-wide, and should continue to track ATC deployment until 100 percent of all traffic signal controllers are ATC. Systems and processes required to manage security credentials and assure a trusted network are also recommended.
- Mapping services that provide highly detailed roadway geometries, signage, and asset locations for the various Connected Vehicle applications.
- Positioning services for establishing vehicle locations to high degrees of accuracy and precision. These will likely include smart sensors at signals and street lights to supplement on-board vehicle detection, especially of vulnerable road users such as people walking and biking.
- Data servers for collecting and processing vehicle data and for distributing user advisories and alerts.

The National League of Cities encourages cities to become active investment partners in deployment of V2I. They emphasize that cities should assess their current procurement policies, and evaluate whether these policies might inadvertently present any roadblocks to purchasing the technology and smart infrastructure necessary to support AV deployment. Likewise, cities should proactively establish partnerships with the dominant V2I technology provider(s) in their region to plan the growth of infrastructure while meeting future needs with respect to public safety, multimodal transportation network conditions, and the interaction of connected devices with local mobility policy priorities.<sup>39</sup>

The City must first update its policies to ensure that C/AV comply with established policy priorities and value frameworks. These frameworks and policy priorities include, but are not limited to, transportation demand management and VMT reduction strategies, the “people-first” approach to managing public rights-of-way, the creation and maintenance of low-stress bicycle and pedestrian networks, equity-related objectives that redirect mobility resources to underserved communities, and crash-reduction frameworks such as Vision Zero. The City will then need to update its infrastructure to enable connected and autonomous vehicle technology.

### 5.2.2 AUTONOMOUS VEHICLES

Autonomous or “self-driving” vehicles are defined by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) as “those in which operation of the vehicle occurs without direct driver input to control the steering, acceleration, and braking and are designed so that the driver is not expected to constantly monitor the roadway while operating in self-driving mode.”<sup>40</sup> An autonomous vehicle (AV) is one that takes full control of all aspects of the dynamic driving task for at least some of the time. To operate most efficiently, AVs must also be CVs.

The Society of Automotive Engineers International (SAE) has defined six levels of automation, illustrated in **Figure 5-1**. The National Highway Traffic Safety Administration (NHTSA) adopted these definitions in 2016. As levels of automation increase, the role of the driver shifts from one of active control of the vehicle, to monitoring, to limited

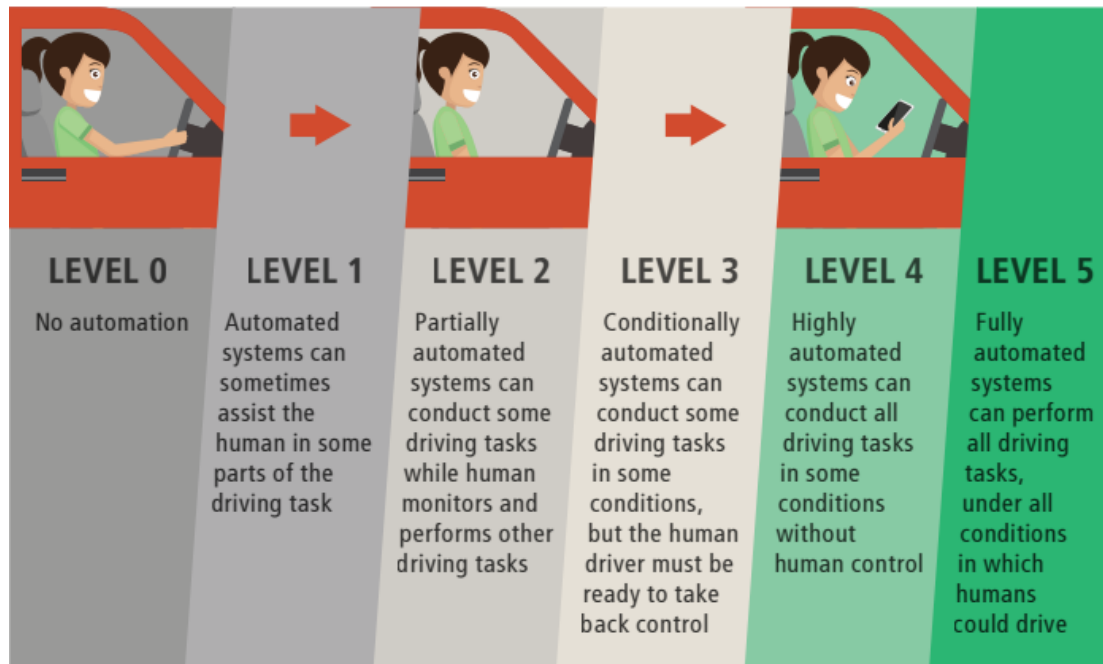
<sup>39</sup> Autonomous Vehicles: A Policy Preparation Guide, National League of Cities, p 7-8.

<sup>40</sup> <https://www.transportation.gov/briefing-room/us-department-transportation-releases-policy-automated-vehicle-development>



or no involvement in driving tasks. When discussing Level IV and Level V automation, which do not require human operations in most conditions, vehicles are generally considered “autonomous,” while “automated” vehicles can possess any level of automated functions, from Levels I through V.

**Figure 5-1: Levels of Automation**



Source: Discussion Guide for Automated and Connected Vehicles, Pedestrians and Bicyclists, <http://www.pedbikeinfo.org/>

Current AV technologies rely on complex systems of cameras and sensors used to navigate the road without the need for human operation. These technologies allow for people to occupy themselves with activities other than operating the vehicle during trips—akin to activities on public transportation—but do not by themselves represent a large potential for efficiency at the scale of regional roadway networks. This is particularly true during the early period of autonomous vehicle adoption, when autonomous vehicles make up a small share of total vehicles on the road. However, connected vehicle technology offers the potential to reduce the need for the camera systems through a mix of V2I and V2V technologies, which will allow traffic system management to regulate (mostly autonomous) vehicle operations at a large scale to maximize system efficiency rather than individual vehicle efficiency.

Many original equipment manufacturers (OEM), such as Ford and General Motors (GM), have made ambitious claims as to their timeframe for making Level 4 AV technology available in new models as early as 2021.<sup>41</sup> There is evidence that automakers are taking necessary intermediate steps to meet this timeline. For instance, in January 2018 GM submitted a petition seeking US government approval for a fully autonomous car (one without a steering wheel, brake pedal or accelerator pedal) to enter their first commercial ride-sharing fleet in 2019. The company followed this move with an investment of \$100 million to upgrade two major factory facilities as it prepares to build production versions of its Cruze self-driving car to introduce a Level 4 AV ridesharing service in 2019.<sup>42</sup>

<sup>41</sup> Belvedere, Matthew J. 2017. “Ford Aims for Self-Driving Car with No Gas Pedal, No Steering Wheel in 5 Years, CEO Says.” January 9, 2017. <https://www.cnn.com/2017/01/09/ford-aims-for-self-driving-car-with-no-gas-pedal-no-steering-wheel-in-5-years-ceo-says.html>

<sup>42</sup> Hawkins, Andrew J. 2018. “GM Will Pump \$100 Million into Its Self-Driving Car Production.” The Verge. March 15, 2018. <https://www.theverge.com/2018/3/15/17124428/gm-self-driving-car-production-100-million>.



There are also Level 4 autonomous, low-speed electric vehicles (LSEV) now being manufactured by firms such as Local Motors, Navya, and EasyMile. Because they lack steering wheels and brake pads, they require waivers from the Federal Motor Vehicle Safety Standards (FMVSS) to operate on public roads.

Typically deployed as shuttles within campuses and other controlled operating environments, they can carry eight to 15 passengers at speeds of 15 to 25 mph. EasyMile's EZ10 driverless shuttle became the first such bus approved to run on public roads in California, as it made its debut on the public roads of Bishop Ranch on March 6, 2018.<sup>43</sup> LSEV speeds are compatible with bicycle boulevards, where the speeds of vehicles are reduced to support a small differential between vehicle and bicycle speeds. On lower-speed streets and on appropriately wide multi-purpose paths, LSEV and bicycle networks may be compatible for parallel operations. The timeframe for bringing Level 5/full automation technology to market is hard to forecast; however, several studies estimate that Level 5 cars will be available on public roads in the late 2020s. This information is from the recent NCHRP Research Report 845, *Advancing Automated and Connected Vehicles: Policy and Planning Strategies for State and Local Transportation Agencies*, which defines options as:



*“The transportation community can choose to wait and react. Or, decision makers can reframe the conventional public policy discussion to responsibly and assertively advance AV and CV technologies in light of social interests, adopting the principles of rapid learning and shared knowledge creation.”*

Efforts to deploy more C/AV technology into the transportation network are being led by the Vehicle-to-Infrastructure Deployment Coalition, a nationwide partnership among infrastructure owners and operators and automobile manufacturers with a vision for “An integrated national infrastructure that provides the country a connected, safe and secure transportation system taking full advantage of the progress being made in the Connected and Autonomous Vehicle arenas.”<sup>44</sup>



### 5.2.3 C / AV INTERACTIONS WITH VULNERABLE USERS

The Pedestrian and Bicycle Information Center cautions<sup>45</sup> that it is not yet well-understood how C/AVs will interact with other modes, particularly people walking and biking. Hastily planned C/AV infrastructure may create difficult conditions for people walking and biking, while even carefully planned C/AV infrastructure may result in unintended consequences for vulnerable road users. Some of the potential conflicts between C/AVs and people walking and biking may include:

- **Detection:** C/AVs may be unable to detect people walking and biking to the same degree of accuracy as other vehicles, particularly in low-visibility conditions. This is because the underlying automation

<sup>43</sup> Bloom, Jonathan. 2018. “California’s First Driverless Bus Hits the Road in San Ramon.” Bishop Ranch. March 6, 2018. <https://www.bishopranch.com/media-coverage/californias-first-driverless-bus-hits-the-road-in-san-ramon/>.

<sup>44</sup> <https://transportationops.org/V2I/V2I-overview>, accessed 3/15/18.

<sup>45</sup> Pedestrian and Bicycle Information Center. 2017. Discussion Guide for Automated and Connected Vehicles, Pedestrians, and Bicyclists.



programming of C/AVs is typically better trained to anticipate vehicle movements than person-movements, which are less predictable. Some of the current C/AV detection systems rely on cues from the built environment, such as lane striping. There is a need to consider roadway design enhancements such as high-visibility bike lane striping and pedestrian crossings to provide additional contextual warnings to improve C/AV detection of people walking and biking.

- **V2P:** Wireless beacons mounted on C/AVs may improve detection of people walking and biking by connecting directly with people's mobile devices (V2P) as well as with infrastructure (V2I). However, consideration must be given to people who are not carrying mobile devices either by choice or because they do not have the means to own one. For instance, children, who typically have less access to mobile devices, may not be detected by wireless beacons. Wireless beacons may also not function properly in areas with wireless service interference (e.g. urban canyons), or general system failure during inclement weather or emergencies. All people have a right to travel on public streets safely, so ultimately C/AV systems must find a way to detect and respond to all road users, not just those carrying mobile devices.
- **Communications:** Currently, interaction between human drivers and people walking and biking is often negotiated by head movements, hand gestures, facial expressions, or verbal signals. For instance, a conflict in which a driver turns across a sidewalk to enter a driveway and interrupts a pedestrian's trajectory may be resolved by the pedestrian using hand motions to let the vehicle pass (or vice versa). Many of these communication cues could be absent from or presented differently among C/AVs. Ongoing research at USDOT is evaluating methods of communicating cues and intentions between humans and C/AVs. Communication issues are likely to be made more challenging by mixed fleets with many different interfaces. Data-sharing across C/AV systems may be necessary to ensure that human/computer interactions are consistently integrated and tested across all vehicle makes and models and can be safely understood by people walking and biking.
- **Right-of-Way:** Driver failure to give right-of-way to pedestrians and legal crossings is a leading cause of pedestrian crashes.<sup>46</sup> It is not well-established how C/AVs will yield right-of-way. Automobiles, regardless of the level of automation, should give pedestrians the right-of-way at legal crossings and make every effort to avoid crashes with people walking. It is important for the City to establish the safety of people walking and biking as a high priority in the hierarchy of rules governing C/AV operations.
- **Passing and Pickup/Drop-off Conflicts:** At the curbside, the increase of ride-hailing services has already caused an increase of pickup and drop-off activity in many areas. By increasing the volume of hailed rides, C/AVs may increase challenges to people biking when attempting to pass a bicyclist or make a pickup/drop-off at the curbside, interrupting the bicyclist's trajectory. With sufficient C/AV infrastructure, a safe bicycle passing and/or following distance could be standardized by state or federal regulators. Additionally, cities can regulate where ride-hailing vehicles may pickup and drop-off passengers in dedicated loading zones in high-demand areas, restricting them from the most popular bike or transit corridors.
- **Automation and Driver Handoff:** Level II and Level III automated vehicles, which may alternate between human and autonomous operations, present a particular challenge for people walking and biking. Due to problems with detection or communications (see above), Level II and III automated functions may be unable to make critical decisions and may hand over control back to a human driver in some mixed-traffic environments. The handoff between automated and human operations may leave a significant delay, and the human driver may be unprepared to make essential braking or swerve maneuvers to avoid a crash. In the absence of state or federal standards, there may be opportunities for cities to regulate where and when Level II and III automated operations are permitted. School zones, shared streets, and pedestrian-oriented districts may be unsuitable for these automated operations.

<sup>46</sup> Schneider, Robert J., and Rebecca L. Sanders. 2015. "Pedestrian Safety Practitioners' Perspectives of Driver Yielding Behavior Across North America." *Transportation Research Record: Journal of the Transportation Research Board* 2519 (January): 39–50.



### 5.2.4 VERTICAL TAKEOFF AND LANDING (VTOL) VEHICLES

Planning for emerging transportation technologies may well include electric or hybrid-electric vertical takeoff and landing (VTOL) vehicles, popularly called flying cars or passenger drones. They are designed to accommodate around two to five passengers or the equivalent cargo weight; be highly energy efficient, with reduced or zero emissions; and be substantially quieter than a traditional helicopter due to their smaller electric engines. The vehicles are ultimately intended to operate autonomously, though they would be piloted in initial stages, under various concepts proposed by companies such as Boeing, Airbus,



Google, and Uber. "Uber Elevate" is a research endeavor that would use Uber data collected by their ride-hailing service to assess items like hub location, hub size, hub occupation, load factor (passengers in seats), flight time, airspace separation, minimum ground time, charging time, passenger capacity, platform size and many more. This would allow starting on high-frequency routes providing passengers a minimum time-saving of 40 percent of the usual trip time. The "UberElevate Network" has proposed testing in Los Angeles, Dallas and Dubai starting in 2020.<sup>47</sup> After this testing phase, Uber plans to launch a consumer-facing "Uber Air" service with VTOL vehicles as soon as 2023.<sup>48</sup> The top level of parking garages are viewed as vertiport opportunities.<sup>49</sup> The City of Beverly Hills has the Santa Monica Five parking structures and several other above-ground structures in the business triangle which may become candidates for vertiport conversion. However, significant technological and regulatory hurdles – such as the need for new air traffic control networks, airspace regulations, and VTOL vehicle electric batteries – may block VTOL vehicles from becoming widely adopted. It is also questionable whether companies like Uber could operate VTOL vehicles at fares low enough to be both financially sustainable and viable as a consumer transportation service.

## 5.3 Shared Use Mobility

Shared mobility services – the shared use of a vehicle, bicycle, or other mode – enable users to gain short-term access to transportation modes on-demand. The term shared mobility includes various forms of car sharing, bike sharing, on-demand ride sharing (carpooling and vanpooling), and on-demand ride-hailing services. It can also include alternative transit services, such as paratransit, circulators/shuttles, and microtransit.. With many new options for mobility emerging, so have multimodal trip planning applications that aggregate these options and optimize routes for travelers.<sup>50</sup>

### 5.3.1 MOBILITY AS A SERVICE

Taking the goal of ubiquitous, shared mobility a step further, Mobility as a Service (MaaS) is the integration of various forms of transportation services (public and private) into a single, digital mobility platform available on demand. At its core, MaaS relies on a digital platform that integrates end-to-end trip planning, booking, electronic ticketing, and payment services across all modes of transportation, public or private. If operated by public agencies, MaaS platforms are indispensable tools necessary to ensure that cities continue to achieve their mobility objectives despite

<sup>47</sup> Hawkins, Andrew J. 2017. "Uber's 'flying Cars' Could Arrive in LA by 2020 — and Here's What It'll Be like to Ride One." The Verge. November 8, 2017. <https://www.theverge.com/2017/11/8/16613228/uber-flying-car-la-nasa-space-act>.

<sup>48</sup> Captain, Sean. 2018. "How Uber Plans To Get Flying Taxis Off The Ground." Fast Company. May 2, 2018. <https://www.fastcompany.com/40522758/how-uber-plans-to-get-flying-taxis-off-the-ground>.

<sup>49</sup> <https://www.uber.com/elevate.pdf>, accessed March 19, 2018.

<sup>50</sup> Three Revolutions in Global Transportation, UC Davis and the Institute for Transportation & Development Policy, May 2017, p 11.



the expected influx of low-cost transportation from C/AVs. Along with other pricing and curb/right-of-way management policies, MaaS platforms are key instruments to incentivize public transit ridership, reduce VMT, advance shared mobility services, and increase vehicle occupancy in shared, autonomous vehicles. Private sector MaaS tools may also add creative partnerships and incentives, and some are creating subscription payment models.

Many people increasingly do not make distinctions between public and private transportation options, rather assessing mode by cost, convenience, comfort, and travel times. With a deluge of potential new information about travel options and services, MaaS offers an opportunity to make the existing transportation network more efficient and user-friendly. MaaS involves the ability to plan, book, and pay for trips among variety of modes from single interface- ideally help improve access and save money among customers. MaaS offers cities the ability to create increasingly attractive incentives to take transit and other high-capacity modes, even in response to real-time operational changes or major travel demand changes. MaaS is a marked departure from where most cities are today, and from how mobility has been delivered until now. Building a platform that allows someone to move among multiple modes for a single payment is a challenging order for both public agencies and technology firms.

The Los Angeles County Metropolitan Transportation Authority (Metro) recently issued a request for proposals to develop a microtransit program, intended to produce a pilot program that would provide low-cost, on-demand transit service hailed by a mobile app. The service is intended to improve transit ridership by reducing travel times, improving access to employment centers, and enhance first/last-mile access to key transit lines. Metro runs trains and buses, serves as the county's congestion management agency, and pursues pedestrian and cyclist infrastructure and initiatives. They are positioned "to leverage the opportunities new mobility services provide by, for example, working with member cities to thoughtfully allocate roadway space for transit, shared ride providers, bicyclists, etc., and shifting resources between buses, rail service, and shared ride services to efficiently move people around".<sup>51</sup> The City should engage in focused collaboration with Metro to consolidate the large volume of trips passing through the City into fewer vehicles, and to maximize local benefits.

Transportation network companies (TNCs) like Uber and Lyft, and e-commerce companies like Amazon, are not just disrupting markets – they also disrupt the flow of traffic. TNC pickups have been documented in San Francisco to account for about 20 percent of traffic<sup>52</sup> – but account for 65 percent of traffic violations.<sup>53</sup> Parcel volume from the rise of e-commerce and just-in-time deliveries will only continue to grow – and with it, the number of double-parked trucks conducting deliveries. UPS racks up over \$1 million in parking fines annually in Washington, DC alone, and it is considered a cost of doing business.<sup>54</sup> This has made the most overlooked part of city streets into a fertile ground for innovation that does not disrupt traffic: the curb.<sup>55</sup>

To achieve widespread shared mobility, TNCs need dedicated pickup/drop off locations, and freight vehicles need enough commercial loading zones to accommodate booming e-commerce. A possible solution that can help to alleviate some of the congestion, safety risks, and inefficiencies that come with the digital economy is to create a network of dedicated loading zones on each block that ensure that ride-hail, microtransit, or other private transit vehicles, can queue safely while picking up and dropping off passengers, without causing conflicts or shutting down through traffic. Through integration with ride-hailing platforms, each time a ride is requested, both drivers and passengers would be shown the location of the nearest Shared Use Mobility (SUM) Zone. The passenger would be picked up and dropped off at the legal SUM Zone, loading zone, or parking space closest to their destination.

<sup>51</sup> [https://3rev.ucdavis.edu/wp-content/uploads/2017/03/3R.Governance.Indesign.Final\\_.pdf](https://3rev.ucdavis.edu/wp-content/uploads/2017/03/3R.Governance.Indesign.Final_.pdf), p 3.

<sup>52</sup> Chu, Patrick. 2017. "Uber, Lyft Account for More than 20% of Traffic on San Francisco's Streets, according to County of San Francisco." San Francisco Business Times. June 13, 2017. <https://www.bizjournals.com/sanfrancisco/news/2017/06/13/uber-lyft-san-francisco-traffic.html>.

<sup>53</sup> Kunkle, Fred. 2017. "San Francisco Police Say Most Traffic Tickets Go to Uber and Lyft Drivers." Washington Post, September 26, 2017. [https://www.washingtonpost.com/news/tripping/wp/2017/09/26/san-francisco-police-say-most-traffic-tickets-go-to-uber-and-lyft-drivers/?noredirect=on&utm\\_term=.f93c2521aa75](https://www.washingtonpost.com/news/tripping/wp/2017/09/26/san-francisco-police-say-most-traffic-tickets-go-to-uber-and-lyft-drivers/?noredirect=on&utm_term=.f93c2521aa75).

<sup>54</sup> Halsey, Ashley. 2013. "In D.C., Parking Tickets Are a Cost of Doing Business - The Washington Post." Washington Post, June 1, 2013. [https://www.washingtonpost.com/local/trafficandcommuting/in-dc-parking-tickets-are-a-cost-of-doing-business/2013/06/01/6c693a56-b357-11e2-9a98-4be1688d7d84\\_story.html?utm\\_term=.ed9758e10697](https://www.washingtonpost.com/local/trafficandcommuting/in-dc-parking-tickets-are-a-cost-of-doing-business/2013/06/01/6c693a56-b357-11e2-9a98-4be1688d7d84_story.html?utm_term=.ed9758e10697).

<sup>55</sup> <https://www.enotrans.org/article/ahead-curb-case-shared-use-mobility-sum-zones/>, accessed March 19, 2018.



Likewise, expanding the use of urban freight management strategies such as metered commercial loading zones or off-hour loading strategies could help to reduce conflicts with other modes.

Though re-designating parking spaces as SUM Zones could provoke some opposition, as does the repurposing of any urban parking spaces, there are several precedents. The adjacent graphic shows a typical application in Washington DC, where 32 on-street parking spaces are reduced to 24 so that 8 SUM Zones (shown in blue) can be provided.



Cities are also increasingly dedicating on-street parking spaces to car share and bike share services to encourage the use of shared mobility options. San Francisco is testing a two-year pilot of roughly 150 parking spaces specifically for car share services, like City Carshare and Zipcar, and similar programs are operating in Seattle and Washington, DC. Similarly, bike share programs, such as CitiBike in New York City, often take over one or multiple on-street parking spaces to site a station. Local communities such as West Hollywood and Santa Monica are also replacing on-street spaces with bike share stations, which now share a bike share system with Beverly Hills.<sup>56</sup> Like Washington’s SUM Zones, these involve repurposing parking spaces in support of conscious efforts by municipalities across the country to encourage a shift in our transportation paradigm toward more convenient, environmentally friendly, and cost-effective options. Communities and businesses can leverage immediate benefits by reallocating on-street parking for higher-capacity, shared use modes. By letting go of a few parking spaces, residents, employees, customers, and visitors can enjoy smoother traffic flow and a wider range of mobility options.<sup>57</sup>

### 5.3.2 ELECTRIC SCOOTER SHARE

Electric scooter-share services have recently been rolled out by three startup firms (Bird, Lime and Spin), in the Los Angeles region. Electric scooters are intended as an affordable commuting alternative to cut down on pollution and traffic congestion. These scooters, which weigh between 30 and 40 pounds and reach speeds of 15 mph, are picked up every night to charge, and repositioned each morning for commuters. Users find and unlock scooters with a smartphone app, and ride at costs of one dollar minimum plus 15 cents for each minute of riding. Users are required to have a driver's license. The scooter's 15 mph speed makes them incompatible for operation on sidewalks, and residents have complained to the City of Beverly Hills about scooters parked where they block people walking or using wheelchairs on city sidewalks. In response, the City of Beverly Hills City Council approved a temporary six-month ban on any shared mobility device (Ordinance NO. 18-O-2757). These include dockless bikes, electric scooters and any other “wheeled device” powered by a motor (not including vehicles and motorcycles). Despite the City’s temporary ban, electric scooters continue to grow in popularity as a convenient alternative to driving.

## 5.4 Regulating Mobility Service Providers

In the past decade, cities have struggled to resolve the question of how to appropriately regulate mobility service providers that have often launched on public rights-of-way with little or no consultation with relevant authorities, and with varying degrees of adherence to applicable regulations. Despite the many benefits of on-demand mobility – such as reductions in drunk driving and enhanced first/last mile access to transit – TNCs (and to a much lesser extent, microtransit services) have led to increased traffic congestion and, in many cities, declines in transit ridership,

<sup>56</sup> <http://wehopedals.com/map/>

<sup>57</sup> <https://www.enotrans.org/article/shared-use-mobility-zones-fighting-congestion-home-rideshare/>, accessed March 19, 2018.



walking and biking.<sup>58</sup> These mobility service providers have also created numerous other problems that cities are still resolving, such as:

- Increased conflicts with bike lanes and public transit operators;
- Failure to properly license and background-check drivers according to existing taxi industry standards;
- Creation of a new class of low-wage, independent contractor employees who are not entitled to employment protections;
- Companies' refusal to share all but the most cursory data on travel patterns with regulatory agencies.

The extent to which cities should reallocate public rights-of-way to private mobility service providers – in effect, leveraging public resources for private gain – remains an open question that depends on how far cities are willing to go to enact and enforce regulations against the undesirable outcomes these providers may create. The newest chapter of this conflict has emerged since early 2017, when a variety of newer mobility service providers began deploying dockless bikes, electric bikes, and scooters in similar fashion to early TNCs. As with TNCs, these new operators seldom sought to operate within existing regulations, often resulting in official pushback and, eventually, conditional operating agreements establishing the terms under which the providers can legally operate in the city. Alongside user convenience and ubiquitous, low-cost mobility choices, the newest generation of bike share providers has led to unforeseen problems such as bicycle clutter on sidewalks and in front of building entrances, conflicts with pedestrians, poor bike maintenance and safety issues, user data security, and ongoing questions about the long-term sustainability of the operators' business model.

Before engaging with mobility service providers of any type, cities should carefully outline their policy outcomes and the benefits they seek from shared mobility, whether it is VMT reduction, enhanced first/last-mile access to destinations, or simply expanding local mobility options. Cities should then establish firm regulations and guidelines about how shared mobility providers may operate in the city such that these policy outcomes can be effectively met. These regulations may include caps on the number of TNCs or shared bikes allowed in various zones, pricing incentives to increase vehicle occupancies and reduce congestion, licensing and fair labor standards, and data-sharing requirements, among others. These measures underscore the fact that a city's rights-of-way are its most valuable public asset, and one that should be leveraged judiciously and under conditions that benefit all citizens, not just those who happen to be users of a particular shared mobility service.

The California Public Utilities Commission oversees statewide policies for TNCs, and is currently engaged in Phase III of a rulemaking process to refine regulations for these companies. In addition to existing state regulations, there are local business registration requirements and airport permit requirements in place in some areas of the state. San Francisco County Transportation Authority is seeking partners from the public and private sector to conduct a series of studies to better understand how these services and technologies are influencing our transportation network. Conclusions from these evaluations may be used to develop strategies, partnerships, or policy options that support citywide goals. If the City is interested in a research collaboration, they may contact: <https://www.sfcta.org/user/454/contact>

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<sup>58</sup> Clewlow, Regina, and Gouri Shankar Mishra. 2017. "Disruptive Transportation: The Adoption, Utilization, and Impacts of Ride-Hailing in the United States." UCD-ITS-RR-17-07. University of California - Davis: Institute of Transportation Studies. <https://steps.ucdavis.edu/new-research-ride-hailing-impacts-travel-behavior/>.



## 5.5 Hyperloop

Hyperloop has attracted a lot of attention recently as a fifth mode of transportation. Hyperloop is a fast transportation mode that is claimed to be the future of rapid transport of people and goods. Hyperloop system consists of a vacuum tube in which the vehicles are moving rapidly, vehicles are also known as passenger capsule cars.<sup>59</sup> Hyperloop can reach a speed of 700 miles per hour, making it possible to travel from Los Angeles to San Francisco in about 30 minutes. The advantages of Hyperloop system is its fast speed, low power consumption and relatively low cost of operation on a long run<sup>60</sup>. Despite these advantages, there are major criticisms on the feasibility of such systems. Many experts believe that development and construction of such system is too expensive. The Hyperloop system could be very vulnerable to disruptive events (e.g. earthquakes, terror attacks, power outage, etc.) and has a very high risk to life<sup>59</sup>. The images below show the Hyperloop project in Dubai. Virgin Hyperloop One, an LA-based startup, is working on this project. This project is supposed to make it possible to travel from Dubai to Abu Dhabi (86 miles) in about 12 minutes. The project is expected to be completed in 2020<sup>61</sup>. Virgin Hyperloop One is also working on a demonstration project in Nevada and completed a feasibility study for a project in Missouri.



<sup>59</sup> <http://www.rfwireless-world.com/Terminology/Advantages-and-Disadvantages-of-Hyperloop-Technology.html>

<sup>60</sup> <http://futureforall.org/2017/november/virgin-hyperloop-one.html>

<sup>61</sup> <https://hyperloop-one.com/>



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## CHAPTER 6 COMMUNITY INPUT

Community outreach and engagement played a direct role in shaping the recommendations put forward in this plan. This chapter describes the multifaceted approach used to capture input from a broad cross section of the community, as well as a summary of public feedback received.



### 6.1 Community Outreach and Engagement Overview

The Complete Streets process included a community outreach and engagement program to integrate community input into the Complete Streets Plan. Input and feedback was gathered in a variety of formats, including:

- Via the comments feature of the project website
- By developing a video that explains the concept of a “complete street,” available on the project website and broadcast on local TV
- Via an online survey, which received 250 unique responses
- Through five different events: three formal community workshops, a pop-up event, and a walk audit (attendance from all events totaled approximately 170 people)

Community feedback received has been used to shape the recommendations included in this plan, which reflect the community values and goals outlined at the start of this planning process, and addresses key concerns brought up by community members through the online survey and the five in-person events and workshops.

### 6.2 Online Engagement

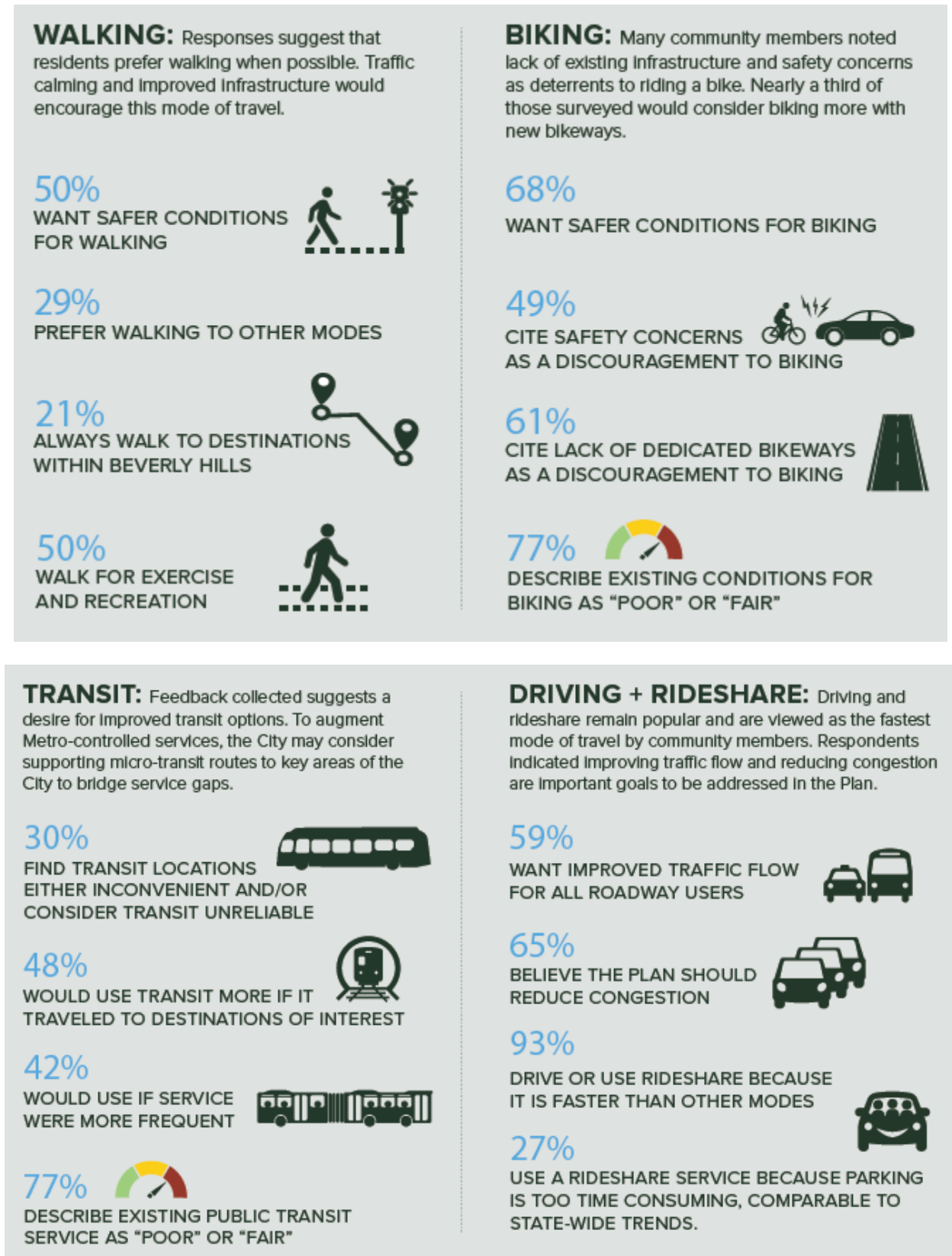
A project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)) was established to serve as a central resource for project information. A comments tool on the website provided another forum for community members to share feedback. 65 people commented or signed up for project updates via the website.

An online survey, available from March - July 2018, collected feedback from 250 respondents. The goal of the survey was to learn more about how community members feel about the way Beverly Hills’ streets and networks function today and to gather input about how they might function differently in the future. Respondents were asked questions about each modality: walking, biking, public transit, vehicles, and the role of new/emerging technologies. Several major themes emerged from the survey, as well as the in-person events and workshops, discussed in the summary portion of this chapter. Complete survey results along with meeting summaries can be found in **Appendix D**.

**Figure 6-1** summarizes feedback received from the online survey. Overall, this information suggests the community wants safer, more convenient infrastructure, and more reliable travel options.



Figure 6-1: Online Survey Feedback Summary





## 6.3 Events and Workshops

Approximately 180 people participated in three workshops, a walk audit, and a pop-up workshop held from March to July 2018. Feedback was gathered at each event, as shown in **Table 6-1** below.

**Table 6-1: Outreach Events and Workshops**

EVENT	DATE	PURPOSE	SUMMARY DETAILS
Workshop #1	March 12, 2018	Established the project goals and values	Figures 6-2 and 6-3, Appendix D
Pop-up Workshop (Beverly Hills Farmers' Market)	April 15, 2018	Gathered feedback on initial bike network map concepts; asked participants to prioritize different bikeway types	Figures 6-4 and 6-5, Appendix D
Workshop #2	May 30, 2018	Introduced draft maps for each of the four key modalities (walking, biking, transit, and vehicles); participants broke out into small working groups to review and comment	Appendix D
Walk Audit	June 9, 2018	Led participants along two routes: <ul style="list-style-type: none"> <li>• South Santa Monica Boulevard from Crescent Drive to Roxbury Drive</li> <li>• South Crescent Drive between South Santa Monica Boulevard and Wilshire Boulevard, continued to Reeves Drive</li> </ul>	Appendix D
Workshop #3	August 22, 2018	Presented draft plan progress, including options for 4 different corridor segments throughout the city	Appendix D

The first community workshop, held on March 12, 2018 and attended by approximately 40 people, centered on establishing guiding values and goals for the Complete Streets Plan. Meeting facilitators asked participants to select a word to describe Beverly Hills streets in the present and in the future. The most common words selected by participants to describe the present suggested an emphasis on cars, such as “congested,” “speeding,” and “traffic.” The most common word selected by participants to describe the future was “safe.”

Meeting participants were also asked to help refine and prioritize project goals and values. The same was asked of online survey respondents. The most common responses were:

- **Values:** Enhance safety, improve traffic flow, improve the quality of life, increase and diversify transportation choices, and improve the environmental health and sustainability of Beverly Hills
- **Goals:** Improve and prioritize pedestrian spaces, expand bike routes and lanes, improve first/last mile connections with transit stops, reduce traffic congestion, provide flexible curb space, reduce greenhouse gas emissions, and incorporate green infrastructure.

Additionally, participants expressed a desire for design recommendations that will promote/maintain the City’s “village” atmosphere; to consider diverse user groups including tourists, visitors, and businesses; and to facilitate the need for coordination with adjacent cities during plan implementation.



Figure 6-2: Priority Project Values from Workshop 1

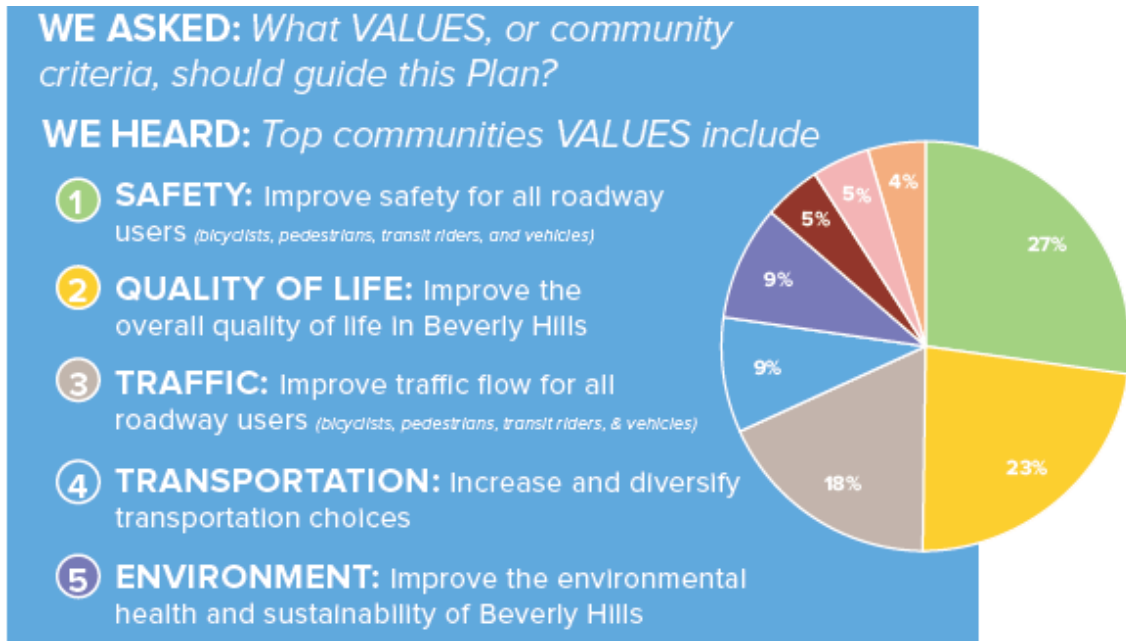


Figure 6-3: Priority Project Goals from Workshop 1





On Saturday, April 15, 2018, approximately 40-60 community members stopped by the Beverly Hills Complete Streets Plan booth at the City's Earth Day event. All participants were either Beverly Hills residents, employees, or those who visit the City regularly from adjacent neighborhoods. Participants were engaged in two main activities:

- A sticker voting activity to identify the complete streets design strategies they most want to see in the city
- A mapping exercise in which participants were asked to identify corridors, areas, and intersections in the city they would like to see the plan improve

Booth participants said the top ways they would improve mobility in Beverly Hills were through improved pedestrian, vehicular, and bicycle networks, and traffic calming. Their top priorities for complete streets elements were crossing warning devices, bike lanes, and traffic calming, followed by crosswalks/raised crosswalks and green infrastructure.

**Figure 6-4: Farmers' Market Pop-up Event**





Figure 6-5: Draft Bike Network Map Feedback Recorded at Earth Day Pop-up



Approximately 20 community members attended the second workshop for the Beverly Hills Complete Streets Plan on Wednesday, May 30, 2018. The focus of the workshop was to identify priority corridors and to make network recommendations that would be used to guide the plan. Participants reviewed maps addressing modes of travel including transit, vehicular, bicycle, and pedestrian. There were 48 specific comments provided, with the bicycle and pedestrian maps comprising 71 percent of the total responses. Several common themes emerged throughout the workshop:

- Support of/interest in a shuttle route
- Desire for improved crosswalks
- Challenging biking conditions at Crescent Drive and Wilshire Boulevard, on Sunset Boulevard, and on Rodeo Drive
- Improved bicycle amenities including green bike lanes, protected bike lanes, and bike parking
- A need for enhanced pedestrian safety along Gregory Way, Olympic Boulevard, and Beverly Drive
- Use of traffic calming measures on Wilshire Boulevard and Olympic Boulevard

On Saturday June 9, 2018, approximately 25 community members attended a walk audit to study firsthand how streets in Beverly Hills could be improved. Participants were split into groups to conduct a 90-minute walk audit on one of two street segments, followed by tabletop exercises focused on how to re-design each corridor. The first



group walked along Crescent Drive between South Santa Monica and Wilshire Boulevards, and the second group traveled along South Santa Monica Boulevard between Crescent Drive and Roxbury Drive. Participants were then asked to identify issues for pedestrians, bicyclists, drivers, and transit users along their respective routes and to offer suggestions for improvement.

On Crescent Drive, participants were most concerned with vehicular speeding and conflicts between vehicles and bicyclists/pedestrians at intersections. They also noted that the introduction of the Metro Purple Line would change pedestrian travel on this corridor, and there are needs for rideshare drop-off areas at the future station and enhanced parking options on Crescent Drive. Participants identified potential infrastructure for Crescent Drive, including reduced turning radii and additional turn lanes at South Santa Monica Boulevard, scramble crossings, enhanced visibility of speed limit signs, shared-use mobility zones, a pedestrian bridge at the future Metro Purple Line station, and digital parking occupancy signage on garages to reduce demand for on-street parking.

On South Santa Monica Boulevard, participants were most concerned with vehicular speeding. They identified narrow sidewalks as inhibiting pedestrian activity for restaurants and small businesses located on the north side of the street. Participants indicated support for future pedestrian scrambles and an extension of the street reconfiguration pilot that was installed at the time of the audit (which has since been reversed).

Approximately 25 community members attended the third workshop for the Complete Streets Plan on Wednesday, August 22, 2018. The consultant team delivered a presentation summarizing draft plan progress, which included potential network maps for walking, biking, transit, and vehicles. Following a brief Q and A session, participants were invited to circulate around the room to review the potential network maps up close and provide suggestions, summarized below:

- Intersection improvements at Rexford Drive/Charleville Boulevard
- Pedestrian bridge on La Cienega Boulevard between Olympic Boulevard and Gregory Way
- Street trees on Olympic, Wilshire, and Robertson Boulevards to improve aesthetics
- Wider sidewalks for outdoor dining, such as through revised building set-backs
- Parking-protected bike lanes
- Bikeways on Gregory Way and Doheny Drive
- Reduced fare for the bike share program
- Bicycle training classes
- Transit stop amenities, including benches, shaded areas, and trash bins
- Bus lanes
- Higher capacity buses and north/south bus routes (not within City jurisdiction)
- Parking structures and kiss-and-ride facilities at the future Metro Purple Line stations
- Left turn restrictions

## 6.4 Role of the Traffic and Parking Commission

Throughout the course of this project, this project has had a standing agenda item at the monthly meetings of the Beverly Hills Traffic and Parking Commission (TPC), which has served as an advisory body for the project. City and Consultant staff involved in the project presented to the TPC on a monthly basis, and these meetings provided an additional opportunity for public comment and input.



On January 10, 2019, the Traffic and Parking Commission participated in a study session facilitated by the consultant team to discuss if the plan was moving in the right direction, if anything was missing from a list of preliminary projects, and what should be prioritized for short-term implementation. The meeting was intended to provide the Commissioners with an opportunity to give their input, as the role of the Commission during community outreach was to listen and observe, as to not influence public feedback. Approximately 10 community members attended the meeting, four of which were active participants in the Commission's conversation.

Commissioners indicated that nothing should be removed from the list of potential infrastructure, policies, and programs, and that the preliminary list was moving in the right direction. However, they suggested the following should be added to the list to form the plan recommendations:

- Incorporating technology into infrastructure, such as at transit stops
- Improved project evaluation and monitoring, including through the use of technology
- Infrastructure recommendations that allow for emerging mobility trends
- Specificity on location of improvements and treatment applications
- Emphasize measures to protect local streets for local traffic
- Opportunities to beautify the public realm and highlight the culture of Beverly Hills, such as through wayfinding, public art, and streetscape enhancements
- Inter-jurisdictional coordination
- A balance between addressing current deficiencies in the transportation network while also including a bold vision for the future

Commissioners suggested the following project priorities to include in Tier 1 of the implementation plan (first five years after plan adoption) described in **Chapter 10**. The list below is in no particular order.

- Pedestrian network enhancements, such as improved crossings
- On-street bicycle infrastructure, like bike lanes and routes/boulevards
- Incorporating technology into infrastructure and project evaluation/monitoring
- First/last mile connections to rail stations and bus stops
- Improved traffic flow on major streets and traffic calming in neighborhoods

The Commission, as well as several community members, spoke in opposition to consideration of revising the City's Municipal Code to allow bicyclists on some sections of commercial sidewalks as it may create conflicts between bicyclists and pedestrians. The City had included this potential policy for consideration as a way to reduce vehicle/bicyclist conflicts and improve bicycle access until infrastructure was built out, using Santa Monica Boulevard in the City of West Hollywood as an example: when a bicycle lane is present, sidewalk riding is prohibited, but where there isn't adequate street width to accommodate on-street bikeways, sidewalk riding is permitted. A revision of this policy is not included in the plan, but it recommends the consideration of allowing sidewalk riding on a limited case-by-case basis on commercial corridors where a gap in the first/last mile network may be present, such as on Wilshire Boulevard near the future La Cienega Metro Purple Line station.

At the meeting, community members highlighted the importance of enhancing mobility as a whole; using current and future technologies/data to better evaluate and monitor projects; beautifying the public realm; and enhancing pedestrian safety.



## CHAPTER 7 RECOMMENDED INFRASTRUCTURE

The development of the complete streets network has been a collaborative process between various City departments and has incorporated community input from multiple workshops and outreach events. The complete street network recommendations presented in this chapter are the result of an assessment of existing physical characteristics of the roadways, the current and future transportation system, land use patterns, adjacent cities' policies, and emerging trends.



The Beverly Hills Complete Streets Plan provides a comprehensive and integrated transportation network that supports connectivity across jurisdictional boundaries. For the City of Beverly Hills, there is not a one-size-fits-all design to every street. Rather, the Complete Streets Plan is envisioned as a connected network where certain streets prioritize different modes of travel. This chapter presents the recommended networks for each mode and a menu of treatments that can be applied to create complete streets in Beverly Hills. **Chapter 10** includes a short-, medium- and long-term implementation plan that prioritizes projects for implementation based on immediate need and community vision.

The infrastructure projects recommended in this chapter will help prepare for emerging trends and technologies. The City cannot always predict what new technologies will come about, but can conduct transportation planning proactively to be prepared for future opportunities. For example, the City's ongoing efforts to upgrade the signal system are a first step in preparing for connected and autonomous vehicles while we wait for the technology to progress to the point when it can be implemented in Beverly Hills. Planning for infrastructure that will be compatible with new emerging options and not preclude any future options is an imprecise exercise. The City should continue making it a priority to be aware of new trends in transportation, such as expanding electric vehicle infrastructure, supporting efforts for new underground regional transit options, studying new micromobility options, and autonomous vehicle technology.

**Figures 7-1 through 7-3** show the locations for potential infrastructure improvements in Beverly Hills. These maps are intended to identify conceptually where the City could focus its efforts in enhancing bicycle, pedestrian, and transit corridors. Recommended improvements for vehicles are not currently mapped as they are not concentrated onto specific corridors, can be applied citywide, and/or require neighborhood-level targeted community outreach.

**After plan adoption, each project would go through its own community outreach process and specific details about design would be determined with public feedback during implementation.** Each project implemented from this plan should be evaluated and monitored to determine how it is working and how it should be modified, if needed. Before and after studies, the efficient and creative use of available data, and transparent reporting will help communicate to the public the status of new projects.



To assure that design is accomplished with operations and maintenance in mind, it is important to continue interdepartmental coordination within the City, working with Public Works to build the projects in this plan and coordinating with Information Technology as appropriate. The Transportation Division currently has biweekly meetings with the Public Works Department to coordinate on projects. Those meetings should be expanded after plan adoption to include complete streets implementation.

The City also has weekly interdepartmental meetings to review special events and coordinate traffic control plans for street closures. After plan adoption, the City should consider expanding the scope of these meetings to discuss project evaluation and monitoring across City agencies.

The City should continue to coordinate with other jurisdictions, such as with the partner cities in Bike Share Connect and through the Westside Cities Council of Governments, and coordinate on future projects that may cross or abut city borders, like dockless technologies.

## 7.1 Recommended Bikeways

In 2012, the City completed a Bikeway Feasibility Study to evaluate the potential implementation of bikeways on Beverly Drive, Crescent Drive, Carmelita Avenue, Burton Way, Charleville Boulevard, and Reeves Drive. That effort led to the installation of bike lanes on Crescent Drive between Sunset Boulevard and North Santa Monica Boulevard, shared lane markings (shared travel lane between bicyclists and drivers) on Crescent Drive between North Santa Monica Boulevard and Wilshire Boulevard, and bike lanes on Burton Way between Crescent Drive and eastern City limits. Additionally, the City installed high visibility green bike lanes on North Santa Monica Boulevard between western City limits and Doheny Drive as part of the North Santa Monica Boulevard Reconstruction Project.

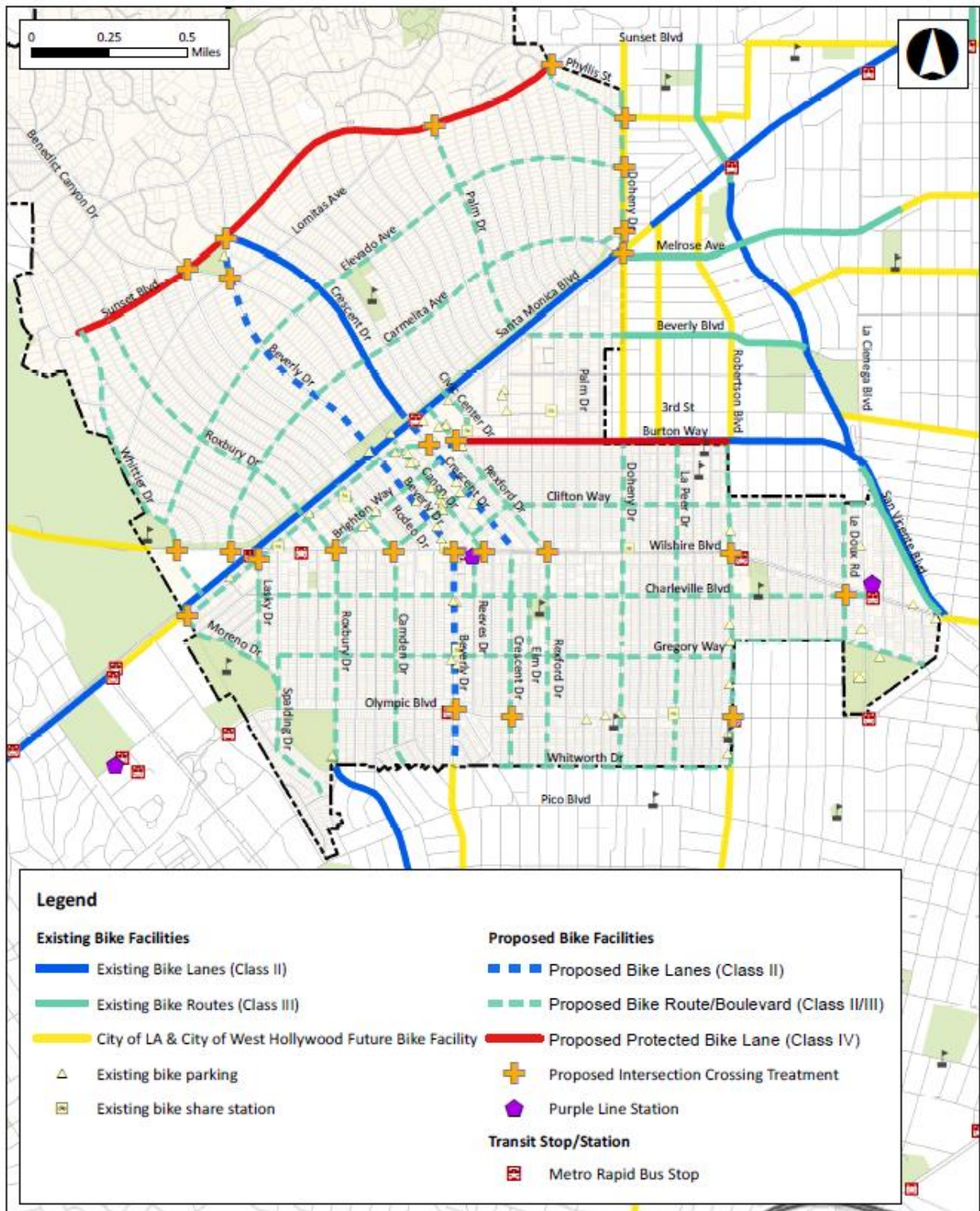
During the public outreach process for the Complete Streets Plan, 68 percent of survey respondents said they want safer conditions for biking. 49 percent cited safety concerns as a discouragement from biking and 61 percent cited lack of dedicated bikeways as a discouragement from biking. Overall, 77 percent of respondents described the existing conditions for biking as poor or fair. Because the City's streets are built out, providing dedicated space for bicyclists is challenging as it means reallocating space from parking or travel lanes. In addition, the majority of the City's streets are two-lane, residential streets where options for reallocating space are substantially more limited.

As such, potential bikeways are focused mostly on residential streets with enhancements to prioritize bicycle travel by calming traffic, easing crossings at intersections, and guiding bicyclists along designated bikeways and to key destinations. In the short-term, these bikeways (bike routes/boulevards) may be shared travel lanes with vehicles or have bike lanes only in one direction (for example, in the uphill direction) where there is not adequate roadway width for bike lanes in two directions. However, it is predicted that in the future autonomous vehicles will reduce the need for privately owned vehicles and in turn the need for parking; if that proves true, reduced on-street parking demand will provide more opportunities to install bike lanes in the long-term, especially on neighborhood streets, though bikeway designs must balance the increased need for curbside access while keeping the space uninhibited for bicycle travel. Overall, the appropriate bikeway design should be based on a variety of factors, such as vehicle speeds and parking turnover, and provide the lowest possible level of stress experience within the constraints of the right-of-way so that bicyclists are the prioritized roadway users on these corridors. Where appropriate, upgrades to the pedestrian environment should be installed in conjunction with bikeway improvements.

**Figure 7-1** shows the locations for potential bikeways in Beverly Hills, including bike lanes (Class II), protected bike lanes (Class IV), and bike routes/bike boulevards (Class II or Class III), which are described in detail in **Chapter 3**. These locations address public feedback by providing more separation from motor vehicle traffic and prioritizing low-stress facilities. Upon implementation of the complete bicycle network, people of all ages and abilities would be able to comfortably ride bicycles through the city to key destinations, including commercial areas, schools, parks, and transit stops and stations.



Figure 7-1 Recommended Bikeways





Best practices for bikeways are discussed in detail in **Chapter 4** and design guidance on bicycle infrastructure can be found in **Appendix B**.

Recommended bike route/boulevards in Beverly Hills include:

- **North of Santa Monica Boulevard:** Carmelita Avenue, Elevado Avenue, Palm Drive, Beverly Boulevard, Roxbury Drive, Whittier Drive, Cinthia Street, and Doheny Drive
- **Subway Connections:** Clifton Way, Le Doux Road, Reeves Drive, Charleville Boulevard, Gregory Way, Beverly Drive, Crescent Drive, and Canon Drive
- **Neighborhood Connections:** Camden Drive, Crescent Drive, Doheny Drive, Elm Drive, La Peer Drive, Lasky Drive, Robertson Boulevard, Spalding Drive, and Whitworth Drive
- **Downtown:** Brighton Way, Camden Drive, Civic Center, Dayton Way, Moreno Drive, Rexford Drive, and South Santa Monica Boulevard

Enhancements for bike routes/boulevards (Class II or Class III) to make them more comfortable to people on bikes would be evaluated during the design phase and are listed below. Through a combination of these treatments plus crossing treatments at unsignalized arterials, the City could deliver a high quality, low-stress network of bikeways. Providing dedicated space for bicyclists (bike lanes) on these corridors would substantially enhance the level of comfort for bicyclists and should absolutely be explored and installed wherever possible.

- High visibility, green-backed shared lane markings
- High visibility intersection treatments, like green-backed intersection crossing markings to highlight the path of travel through intersections
- Bike detection/indicators at signalized intersections
- Traffic calming treatments, such as traffic circles, diverters, chicanes, or speed feedback signs
- Bicyclist-activated flashing beacons at unsignalized intersections of residential streets with major streets
- Wayfinding signage and pavement markings to guide bicyclists, such as along bikeways that zig zag





Streets for potential Class II bike lanes in Beverly Hills include:

- Beverly Drive from Sunset Boulevard to Whitworth Drive
- Crescent Drive from Santa Monica Boulevard to Wilshire Boulevard

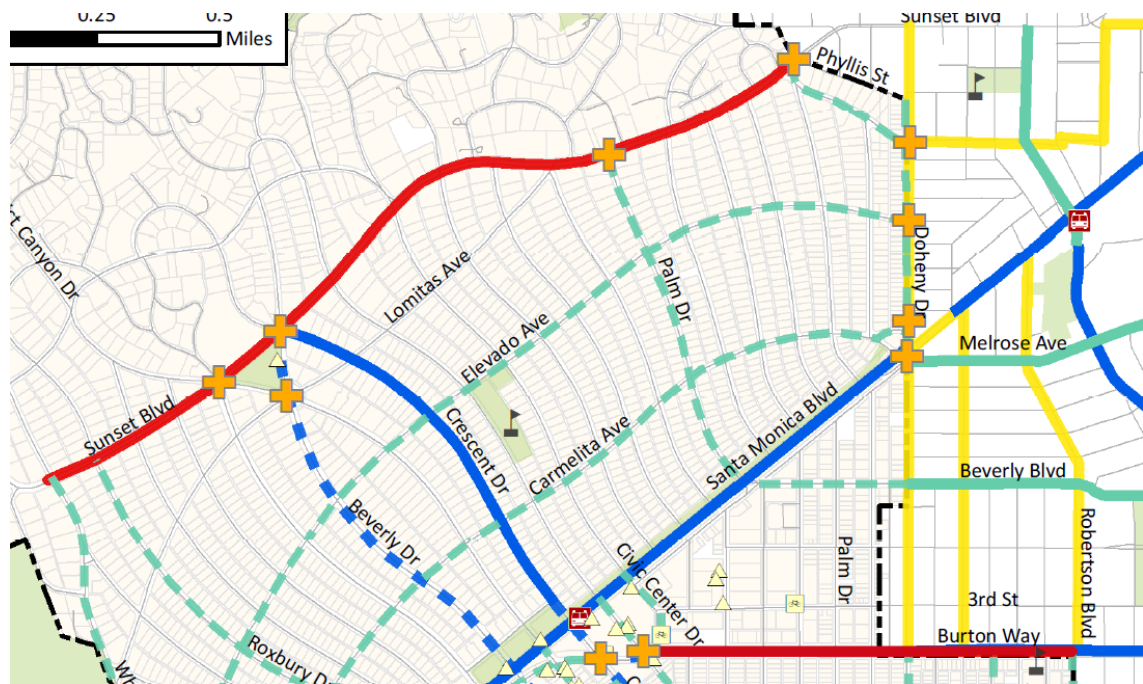
Beverly Drive and Crescent Drive are identified as roadways to be striped with potential bike lanes because they are commercial corridors with higher traffic volumes and parking turnover, which leads to more potential conflicts between bicyclists and motorists. Providing a space for bicyclists that is separate from motor vehicles would reduce conflicts that could lead to collisions and would help organize the street by moving bicyclists out of the travel lanes.

While Beverly Drive north of North Santa Monica Boulevard is wide enough to stripe bike lanes without reconfiguring the street, the remaining segment of Beverly Boulevard and the entire segment of Crescent Drive would require a roadway reconfiguration to allocate space to bicyclists. Bike lanes on this segment of Crescent Drive would connect with the existing bike lanes north of North Santa Monica Boulevard and create a critical north-south connection to the future Metro Purple Line Rodeo Station. During the walk audit completed for the Complete Streets Plan, participants identified the need for a better bikeway on this section of Crescent Drive.

As a mitigation to construction for the Wilshire/Rodeo Metro Purple Line station, North Canon Drive will be closed at Wilshire Boulevard for at least two years. During that time, the City will work with the adjacent properties to monitor the closure. If it is determined that the closure is favorable, it is possible that it would be in place longer or made permanent. In that case, the City would evaluate the change in travel patterns to determine if Canon Drive would be a more appropriate street for bike lanes than Crescent Drive. If the North Portal for the Wilshire/Rodeo station is placed on North Beverly Drive (currently under evaluation), the City should prioritize the study of bike lanes on both North and South Beverly Drives to provide a direct first/last mile connection.

Streets for potential Class IV protected bike lanes in Beverly Hills include:

- Burton Way from Rexford Drive to Robertson Boulevard
- Sunset Boulevard from Whittier Drive to Cinthia Street





Protected bike lanes are completely separated from traffic by vertical delineation, such as bollards, curbs, or parked cars. Burton Way is a potential protected bike lane because the existing bike lanes are located between the parking lane and the travel lane, in the “door zone.” Locating the bike lane between the curb and the parking lane and adding a small buffer would create a more comfortable biking environment because of reduced conflicts with people driving, accessing parking, and opening car doors once they have parked. To stripe protected bike lanes on Burton Way, the street would need to be reconfigured, such as through removal of parking if there is less demand in the future. At the community workshops, participants indicated a desire for more parking-protected bike lanes in Beverly Hills. In the short-term, bike lanes could be made protected at bus stops through the implementation of floating bus islands (bus bulbs) with limited striping changes and without impacts to travel lanes.

The City received a Metro Call for Projects grant in 2015 (funding anticipated to be available in FY2019/20) to fund narrowing the median to address vehicle turning movement conflicts (queuing in the intersection) and adding bike lanes on a 0.5-mile segment of Sunset Boulevard. Because of the high vehicle speeds and volumes on Sunset Boulevard, it would be more appropriate to further narrow the median to provide protected bike lanes and extend the bike lanes throughout the length of the street (approximately two miles) in Beverly Hills to create a safer and more useful bike facility with minimal, if any impacts to vehicle traffic. Because of the speed differential between motorists and bicyclists on Sunset Boulevard, additional separation between the two modes is essential for bikeway installation. If protected bike lanes are not feasible due to the grade on Sunset Boulevard, buffered bike lanes could be installed instead.

Additional enhancements that can be installed on streets with bike lanes and protected bike lanes include:

- High visibility, green bike lanes
- Buffered bike lanes (bike lanes with an extra painted buffer)
- High visibility intersection treatments (bike boxes, intersection crossing markings, etc.)
- Protected intersections (all bike movements are protected from vehicles)
- Bicycle signals at intersections along protected bike lanes
- Bike detection/indicators at signalized intersections
- Wayfinding signage and pavement markings to guide bicyclists, such as along Class III bikeways that zig zag on multiple streets



No locations for potential Class I shared use paths are identified as there is not currently sufficient right-of-way off-street for a contiguous path. This would not preclude the City from installing shared use paths in the future should opportunities arise.

In addition to new bikeways, the City should expand short-term bike parking along commercial corridors that currently lack parking facilities, such as on Wilshire Boulevard and streets in the Business Triangle. Best practices for designing and installing bike parking can be found in the Association of Pedestrian and Bicycle Professionals’ *Essentials of Bike Parking: Selecting and Installing Bike Parking that Works (2015)*. Parking for dockless bicycles or other micromobility options that are introduced into Beverly Hills in the future should provide curb spaces delineated with paint/stencils to minimize sidewalk clutter and may include few or no racks to maximize capacity.



## 7.2 Recommended Pedestrian Enhancements

The Business Triangle in Beverly Hills is one of the most walkable neighborhoods in the Los Angeles region. The City has enhanced many downtown streets with wider sidewalks, midblock crossings, wayfinding signage, decorative lighting, and curb extensions to improve the pedestrian experience, and has received several grants to continue improving pedestrian infrastructure in the area.

While these efforts will continue to enhance the pedestrian experience throughout Beverly Hills, there is room for improvement on commercial corridors outside the heart of the Business Triangle. During the public outreach process, 50 percent of survey respondents said they wanted safer conditions for walking. Meeting participants noted that they want safer crosswalks, and improved safety on key corridors like Olympic Boulevard and Wilshire Boulevard. Community members also identified during workshops that improvements like street trees and wider sidewalks would enhance walkability on corridors like Wilshire Boulevard and Robertson Boulevard.

**Figure 7-2** shows the recommended priority corridors for pedestrian improvements in Beverly Hills. These include streets with destinations that attract pedestrian activity, like retail and office space, but are in need of upgrades to make them more walkable since they have not been through recent urban design enhancement processes like many of the streets in the Business Triangle, and streets where the City has received grants for new crossings.

Recommended pedestrian corridors include:

- Bedford Drive from North Santa Monica Boulevard to Wilshire Boulevard (grant received)
- Beverly Drive from Wilshire Boulevard to Olympic Boulevard (grant received)
- Camden Drive from North Santa Monica Boulevard to Wilshire Boulevard (grant received)
- Crescent Drive from North Santa Monica Boulevard to Wilshire Boulevard
- Doheny Drive from Phyllis Street to south of Beverly Boulevard (City limits)
- Doheny Drive from Burton Way to Whitworth Drive
- Linden Drive from South Santa Monica Boulevard to Wilshire Boulevard
- Moreno Drive-Spalding Drive from South Santa Monica Boulevard to Olympic Boulevard
- Olympic Boulevard from western City limits to eastern City limits
- Robertson Boulevard from Burton Way to Whitworth Drive
- Roxbury Drive from North Santa Monica Boulevard to Wilshire Boulevard
- South Santa Monica Boulevard-Burton Way from western City limits to eastern City limits
- Wilshire Boulevard from western City limits to eastern City limits
- Wilshire Boulevard adjacent to the subway stations



Figure 7-2: Recommended Pedestrian Corridor Improvements





Best practices for pedestrian infrastructure are discussed in detail in **Chapter 4** and design guidance on pedestrian infrastructure can be found in **Appendix B**. Conceptual corridor-wide pedestrian improvement plans would be developed during implementation for each priority pedestrian corridor included in the plan to determine where specific improvements should be located. This would include a targeted, neighborhood-level community outreach process for each street, as each corridor may have different, localized needs. Best practices for improving walkability that the City could implement on the priority corridors include:

- New and upgraded sidewalks and curb ramps (as part of maintenance)
- Tightened curb radii to slow speeds (as part of maintenance)
- Median and pedestrian refuge islands to shorten crossing distances
- Curb extensions (including chokers and chicanes)
- Leading pedestrian intervals, also known as pedestrian head starts
- Automatic pedestrian actuation at high pedestrian volume intersections or at peak walking times
- Advanced limit lines to stop vehicles before the crosswalk (as part of maintenance)
- Pedestrian-activated flashing beacons (new crosswalks)
- Reverse angled parking (pending test) for an additional sidewalk buffer
- Streetscape improvements to beautify the area and make corridors more walkable (such as pedestrian-scale lighting and landscaping, including street trees and green infrastructure elements where feasible)
- Parklets and public plazas
- Pedestrian scrambles
- Decorative/creative crosswalks





### 7.3 Transit Enhancements

Existing bus service in Beverly Hills is predominantly offered by LA Metro, including both local and rapid lines. Additionally, Santa Monica Big Blue Bus, LADOT, and the Antelope Valley Transit Authority operate buses that travel through Beverly Hills. The City does not operate a fixed route transit service, but does manage bus stops on City property, including the provision of street furniture.

During the public outreach process, 77 percent of survey respondents describe the existing transit service in Beverly Hills as poor or fair. 30 percent of respondents said they find transit service inconvenient and/or unreliable and 42 percent say they would use transit more if service was more frequent. Community workshop participants were enthusiastic about improvements to transit stop amenities, including more benches, shaded areas, and trash bins. They also commented on the need for higher capacity buses, bus lanes, and additional north-south bus routes.

While this plan does not recommend service changes because the City does not operate the existing transit services, it makes recommendations to the public right-of-way that could improve transit reliability and enhance the user experience, and improve first/last mile connections.

**Figure 7-3** shows potential locations for standard (low ridership stop) and enhanced (high ridership stop) bus stop amenities in Beverly Hills along the potential transit enhanced network, which are streets with existing transit routes. Routes may change with the opening of the Metro Purple Line extension or as a result of Metro's in-progress Next Gen Bus Study. Best practices for transit enhancements are included in **Chapter 4** and **Appendix B** includes details on transit stop/station design, placement, and first/last mile connections.

Standard bus stop amenities include minimum infrastructure for low and high ridership bus stops. At minimum, all bus stops within Beverly Hills would have substantial upgrades to street furniture, including shelter, seating, lighting, trash/recycling bins, poles/signs with route information and schedules, a system map (or link to one), a paved boarding area, and ADA-compliant pedestrian connections. High ridership stops, most of which are Metro Rapid bus stops, would also have enhanced amenities like street furniture, as well as real-time travel information to display to passengers when the next bus is coming, bicycle parking, automated displays, and potentially bike share/micromobility connections, bus bulbs/floating bus islands, and raised platforms for level boarding. Providing this infrastructure should make the user experience dramatically more comfortable and make transit more attractive to potential users.

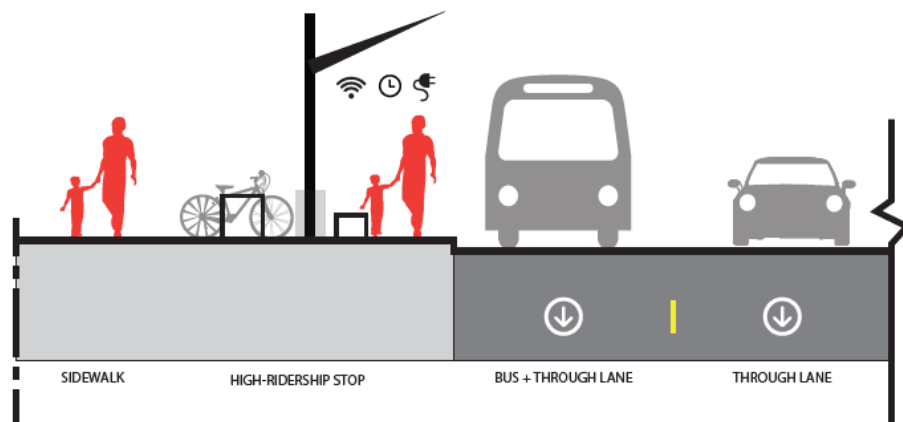
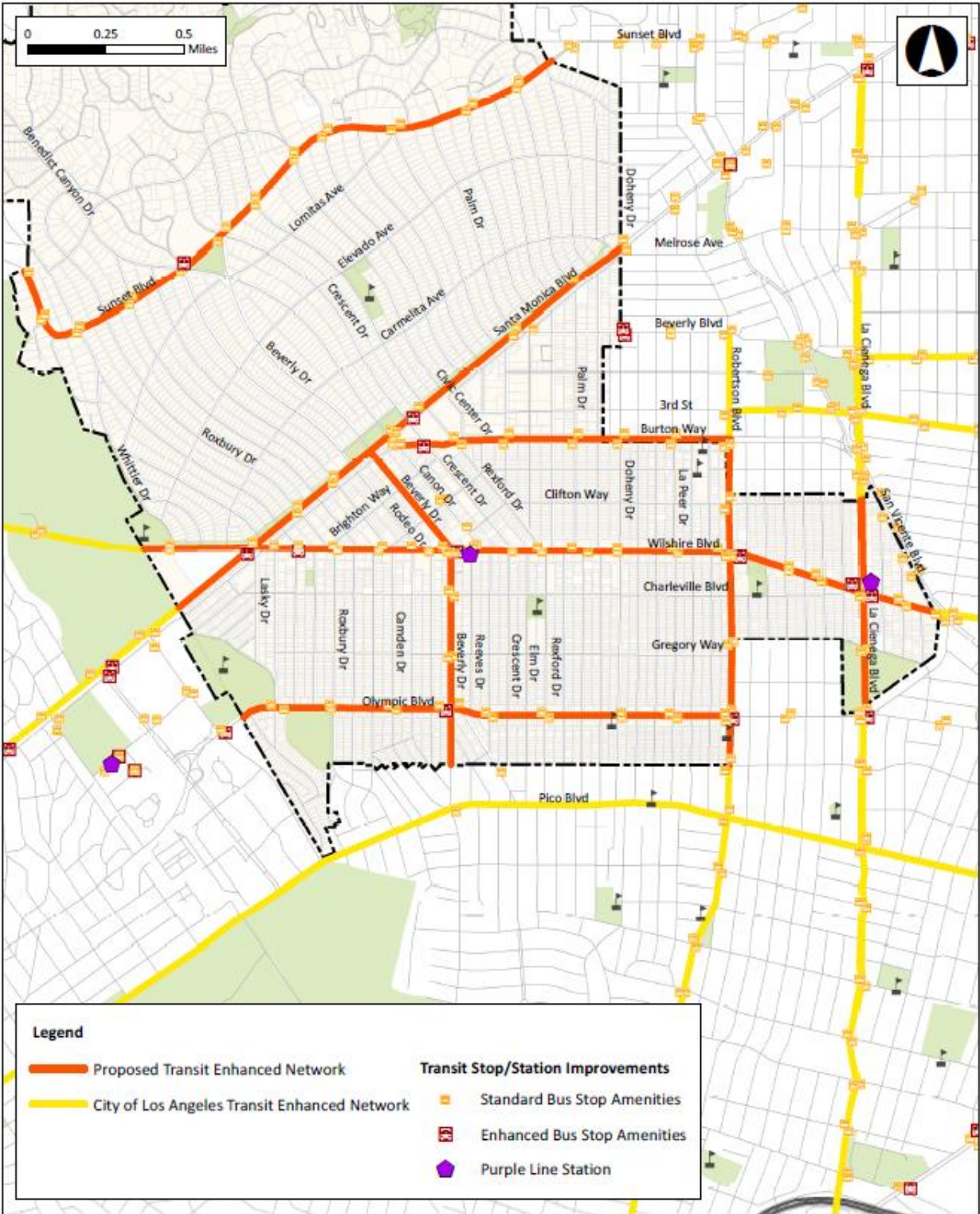




Figure 7-3: Recommended Transit Improvements





The City could also improve transit along the corridor through the use of infrastructure and policies to improve reliability and efficiency on city streets, including:

- Bus bulbs on major transit corridors so buses do not have to pull in and out of traffic (increasing trip times), and so passengers have a place to wait that does not interfere with the flow of people walking on the sidewalk
- Prohibiting ride hailing activity on major transit corridors during peak times to improve traffic flow, minimize conflicts, and reduce trip times (ride hailing activity areas/loading zones could be designated on other nearby or adjacent corridors)
- Implementing flexible curb zones to accommodate different uses at different times of day, such as peak hour bus lanes
- Striping changes to reduce conflicts between bicyclists and buses



### 7.3.1 FIRST LAST MILE CONNECTIONS

In 2023, the Wilshire/La Cienega station of the Metro Purple Line extension is projected to open, followed by the Wilshire/Rodeo station in 2025. While it will fall under Metro’s jurisdiction to operate the subway line and manage the station plazas at street level, it will fall under the City’s jurisdiction to improve the routes leading to and from the future stations, providing quality first/last mile connections.

Active transportation modes (i.e. walking, biking, wheelchairs, etc.) represent 85 percent of access/egress at Metro rail/BRT stations and 95 percent of access/egress systemwide.<sup>62</sup> The following are recommended for first-last mile transit connectivity through active modes and the built environment. Details on each can be found in **Appendix B**.

- Improve travel time competitiveness of active transportation users, such as by providing dedicated bike lanes

<sup>62</sup> First Last Mile Strategic Plan, Los Angeles County Metropolitan Transportation Authority – Metro, 2014.



- Provide a clear path of travel
- Enhance pathway safety
- Enhance pathway quality, including by providing clearly visible and unobstructed signage and markings
- Provide clear and intuitive navigation
- Provide or formalize existing cut-throughs and short-cuts for active transportation users
- Provide pedestrian scrambles at Metro Purple Line stations, if possible, to improve crossing arterial streets
- Support multi-modal transfer activity through clear designation of appropriate areas for parking and loading and intuitive signage and wayfinding
- Encourage appropriate parking behavior of dockless bikes and scooters
- Provide covered and secure bicycle parking
- Locate passenger loading zones off of congested corridors and major transit corridors to improve traffic flow
- Delineate shared use mobility zones



A study conducted by Metro for the Westside Subway Extension identified approximately 22,950 and 10,360 off-street spaces within a one-half mile walk of the planned station portals at Wilshire/Rodeo and Wilshire/La Cienega, respectively. Of this supply approximately 6,770 spaces near Wilshire/Rodeo and 400 spaces near Wilshire/La Cienega are located in publicly accessible parking facilities. The remainder of the supply services retail, office, hotel, and other uses.<sup>63</sup> Park-and-ride facilities within Metro's heavy rail network are limited to North Hollywood and University City Red Line stations in the San Fernando Valley. Existing Purple Line stations, which are located in dense urban neighborhoods, do not have Metro park-and-ride facilities or private facilities that primarily cater to transit users. In order to accommodate potential future parking demand related to the Purple Line extension, the City should consider seeking shared parking agreements with existing facilities and continue working with Metro to locate appropriate pick-up/drop-off zones.

An additional opportunity for first/last mile connections is the Gale Property, which is the current site of the Gale Staging Yard for the Wilshire/La Cienega station. The City purchased the property from Metro and is in the preliminary stages of exploring options for that site to create a mobility hub, such as geofenced loading/unloading for TNCs, autonomous vehicle charging stations or staging, and micromobility or shared mobility connections.

The City is also in the process of exploring potential locations for a North Portal north of Wilshire Boulevard to connect to the Wilshire/Rodeo station. Depending on its location, the City will need to implement convenient first/last mile connections to this access point. For both the north and south portals to the Wilshire/Rodeo station, the City should provide high quality options for loading and unloading of passengers to mitigate traffic impacts to neighborhood streets and the Business Triangle. The City is currently working with Metro on the development of Metro's First/Last Mile Plan for the Wilshire/Rodeo station, which will build upon conceptual recommendations in the Complete Street Plan and recommend more detailed design changes around the station, including passenger loading. Once the location of the North Portal is determined, loading options can be further refined, as well as potential options for a mobility hub to increase multi-modal station access.

<sup>63</sup> Westside Subway Extension Project, Updated Off-Street Parking Analysis Memorandum, 2011.



In addition, the City should explore implementing a microtransit service to provide point-to-point service to the subway stations. This could take the form of an autonomous shuttle once technology has progressed toward widespread use. The shared use of autonomous vehicles could also help supplement transit service in the City and should be explored in the future, as well.

The strategies below provide further recommendations for enhanced future management of curbsides near transit stops. Details on each can be found in **Appendix B**.

- Use designated passenger loading zones to redirect pick-up/drop-offs from the most congested intersections
- Delineate Shared Use Mobility Zones
- Ideally, passenger loading zones should be located a single right-turn around the corner from the most congested intersections along North Santa Monica and Wilshire Boulevards
- Prohibit ride-hailing activity on the most transit- and bike-oriented corridors, during peak times
- Use flexible curb zones to reduce double-parking and accommodate multiple uses at different times of day
- Prioritize transit operations with bus bulbs on Wilshire and North Santa Monica Boulevards, if possible

Wilshire Boulevard in Beverly Hills between the two future Metro Purple Line stations is designated as an anti-gridlock zone with no stopping permitted in outside lanes from 7 a.m. to 7 p.m. Mondays through Saturdays. On-street 1-hour metered parking is available along Wilshire Boulevard on some blocks from Maple Drive to La Cienega Boulevard during off-peak hours. Side streets off of Wilshire Boulevard surrounding the future stations are primarily designated as Preferential Parking Permit zones. Expansion of preferential zones may be needed in order to mitigate potential community concerns about spillover effects in relation to the new transit stations.

For more first/last mile recommendations, see Chapter 8.

## 7.4 Vehicle Infrastructure

In conjunction with the Complete Streets Plan, the City is in the process of updating its signal system to prepare for advancements in vehicle/signal technology. Through Metro Call for Projects grants, the City has synchronized signals on all major corridors starting in the 1990s. Much of the equipment is approaching the life cycle for replacement. A new software system will allow the City to store signal timing data in a robust database, which would provide greater capabilities for the City to optimize signal operations; reduce the likelihood of system crashes; and allow for implementation of future technology, such as connected and autonomous vehicles, that cannot operate on the City's current system. The Traffic Management Center located in the Public Works Department is also included as part of the inventory for upgrade.

During the public outreach process, 59 percent of survey respondents stated that they wanted to see improved traffic flow in Beverly Hills and 65 percent believe the plan should reduce congestion. Meeting participants identified support for left-turn restrictions to improve traffic flow and suggested better vehicle access to the Metro Purple Line stations, both in terms of parking and drop-off/pick-up. Overall, residents indicated they would like to prioritize moving traffic on arterial streets, especially commuter traffic, and reducing cut-through traffic on neighborhood streets, such as through traffic calming.

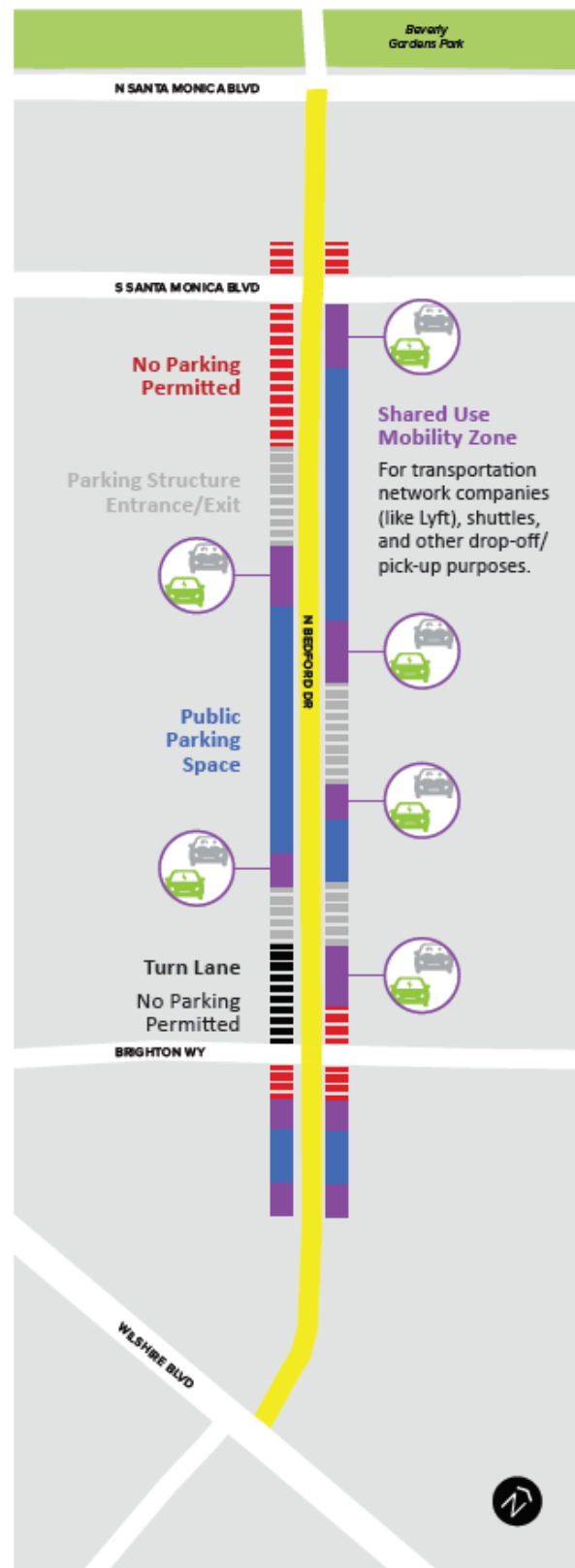
The recommendations in this plan to enhance vehicle infrastructure are aimed at making the roadways more efficient for drivers through improvements to major corridors and neighborhood traffic management; potential improvements for vehicles are not currently mapped as they are not concentrated onto specific corridors, can be applied citywide, and/or require neighborhood-level targeted community outreach.



Best practices on implementation of treatments to enhance driving or improve traffic and neighborhoods are listed below and discussed in detail in **Appendix B**. After the City has purchased software to analyze collisions (in progress) and has results from the Southwest Traffic Calming pilot program, staff should better be able to map where specific measures would be most appropriate.

- Speed humps/lumps
- Speed tables (raised crosswalks)
- Chokers and chicanes
- Raised intersections
- Neighborhood traffic circles
- Travel lane narrowing
- Roadway reconfiguration
- Roadway closures (full or partial)
- Diagonal diverters
- Forced turn barrier (triangular islands that force right turns)
- Extended median barrier (intersection medians)
- Turn restrictions
- Speed legends (MPH pavement markings)
- Improved striping and signage visibility
- Traffic signal coordination/synchronization

As Mobility-as-a-Service providers evolve and autonomous vehicles become more ubiquitous, constraints on curbsides will become more acute, particularly at key transit nodes that generate demand for pick-ups and drop-offs. As such, this plan also recommends implementing curbside management for major retail corridors, in addition to the future Metro Purple Line stations, discussed above. In the short-term, this could include a pilot program with shared use mobility zones for taxis/shuttles, TNCs, bike share, and dockless mobility options, and in the long-term this could mean digitizing the curb so that the curb use changes based on demand. City staff are currently participating in an inter-jurisdictional curbside management forum hosted by Metro to discuss best practices and learn from other cities in order to apply successful techniques to Beverly Hills.





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## CHAPTER 8 RECOMMENDED POLICIES

This chapter presents recommended policies that support Complete Streets efforts in the City of Beverly Hills.



New policies to guide the use of and support safe, convenient, and environmentally-friendly transportation infrastructure in Beverly Hills are discussed below. These are directly related to input received from the community during the public feedback process, which informed the goals and values of the Complete Streets Plan.

### 8.1 Crosswalk Policy

The California Manual on Uniform Traffic Control Devices (CA MUTCD) defines marked crosswalks as providing “guidance for pedestrians who are crossing roadways by defining and delineating paths” of travel. Determining where to install marked crosswalks requires a comprehensive evaluation of a variety of traffic elements, such as collision history, traffic volumes, traffic speeds, roadway characteristics, surrounding land uses, and major points of origin/destination.

Prior to this plan, the City of Beverly Hills did not have guidelines for crosswalk installation at uncontrolled locations. As part of plan development and in coordination with the City’s Traffic and Parking Commission, the City developed a crosswalk policy for Beverly Hills, which includes the following elements:



- When and where to install marked crosswalks at uncontrolled locations
- Supplemental elements to enhance crosswalks (markings alone will not be installed)
- Decorative and creative crosswalks
- Crosswalk removal

The crosswalk policy, along with a summary of research that informed the policy, is included in **Appendix C**.

### 8.2 First/Last Mile Supportive Policies

Combining bicycle and walking trips with high-quality transit trips can provide a level of mobility that is more affordable and faster than driving, and reduces greenhouse gas emissions, the need for parking, and the number of vehicles on the roadway. The City should consider implementing the strategies provided below to enhance and support the efficacy of physical first-last mile enhancements:



- TNC and Microtransit Partnerships:** Transit agencies across the country are increasingly partnering with Lyft and Uber to provide subsidized first-last mile rides to transit stops within specific geographic areas. Metro recently issued a request for proposals to develop a microtransit program that would provide a low-cost on-demand shuttle service to transit stations via a mobile application. The City should work with Metro to evaluate appropriate partnerships and consider exploring an autonomous microtransit shuttle, particularly to provide alternative options for residents that would seek to park-and-ride in order to utilize the Purple Line due to distance or lack of reliable bus transit (i.e. north of Santa Monica Boulevard). The City should also continue working with Metro to provide appropriate loading zones at stations to accommodate these trips.
- Streetscape Guidelines and Standards:** Through a Wilshire Boulevard corridor plan, the City should develop streetscape guidelines and standards for Wilshire Boulevard to create a consistent, welcoming, and aesthetically pleasing pedestrian environment that incorporates, where feasible, amenities such as street furniture, bike parking, enhanced transit stops and new mobility zones, street trees, and green infrastructure elements. These policies can be used to inform future streetscape projects citywide and can guide streetscape upgrades implemented through private development projects.
- Bus Stop Standards and Guidelines:** Building off the recommendations for transit stops and stations in the Transit Enhancements section of this Plan, the City should develop standards for the types and placement of amenities included at stops and stations, with priority on developing a citywide transit shelter program.
- Improve Bike Share TAP integration:** Unlike inter-agency or intermodal transit transfers, there is currently no free transfer offered between the Bike Share Connect system and Metro transit. Metro's 2018-2019 Business Plan discusses the long-term need for TAP card integration between Bike Share Connect, Metro Bike Share, and Metro transit through a single, interoperable account management system to offer seamless transfers between bike share and transit. The City of Beverly Hills should work closely with Metro and the other managing agencies of Bike Share Connect (Cities of Santa Monica, West Hollywood, and UCLA) to facilitate seamless and low cost transfers between transit and bike share.
- Secure Bike Parking Area:** The City should work with Metro to provide (or solicit a vendor to operate) a high quality, secure bike parking area at one or both Purple Line Stations in Beverly Hills. Modeled after a BikeStation, this could provide bike parking and amenities and gear for bicyclists for sale, bike repair services, a live person or TV monitoring the area, and showers/changing facilities for commuters. This could potentially be located on the Gale Property at the La Cienega station.
- Inter-agency Coordination:** The City should continue working with Metro and other transit agencies so that each agency effectively provides for transit user needs within its jurisdiction. To begin, the City should coordinate with Metro to develop and implement the Wilshire/Rodeo First-Last Mile Plan recommendations.
- Car Share Program:** Starting at Metro Purple Line stations, the City should implement a car share program to provide another way for people to get to/from the stations. Parking stalls for car share vehicles could be provided on-street at the stations or in nearby structures. If successful, this could be transitioned into an electric car share program.
- Monitor Canon Drive Closure:** In mid-2019, North Canon Drive at Wilshire Boulevard will be closed for at least two years to mitigate impacts associated with design-build construction activities of the Rodeo station. The City should closely monitor how the closure is working and determine if the community would like to continue a full or partial closure. Based on this information, the City should make a future decision on if a bikeway might be appropriate on North Canon Drive for bicyclists to access the future station.





### 8.3 Prioritize Implementation of Low Stress Bikeways

The City should prioritize implementation of low stress bikeways, which are those that are the most comfortable to ride on for people of all ages and abilities in terms of traffic and personal safety. Low-stress bikeways take into account roadway characteristics, traffic volumes, and vehicle speeds. Generally, the lowest stress bikeways are those with few conflicts with fast-moving vehicles, such as shared use paths, separated bike lanes, and bike boulevards. Low-stress bikeways would make bicycling more attractive in Beverly Hills, especially when implemented in conjunction with adequate crossings of arterial streets and signage and wayfinding for all road users to be aware of this low-stress bikeway network.



### 8.4 Ongoing and Future Infrastructure Requests

Capital improvement projects should be prioritized to make biking, walking, and taking transit competitive with driving. As part of plan implementation, the City should assess existing capital improvement and pavement rehabilitation programs to ensure processes are in place to accommodate all road users in each project. This could include:

- Incorporating complete streets checklists or other tools into appropriate decision-making processes, which essentially adds an evaluation of bicyclist, pedestrian, transit, and shared mobility user needs, and streetscape design considerations
- Sending plans/designs for all maintenance projects and ongoing operations, such as resurfacing, repaving, restriping, rehabilitation, or other types of changes to the transportation system, to be reviewed by the Transportation Planning division to confirm consistency with the Complete Streets Plan
- Interdepartmental review of the City's pavement management program, to identify projects with planned complete street components (especially crosswalks and bikeways), and to design complete street treatments into projects as practical
- Creating a process for granting exceptions where providing complete streets elements differ from the recommendations outlined in this report, for example, adding bikeway accommodations where there is not a planned bikeway or a particular roadway designation makes more sense for the network on an adjoining street due to changing circumstances

### 8.5 Transportation Demand Management Policy

To support the recommended infrastructure identified in this plan, the City should develop a Transportation Demand Management (TDM) ordinance to guide how infrastructure is used and minimize single-occupancy vehicle commute trips. The ordinance could include the below example requirements for commercial and residential developments of certain sizes.

- Set targets and thresholds for new single occupancy vehicle (SOV) trips (or other metrics) generated by the development, as well as goals for other modes
- Amenities that support pedestrian/streetscape enhancements, bicyclists, transit, and other modes of travel apart from driving alone, such as secure bicycle parking areas, showers, changing areas, and preferred parking for rideshare vehicles
- Employer-provided programs, such as carpool matching and discounted transit passes



- Guidelines for reporting, monitoring, and evaluation
- Reduce or remove vehicular parking requirements

## 8.6 Update of Parking Policies

When cities dedicate a large portion of public land to free or low-cost parking, it can encourage people to drive more often and lead to worsened congestion. Because land is expensive, residential developments that provide a large amount of parking often cost more to develop, which can lead to high rents; a lack of affordable rents near employment sites can push lower-income people to live farther away from jobs and require long vehicle commute trips. To promote the use of non-vehicle transportation and to discourage single-occupancy vehicle trips, the City should consider updating its parking policies, for example:

- Reduce parking requirements for mixed-use developments and transit-oriented developments based on alternative modes of transportation, especially around Metro Purple Line stations and along high-ridership bus routes
- Reduce parking requirements for developments with adequate TDM programs
- Explore Park-Once Districts with integrated land uses that promote walkability
- Explore shared-use agreements for businesses to share their underutilized parking with adjacent businesses
- Consider developing guidelines for private parking to join the City's parking management system
- Consider a bike parking ordinance that includes guidelines for micromobility parking like dockless shared-use bicycles or other future micromobility options the City introduces
- Consider conversion of traditional parking spaces to spaces to be used for loading/unloading zones for TNCs or other new mobility uses that compete for curbspace in strategic areas that would benefit from designation and organization. These zones could be reinforced with geofencing requirements for the TNCs to operate within.

## 8.7 Electric Vehicle Policies

The City should consider implementing the following policies to expand EV infrastructure and accelerate EV adoption among Beverly Hills residents and employees:

- **Citywide information clearinghouse:** Provide a one-stop-shop web/mobile tool that calculates a number of metrics and makes recommendations to potential EV buyers about vehicle choices and charging stations available in Beverly Hills. A local EV advocacy group such as the California Electric Transportation Coalition (Cal ETC)<sup>64</sup> could host such a site.
- **After-hours access to private lots:** Incentivize parking lot owners and property management companies to allow paid access to managed and access-controlled lots, after hours for use of EV charging stations. Many parking management companies and property managers allow after-hours access for a monthly fee, and generally require the user to vacate the lot before regular business hours. Developing opportunities to increase access to controlled parking lots creates a revenue stream for the lot managers and solves the home-based charging challenge faced by some potential EV adopters who live in apartments without access



<sup>64</sup> <http://www.caletc.com/about-us/>



to personal EV charging stations. The City's role would be in marketing the program to residents, particularly in multi-family developments south of Santa Monica Boulevard, and providing incentives to property managers and parking management companies to allow after-hours access. These incentives could be density bonuses, reduced impact fees, or expedited building permits, among others.

- **After-hours access to institutional property lots:** Encourage the installation of EV charging stations at neighborhood institutions such as churches, community centers, and schools. Many of these institutions maintain parking facilities that are underused during off-hours. Because they are often located in residential areas away from commercial strips, EV charging stations at these facilities may require a monthly rental or similar agreement from EV owners to sustain the institution's investment.
- **After-hours use of City-owned property:** Encourage private partners to install and maintain EV charging stations at City-owned properties. The City has more than 40 commercial tenants occupying over 280,000 square feet of City-owned properties. Most of the buildings are attached to public parking structures in the Business Triangle and in the Entertainment Business District<sup>65</sup>.
- **Minimum parking requirement reduction in exchange for public EV station installation:** Amend the City's Green Building Code to allow EV charging stations to replace required off-street parking spaces in new development at a 1:1 ratio or greater, on the condition that the stations are publicly accessible. The City's Green Building Code currently requires new development to include EV charging stations at a ratio of about 1:50 in relation to the number of required off-street parking spaces. This code amendment would encourage developers to locate their EV charging stations in publicly accessible portions of the site or negotiate public access during certain hours.

## 8.8 Emerging Permitting Processes for Dockless Bike Share and Scooters

As cities look to manage dockless bike share providers and electric scooter-share services, they need to be clear on where and when company goals align with public benefits, and to carefully define the terms of success in service of achieving larger mobility goals. The City should work with providers during the temporary ban on shared electric scooters to determine appropriate regulation for Beverly Hills that allows operation in the City with minimized negative impacts to other users of the public right-of-way. Dockless mobility options can help achieve the vision of the Complete Streets Plan and the City should prioritize finding creative solutions for relaunching this mode of transportation as soon as possible.

NACTO provides guidance for cities and public entities as they look to manage and regulate dockless bike share providers<sup>66</sup> that are not otherwise managed through competitive procurement processes or contracts.<sup>67</sup> The means by which cities and public agencies can regulate dockless bike share providers include:

- **Commerce on the public right-of-way:** The small vehicles that dockless bike share providers operate are commercial equipment, and in most jurisdictions private businesses cannot conduct business in the public right-of-way without a permit.
- **Zoning regulations:** In places where dockless bike share operates on private property, that private property is subject to zoning regulations, specifying the conditions under which all manner of activities are or are not allowed.
- **Regulations on where small vehicles are permitted:** As with other outdoor uses (e.g. sidewalk dining, ice cream trucks), cities can dictate where dockless bike share is permitted to operate.

<sup>65</sup> City of Beverly Hills

<sup>66</sup> NACTO describes these providers as "Shared Active Transportation Network Companies"

<sup>67</sup> NACTO. 2018. Shared Active Transportation Guidelines. <https://nacto.org/wp-content/uploads/2018/07/NACTO-Shared-Active-Transportation-Guidelines.pdf>



- **Existing bike share contracts:** Cities with existing, station-based bike share contracts may have exclusivity clauses or other provisions limiting the competition for bike share in an area.

Under the general frameworks above, cities are increasingly enacting more specific policies and conditions for permitted dockless bike share providers. These policies generally fit into the following themes, and best practices from early adopters in permitting are also included below:<sup>68</sup>

- **Public communications oversight.** Operators are typically required to maintain communication channels via the web, social media, and telephone hotlines in a variety of languages, 24/7. These communication channels must display basic program information such as the service area map, customer service contact information, and terms of use.
- **Data standards.** Companies operating in the public right-of-way must provide agencies with accurate, complete, and timely data about how dockless services are used and, in an anonymized fashion, who is riding.
- **Safety/operations.** Cities should require companies to remove small vehicles (e.g. damaged, abandoned, improperly placed, etc.) within contractually agreed-upon time frames and assess penalties for failure to do so. Typical time frames range from 2 to 24 hours from the initial report. Operators are often required to maintain a locally-based operations manager to respond to agency inquiries.
- **Vehicle Parking.** A significant part of the appeal of dockless bike share is that bikes may be left “anywhere.” However, cities have taken a variety of steps to ensure that notion is not taken literally. These approaches include:
  - Requiring bikes to be locked to a fixed object. This approach is easy for users to understand but may be impractical or unenforceable in areas without fixed bike racks.
  - Encouraging users to park bikes in the “furniture zone” of the sidewalk. This approach can be communicated through public outreach campaigns, but it cannot be enforced remotely and relies upon inspections or citizen reports.
  - Geo-fencing within the operator’s mobile app to encourage proper parking behavior. This is the easiest approach to enforce remotely, but accuracy of GPS signals may be insufficient in some areas.
- **Fleet distribution.** There is no current standard on how to regulate dockless bike share distribution. Rebalancing the bike fleet, from low-demand areas to high-demand areas, while ensuring equitable access to the bikes, is another challenge. San Francisco mandates a minimum density of 3 bikes per square mile citywide, at all times. Seattle, on the other hand, sets a maximum density of 340 bikes per square mile, to avoid cluttering. Seattle, San Francisco, and Denver each also mandate that at least 20% of all bikes remain in defined high-need communities at any given time.
- **Community engagement and equity programs.** Many cities consider bike share implementation a high priority in low-income communities, where residents often face the longest commutes and fewest transportation options. In Palo Alto and San Francisco, operators must offer a one-year plan that waives



<sup>68</sup> NACTO. 2018. Shared Active Transportation Guidelines. <https://nacto.org/wp-content/uploads/2018/07/NACTO-Shared-Active-Transportation-Guidelines.pdf>



any program deposit and offers an affordable cash payment option and unlimited trips under 30 minutes to any customer with an income level at or below 200 percent of the federal poverty guidelines. Minneapolis requires operators to hire a targeted number of their local employees from communities of color, at minimum in proportion to their regional share of the population. Denver requires operators to submit a plan outlining how their services will be made available to people who are unbanked or who do not have smartphones. Other cities mandate multilingual outreach campaigns and customer service call centers.



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## CHAPTER 9

# RECOMMENDED PROGRAMS

Programs support infrastructure by educating people how to use it, encouraging them to try new modes, and evaluating the implementation of new projects. The programs recommended in this plan are based on community input and the plan’s goals and values.



### 9.1 Data Governance

The age of big data is upon us, and it is incumbent upon public agencies to collect, analyze and use data to better plan, design, and operate its streets. As of yet, untapped “deep data” (data that has not been collected or analyzed) holds tremendous potential, including predictive maintenance technology and advanced design engineering. The Vision Zero Network (VZN) recognizes data as “the new seatbelt” in view of its potential to improve traffic safety. VZN calls for agencies to deploy technology to collect, analyze, and use data to understand who is using city streets, and operate streets safely by adjusting the space and pace allocations to competing modes.

Technology is changing the way data is generated, collected, maintained, and utilized to deliver benefits to the traveling public. Automatic traffic data collection of numbers and movements of vehicles, bicycles, and pedestrians can be documented for every hour of every day, and delivered from the street to the cloud to the agency staff desktops. Access to vehicle data, for example, can allow traffic signal timing plans to be more easily optimized for more efficient operations. Also, priorities can be determined for the most effective Vehicle-to-Infrastructure (V2I) applications, and locations for bicycle and pedestrian safety enhancements can be prioritized based on data.

Agencies are increasingly recognizing their need to progress data management so that reliable information and tools get into the hands of practitioners for their most effective decision making in delivery of safe transportation choices. Many transportation professionals are establishing data governance within their agencies to better manage and leverage the vast amounts of data available today. Data governance is defined as “the execution and enforcement of authority over the management of data assets and the performance of data functions”<sup>69</sup>. The outcome of data governance is to help people and organizations move from raw data to actionable knowledge. To affect such programs, detection technology needs to be deployed to collect, analyze, and use data. This is recommended to be incorporated as part of the City’s ongoing traffic signal improvements CIP.

As part of expanding data governance and as a next step to purchasing a software program to more efficiently manage collision data (in progress), the City should biannually report on the status of collisions in Beverly Hills to expand on monthly reports BHPD provides, and continue to deploy improvements at the most critical locations. The City of San Luis Obispo, for example, publishes annual traffic safety reports that include citywide collision trends, traffic enforcement measures, ongoing safety programs, high collision rate locations, and recommended solutions. As a result of the 16-year traffic safety reporting program, the City has reduced collisions citywide by 62 percent, despite increasing traffic volumes.<sup>70</sup>

The City should also require access to data collected by various new mobility vendors that operate in Beverly Hills during the permit process, similar to the agreement the City has with their bikeshare vendor. For example, this could apply to new dockless bikeshare, electric scooter, car share, or autonomous vehicle programs. In addition, the City

<sup>69</sup> <http://tdan.com/the-data-stewardship-approach-to-data-governance-chapter-1/5037>

<sup>70</sup> <https://www.slocity.org/Home/ShowDocument?id=18904>



should consider non-traditional sources of available data, and coordinate internally with other City departments and externally with potential partners on data collection and analysis.

## 9.2 Curbside Management Pilot Program

Due to recent changes in technology and travel behavior, such as through the rise of TNCs and new mobility options, and anticipated changes from autonomous vehicle deployment, there has been an increased demand for curbspace in Beverly Hills and many other cities nationally. In the short-term, the City should evaluate a curbside management pilot program to address passenger loading around Metro Purple Line stations, and test concepts like shared use mobility zones and digitized curbspace near stations and/or along commercial corridors. This would help to bring more order to the curbside, minimizing conflicts between modes and improving traffic flow. It would also help the City prepare for the rollout of autonomous vehicles, which will need space at the curb for loading and unloading passengers.



The Gale Property, which is the current site of the Gale Staging Yard for the Wilshire/La Cienega station, is a great opportunity. The City has purchased that property from Metro and is in the preliminary stages of exploring options for that site to create a mobility hub, such as geofenced loading/unloading for TNCs and autonomous vehicle charging/staging. The City is currently working with Metro on the development of Metro's First/Last Mile Plan for the Wilshire/Rodeo station, which will build upon conceptual recommendations in the Complete Street Plan and recommend more detailed design changes around the station, including passenger loading. Once the location of the North Portal is determined, loading options can be further refined.

## 9.3 Bicycle and Pedestrian Awareness Campaign

Effective awareness/promotional campaigns can help shift community attitudes toward walking and bicycling and motivate people to give active transportation a try. The Southern California Association of Governments (SCAG) recently awarded the City funding (anticipated to be received in FY 2018/19 or FY 2019/20) to organize a Bicycle and Pedestrian Awareness Campaign, which could compliment the start of implementation of the Complete Streets Plan. The Pedestrian and Bicycle Information Center suggests including the following concepts in awareness/promotional campaigns:

- **Communicate the behavior you want to see:** Bumper stickers, bus billboards, banners and signs can all convey messages to encourage travel on foot or bicycle
- **Reward behavior:** Providing incentives and gifts can motivate people to try walking and bicycling, and once they discover it's do-able, they may continue walking and biking
- **Capitalize on other efforts:** Making biking and walking part of the answer to a variety of problems that people care about, such as public health or the environment
- **Involve community leaders:** Educational and historical walks or bike tours may be organized to attract media attention and well-known community figures

To make the case for active transportation, SCAG administers a "Go Human" community outreach and advertising campaign with the goals of reducing traffic collisions in Southern California and encouraging people to walk and bike more. The intent is to create safer and healthier cities through education, advocacy, information sharing, and events that help residents re-envision their neighborhoods. The City intends to incorporate elements of SCAG's campaign into its own.



## 9.4 Bike Valet

Bike valet works similarly to car valet – bicyclists drop off their bicycles when they arrive, receive tickets associated with their bikes (checked in bikes are stored in a secure area during an event), and exchange the tickets for their bicycles when they are ready to leave. Offering bike valet can make it easier to commute to community events by bicycle, demonstrate that bicycling is a legitimate form of transportation, and reduce the demand for vehicle parking. Bike valet can be provided by private or non-profit organizations. For example, in 2017 the Sacramento Area Bicycle Advocates parked 10,000 bikes at more than 250 events attended by more than 250,000 people, including the Friday Night Concerts in the Park series, the Farm to Fork Festival, Food Truck Mania events, Farmers Market, and more. In San Francisco, bike valet is required per the Municipal Code for events that require a street closure or have more than 2,000 participants.

## 9.5 Rideshare Week

Rideshare Week encourages people to try commuting by a mode that is not driving alone to reduce congestion, enhance the environment, and improve public health. In Los Angeles, Metro hosts “Rideshare/Shared Mobility Week” the first week of October by organizing competitions and providing prizes to people who commute by walking, biking, transit, carpooling, vanpooling, or rideshare.

The City should consider participating in future years to motivate staff to try different commute options and work with the Chamber of Commerce to promote Rideshare Week to businesses in Beverly Hills. This could be conducted in concert with a “PARKing Day” (discussed below), which includes demonstration projects that provide the community with ideas on how parking could be repurposed through temporary installations in parking spaces.



## 9.6 Pilot Parklet / Plaza Program

Parklets, micro-parks, and plazas are underutilized roadway spaces, like parking stalls or alleys, which are converted to gathering places for people. They typically involve a partnership between cities and neighborhood/business groups to maintain and program the space, which helps to create community pride and interest in enhancing public rights-of-way, and often includes a cost-sharing agreement for design and construction. The City of West Hollywood, for example, offers grants of up to \$25,000 to help cover the cost of parklets and waives all permitting fees. The City of Los Angeles does not provide financial assistance for installation or maintenance, but covers much of the capital costs. The City of Mountain View works with businesses to provide either a parking space or use of that street space for outdoor dining/other use with an agreement to maintain; this could be an interesting option to free up sidewalk space in the Business Triangle for people walking without having to reduce outdoor dining.



To get started, the City could build support for a pilot program by participating in national PARKing Day, where community groups or businesses apply with the City to temporarily convert one or two parking stalls to parklets for the day. The City could also host a demonstration for PARKing Day as an outreach event to gain public input on elements of a future pilot program.

## 9.7 Open Streets Events

Open Streets Events are programs that temporarily open streets to people walking and rolling by closing them to motor vehicles. At these events, streets become places where people of all ages, abilities, and backgrounds can play, explore, connect with one another, and improve their health. They are free to everyone, occur regularly, and offer the opportunity to experience city streets from a different perspective. Events often include art, music, food and other fun experiences, and can foster support for more permanent re-imagined public spaces and transportation solutions. Over the past few years, both Metro and the Mobile Source Air Pollution Reduction Review Committee (MSRC) have helped fund many open streets events in the Los Angeles area. The City should consider applying for a grant either alone or in coordination with neighboring jurisdictions to implement one in Beverly Hills.



## 9.8 Car Share Program

Car share programs provide short-term car rentals to encourage car-free and car-light lifestyles. Studies suggest that car sharing can reduce demand for accessory residential parking, overall vehicle miles traveled, vehicle ownership rates, and household transportation costs. If a program is implemented, the City should decide where car share facilities would be located (such as priority locations near future Metro Purple Line stations), what parking facilities can be used, if local parking restrictions like 2 hour limits will be waived, and whether any fees would be covered by the City or passed along to the customer or company. For example, in New York a car share vehicle may be located in off-street public parking garages or in parking facilities accessory to residential, commercial, or other uses. In Philadelphia, the City designates on-street parking spaces for not-for-profit car share organizations and requires the organizations to pay a \$150 annual fee per space. If the program is successful, the City should consider transitioning to an electric car share program.

Beverly Hills can even begin proactively providing room for car sharing with future development. In San Francisco, several districts require developers to provide car share parking spaces in new residential buildings or in existing buildings converted to residential use. The number of specific car share spaces is based on total residential units, with one car share space per 200 units. Buildings with 49 or fewer units are exempt. Some districts also require car sharing in developments with parking for non-residential uses. In Vancouver, parking requirements are reduced if the developer designates parking spaces for car share vehicles.

## 9.9 Electric Vehicle Program

Electric vehicle (EV) programs help guide the implementation and expansion of EVs and associated infrastructure. The City should evaluate potential priority locations to install additional EV charging stations and hydrogen fuel-cell stations at major employment centers, retail centers, and in proximity to Metro Rapid bus stops and Purple Line stations. In addition, the City should further explore Electrify America partnerships such as the City of Sacramento's "Green City" program<sup>71</sup> detailed at Electrify America's website: <https://www.electrifyamerica.com/our-plan>

<sup>71</sup> <https://sacramentocityexpress.com/2017/07/27/electrify-america-to-officially-invest-44-million-in-sacramento-to-provide-access-to-zev-technology-in-disadvantaged-communities/#0>



## 9.10 Reverse Angled Parking Pilot Program

Where there is head-in angled parking along existing/recommended bikeways, such as South Beverly Drive, the City should explore the feasibility of installing reverse (or “back-in”) angled parking. As this would be a new configuration to Beverly Hills, reverse angled parking could be tested prior to implementation, such as on a street like Civic Center Drive where traffic volumes are lower. This would allow drivers to practice using the infrastructure before it is implemented in other locations. Parking a City vehicle in one of the spaces each morning could help drivers understand the action.

## 9.11 Bicycle Friendly Business Districts

Bicycle Friendly Business Districts encourage and promote bicycling for short trips by providing enhanced services, infrastructure, and amenities for people on bikes, specifically in business districts and along commercial corridors. They typically are implemented as partnerships between cities and neighborhood/business organizations, and can include amenities like discounts/deals for bicyclists at select stores, bicycle repair stands, or custom bike parking. By providing these support facilities and programs to local business owners who incentive replacing vehicle trips with bicycle trips, the City can use Bicycle Friendly Business Districts to encourage non-motorized travel along congested business corridors. They may be particularly effective in commercial areas adjacent to major employment centers as a way to encourage employees to commute to work by bike.

## 9.12 Safe Routes for Seniors

A Safe Routes for Seniors program prioritizes pedestrian improvements in areas with senior centers, hospitals, and large numbers of senior residents. Program components in Beverly Hills could include:

- Calming traffic by installing raised crosswalks or intersections, providing bicycle lanes, and adding neighborhood traffic circles
- Fining or towing illegally parked vehicles, installing furniture/bollards along the curb of sidewalks, and adding curb extensions to reduce blocked crosswalks and sidewalks
- Working with Metro’s On the Move Riders Club to host Older Adult Transportation Pop-Up events that inform seniors on how to use public transportation<sup>72</sup>



AARP worked with Transportation Alternatives to create a Safe Routes for Seniors campaign to educate planners, local officials, and community leaders on the steps that must be taken to establish a safer pedestrian environment for all residents, especially older adults expecting to remain in their communities as they age. This could be used to inform the City of Beverly Hills’ program.

<sup>72</sup> <https://thesource.metro.net/2018/09/14/metro-is-hosting-an-older-adult-transportation-pop-up-at-the-pasadena-senior-center-sept-25/>



### 9.13 Safe Routes to Parks

Similarly to the above program, a Safe Routes to Parks program would prioritize implementing active transportation infrastructure near parks and greenspaces in Beverly Hills to increase access. As some of the most popular destinations in the city are parks, such as the Beverly Hills sign in Beverly Gardens Park or the courtyard at Beverly Canon Park, prioritizing connections to greenspaces could dramatically improve travel by biking and walking.

### 9.14 The City as a Role Model

As one of the major employers in Beverly Hills with the opportunity to influence peak hour congestion, the City should serve as a role model for the community to encourage commuting by walking, biking, taking transit, and carpooling/vanpooling. Recommended ways the City can facilitate this, as well as test options to include in an expanded citywide TDM Ordinance, include:

- Designate one staff person as an Employee Transportation Coordinator
- Purchasing a City vehicle fleet of electric cars for staff use on site visits so they can come to work without their personal vehicles
- Parking cash-out program for walking or biking to work
- Provision of subsidized transit passes, such as Metro’s annual TAP card
- City-managed carpool and ridepool matching
- Providing secure, high quality, long-term bike parking on City property

### 9.15 Wilshire Boulevard Bus Lane Pilot Program

In the City of Los Angeles on either side of Beverly Hills, Wilshire Boulevard has peak hour, curb adjacent bus only lanes. The City may wish to consider a pilot program for extending the Wilshire bus lanes through Beverly Hills (where there are peak hour travel lanes) after Metro Purple Line Section 2 design-build construction activities are completed. During the construction activities, Wilshire Boulevard will be two travel lanes in each direction to support construction and the City will be implementing a robust traffic management and evaluation program to determine impacts from the lane closures. If congestion and cut-through traffic do not dramatically increase, the City should consider implementing pilot peak hour bus lanes when the roadway space is no longer needed to support construction activities. The City of Boston installed a similar project on Washington Avenue where parking lanes were converted to peak hour bus only lanes and as a result, bus travel times dropped by 20 to 25 percent during the morning peak hour.

### 9.16 Congestion Pricing

Congestion pricing is a traffic management strategy where drivers are charged during peak hours or in locations with high demand in an effort to reduce congestion. Transportation professionals widely agree that congestion pricing is one of the only effective means of reducing traffic because it uses supply and demand principles to appropriately price roads. Cities like London and Singapore have experienced significant reductions after implementing congestion pricing programs. While the City of Beverly Hills would not implement congestion pricing on its own, it should consider partnering with agencies like Metro and SCAG that have expressed interest in deploying a countywide program.



## CHAPTER 10 IMPLEMENTATION PLAN

The intent of this chapter is to guide transportation planning and the installation of infrastructure, policies, and programs in the short-, medium-, and long-term.



The development of the implementation plan took into account both immediate need and community vision; it prioritizes first/last mile connections as the City prepares for the opening of the Metro Purple Line and for emerging trends in transportation that will come to Beverly Hills, such as the deployment of autonomous vehicles. City staff plans to provide annual status reports to City Council on progress made implementing the plan and revisit implementation priorities after the subway opens.

In addition to installing the projects included in the action plan, the City will continue implementing ongoing transportation upgrades and maintenance, such as:

- Optimizing signal operations to improve active transportation (leading pedestrian intervals, bicycle clearance time, enhancing bicycle detection, etc.)
- Considering a permit process for dockless bike share and scooters
- Upgrading street name signs
- Ongoing striping
- Updating crosswalks to continental during repaving
- Repairing sidewalks
- Expanding electric vehicle infrastructure
- Improving roadway efficiency (such as turn restrictions on major arterials)

### 10.1 Project Prioritization

The tables below outline the projects slated for implementation after plan adoption. Projects are ranked for implementation into Tier 1, Tier 2, and Tier 3 projects. Given the volume of projects included in the implementation plan and the need to garner community support, all projects were prioritized using criteria based on the public outreach process, input from the Commission, and internal staffing capacity:

- Has been identified as a City Council priority
- Helps prepare for emerging transportation technologies
- Provides a first/last mile connection to the Metro Purple Line to increase reliable travel options
- Makes a connection to key destinations in the city, such as schools and commercial centers
- External funding has already been awarded for the project and will become available during the first five years after plan adoption



Tier 1 projects include those that the City intends to begin designing/implementing immediately after plan adoption with secured funding in the FY2019-20 CIP budget. These projects have defined timelines, such as providing first/last mile connections to the Wilshire/La Cienega station or available grant-funding, and will be completed within the first approximately five years after plan adoption. Tier 2 projects are to be implemented in the medium-term, as they have less critical timelines or depend on the implementation of Tier 1 projects. For example, implementing an autonomous shuttle should come after a demonstration study is completed and the technology is permitted to be used on public streets in California. Tier 3 projects are lower priority because they require a longer planning and coordination period or are less critical in terms of addressing pressing safety enhancement concerns. These items are meant to be implemented in the long-term, once Tier 1 and Tier 2 projects have been completed.

Projects identified as “new” are those that the City has not yet started and those identified as “continued” are currently in progress. If changes in the transportation and mobility landscape occur that bring about new priority projects, this action plan does not preclude adding projects that are not included in the initial projects slated for implementation (or projects that are not in the Complete Streets Plan due to the technology not yet existing).

Summaries of the projects identified are provided in the following tables and additional project details can be found in Chapters 7, 8, and 9. Infrastructure projects in Tier 1 with defined timelines are listed at the top of the table and shown with an asterisk. The projects that will be addressed first are those that should be completed before the Wilshire/La Cienega station opening, anticipated in 2023.

**Table 10-1: Tier 1 Projects**

STATUS	MODE	PROJECT
New*	Bicycle	Install green-backed sharrows and wayfinding signage on South Santa Monica Boulevard-Roxbury Drive between Moreno Drive and North Santa Monica Boulevard to close gap in the bikeway network between planned bike lanes in Los Angeles and existing green bike lanes in Beverly Hills
New*	Bicycle, Transit	La Cienega Subway Connection bike routes/boulevards: Class II or III bikeways on Clifton Way, Le Doux Road, Charleville Boulevard, and Gregory Way
New*	Bicycle, Transit	Rodeo Subway Connection bike routes/boulevards (after monitoring of Canon Closure): Class II or III bikeways on Reeves Drive, Crescent Drive, Canon Drive, and Beverly Drive
New*	Pedestrian, Bicycle, Transit	Implement projects identified in Metro’s First/Last Mile Plan for the Wilshire/Rodeo Purple Line Station, which will build upon conceptual recommendations in the Complete Streets Plan and recommend more detailed design changes around the station, including passenger loading
New*	Bicycle, Transit	Treatments to reduce bus/bicycle conflicts and add physical separation between bicyclists and motorists/transit vehicles, such as floating bus islands, on Burton Way from Rexford Drive to eastern City limits
New*	Transit, Vehicle	Implement a curbside management pilot program to address passenger loading around Metro stations, test shared use mobility zones, and/or digitized curb zones, and prepare for the deployment of autonomous vehicles
New*	Pedestrian, Bicycle, Transit	Develop a Wilshire Boulevard Streetscape Plan, including design guidelines, for streetscape amenities as first/last mile connections to the Metro Purple Line stations; produce construction drawings for enhancements adjacent to the stations to tie into ongoing Metro construction activities
New*	Pedestrian, Transit	Implement standard and enhanced citywide bus stop improvements building upon recommendations in the Wilshire Boulevard Streetscape Plan
New*	Pedestrian, Bicycle	Implement Bicycle and Pedestrian Awareness Campaign (grant funding anticipated to be available in FY 2018/19 or FY 2019/20) to educate and encourage Beverly Hills residents and businesses on safe biking and walking, such as through media and training courses
New*	Vehicle, Transit	Conduct an autonomous vehicle demonstration project to explore options for an autonomous shuttle to/from the Metro Purple Line
New*	Pedestrian	Pedestrian enhancements, including midblock crossings, pedestrian refuge islands, flashing beacons, curb extensions, and continental crosswalks, on Bedford Drive, Camden Drive, South Beverly Drive, and Robertson Boulevard (grant funding anticipated to be available in FY 2019/20)



STATUS	MODE	PROJECT
New	Pedestrian, Bicycle, Transit, Vehicle	Establish data governance to better inform decision making and analyze project results; develop a biannual traffic safety report (after BHPD purchases new software and signal upgrades are completed)
New	Pedestrian, Bicycle, Transit	Conceptual design and guidelines for streetscape amenities and pedestrian enhancements along South Santa Monica Boulevard-Burton Way for project construction upon completion of subway
New	Bicycle	Prioritize the implementation of low-stress bikeways that have the fewest conflicts with motor vehicles; prioritize ongoing and future capital improvement projects that make biking, walking, and taking transit competitive with driving
Continued	Vehicle	Continue the implementation of citywide signal upgrades to prepare for advancement in technologies, such as connected and autonomous vehicles
Continued	Vehicle	Continue development, implementation, and evaluation of a Southwest Traffic Calming pilot project to reduce cut-through traffic and vehicle speeds, and inform a citywide traffic calming program

Table 10-2: Tier 2 Projects

STATUS	MODE	PROJECT
New	Bicycle	Neighborhood Connections bike routes/boulevards: Class II or III bikeways on Camden Drive, Crescent Drive, Doheny Drive, Elm Drive, La Peer Drive, Lasky Drive, Robertson Boulevard, Spalding Drive, and Whitworth Drive
New	Pedestrian	Enhancements to key routes to the Metro Purple Line stations, like Crescent Drive and La Cienega Boulevard
New	Bicycle, Transit	The City should consider additional policies and programs to improve first/last mile, such as integrating TAP into bikeshare
New	Vehicle, Transit	Implement autonomous shuttle to/from the Metro Purple Line, based on demonstration project
New	Vehicle, Transit	Establish a car share program as a first/last mile strategy and to reduce the need for resident car ownership
New	Pedestrian, Bicycle, Transit	Promote the City as a role model by encouraging employees to commute by single-occupancy vehicles less often, such as by providing subsidized transit passes and purchasing a fleet of electric cars for site visits to minimize reliance on personal vehicles
New	Pedestrian, Bicycle, Transit	Encourage City and community participation in Rideshare Week to reduce single-occupancy commuting
New	Pedestrian, Bicycle,	Apply for a grant to host an Open Streets event, like CicLAvia
New	Vehicle	Institute an electric vehicle program to expand charging stations
New	Bicycle	Narrow the median on Sunset Boulevard to address vehicle turning movement conflicts and add protected bike lanes (or buffered bike lanes if protected are not feasible) from Whittier Drive to Cinthia Street (grant funding anticipated to be available in FY 2019/20)



Table 10-3: Tier 3 Projects

STATUS	MODE	PROJECT
New	Bicycle	North of Santa Monica Boulevard: Class II or III bikeways on Carmelita Avenue, Elevado Avenue, Palm Drive, Beverly Boulevard, Roxbury Drive, Whittier Drive, Cinthia Street, and Doheny Drive
New	Bicycle	Downtown: Class II or III bikeways on Brighton Way, Camden Drive, Civic Center, Dayton Way, Moreno Drive, Rexford Drive, and South Santa Monica Boulevard
New	Bicycle	Bike lanes on Beverly Drive from Sunset Boulevard to Whitworth Drive, and Crescent Drive from Santa Monica Boulevard to Wilshire Boulevard
New	Pedestrian	Enhancements to streets in the Business Triangle without recent upgrades, including Linden Drive and Roxbury Drive
New	Pedestrian	Enhancements to major or commercial corridors: Doheny Drive, Robertson Boulevard, and Olympic Boulevard
New	Pedestrian	Enhancements to Moreno Drive-Spalding Dr to improve access to the high school
New	Transit	Implement bus route improvements to enhance transit service, such as bus bulbs (curb extensions for loading), prohibiting ride hailing activity on major transit corridors, flexible curb zones, etc.
New	Pedestrian, Bicycle, Transit	Develop a transportation demand management (TDM) ordinance to guide how infrastructure is used and minimize single-occupancy vehicle trips
New	Vehicle	Consider updating parking policies to reduce requirements for mixed-use developments and those with adequate TDM programs, expand the parking supply through shared-use agreements, and adopting a bike parking ordinance
New	Pedestrian	Initiate a parklet and plaza pilot program to expand sidewalks and public space
New	Pedestrian, Transit	Organize a Safe Routes for Seniors program to help older adults safely and conveniently travel without vehicles
New	Pedestrian, Bicycle	Organize a Safe Routes to Parks program to increase access to parks and greenspaces in the city
New	Bicycle	Implement bike friendly business districts that support people who travel on bikes
New	Bicycle	Establish a bike valet program at large public events
New	Bicycle, Vehicle	Consider a reverse angled parking pilot program to educate the community on the benefits and determine appropriate locations
New	Transit	Consider a pilot program to extend the Wilshire Boulevard bus lanes into Beverly Hills
New	Vehicle	Consider partnering with regional agencies that may pursue congestion pricing



## APPENDIX A

# EXAMPLE COMPLETE STREETS POLICIES

The following summaries of complete streets plans and policies from other cities in Los Angeles County were used as examples to inform the development of the Beverly Hills Complete Streets Plan.



### A.1 City of Santa Monica

Adopted in 2010 (last amended in 2015), the City of Santa Monica’s Land Use and Circulation Element (LUCE) is a key component of the City’s General Plan. The award-winning plan establishes a vision to maintain the character of the city while enhancing neighborhoods, managing the transportation system, and encouraging residential development in a sustainable manner. Consistent with the vision, a primary goal of the LUCE is to create complete neighborhoods where residents can walk and bike to a mix of uses and local services, which are linked by green connections and open space. Transit-oriented development is also encouraged especially along the Expo Line corridor and requires the replication of the city’s grid system, improved connectivity among neighborhoods, enhancement of bike facilities, and creation of wide, welcoming sidewalks and pedestrian amenities. LUCE establishes a “No Net New Vehicle Trips” policy to improve access and mobility while accommodating modest growth and development. The LUCE’s 20-year vision reflects a six-year community engagement process and includes phasing and monitoring.

Adopted in 2011, the Santa Monica Bike Action Plan establishes priorities to guide and coordinate the implementation of bicycle programs and the LUCE bicycle network to encourage residents, employees, and visitors to make bicycling a transportation choice. Santa Monica’s Bike Action Plan establishes a five-year implementation strategy and 20-year vision to implement bike programs and bikeway improvements that can be used by bicyclists of all experience levels. The plan embraces the complete streets concept and builds upon existing facilities within a multimodal street network, providing roadway allocation and visibility for bicyclists while also accounting for all road users. Safe bicycling is also encouraged on complete streets through education, awareness, and encouragement efforts with business, employers, and schools.

The 2016 Santa Monica Pedestrian Action Plan establishes a vision for overall pedestrian well-being, creates policies to enhance the pedestrian environment, and identifies a coordinated set of practices, programs, and projects. Santa Monica’s Pedestrian Action Plan draws from empirical analyses and community engagement to recommend citywide and location-specific actions that will improve safety, access to transit, and overall walkability of the community. The analyses include a review of reported collisions, existing and future supply and demand, health and sustainability, as well as a transit walkshed analysis. Leveraging existing policies and community and fiscal resources, the Plan recommends changes in business practices as well as policy, program, and project actions that will enhance the culture of walking in Santa Monica. A review of infrastructure best practices provides the foundation for a countermeasure selection guide and toolkit of strategies that reflect project goals, street context, and local collision patterns. The toolkit informs high priority safety and transit access projects to be recommended for 5, 10, and 20-year budget planning.



## A.2 City of West Hollywood

The West Hollywood Pedestrian & Bicycle Mobility Plan adopted in 2017 provides a vision and set of prioritized strategies and tools to enhance the City's streets to be more comfortable, safe, and inviting to pedestrians and bicyclists of all ages and abilities. Similar to Beverly Hills, the city and its street network is almost entirely built out, meaning that not all streets may be designed to serve all modes. Given this challenge, West Hollywood's Pedestrian & Bicycle Mobility Plan presents a Complete Network Approach where modal priorities are established on separate streets. The guiding principle of West Hollywood's Pedestrian & Bicycle Mobility Plan is as follows, "city streets should provide safe connections for residents and visitors, regardless of their mode of transportation. Each public right-of-way should be designed to emphasize the mode(s) that are determined to be most relevant to the particular corridor."<sup>73</sup>

The objectives of West Hollywood's Pedestrian & Bicycle Mobility Plan are as follows:

- Implement the West Hollywood General Plan & Climate Action Plan
- Comply with federal and state regulations
- Support multi-modal transportation option to reduce greenhouse gases, congestion, and pollution
- Eliminate barriers along pedestrian routes and enhance sidewalks and crossings
- Provide a convenient and connected walking network
- Strengthen regional bicycle network connections
- Eliminate gaps in existing bicycle network and provide high-quality bicycle infrastructure to improve bicyclist comfort and safety
- Coordinate with neighboring jurisdictions to connect West Hollywood to regional destinations
- Improve City streets and sidewalks to provide enjoyable community living spaces
- Improve end-of-trip experience for bicyclists with lockers, showers, changing areas, secure parking<sup>73</sup>
- Foster educational programs to encourage safety and knowledge of rights and responsibilities
- Support the enforcement of traffic laws for all users of City streets
- Promote the City's identity as a walkable and bikeable place

West Hollywood's Pedestrian and Bicycle Mobility Plan identifies planning efforts to improve bicycle and pedestrian facilities. In 2011, the City's Bicycle Task Force put out a report containing recommendations to improve bicycle mobility as part of the General Plan update, which inspired the formation of the West Hollywood Bicycle Coalition. The Plan provides recommendations for developing a "complete network" in four distinct sections:

- **Design Toolbox Matrix:** Identifies design treatments that will help create a more comfortable walking and biking environment in West Hollywood. Descriptions, benefits, considerations, and locations are provided for each design treatment.
- **Priority Projects:** Identified in response to key issues raised by the community, which would close major gaps in the bikeway network, enhance the pedestrian environment, and improve highly used crosswalks. The five priority projects are identified with the intention that they will be approved and designed within 5 years following the adoption of the plan.

<sup>73</sup> <http://www.weho.org/home/showdocument?id=34445>



- **Additional Network Improvements:** Recommendations for the citywide network with a longer-term outlook, which would be implemented as funding becomes available, and/or in coordination with street maintenance work. Network improvements include new bike lanes, sharrows, intersection enhancements, and crossing improvements.
- **Programs and Policies:** Education and outreach campaigns, events, policies, and programs intended to encourage, educate, and create a more walkable and bikeable city<sup>74</sup>

West Hollywood's Pedestrian and Bicycle Mobility Plan proposes bicycle facilities on the following corridors that connect with the City of Beverly Hills:

- Cynthia Street
- Melrose Avenue
- Beverly Boulevard
- Doheny Drive
- Santa Monica Boulevard

### A.3 City of Los Angeles

Los Angeles' Mobility Plan 2035 provided a 2016 update to the City's General Plan. It included the following five goals: Safety First, World Class Infrastructure, Access for all Angelinos, Informed Choices, and Clean Environments for a Healthy Community. These goals establish a clear policy foundation for using complete streets as a strategy for goal implementation. The City also published a Complete Streets Design Guide, which falls under the authority of the City of Los Angeles' Street Standards Committee. The Design Guide is intended to provide flexible guidance for implementation that can change as innovations are introduced into the city's landscape. Key policy initiatives from the Mobility Plan include:

- Lay the foundation for a network of complete streets and establish new complete street standards that will provide safe and efficient transportation for pedestrians (especially for vulnerable users such as children, seniors and the disabled), bicyclists, transit riders, and car and truck drivers, and more
- Consider the needs of public safety when evaluating changes that implement complete streets improvements
- Implement a balanced transportation system on all streets, tunnels, and bridges using complete street principles to ensure the safety and mobility of all users<sup>75</sup>

The City's Safety First goal is supported by its Vision Zero work. In 2014, the Los Angeles Department of Transportation (LADOT) released its first Vision Zero Strategic Plan, with the goals of reducing traffic deaths by 20 percent by 2017, and eliminating traffic fatalities citywide by 2025. The action plan includes the following approaches to implementation:

- **Engineering and Planning:** Focusing on high priority intersections and corridors on the High Injury Network, the City will increase visibility of the most vulnerable people on the road, such as pedestrians and bicyclists, children, and older adults; reduce conflicts; and set speed limits that protect human life. Safety projects will be prioritized based on crash profiles, cost effectiveness, and proven countermeasures.

<sup>74</sup> <https://www.smartgrowthamerica.org/app/legacy/documents/cs/media/cs-ca-pressrelease.pdf>

<sup>75</sup> <https://planning.lacity.org/documents/policy/mobilityplnmemo.pdf>



- **Enforcement:** Enforcement will focus on high crash locations and target unsafe travel behavior (e.g., driving under the influence, distracted driving, failure to yield to people in crosswalks). Enhanced reporting statistics, including expanding pedestrian collisions reporting by LAPD and developing strategies based on long-term collision trends, will assist in directing safety efforts to high injury areas.
- **Education and Outreach:** The City will partner with community and neighborhood groups (especially in areas with high collision rates) and will develop safety campaigns to encourage safe travel behavior and draw attention to the most vulnerable people.
- **Evaluation and Monitoring:** The City will continue to collect and analyze collision, public health, and land use data to prioritize locations for (and evaluate results of) engineering, enforcement, and education efforts.
- **Partnerships:** Partners include County of Los Angeles Public Health, Los Angeles Unified School District, and the City's police, fire, and public works departments. The City will continue to work with community partners to improve safety at the neighborhood level.
- **Equity:** Prioritizing safety initiatives will focus on communities with both high levels of collisions and poor health outcomes<sup>75</sup>

Vision Zero Strategic Plan proposes bicycle facilities on the following corridors that connect with the City of Beverly Hills:

- Burton Way
- 6th Street
- Wilshire Boulevard
- North Santa Monica Boulevard
- Robertson Boulevard
- Beverwil Drive



## APPENDIX B DESIGN GUIDANCE

The following sections provide best practice design guidance for the City for implementation of the Complete Streets Plan.



### B.1 Bikeway Design Guidance

#### High-Visibility Bike Lanes



Dedicated bike lanes that utilize bright green paint to increase visibility of the bicycle ROW and demarcate conflict areas between bicyclists and vehicles.

##### Benefits

- Improve awareness of bicycle ROW.
- Improve safety and perceptions of safety, promotion of multi-modality, discouragement of illegal parking in bike lane.

##### Design Considerations

A skid-resistant, retro-reflective green paint should be used, delineated with standard white bike lane lines to provide consistency with other bike facilities and enhance nighttime visibility.

Appropriate signage and consistency in application should be used to aid motorists' awareness.

The colored markings may be applied along the entirety of the bike lane, at intersection approaches, and/or at conflict areas with driveways, turn pockets, or curbside parking.

##### Possible Locations

Corridors recommended for bike lanes or separated bikeways

High-Visibility Bike Lane on North Santa Monica Boulevard



Example of High-Visibility Bike Lane



Source: MyFigueroa Project



## High-Visibility Bike Box



Designated spaces at signalized intersections that utilize bright green paint to offer bicyclists a safe and visible way to get in front of queuing vehicle traffic.

### Benefits

Improves safety through increased visibility and prevention of right turn conflicts between vehicles and bicyclists. Reduces signal delay and provides priority to bicyclists while reducing vehicle encroachment into crosswalk. Can facilitate left turns and street crossing for bicyclists when extending across the vehicle ROW.

### Design Considerations

A skid-resistant, retro-reflective green paint should be used, delineated with standard white bike lane lines to provide consistency with other bike facilities and enhance nighttime visibility. The box abuts the intersection at the head of the vehicle traffic lane and is typically 10-16 feet deep. Stop lines for and pavements marking shall be used to demarcate where vehicles must stop and designate bicycle ROW.

Bike Box in Portland, OR



Source: <http://streetwise.kittelson.com/posts/58-portland-or-aims-to-keep-cyclists-safe>

## Bike Parking



Bicycle racks or lockers installed at transit stops and key destinations providing safe, convenient storage for bicycles.

### Benefits

Supplements transit ridership and can expand transit sheds by enhancing intermodal connectivity and access. Can make transit more efficient by replacing time and space-consuming bicycle racks on trains and/or buses.

### Design Considerations

Ensure there is adequate space surrounding bicycle parking to avoid impeding traffic on sidewalks and at transit loading locations. If multiple racks are installed, ensure at least three feet of space between them.

### Possible Location

At major transit stops/hubs and major destinations, such as Wilshire Boulevard.



Source: Bike/Walk Tampa Bay



## Bicycle-Only Signals



Bicycle-only signals use dedicated signal heads to facilitate bicycle movements at intersections separately from vehicles. This is for Class IV facilities.

### Benefits

Improve safety by reducing bicycle/vehicle conflicts at intersections and discourage illegal and unsafe crossing maneuvers.<sup>76</sup>

### Design Considerations

Green light times should be determined using the bicycle crossing time for standing bicycles at all existing signals and any new all-mode signals. In the United States, bicycle signal heads typically use standard three-lens signal heads in green, yellow, and red lenses. Push buttons, signage, and pavement markings highlight these facilities for bicyclists and motorists.

Examples of Bicycle-Only Signal Head and Signage



Source: LADOT Bike Blog



Source: MyFigueroa Project

<sup>76</sup> NACTO, 2014. Urban Bikeway Design Guide.



## Bicycle Detection/Indicator



System using a video detection camera that can distinguish bikes from vehicles, supplemented with an indicator communicating to the cyclist that the signal that is aware a bicycle is present and adequate green time is coming.

### Benefits

- Reduces delays and increases efficiency for bicycle traffic.
- Improves safety by discouraging illegal and unsafe crossing maneuvers.

### Design Considerations

There should be clear guidance to bicyclists on how to activate detection (e.g. what button to push, where to stand) and a visual indication that detection has occurred (e.g. a SmartCycle indicator light).<sup>77</sup>

### Possible Locations

Best applied at actuated intersections with bicycle infrastructure present. Can be combined with a bicycle-only signal, an advance bicycle phase, or split signal phasing for optimal effects.

Example of Bicycle loop detector marking on Broadway in Santa Monica, CA



Source: Alta Planning + Design

<sup>77</sup> NACTO, 2014. Urban Bikeway Design Guide.



## B.2 Pedestrian Infrastructure Design Guidance

### Pedestrian-scale Lighting



Provides pedestrians with necessary illumination of the roadway and sidewalk and improves pedestrian mobility.

#### Benefits

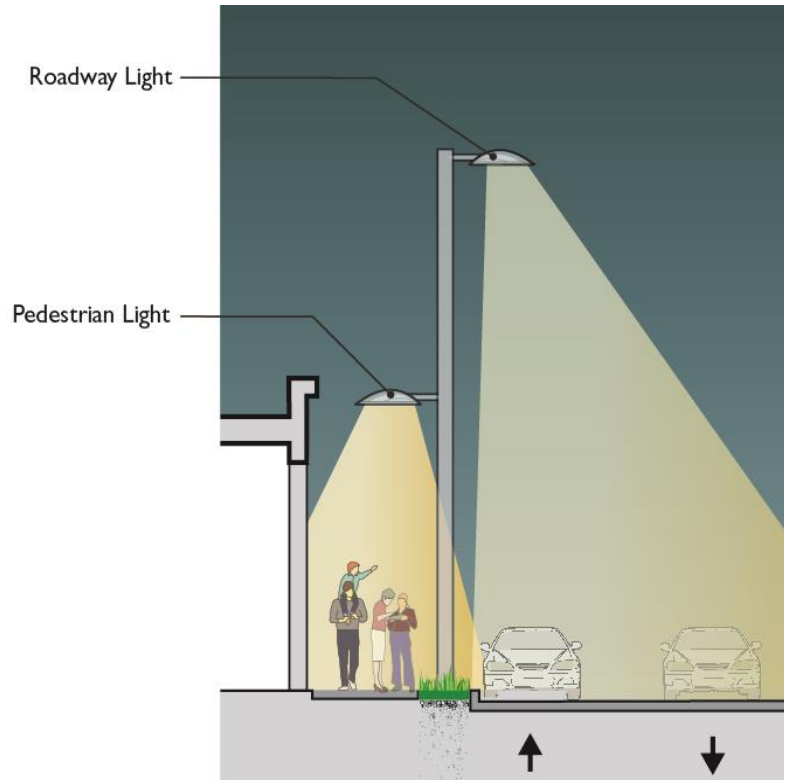
- Increases visibility of pedestrians at nighttime.
- Increases visibility of intersections, crosswalks, ramps, and pathway.
- May help reduce pedestrian-related collisions.

#### Design Considerations

The City shall refer to the Illuminating Engineering Society of North America (IESNA) Lighting Handbook for guidance on lighting requirements for different types of roadways, pedestrian activity, and land use context. Typically pedestrian-scale fixtures are 12-15 feet high.

#### Possible Locations

- Business triangle
- North Santa Monica Boulevard South
- Santa Monica Boulevard
- Burton Way
- Wilshire Boulevard
- Olympic Boulevard



Source: Lincoln Neighborhood Corridor Plan "The LiNC", CD+A



## Sidewalk & Curb Ramp Repair and Maintenance



Provide pedestrians with continuous and unobstructed sidewalks. Curb ramps provides access for all users. The City's 2017 Sidewalk Inventory Report highlights existing sidewalk locations that need improvement and maintenance.

### Benefits

- Well maintained sidewalks encourage and support walking.
- Ensures access and mobility for all users.

### Design Considerations

- Sidewalks shall be ADA compliant by providing a minimum width of 5 feet clear path.
- Repair curb ramps to provide access between sidewalks.
- Curb ramps should be designed with detectable warning strips per MUTCD standards

### Possible Locations

- Citywide. See City's Sidewalk Inventory Report for specific locations and prioritization.

Example of Wide Sidewalk on Rodeo Drive, Beverly Hills, CA



Source: Google Maps

## Median and Pedestrian Refuge Island



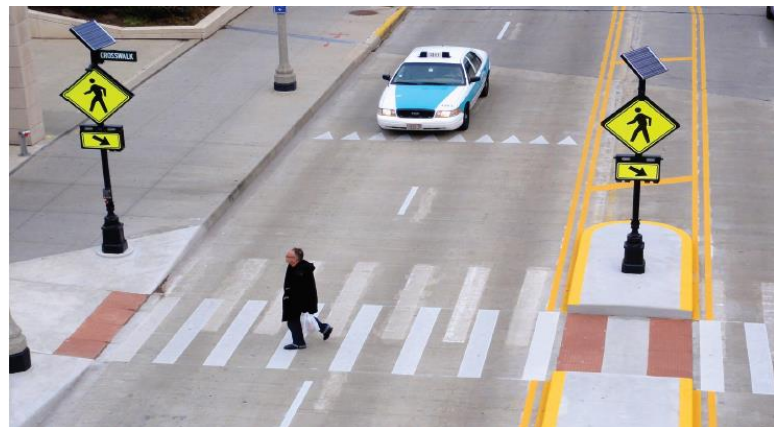
Provides pedestrians with a protected area when additional time is needed to cross a two-way roadway

### Benefits

- Enhances pedestrian safety and accessibility.
- Reduces crossing distances.
- Can serve as a traffic calming tool since roads would need to be narrowed at the intersection

### Possible Locations

- North Santa Monica Boulevard
- La Cienega Boulevard
- Olympic Boulevard





## Curb Extensions & Bulb-outs



Curb extensions that reduce roadway width at the corners of intersections. Also known as gateway treatment when installed at the entrance or to mark a transition to a residential or low-speed street. Landscape bioswales and pervious pavement may be included in design.

### Benefits

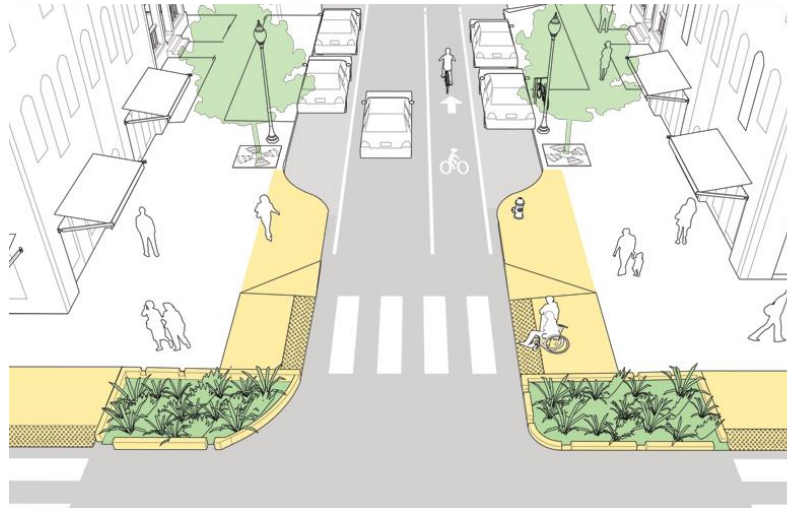
Improved safety for pedestrians due to higher visibility, shortened crossing distances, and reduced speed for vehicles turning due to narrower curb radii.

### Design Considerations

Length of the bulbout should at least be equal to the width of the crosswalk, usually extending to the vehicle stop bar. Usually one or two feet narrower than the parking lane, when applicable. Changes may need to be made to accommodate drainage and/or bicycle infrastructure.

### Possible Locations

Best applied at intersections with high pedestrian volumes and/or a high frequency of pedestrian conflict with turning vehicles. Limited to intersections of streets with parking lanes.



Source: NACTO

Example of Bulb-out on Canon Drive, Beverly Hills, CA



Source: Google Maps



## Chokers



Mid-block curb extensions that reduce roadway width. Alternatively known as a “pinchpoint”.

### Benefits

Reduces vehicle speeds and facilitation of pedestrian crossings for low-volume streets.

### Design Considerations

If facilitating mid-block crossings, a marked crosswalk should be installed if the volume exceeds 2000-3000 vehicles per day.

Landscaping along the curb extension will give higher visibility and narrow the road profile for motorists, encouraging slower speeds.

Changes may need to be made to accommodate drainage and/or bicycle infrastructure.



### Possible Locations

Best applied on low-volume residential or collector streets with moderate pedestrian activity.

## Chicanes



Staggered mid-block curb extensions that alternate from one side of the street to another to form an S-shaped curve in the roadway. Alternatively known as “deviations” or “serpentes”.

### Benefits

Reduces vehicle speeds due to horizontal deflection of vehicles along the ROW.

### Design Considerations

Additional signing and striping may be necessary to ensure motorists are aware of the horizontal deviation in the roadway.

Chicanes can also be accomplished with alternating curbside parking availability on either side of the street.

Changes may need to be made to accommodate drainage and/or bicycle infrastructure.



Source: Bike.LAcity.org

### Possible Locations

Best applied to low-volume residential or downtown commercial streets if loss of parking is not an issue.



## Leading Pedestrian Interval



Leading pedestrian intervals (LPI) are proposed to allow pedestrians a head start to enter an intersection before vehicles. This allows for increased visibility of pedestrians and could reduce conflicts between pedestrians and vehicles.

### Benefits

Collisions involving vehicles versus pedestrians within an intersection crosswalk could be reduced by the LPI treatment due to the increased visibility that pedestrians would have by getting the head start into the intersection. Locations for implementation should be guided by crash history documentation.



Source: TRB 2015 Annual Meeting

## B.3 Transit Stop Design Guidance

### BUS STOP DESIGN AND PLACEMENT

Bus stop design elements can vary considerably, but generally fall into the following categories:

- **Passenger Experience:** Intended to ensure that passengers are comfortable and secure, that their experiences using transit are enjoyable, and that their needs are met
- **Information:** Help passengers quickly and easily understand the transportation options available to them, how the transit options work, and when or how often the transit options will service the location, including in real-time
- **Operations:** Designed so that both the buses and users can utilize the location as efficiently and safely as possible, while also minimizing bus delay



The amenities that should be provided at a transit stops and stations are dependent on the type of service and the ridership (measured in typical daily boardings) at the location. All minimum design elements presented below should be included in the appropriate stop types when possible. However, circumstances that might preclude installation of elements at a particular stop include:



- Amenities would compromise pedestrian or operational safety
- Adequate right-of-way is not available
- Plans are in place to relocate or close the stop

A standard bus stop (lower ridership) includes the minimum elements that should be provided for transit users to be safe and comfortable. Standard bus stops are typically located on local routes. As such, these bus stops often have bus routes with long headways, so providing seating would dramatically improve the rider experience. Recommended design elements of standard bus stops can be found in the table below.

**Recommended Minimum Design Elements of a Basic Bus Stop**

PASSENGER EXPERIENCE	INFORMATION	OPERATIONS
<ul style="list-style-type: none"> <li>• Shelter</li> <li>• Lighting</li> <li>• Seating</li> <li>• Trash/Recycling Containers</li> </ul>	<ul style="list-style-type: none"> <li>• Distinctive Branding</li> <li>• Pole and Sign</li> <li>• Information and Schedules</li> <li>• System Map</li> </ul>	<ul style="list-style-type: none"> <li>• Paved Boarding Area</li> <li>• ADA-compliant Pedestrian Connections</li> </ul>

Enhanced bus stops are designed to accommodate large loads of passengers and multiple buses at the same time. An enhanced stop is often located on a very active corridor and may provide transfers among different types of transit services, such as light or heavy rail corridors. An enhanced bus stop is typically located on both local and rapid bus routes.

In addition to all elements of a standard low-ridership stop, enhanced high-ridership stops should provide real-time travel information about when various routes are arriving, raised platforms and bus bulbs to improve the efficiency of the routes, bike parking, and transfers to other types of transportation services, like bikeshare or microtransit.

**Recommended Design Elements of an Enhanced Bus Stop**

PASSENGER EXPERIENCE	INFORMATION	OPERATIONS
<ul style="list-style-type: none"> <li>• Lighting</li> <li>• Seating</li> <li>• Shelter</li> <li>• Trash/Recycling Containers</li> </ul>	<ul style="list-style-type: none"> <li>• Distinctive Branding</li> <li>• Pole and Sign</li> <li>• Information and Schedules</li> <li>• System Map</li> <li>• Real-Time Display</li> </ul>	<ul style="list-style-type: none"> <li>• Paved Boarding Area</li> <li>• ADA-compliant Pedestrian Connections</li> <li>• Raised Platform/Level Boarding</li> <li>• Bus Bulb</li> <li>• Bikeshare/Micromobility</li> <li>• Bicycle Parking</li> </ul>

Stop placement guidelines describe the considerations that are involved in making decisions regarding new or relocated bus stops. The proper location of bus stops is critical to the safety of passengers, pedestrians, and motorists, as well as the safe and efficient operation of buses.

The initial step of determining placement of a new or relocated bus stop involves its proximity to the intersection. The placement of each bus stop can be classified as one of the following:

- **Near-side:** immediately prior to an intersection
- **Far-side:** immediately after an intersection
- **Mid-block:** between two intersections

Bus stops are generally located at street intersections to maximize pedestrian accessibility from both sides of the street and provide connectivity to intersecting bus routes. Bus turning movements, driveways, and dedicated turn









lanes sometimes restrict the placement of stops at or near an intersection and necessitate a mid-block stop. Mid-block stops may also be considered when destinations are a significant distance from intersections.








Each new or relocated bus stop must be examined on a case-by-case basis to determine their exact location. The following list details bus stop placement considerations related to customer convenience and comfort, accessibility, operational safety, and adjacent land use:

- Customer Convenience and Comfort
  - Proximity to expected trip generators
  - Visibility of bus stop zone and presence of street illumination
  - Connections to intersecting bus routes
- Accessibility
  - Adequate right-of-way to ensure the bus stop meets the Americans with Disabilities Act (ADA) accessibility standards
  - Presence and conditions of sidewalks leading to trip generators
  - Marked crosswalks and curb ramps at street intersections or midblock crossings
- Operational Safety
  - Volume and turning movements of other vehicles including bicycles
  - Adequate curb space to accommodate multiple buses, if necessary
  - Adequate sight distance to/from adjacent streets, intersections, and driveways
  - Proximity to rail crossings
- Adjacent Land Use
  - Ridership potential to support the investment of new stops
  - Adequate right-of-way to prevent encroachment onto private property

### Bus Stop Placement Considerations

	Advantages		Disadvantages	
Near-side stops		Encourages riders to use nearby crosswalks		Most exposure to traffic delays. May require more than one traffic signal cycle
				Increases conflict with right-turning vehicles
				May block travel lane with queuing buses
				May obscure motorists' view of traffic control devices and crossing pedestrians
Mid-block stops		Typically improves access to destinations on large tracts		May require bus pullout on high-speed streets



	Advantages		Disadvantages	
				May encourage riders to cross street mid-block
				Motorists typically do not expect mid-block crossing pedestrians
Far-side stops		Encourages riders to use nearby crosswalks		May restrict travel lanes on far-side of intersection
		Reduces delay as operators have better chance of avoiding red light		
		Allows additional right-turning capacity before intersection		

The following situations are common determinants of bus stop placement:

- If the route alignment turns left at an intersection, the preferred location for the stop is the far-side of the intersection after the bus turns.
- If the route alignment turns right at the intersection, the preferred location for the bus stop should be on the far-side of the intersection after the bus turns.
- If there is a high volume of vehicles turning right at an intersection, the preferred location for a bus stop is on the far-side of the intersection after the turn.
- At intersections with complex, multi-phased traffic signals or dual right or left turn lanes, far-side bus stops are preferred because they eliminate buses from an area of complicated traffic movement at that intersection.
- When the route alignment requires the bus to make a left turn and it is not feasible or desirable to locate the bus stop on the far-side of the intersection after the bus turns, a mid-block stop may be warranted.
- Mid-block bus stops prior to left turns should be located a distance from the intersection that allows the bus to easily maneuver into the proper lane to turn left (a minimum of 100-150 feet for each lane change, depending on street speeds).
- When connections between two bus routes show a strong directional pairing (e.g., passengers connecting from eastbound to southbound route), placing one bus stop on the nearside and the other on the far-side can reduce pedestrian crossings at the intersection.
- Stops may be situated within the travel lane (i.e., at “bump outs” or “bulbs”) along highways situated within the urban core with two travel lanes in the same direction.
- Bus pullouts are acceptable at high ridership stops with significant dwell times or route terminal points.



Whenever possible, bus stops should not be placed within proximity of a driveway. However, if a driveway is unavoidable:

- Attempt to keep at least one exit and entrance open to vehicles accessing the property while a bus is loading or unloading passengers.
- Locate bus stops to allow good visibility for vehicles leaving the property and to minimize vehicle/bus conflicts. This is best accomplished by placing bus stops where driveways are behind the stopped bus.
- Never place a bus stop that forces passengers to wait for a bus in the middle of a driveway.

It is preferable to fully block (rather than partially block) a driveway to prevent vehicles from attempting to squeeze by the bus in a situation with reduced sight distance. The lack of parking restrictions can negatively impact bus service by limiting sight distances and passenger access. Potential issues that may arise include:

- Buses not being able to access the curb/sidewalk area to pick or drop off passengers
- Passengers forced to maneuver between parked vehicles when they board or alight
- Buses blocking travel lanes due to inability to access the curb

## FIRST / LAST MILE IMPROVEMENTS

Regional transit agencies provide the bus and rail services in Beverly Hills, but users must complete the first and last portions of their trips on City-managed transportation infrastructure. First-last mile refers to the portion of a user's trip between their origin/destination and primary mode of travel. Per California's Complete Street law (AB 1358), streets must accommodate safe and efficient multi-modal transfer activity and support a wide range of mobility options. Reasonable thresholds for first-last mile sheds from a transit station as provided by the FTA are one-half mile for pedestrians and three miles for bicycles. The following recommendations should help guide the City in implementation of infrastructure to get people safely and efficiently to/from transit stops and stations.

Active transportation modes (i.e. walking, biking, wheelchairs, etc.) represent 85 percent of access/egress at Metro rail/BRT stations and 95 percent of access/egress systemwide.<sup>78</sup> The following are recommended for first-last mile transit connectivity through active modes and the built environment:

- **Increase average speed of active transportation users:** Decrease wait times at intersections and increase speed and capacity along key walking/biking routes to transit. Improvements near transit stations should include: pedestrian prioritized signal timing, reduced crossing distances through curb extensions, and provision of sidewalk widths that cater to a growing range of mobility demands. Sidewalks providing access to transit should have a minimum through width of 6 feet and of 8 feet if directly adjacent to moving traffic.
- **Provide a clear path of travel:** Minimum pedestrian through widths should be maintained separate from amenities that require additional width. For example, if the sidewalk is adjacent to a ticket vending machine or transit information kiosk, the minimum clear path of travel should be maintained outside of the area containing transit stop amenities to ensure station activity areas do not impede pedestrian travel. Pedestrian paths of travel from drop-off/pick-up zones and bus stops to rail station entrances should be direct as possible.
- **Enhance pathway safety:** Active transportation routes serving transit stations should be well-lit to accommodate riders traveling at all hours. Pedestrian-oriented lighting should be placed approximately every 30 feet focused on the center of the pathway.

<sup>78</sup> First Last Mile Strategic Plan, Los Angeles County Metropolitan Transportation Authority – Metro, 2014.



- **Ensure pathway quality:** Broken sidewalks or missing curb ramps present a significant barrier to pedestrians and users that require a wheeled mobility device. Pedestrian facilities serving transit should be kept in good maintenance and provide adequate provisions for users with mobility impairments, such as truncated domes.
- **Provide clear and intuitive navigation:** Pathways to transit should provide directional markers with walking and biking times to the station(s). Where applicable, signage to stations can be enhanced with real-time transit arrivals information.
- **Provide cut-throughs and shortcuts:** Where applicable, such as public parks or parking lots, provide cut-throughs that provide a shortcut over the standard street network with improved paving, lighting, shade, and directional signage.
- **Provide Pedestrian Scrambles at Metro rail stations:** Having already enhanced pedestrian safety and comfort in the Business Triangle of Beverly Hills, scrambles should be considered at the intersections serving Purple Line stations to prioritize pedestrian safety and visibility while reducing crossing times. Scrambles should have continental striping or highly visible patterns, with informational signage denoting appropriate crossing movements.
- **Support multi-modal transfer activity:** Bike share stations should be located at key bus stops and all rail stations with easy and identifiable access between the modes. Beverly Hills Bike Share, along with the other three systems of Bike Share Connect, should enable free transfers to transit, through multimodal fare integration with L.A. Metro's TAP card fare payment system. This approach is in keeping with L.A. Metro's approach to Metro Bike Share, which implemented a joint transit/bike-share balance on the TAP card in the system's next iteration, TAPforce. Under TAPforce, fares paid to bike-share and transit operators are treated interchangeably, enabling free or discounted transfers between bike-share and transit, just as the current system allows between bus and light rail.
- **Encourage appropriate parking behavior of dockless bikes and scooters:** Shared electric scooters (i.e. Bird and Lime) provide a powerful tool for bridging first-last mile gaps, albeit requiring new regulation for proper management.<sup>79</sup> In regulating the devices around transit stations the City should require operators to imbed geo-fencing within their mobile applications to encourage proper parking behavior which would require users to park and lock the devices in designated drop zones that do not interfere with pedestrian paths of travel or transit operations.
- **Provide covered and secure bicycle parking:** Bicycle parking at transit stations should be located adjacent to desire lines, and as close as possible to the station entrance, but not in locations that obstruct pedestrian movements.

<sup>79</sup> As of July 2018, the City of Beverly Hills has instituted a temporary ban on dockless bikes and scooters to allow time to evaluate how the devices can be properly managed on public rights-of-way.



## B.4 Vehicle Infrastructure Design Guidance

### Speed Humps



Raised, rounded surfaces placed across the width of the roadway between intersections. Longer and higher than speed “bumps” typically found in parking lots.

#### Benefits

Effective at slowing vehicle speeds at select locations, the magnitude of which depending on their spacing along a particular street segment.

#### Design Considerations

Usually 10 to 14 feet long and 3 to 4 inches high at the center with tapered ends near curbs to allow for proper drainage. Requires proper signage alerting drivers of their location.

#### Possible Locations

Best applied to local residential streets and collector streets with high volumes of pedestrian or bicycle traffic.

Example of Speed Humps in Beverly Hills, CA



### Speed Table or Raised Crosswalk



A raised, rounded surface placed across the width of the roadway at a mid-block location. Similar to speed humps, but wider with a flat top that raises the entire wheelbase of a vehicle.

#### Benefits

Slows vehicle speeds at mid-block locations and increases safety for pedestrians and bicyclists.

#### Design Considerations

Usually 22 feet long with a height of 3-3.5 inches. Portions along the curb may need to be slotted accommodate drainage. Requires proper signage alerting drivers of their location.

#### Possible Locations

Best applied to collector streets with high volumes of pedestrian or bicycle traffic. Can double as a raised mid-block crosswalk.

Example of Raised Crosswalk, Beverly Gardens Park, Beverly Hills, CA





## Raised Intersection



A flat-topped, elevated area with slanted edges that covers an entire intersection.

### Benefits

Slows vehicle crossing speeds and encouraging motorists to yield to pedestrians at the crosswalk without encroaching. Does not impact curbside parking.

### Design Considerations

Usually flush with the sidewalk though sometimes given a ridge for visually impaired pedestrians. ADA-compliant ramps and detector strips are required.

### Possible Locations

Best suited for areas with high volumes of pedestrians and where other raised traffic calming measures would impact curbside parking. Should not be used at intersections along major transit or emergency vehicle routes.



Source: NACTO

## Neighborhood Traffic Circle



A raised island in the center of an unsignalized intersection that forces drivers to maneuver around it rather than proceed straight. Alternatively known as a “mini-roundabout”.

### Benefits

Slows vehicle crossing speeds and improves safety at intersections for pedestrians. Replaces the need for two or four-way stop controls.

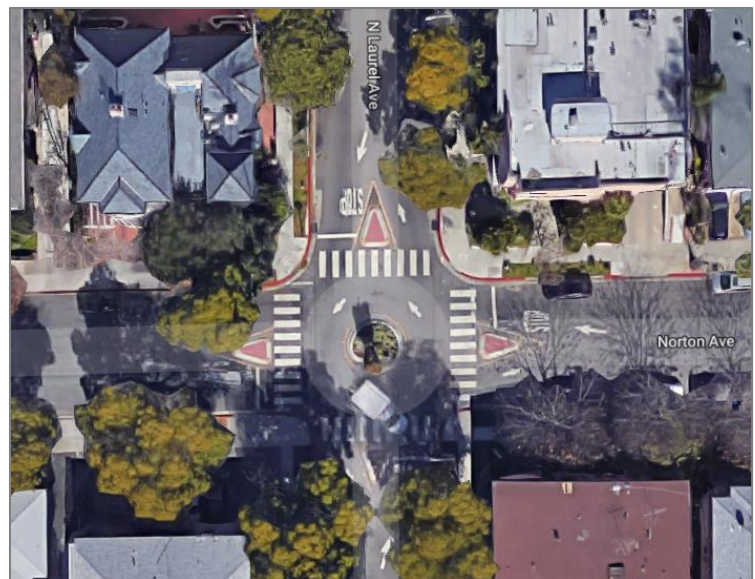
### Design Considerations

At least 15 feet of clearance should be provided between the widest point of the traffic circle and the corner of the intersection to provide adequate ROW for emergency vehicles.

Crosswalks and shared lane markings for bicycles should be clearly marked and signage should provide advance warning of the traffic circle for motorists.

### Possible Locations

Best applied at minor intersections in residential areas where speeding is a common issue.



Source: Google Maps view of Laurel Avenue/Norton Avenue in West Hollywood



## Roadway Reconfiguration – Lane Narrowing



Any treatment that narrows the width of the vehicle travel lane, be it widening sidewalks and/or the planting strip, curb extensions, or inclusion of bicycle facilities.

### Benefits

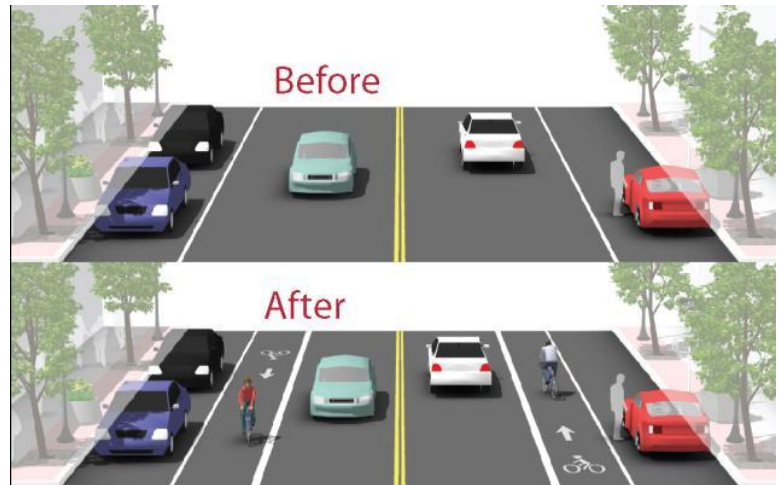
Narrower travel lanes help promote reduced vehicle speeds without deterring emergency or transit vehicles, making collisions less severe and improving safety for motorists and pedestrians.

### Design Considerations

Lane widths of 10 feet are appropriate in urban areas. Multi-lane roads should have a wider outside or curbside lane where transit or freight vehicles may be present. Changes may need to be made to accommodate curves and bicycle infrastructure.

### Possible Locations

Best applied in constrained urban settings and residential areas.



Source: Town of Braintree, MA

Example of Lane Narrowing to Accommodate Bike Lanes





## Roadway Closure



The closure, either partial or full, of a street to through traffic using a physical barrier. A half-closure uses a curb extension to prevent through traffic in one lane only while a full closure uses a cul-de-sac to completely close the street to through traffic.

### Benefits

Effective at reducing traffic volumes on particular streets without impeding pedestrian movements.

### Design Considerations

May create traffic diversion through adjacent neighborhoods and thus should be carefully implemented with consideration of impacts on neighborhood residents.

Partial closures need to be implemented carefully so that vehicles meant to be stopped don't circumvent the barrier.

### Possible Locations

Best applied on local neighborhood streets where excessive through traffic is an issue.

Example of Roadway Closure in Stockton, CA



Source: City of Stockton

## Diagonal Diverter



Diagonally-placed barriers that block through access for vehicles across four-legged intersections, but still allow for turning movements.

### Benefits

Effective at reducing traffic volume on particular streets without impeding pedestrian movements.

### Design Considerations

Should be staggered to create circuitous routes through a street network. Impacts on local traffic such as neighborhood residents must be considered.

Barriers can be made traversable to allow unimpeded access for emergency vehicles and bicyclists.

### Possible Locations

Best applied on local neighborhood streets where excessive through traffic is an issue.

Example of Diagonal Diverter



Source: Los Angeles County Department of Public Works



## Forced Turn Barriers



Traffic islands or curb extensions design to prevent certain vehicle turning movements at intersections or that force traffic into specific patterns. Alternatively referred to as “pork chops”.

### Benefits

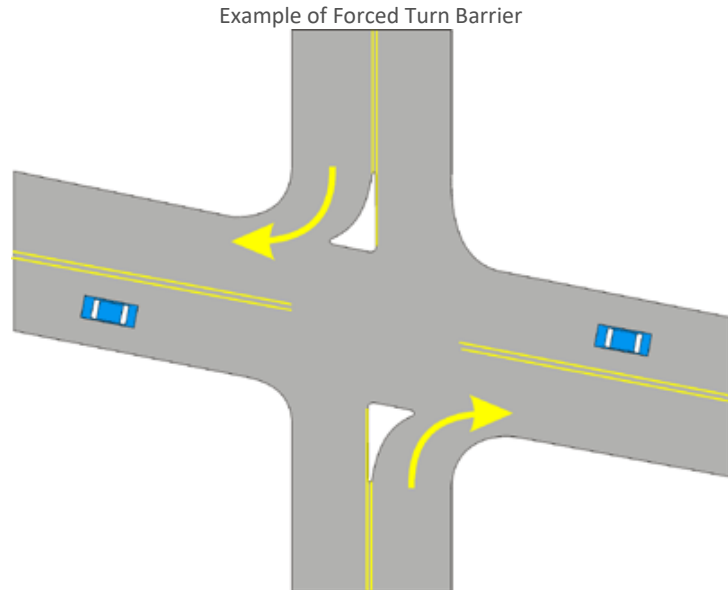
Helps reduce traffic volumes by preventing turning movements.  
Can improve safety for motorists, bicyclists, and pedestrians by reducing or eliminating conflicts associated with those turning movements.

### Design Considerations

Should be clearly visible and designed so that drivers are not maneuvering around them to make illegal maneuvers. Care should be taken that a traffic problem is not simply shifted from one street to another. Impacts on emergency vehicles should be taken into consideration.

### Possible Locations

Best applied on local neighborhood streets where excessive through traffic is an issue.



Source: Los Angeles County Department of Public Works

## Extended Median Barrier



Raised islands that follow the path of the centerline of a street through the intersection to prohibit opposing through or turning traffic at cross streets.

### Benefits

Helps reduce traffic volumes at intersecting streets and improves safety by reducing or eliminating conflicts at intersections.

### Design Considerations

Impacts on traffic on local cross streets as well as to emergency vehicles should be taken into consideration.

### Possible Locations

Best applied at intersections where local neighborhood streets intersect with higher-volume collector streets.



Source: FHWA Safety - USDOT



## Turn Restriction/Prohibition Signage



Signs that restrict or prohibit certain turning movements at designated intersections. It can be during certain times of day or always.

### Benefits

May reduced traffic volumes at intersecting streets and possibly improve safety by reducing or eliminating conflicts at intersections. Low cost infrastructure, but potential high cost enforcement.

### Design Considerations

Enforcement should be used to ensure compliance and reduce violation rates. If used to create circuitous routes, impacts on local residents should be taken into consideration.

### Possible Locations

Most effective during specific peak hours.  
Can be used to control through-traffic on a variety of street types.  
Turn restrictions may be applied during peak hours at:  
Olympic Boulevard  
Wilshire Boulevard



Source: MUTCD

## Speed Legend



Numbers painted on the roadway that display the speed limit.

### Benefits

Increase awareness among motorists of a roadway's respective speed limit.  
Inexpensive and of no deterrence to emergency vehicles.

### Design Considerations

Should follow MUTCD guidelines.

### Possible Locations

Best used in areas where speed limit sign posts may not be readily visible, on entry to local neighborhood streets, or areas where there is a reduction in speed limit.



Source: FHWA - USDOT



## Traffic Signal Coordination



Implement major arterial traffic signal coordination based on traffic demand to improve operations. Advanced traffic controllers can accommodate time of day plans and/or adaptive signal timing based on real time demands at the intersection. Vehicles, pedestrians, and bicyclists can be counted and provided optimized traffic signal green times.

### Benefits & Recommendations

The City of Beverly Hills has already initiated a Capital Improvement Project (CIP) to upgrade traffic signal control equipment that can be more traffic responsive. It is recommended to deploy additional technology for Roadside Units (RSUs) with Dedicated Short Range Communications (DSRC), and/or 5G cell sites, to enable roadway infrastructure communications with Connected (not yet Autonomous) Vehicles that are expected to have significant market penetration over the next five years. This would facilitate Vehicle-to-Infrastructure (V2I) communications for applications such as construction zone/reduced speed zone ahead warnings, pedestrian in crosswalk warnings, and many others. Although no Crash Reduction Factors (CRFs) are available for V2I deployment, due to their ongoing pilot deployment research in the cities of New York and Tampa Bay, literature suggests up to an 80 percent reduction in crashes when the entire vehicle fleet is connected. The City may consider related measures for traffic signals, such as enhancing their visibility with the addition of reflective borders. With the implementation of retroreflective signage. In addition, smart signs are compatible with traditional signage.

### Possible Locations

Citywide.

## CURBSIDE MANAGEMENT

As Mobility-as-a-Service providers evolve and autonomous vehicles become more ubiquitous, constraints on curbsides will become more acute, particularly at key transit nodes that generate demand for pick-ups/and drop-offs. The strategies below provide recommendations for enhanced future management of curbsides near transit stops.

- Prioritize transit operations with bus bulbs on Wilshire and Santa Monica Boulevards:** Passenger pick-up/drop-off activity is likely to increase along high-frequency transit corridors like Wilshire and Santa Monica Boulevards due to the continued growth of ride-hailing and the opening of the Metro Purple Line Extension. This growth in passenger loading activity will increase the frequency of conflicts at the curbside between ride-hail vehicles and buses if unaddressed, impacting bus travel times and reliability and increasing congestion. Leverage the curbside to prioritize transit operations by creating bus bulbs (where feasible), or curb extensions that displace other curbside uses at strategically located bus stops, which reduce bus travel times by allowing them to board/alight passengers without leaving the general travel lane. When placed at near side or far side bus stops, bus bulbs also offer pedestrians the benefit of safer, shorter crossing distances on these busy arterials.
- Use designated passenger loading zones to redirect pick-up/drop-offs from the most congested intersections:** Passenger pick-up/drop-off areas (drop zones) should be close to transit station entrances as possible, but within a separately designated length of curb or from where transit stops are located, in order to reduce delay for transit vehicles and minimize conflicts with boarding/alighting passengers. Drop zone locations should not require passengers to cross more than one street or be located closer than 20' to crosswalk approaches. Sidewalks adjacent to pick-up/drop-off zones should maintain a minimum width to





ensure a clear path of travel (6') plus an additional 6'. Curb regulations should not allow parking durations greater than three minutes to encourage healthy turnover of curb space.

- **Delineate Shared Use Mobility Zones:** Separate drop zone curb space should be designated for taxis, ride-hailing, and microtransit services with signage, curb paint, and geo-fencing denoting the space as a Shared Use Mobility (SUM) Zone. Through geo-fencing integration with ride-hailing applications, each time a ride is requested, both drivers and passengers would be shown the location of the nearest Shared Use Mobility (SUM) Zone in which pick-ups and drop-offs can legally occur.
- **Ideally, passenger loading zones should be located a single right-turn around the corner from the most congested intersections along Santa Monica and Wilshire Boulevards:** Turning off of the main street to stop would reduce congestion on these corridors and allow more space along the curb to be dedicated to other uses. Where bike traffic is heaviest, right turn SUM zones may not be preferable, however.
- **Prohibit ride-hailing activity on the most transit- and bike-oriented corridors, during peak times:** Many of the most popular corridors for TNCs are also cities' most important transit and bike corridors, a conflict in which cities must act to preserve the priority of the highest-occupancy modes. Cities should consider prohibiting ride-hail pick-ups/drop-offs on the most transit-and-bike-oriented corridors during peak hours to maximize transit performance and reduce conflicts with people biking. Otherwise, TNCs will send as many vehicles as possible onto the street to capture riders first, a self-defeating situation which is likely to be exacerbated by the presence of zero-occupant vehicles, when fleets ultimately become autonomous.
- **Use flexible curb zones to reduce double-parking and accommodate multiple uses at different times of day:** Cities can deter double parking by creating effective freight and delivery zones by working with adjacent businesses to address their needs. One approach is to use curbside flex zones that operate according to different regulations, and for different curb users, at different times of day. During mid-day, late-night hours, and early morning hours, the zone could be used for commercial loading, while during the AM and PM peaks the zone would be reserved for passenger pick-up/drop-off or short-term on-street parking. It is recommended that the City initiate conversations with adjacent businesses along selected street segments to understand their curb space needs by hour of day for deliveries, patron parking, and shared use mobility zones



## B.5 Wayfinding Design Guidance

### Pedestrian Wayfinding



Directs users to points of interest, enhances placemaking and acts as a conduit to transition between modes.

#### Benefits & Recommendations

Provides the opportunity to enforce holistic branding or establish placemaking for a specific area or neighborhood.  
Directs visitors to key points of interest and facilitates access to local businesses.

Directs pedestrians to and from other modes.

#### Design Considerations:

Wayfinding should indicate direction and travel times in easily understood units, such as blocks or approximate walking time.  
Signage should be placed in the street furniture/curb zone and not interfere with pedestrian paths of travel.

#### Possible Locations

Business Triangle  
Proposed Pedestrian Enhancement Streets  
Transit Priority Streets





## Bicycle Wayfinding



Gives riders information that allows them to make informed decisions about which streets to ride. By following wayfinding, the bicycle rider arrives via the most comfortable and direct routes and by using improved crossings of major roadways.

### Benefits & Recommendations

**Confirmation signs:** Lets riders know that they are continuing along the designated bikeway—their intended path of travel.

**Turn signs:** Alerts riders where to turn to continue on the designated bikeway. These signs are often paired with pavement markings to further prevent bicycle riders from missing turns.

**Decision signs:** Placed at the intersection of one or more bikeways. Decision signs include directional cues to key destinations, giving riders the information to select the best possible route to reach their intended destination.

### Design Considerations:

**Confirmation signs:** Place every  $\frac{1}{4}$  to  $\frac{1}{2}$  mile on off-street facilities and every 2 to 3 blocks along 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:** Place 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:** Place near-side of intersections in advance of a junction with another bicycle route or along a route to indicate a nearby destination. (MUTCD)

### Possible Locations

Burton Way, Santa Monica Blvd, San Vicente Blvd  
All proposed Class II corridors





## Transit Wayfinding



Gives users information to make informed decisions about transit choices and facilitates access to and from stop locations.

### Benefits & Recommendations

Guides riders to stops, connects them to transit transfers and other modes, and provides information about key destinations.

Helps riders choose travel options and update them with real-time info to better inform travel decisions.

Makes users aware of transit alternatives.

Helps to establish distinctions between types of service, such as local and rapid, and allows for distinctive branding and placemaking.

### Design Considerations:

Place at regular intervals, especially at confusing areas and at decision points, where potential riders choose a transit route and travel path to access transit.

Name of stops, stations, and destinations should reinforce brand and be recognizable. At locations with multiple lines or stops, name of a specific geographic element can be used. Place in visible and predictable locations such as eye-level or overhead.

Distinctions among frequency are more useful to passengers than distinctions among modes. On maps, provide distinct thicker lines or bolder colors for frequent services.

Include tactile or audible cues, providing directional guidance at decision points and signs confirming the route taken, especially in confusing or difficult-to-navigate areas. (NACTO Transit Street Design Guide)

### Possible Locations

Santa Monica Blvd, San Vicente Blvd, Robertson Blvd, La Cienega Blvd  
Transit Priority Streets





## Parking Wayfinding



Clear and effective parking wayfinding improves overall user experience while improving management of the parking system and reducing conflicts with other modes.

### Benefits & Recommendations

Improves user experience and reduces stress related to parking.

Reduces vehicle circulation and conflicts with other modes by reducing cruising for available parking.

Directs users to underutilized facilities and alleviates pressure on highest demand spaces.

### Design Considerations:

Real-time availability should be displayed on signage for key parking facilities and direct users to alternate facilities when constraints arise.

Consider holistic branding to emphasis parking's role in the overall transportation system and placemaking.

Create full-bleed signage to enhance visibility.

### Possible Locations

Corridors leading to all public parking facilities.





## APPENDIX C CROSSWALK POLICY

The following sections provide best practice design guidance for the City for implementation of the Complete Streets Plan.



### C.1 Introduction

The City of Beverly Hills is situated in the middle of a high density travel corridor between downtown Los Angeles and Santa Monica. This corridor has the highest density of population and employment in Los Angeles County<sup>80</sup>, and produces high volumes of vehicle, transit and pedestrian traffic along arterials and local streets traversing the City of Beverly Hills.

Pedestrian volumes are robust today and will grow with the completion of Purple Line horizon year ridership. City of Beverly Hills Purple Line stations at 1) the northeast quadrant of Wilshire and La Cienega Boulevards, and 2) the southwest quadrant of Wilshire Boulevard and Reeves Drive can be expected to serve many of the Purple Line's forecasted 36,100 daily riders. These may include trips by residents, employees and tourists. Introducing more pedestrian traffic into an area where the most common crash factors are failure to yield right-of-way, unsafe speed, and improper turning necessitates consideration of a citywide crosswalk policy.

Pedestrian safety is both an historic and an increasing concern, both locally and nationally. The Governors Highway Safety Association (GHSA) documents that pedestrian deaths in the United States have increased faster than all other types of traffic fatalities over the past decade, and now are at a 25-year high. The GHSA noted the State of California's approach to counter the increasing pedestrian crash rates includes the State Department of Transportation installation of more roundabouts, Office of Traffic Safety funding Pedestrian Assessments in cities with high collision rates, and sharing the University of San Diego-developed Senior Pedestrian curriculum on pedestrian safety.<sup>81</sup>

The GHSA compared 2016 pedestrian crash data nationwide by County, and identified Los Angeles County as having the most pedestrian fatalities (265). The City of Los Angeles, which effectively surrounds Beverly Hills and is the origin and/or destination of many trips that pass through Beverly Hills, accounted for 43 percent of these.<sup>82</sup> Beverly Hills shares the increasing trend in pedestrian crashes depicted for the City of Los Angeles in **Figure 1**. City of Beverly Hills pedestrian injury crashes experienced a 52 percent increase between 2011's 42 incidents and 2015's 64 reported pedestrian crashes.

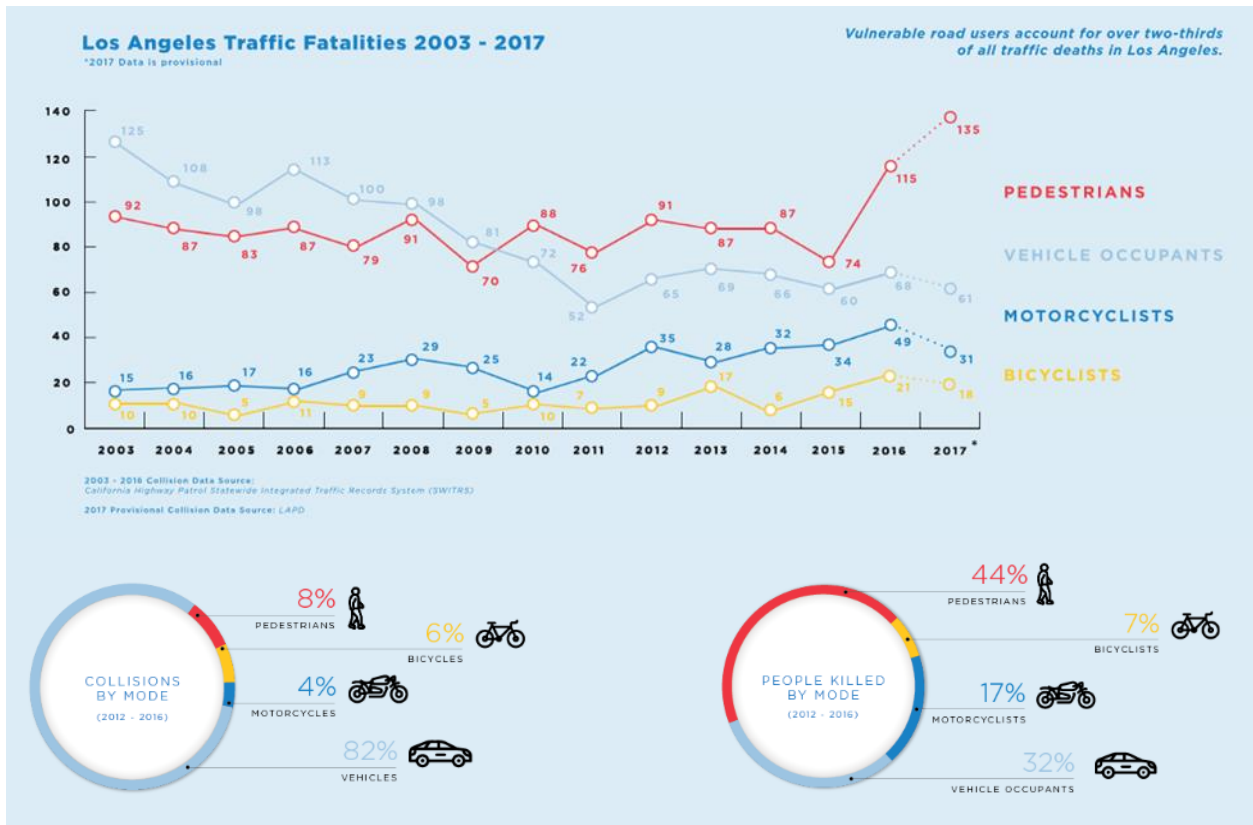
<sup>80</sup> [https://www.transit.dot.gov/sites/fta.dot.gov/files/CA\\_\\_Los\\_Angeles\\_Westside\\_Purple\\_Line\\_Extension\\_Section\\_2\\_Profile\\_FY16.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/CA__Los_Angeles_Westside_Purple_Line_Extension_Section_2_Profile_FY16.pdf), accessed June 21, 2018.

<sup>81</sup> [https://www.ghsa.org/sites/default/files/2018-03/pedestrians\\_18.pdf](https://www.ghsa.org/sites/default/files/2018-03/pedestrians_18.pdf), accessed June 21, 2018.

<sup>82</sup> <https://indd.adobe.com/view/a0e9f83f-4c36-4d55-bdfe-0c8597fa72c3>, page 12, accessed June 21, 2018.



Figure 1: Los Angeles Traffic Fatality Trends



The City of Beverly Hills Circulation Element includes a goal for “a safe and comfortable pedestrian environment that results in walking as a desirable travel choice, particularly for short trips, within the City.” This is intended to be accomplished via policies for provision of well-marked pedestrian crossings at intersections and mid-block locations, and by collaborating with community groups to identify and implement needed and desirable improvements.<sup>83</sup>

## C.2 Background on Crosswalks

The City reviewed crosswalk guidelines at the federal, state and selected local agency levels, with the intent to inform development of a City of Beverly Hills crosswalk policy.

For any installed crosswalk, the continental style crosswalk marking is recommended due to its longer detection distance by approaching drivers. Continental crosswalks feature two-foot wide white (or yellow in school zones) painted stripes paired with a limit (or stop) line setback from the crosswalk to reduce vehicular encroachment into the crosswalk. The crosswalks alert motorists that they are approaching a pedestrian zone and are more visible than pedestrian crossings marked by two thin lines connecting two corners of an intersection.

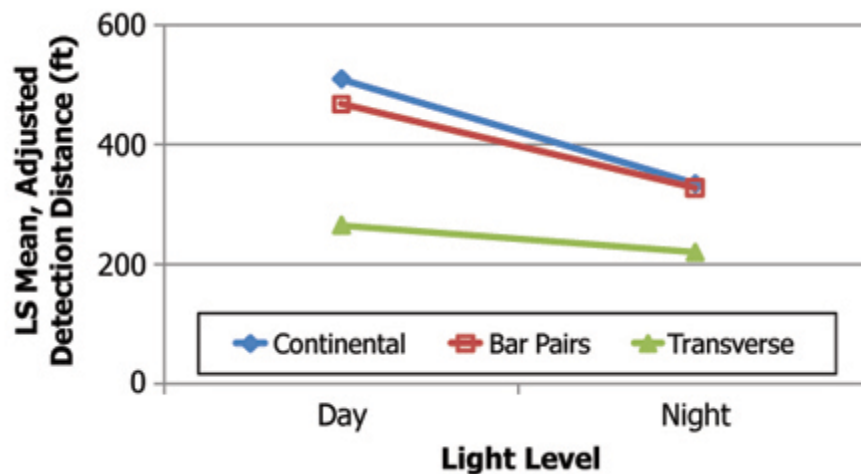


<sup>83</sup> [http://www.beverlyhills.org/cbhfiles/storage/files/filebank/10281--6\\_Circulation%2001122010.pdf](http://www.beverlyhills.org/cbhfiles/storage/files/filebank/10281--6_Circulation%2001122010.pdf), page 122-123, accessed June 21, 2018.



FHWA’s 2010 Crosswalk Marking Field Visibility Study<sup>84</sup> evaluated the daytime and nighttime visibility of three crosswalk markings: transverse, continental, bar pairs. The study concluded that continental and bar pair markings should be considered “default” for all crosswalks since their detection distance is longer compared to transverse markings. **Figure 2** shows continental and bar pair markings have statistically similar sight detection distance at around 450 feet during the day and 350 feet during the night.

**Figure 2: Least Square (LS) Mean Detection Distance by Marking Type and Light Level for Study Sites**



The City has already implemented continental crosswalks at multiple locations. As existing crosswalks are maintained, other patterns will be replaced with continental crosswalks.

There are a number of different materials used for marking crosswalks, including colored pavement, paint, thermoplastic and preformed tape. Transportation agencies weigh several factors when determining which marking material is most appropriate including costs, durability, reflectivity, and friction coefficient (avoiding slip hazards). Thermoplastic is the crosswalk marking material most favored by communities interviewed as part of the FHWA *Guide for Maintaining Pedestrian Facilities for Enhanced Safety Research Report*.<sup>85</sup> Colored pavement is durable, but is not as reflective or visible to approaching motorists as other options. It can also create aesthetic issues as various utility maintenance projects cut the pavement, and the color of replacement pavement never matches the original. Paint striping in California must be water based, which requires refreshment and associated lane closure traffic disruptions at least every three years. Preformed pavement marking tape is a newer product that can help improve safety by clearly marking stop bars, crosswalks, and channelizing lines for both day and night visibility by motorists and by onboard sensors of highly automated vehicles.

Only a few communities surveyed in the FHWA *Guide for Maintaining Pedestrian Facilities for Enhanced Safety Research Report* mentioned that they have had slip hazard issues with crosswalk markings. Several strategies were mentioned for reducing slip hazards associated with thermoplastic, including use of newer thermoplastic mixtures that contain sand or other coarse materials for reducing slip hazards. Bricks and stamped concrete were noted as creating hazards for bicyclists.

<sup>84</sup> <https://www.fhwa.dot.gov/publications/research/safety/pedbike/10067/>

<sup>85</sup> [https://safety.fhwa.dot.gov/ped\\_bike/tools\\_solve/fhwasa13037/research\\_report/chap2e.cfm](https://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa13037/research_report/chap2e.cfm), accessed June 23, 2018.



### C.3 Federal Highway Administration FHWA Guidelines

The installation of marked crosswalks requires a comprehensive evaluation of a variety of traffic elements. Collision history, average daily traffic (ADT) volumes, traffic speeds, roadway characteristics, surrounding land uses, and major points of origin/destination should be considered.

**Table 1** presents a summary of the FHWA guidance for installing marked crosswalks and other pedestrian crossing facility enhancements. The criteria for crosswalk installation includes conditions by roadway ADT, roadway type and speed limit. It should be noted that **Table 1** and the footnotes which follow the table quote the FHWA guidelines verbatim.

FHWA's Manual on Uniform Traffic Control Devices (MUTCD) documents that crosswalk lines should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign. The engineering study should consider:

- the number of lanes,
- the presence of a median,
- the distance from adjacent signalized intersections,
- the pedestrian volumes and delays,
- the average daily traffic (ADT),
- the posted or statutory speed limit or 85th-percentile speed,
- the geometry of the location,
- the possible consolidation of multiple crossing points, the availability of street lighting, and
- other appropriate factors.

As shown in **Table 1**, FHWA guidelines require that crosswalks must be enhanced with additional safety features if any of the following conditions are met:

- The speed limit exceeds 40 mph.
- ADT is greater than 12,000 on roadways with four or more lanes and without a raised median or crossing island.
- ADT is greater than 15,000 on roadways with four or more lanes and with a raised median or crossing island.

The City of Beverly Hills' new crosswalk policy, discussed in the following section, requires all new marked crosswalks installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign be accompanied by supplemental safety measure(s).



**Table 1: FHWA Recommendations for Installing Marked Crosswalks and Other Needed Pedestrian Improvements at Uncontrolled Locations<sup>86</sup>**

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT ≤ 9,000			Vehicle ADT > 9,000 to 12,000			Vehicle ADT > 12,000 to 15,000			Vehicle ADT > 15,000		
	Speed Limit**											
	≤ 30 mph	35 mph	40 mph	≤ 30 mph	35 mph	40 mph	≤ 30 mph	35 mph	40 mph	≤ 30 mph	35 mph	40 mph
2 Lanes	C	C	P	C	C	P	C	C	N	C	P	N
3 Lanes	C	C	P	C	P	P	P	P	N	P	N	N
Multilane (4 or more lanes) with raised median***	C	C	P	C	P	N	P	P	N	N	N	N
Multilane (4 or more lanes) without raised median***	C	P	N	P	P	N	N	N	N	N	N	N

**Notes:**

These guidelines include intersection and midblock locations with no traffic signals or stop signs on the approach to the crossing. They do not apply to school crossings. A two-way center turn lane is not considered a median. Crosswalks should not be installed at locations that could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices. Adding crosswalks alone **will not** make crossings safer, nor will they necessarily result in more vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed, to improve the safety of the crossing. These are general recommendations; good engineering judgment should be used in individual cases for deciding where to install crosswalks.

\*\* Where the speed limit exceeds 40 mph, marked crosswalks alone should not be used at unsignalized locations.

\*\*\* The raised median or crossing island must be at least 4 feet wide and 6 feet long to serve adequately as a refuge area for pedestrians, in accordance with MUTCD and American Association of State Highway and Transportation Officials (AASHTO) guidelines.

**C = Candidate sites for marked crosswalks.** Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for a marked crosswalk. For an engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, and other factors may be needed at other sites. It is recommended that a minimum utilization of 20 pedestrian crossings per peak hour (or 15 or more elderly and/or child pedestrians) be confirmed at a location before placing a high priority on the installation of a marked crosswalk alone.

**P = Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements.** These locations should be closely monitored and enhanced with other pedestrian crossing improvements, if necessary, before adding a marked crosswalk.

**N = Marked crosswalks alone are insufficient, since pedestrian crash risk may be increased by providing marked crosswalks alone.** Consider using other treatments, such as traffic-calming treatments, traffic signals with pedestrian signals where warranted, or other substantial crossing improvement to improve crossing safety for pedestrians.

<sup>86</sup> <https://www.fhwa.dot.gov/publications/research/safety/04100/04.cfm>



## C.4 Crosswalk Policy Recommendations

For The City of Beverly Hills it is recommended that any intersection with a traffic signal, yield, or stop sign control be provided with continental crosswalks. Crosswalks at non-controlled locations can be considered by the City Traffic Engineer based on the following criteria.

### CROSSWALK INSTALLATION

In this section, a criteria-driven process is detailed for determination of crosswalk installation. The recommended checklist for requested crosswalk consideration is presented in **Table 2** below.

**Table 2: Sample Crosswalk Criteria Consideration Checklist**

CRITERIA ITEM	CHECKLIST CONSIDERATION	YES	NO	COMMENT
<i>The following criteria must be marked “Yes” to justify crosswalk installation:</i>				
Pedestrian Volume	Does the pedestrian volume equal a minimum of 20 pedestrians crossing a location during the pedestrian peak hour(s)?	<input type="checkbox"/>	<input type="checkbox"/>	If “Yes”, consider location.
Location	Is the minimum distance between the proposed crosswalk location and the nearest controlled pedestrian crossing at least 250 feet?	<input type="checkbox"/>	<input type="checkbox"/>	If “Yes”, consider approach speed.

While high-visibility crosswalks with appropriate signage can improve the overall visibility of a crosswalk, this treatment can be most effective when combined with crosswalk enhancements. Thus, all marked crosswalks shall include supplemental safety measures or enhanced technology.

Supplemental safety measures for new crosswalks where the above considerations are met shall become more intense as number of travel lanes, vehicle ADT and speeds increase. These thresholds are shown in **Table 3**.



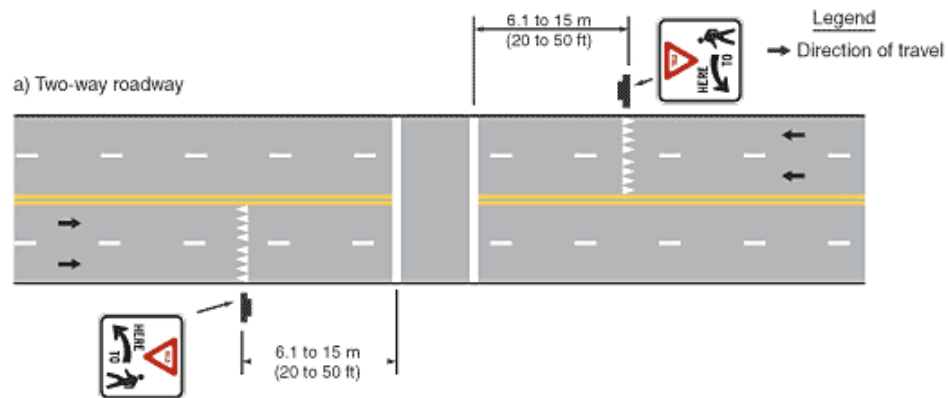
Table 3: Supplemental Safety Measures

CROSSING DISTANCE <sup>2</sup>	ROADWAY ADT (VEHICLES PER DAY)					
	< 1,500	1,501 – 5,000	5,000 – 12,000	12,001 – 15,000	> 15,000	
< 40'	A	B	B	C	C	D <sup>1</sup>
40' to 52'	A	B	C	C	D <sup>1</sup>	D
> 52'	A	B	C <sup>1</sup>	C	D <sup>1</sup>	D
1. For streets with more than one lane at an approach or posted speed limit of 30mph or greater. 2. Crossing distance can be measured to a pedestrian island if one is present						
CATEGORY	CROSSING TREATMENTS					
A	The following are required: <ul style="list-style-type: none"> <li>• (W11-2) Pedestrian Warning Signage with the corresponding (W16-7P) arrow plaque as shown in CA MUTCD Section 2C.50</li> <li>• (R1-5) Yield Here to Pedestrians signage and yield markings</li> <li>• Rectangular Rapid Flashing Beacons (RRFBs)</li> <li>• Adequate lighting</li> <li>• Acceptable grade and curvature lines of sight</li> </ul>					
B	In addition to the treatments in Category A, at least one of the following is required: <ul style="list-style-type: none"> <li>• (R1-6) State Law – Yield to Pedestrian sign if median or signal mast arm is present</li> <li>• Raised crosswalk or other traffic calming treatments</li> </ul>					
C	In addition to the treatments in Category A and B, at least two of the following are required: <ul style="list-style-type: none"> <li>• Radar speed feedback signs</li> <li>• Striping changes such as narrower lanes, painted medians, road diets, or other speed reducing treatments</li> <li>• Staggered crosswalks and pedestrian refuge island</li> <li>• Other supplemental safety measure identified by City Traffic Engineer analysis</li> </ul>					
D	A Traffic Signal is required if the CA MUTCD warrants are met and it is recommended by a traffic engineering study. Otherwise the following is required: <ul style="list-style-type: none"> <li>• Pedestrian Hybrid Beacon if the CA MUTCD warrants are met</li> </ul>					

If the proposed location meets the criteria for crosswalk installation, then an assessment of appropriate crossing treatments will follow. Crossing treatments will consist of appropriate signage per CA MUTCD guidelines. The following signage shall be included at locations where a traffic signal or pedestrian hybrid beacon is not pursued: Installation of “Yield Here to Pedestrians” signs (R1-5) and associated yield lines (“shark teeth” markings) approximately 20 feet in advance of the crosswalks, to encourage drivers to stop further in advance of the new crosswalk, as shown in **Figure 3**. There should be no parking between the yield line and crosswalk.



**Figure 3:**  
**Yield Here to Pedestrian Sign (R1-5) and Yield Line (“Shark Teeth” Markings) at Unsignalized Mid-block Crosswalks (MUTCD)**



W11-2 signage and W16-7P plaques at the crosswalk location, together with the Rectangular Rapid flashing Beacons (RRFBs) are shown in **Figure 4**. Unless a traffic signal or pedestrian hybrid beacon is pursued, these treatments are required.

**Figure 4:**  
**Example of an RRFB dark (left) and illuminated during the flash period (center and right) mounted with W11-2 sign and W16-7P plaque at an uncontrolled marked crosswalk<sup>87</sup>**



Installation of in-street pedestrian crossing signs (R1-6) which indicate “State Law Yield to Pedestrians within Crosswalk” are shown in **Figure 5**. This is one possible supplemental safety measure from Category B.

<sup>87</sup> [https://mutcd.fhwa.dot.gov/resources/interim\\_approval/ia21/index.htm](https://mutcd.fhwa.dot.gov/resources/interim_approval/ia21/index.htm), accessed July 3, 2018



Figure 5: R1-6 sign and Example of Sign Placement



R1-6



## C.5 Creative Crosswalk Installation

Creative or decorative crosswalks may be considered with the use of colors, textures, and patterns to enliven city streets as engaging places for people. They can be designed to reflect the special character of a neighborhood, mark the gateway to a district, or otherwise create local identity and pride.

- Creative Crosswalk treatments may be considered only at intersections with existing “Continental Crosswalk” markings. If the site has an existing standard crosswalk, it may be repainted as a continental crosswalk as part of the project.
- Decorative elements may be added only between the continental bar markings. The reflective white parallel bars in continental layout must always be included.
- The material used shall be a special, highly durable road-marking paint approved by the City.
- All locations and design proposals must be reviewed and approved by a City traffic engineer. While creativity and artistic innovation is encouraged, creative crosswalk treatments cannot obscure or interfere with regulatory crosswalk markings. No commercial advertising or shapes such as logos, or any text or colors that can be confused with standard traffic control devices or legends will be considered.
- Only locations where pavement is in good condition will be considered, allowing the materials to bond well.



## C.6 Crosswalk Removal

It is recommended that the City follow the California Vehicle Code (CVC) Section 21950.5 guidelines for crosswalk removal: A 30-day notice of potential removal would be provided to residents and a public hearing would be required. In addition, an evaluation of pedestrian-related collisions would be conducted. Crosswalk removal would be recommended if data shows that collisions have increased after installation of a crosswalk compared to last three years prior to installation.



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## APPENDIX D PUBLIC OUTREACH SUMMARIES

The following pages summarize the community outreach events conducted to inform the Complete Streets Plan.





## D.1 Workshop 1

### WORKSHOP HIGHLIGHTS



#### SUMMARY:

Approximately 40 community members, several Council and Commission members, and City staff from multiple departments attended the first workshop for the Beverly Hills Complete Streets Plan on Monday, March 12, 2018.

**BEVERLY HILLS PRESENT/FUTURE:** Meeting facilitators asked participants to select a word to describe Beverly Hills streets in the present and in the future. The most common words selected by participants to describe the present suggest an emphasis on cars, such as “congested,” “speeding,” and “traffic.” The most common word selected by participants to describe the future was, “safe.”

#### VALUES AND GOALS:

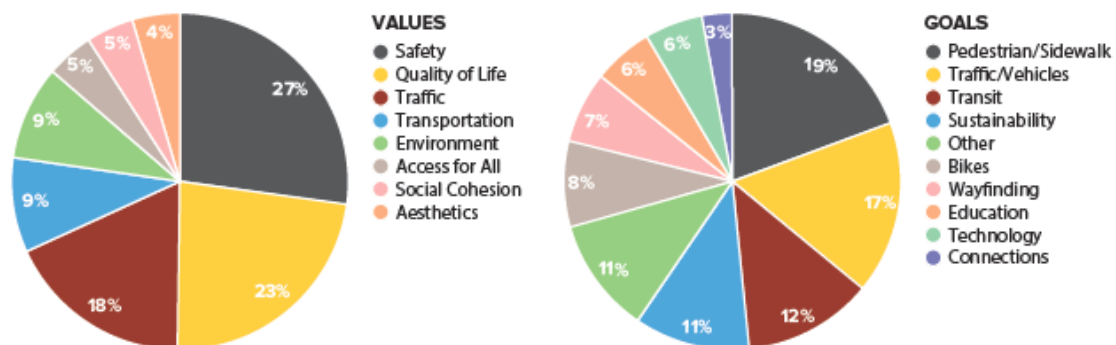
**Values**—Safety (25%), Quality of Life (22%), and Traffic (18%) rose to the top as most important for event participants.

**Goals**—Several common themes emerged when participants were asked to prioritize Plan goals:

- Expand bicycle infrastructure
- Reduce collisions and employ traffic calming measures
- Improve wayfinding / signage
- Improve and prioritize pedestrian spaces
- Expand transit routes, increase frequency / speed, connect to active transportation
- Increase street trees and plantings
- Educate all roadway users

Additionally, participants expressed a desire for design recommendations that will promote/maintain the City’s “village” atmosphere; to consider diverse users groups including tourists, visitors, and businesses; and to facilitate the need for coordination with adjacent cities during Plan implementation.

**NEXT STEPS:** The values and goals for the Plan will reflect feedback received from this event, as well as feedback received from the online survey currently being conducted ([www.beverlyhills.org/completestreetsSURVEY](http://www.beverlyhills.org/completestreetsSURVEY)). Additional events are planned to gather further public input throughout the development of the Plan, including a walk audit, pop up event at the City’s Earth Day Celebration, and two additional workshops. Visit the project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)) to stay up to date on event dates and details. Updates on this project will also be shared in monthly Traffic and Parking Commission (TPC) meetings. For the latest TPC meeting schedule, please visit: <http://www.beverlyhills.org/citygovernment/commissions/trafficandparkingcommission/>





## D.2 Earth Day Pop-up

### EARTH DAY POP-UP HIGHLIGHTS



#### EVENT SUMMARY:

Approximately 40-60 community members, stopped by the Beverly Hills Complete Streets Plan booth at the City's Earth Day event on Saturday, April 15, 2018. Participants were engaged in two main activities: 1) a sticker voting activity to identify the complete streets design strategies they most want to see in the City; and 2) a mapping exercise in which participants were asked to identify corridors, areas, and intersections in the City they would like to see this Plan improve. All participants were either Beverly Hills residents, workers, or those who visit the City regularly from adjacent neighborhoods. Consultant staff, City staff, and Health & Safety Commissioner Lisa Schwartz were on hand to answer questions and engage with participants. See response summary on page 2.

#### SURVEY UPDATE:

186 survey responses have been collected as of 4/24/2018. The survey platform (Survey Monkey), captures respondent's IP addresses to ensure each response is unique. To date, the survey has been advertised on the project's website, at all project events, and social media.

**NEXT STEPS:** The project team is preparing for three additional events to gather public input:

**1) May 30th Workshop:** This event will focus on gathering input on the draft maps identifying corridors and intersections this Plan proposes to improve. Recommended plan improvements have been informed by previous planning studies completed to date by the City, the existing conditions and best practice analysis being conducted by the Consultant team as part of this project, and feedback received from community members at the March 12th and April 15th events.

**2) June 9th Complete Streets Walk Audit:** Consultant team members and City staff are currently planning this event, which will consist of a walking tour of two half-mile corridor segments. This will be followed by group mapping exercises to document patterns of behavior observed on the walk, and to identify other areas of the City where participants have observed issues they want addressed through this Plan.

**3) August 22nd Workshop:** This workshop will summarize how community feedback has shaped plan recommendations and will present the Plan draft for a round of community input.

Visit the project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)) to stay up to date on event dates and details. Updates on this project will also be shared in monthly Traffic and Parking Commission (TPC) meetings. For the latest TPC meeting schedule, please visit: [www.beverlyhills.org/TPC](http://www.beverlyhills.org/TPC)

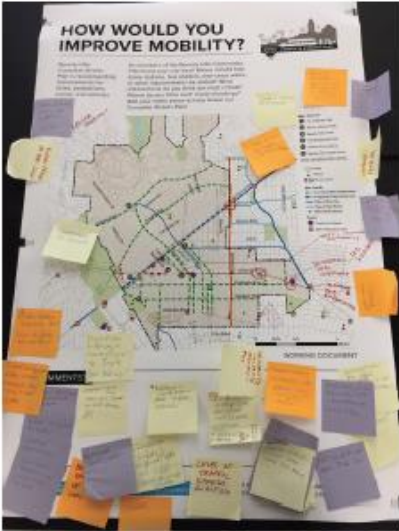
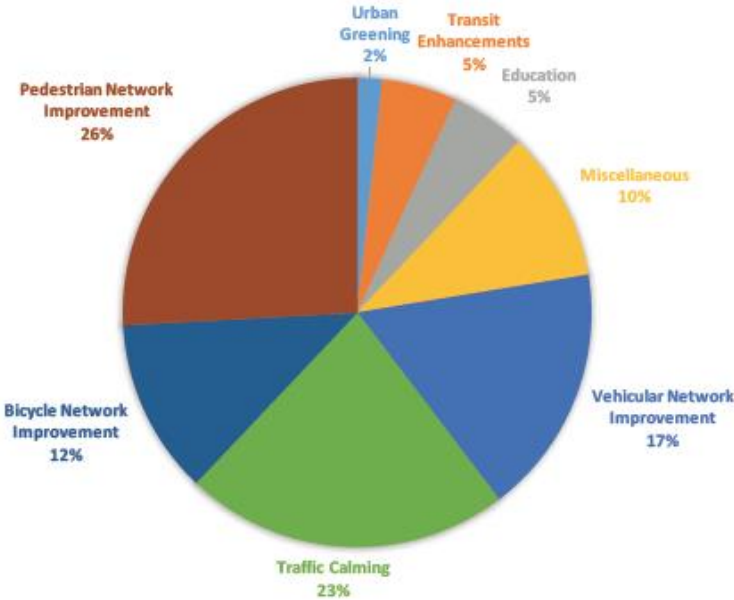




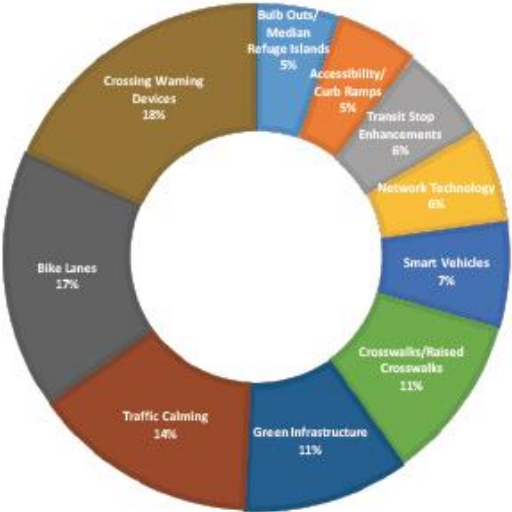
# EARTH DAY POP-UP RESPONSE SUMMARY



## “How would you improve mobility?” - 58 comments recorded



## Vote for your top 3 priority Complete Streets elements - 44 participants





## D.3 Workshop 2

### WORKSHOP HIGHLIGHTS



#### SUMMARY:

Approximately 20 community members attended the second workshop for the Beverly Hills Complete Streets Plan on Wednesday, May 30th, in addition to Council and Commission Members, and Beverly Hills staff from a cross section of departments. The focus of the workshop was to identify priority corridors and to make network recommendations that will be used to guide the Plan.

#### AREAS OF CONCERN:

Participants reviewed maps addressing modes of travel including transit, vehicular, bike, and pedestrian. There were 48 specific comments provided, with the bike and pedestrian maps comprising 71% of the total responses. In some cases, maps elicited feedback for different modes of transportation. When this happened, the comments were likely to be related to bikes or pedestrians.

#### COMMENTS AND RECOMMENDATIONS:

Participants had the most feedback on Bike (31%) and Pedestrian (29%) network maps. Vehicular (25%) and Transit (15%) maps received fewer comments. Comments were most frequently related to Bike network connectivity (15%), and Crossing Improvement, Safety Concern, and Traffic Calming each representing 10%.

Several common themes emerged throughout the workshop:

- Support of/interest in a shuttle route
- Desire for improved crosswalks
- Challenging biking conditions at Crescent and Wilshire, Sunset Blvd., and Rodeo Dr.
- Improved bike amenities including green lanes, protected lanes, and bike parking
- A need for enhanced pedestrian safety along Gregory Way, Olympic, and Beverly
- Use of traffic calming measures on Wilshire and Olympic

#### NEXT STEPS:

Community feedback will be incorporated into the network maps for each modality. Additional events are planned that will continue to solicit feedback and public input throughout the plan development, including a June 9th Walk Audit, an August 22nd Workshop, and monthly Traffic and Parking Commission meetings.





## D.4 Walk Audit

### WALK AUDIT HIGHLIGHTS



#### SUMMARY:

Approximately 25 community members attended a walk audit for the Beverly Hills Complete Streets Plan on Saturday, June 9th, in addition to Commissioners and City staff from a cross-section of departments. Participants were split into groups to conduct a 90-minute walk audit, followed by tabletop exercises focused on how to re-design each corridor. The first group walked from Crescent Drive to Wilshire Boulevard while the second group traveled along South Santa Monica Boulevard. Participants were then asked to identify safety concerns for pedestrians, bicyclists, vehicles, and transit along their route and to offer suggestions for improvement.

#### ROUTE 1: CRESCENT DRIVE TO WILSHIRE BOULEVARD

Participants were most concerned with vehicular speeding and conflicts between vehicles and cyclists/pedestrians at intersections. They also noted the introduction of the Purple Line and how that would impact pedestrian travel as well as a need for rideshare drop-off areas. Additionally, they addressed the need to enhance parking options along this route.

#### RECOMMENDATIONS:

Participants desired design solutions to slow traffic. The intersection of Crescent and South Santa Monica was the area of greatest concern. Suggestions included:

- Reducing the turn radius
- Adding a second turn lane
- Enhancing visibility of speed limit signs
- Introducing scramble crossings

Another theme was the desire to indicate shared-use zones for bikes, scooters, and pedestrians. Participants were interested in the potential for a pedestrian overpass to encourage more pedestrian traffic. Finally, along Crescent, they recommended adding digital parking occupancy signage and to remove permit parking on the east side.





**ROUTE 2: SOUTH SANTA MONICA BOULEVARD**

Participants were most concerned with vehicular speeding along South Santa Monica Boulevard. Additionally, they identified narrow sidewalks as inhibiting pedestrian activity for the restaurants and small businesses located on the North side of the street.

**RECOMMENDATIONS:**

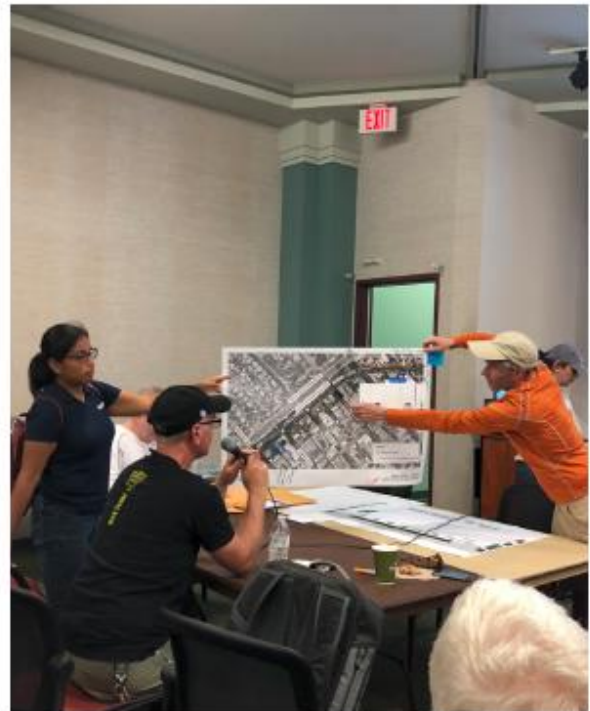
Participants were most concerned with the traffic infractions along this route among vehicles and cyclists, though they did not offer many suggestions for improvement other than enforcement of existing rules (ex. no right turn on red).

They were excited about the scramble crossings and suggested additional data be collected a few months after introduction in order to understand the impact. They were supportive of the partial road diet and eager to see it implemented on a larger stretch of the corridor.

They also noted that utility boxes make the sidewalk more narrow, inhibiting outdoor patio space for area businesses. In addition to business concerns, they noted that wheelchairs and strollers have a hard time navigating this area.

**NEXT STEPS:**

Community feedback will be incorporated into the network maps for each modality. Additional events are planned that will continue to solicit feedback and public input throughout the plan development, including an August 22nd Workshop, and monthly Traffic and Parking Commission meetings.





## D.5 Workshop 3

### WORKSHOP HIGHLIGHTS



#### SUMMARY:

Approximately 25 community members attended Workshop 3 for the Beverly Hills Complete Streets Plan on Wednesday, August 22nd, in addition to Traffic & Parking Commissioners and Beverly Hills staff from a cross-section of departments. Iteris delivered a presentation summarizing draft plan progress, which included an overview of the city-wide network maps for the 4 modalities: walking, biking, transit, and vehicles. Following a brief Q & A session, participants were invited to circulate around the room to absorb information on the boards, segmented by each modality.



A summary of comments for each is below. Overall, the materials were well-received by participants. Some minor comments were recorded and will be considered as Iteris works towards finalizing maps.

#### PEDESTRIAN:

Participants expressed an interest in intersection improvements at Rexford and Charleville, as well as a pedestrian crossover bridge at La Cienga between Olympic and Gregory. Some felt that adding trees on Olympic, Wilshire, Robertson would improve the aesthetics of the parkways. Lastly, community members were interested in future planning efforts to assess building set-backs to allow for wider sidewalks for outdoor dining.

#### BIKE:

Several community members indicated parking protected bike lanes would be preferred to reverse angle parking, expressing concerns about driver confusion. Participants expressed interest in a Class III bike lane on Gregory Way, and Class II or Class III bike lane on Doheny between Santa Monica Boulevard and Beverly. The community members also suggested reduced fare for the bikeshare program and bicycle training classes that would encourage more people to bike safely in Beverly Hills.

#### TRANSIT:

Community members are enthusiastic about improvements to transit stop amenities, including more benches, shaded areas, and trash bins. They also commented on the need for higher capacity buses, bus lanes, and north/south routes in Beverly Hills, which falls outside the scope of this project.



**VEHICLES:**

Participants were concerned that additional pedestrian lights and signage could lead to confusion among drivers and they suggested consistent interventions whenever possible. Left-turn restrictions overall were positively received. They suggested more parking structures at the light-rail station near La Cienega and Wilshire, as well as adding a “kiss and ride” drop-off area.

**NEXT STEPS:**

Community feedback will be incorporated into the network maps for each modality as Iteris moves forward to delivering a draft plan in the fall. Additional opportunities for public input will be provided by the comments features on the website, and at monthly Traffic and Parking Commission meetings where this project has a standing agenda item.





## **D.6 Traffic and Parking Commission Study Session**





CITY OF BEVERLY HILLS  
**TRAFFIC AND PARKING COMMISSION**

January 10, 2018

**TO:** Traffic and Parking Commission  
**FROM:** Jessie Holzer, Transportation Planner  
**SUBJECT:** Complete Streets Plan  
**ATTACHMENTS:** A. Community Outreach Summaries

---

### **Introduction**

This report outlines potential infrastructure, policy, and programmatic improvements for the Beverly Hills Complete Streets Plan identified by the Iteris team on staff, based on community outreach and best practices. The intent of this report and the January 10<sup>th</sup> Study Session is to present the latest work compiled by the consultant team, and hear from the Commission on:

- Is anything missing from the list of potential infrastructure, policies, and programs?
- Are the potential infrastructure, policies, and programs moving in the right direction?
- Should anything in the potential infrastructure, policies, and programs be removed?
- Which potential infrastructure, policies, and programs should be prioritized for short-term implementation (first five years after plan adoption)?

Feedback from the Commission will be incorporated into the draft plan and used to develop a five-year implementation action plan as a chapter in the draft plan.

### **Background**

As part of the fiscal year 2016/2017 City Council Priority Exercise, the City Council identified the preparation of a Bicycle Mobility Plan as the first step of developing a citywide mobility plan. On May 4, 2017, the City Council/Traffic & Parking Commission Liaison Committee supported expanding the scope of the Bicycle Mobility Plan to include a “complete streets” approach that includes a comprehensive analysis of pedestrian, bicycle, and street networks, and emerging transportation modes and technologies, such as automated vehicles.

The Beverly Hills Complete Streets Plan will provide a blueprint for implementing a transportation network that balances the needs of all road users: bicyclists, pedestrians, transit riders, and motorists. The goal of the plan is to provide more options for people to choose the mode that best works for their trip type, and a network of streets where each mode will be prioritized.

The types of improvements included in the Complete Streets Plan will (1) bring the City up to current mobility standards and best practices, such as by providing a comfortable on-street bicycling environment, and (2) prepare the City for emerging transportation trends, such as installing the necessary signal upgrades to allow for connected and autonomous vehicles in the future. Recommendations will include basic infrastructure not currently provided in Beverly Hills, infrastructure to enhance current facilities, and programs and policies to support mobility. Highlights of the types of recommendations provided in similar plans are:

- Bicycle: Appropriate locations for bikeways, bike parking, and bike share; strategies for providing space for bicyclists in constrained areas



- **Pedestrian:** Appropriate locations for new and enhanced crossings; streetscape and place-making upgrades
- **Transit:** Physical and technological bus stop enhancements to improve the transit user experience; first/last mile connections
- **Vehicle:** Curbside management; technology enhancements; neighborhood traffic calming
- **Programs and policies:** Education, encouragement, and enforcement tools

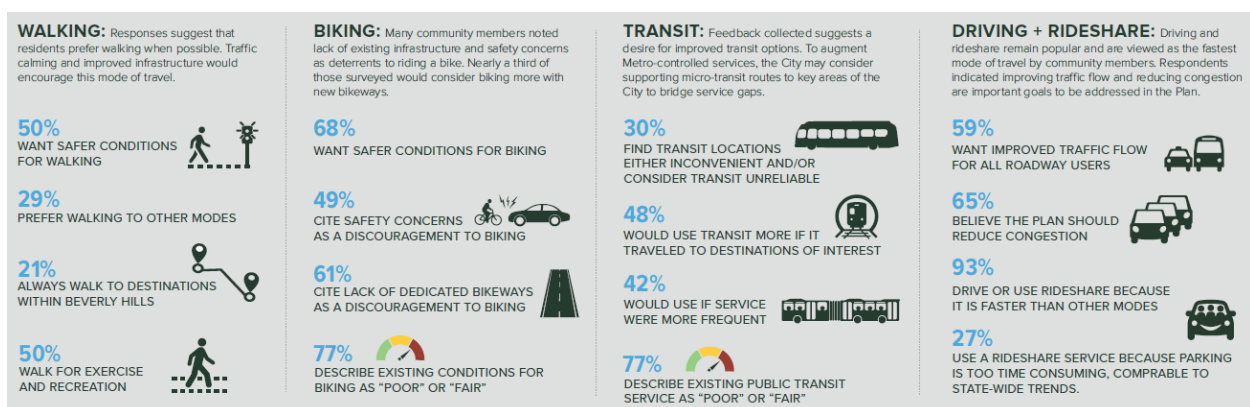
The work completed to date for the Complete Streets Plan includes identification of existing conditions, public outreach, preliminary identification of potential recommendations, and research on best practices and emerging transportation trends that will be incorporated into the plan recommendations. The plan will have a focus on preparing for the future Wilshire/La Cienega and Wilshire/Rodeo Metro Purple Line subway stations through recommendations for first/last mile connections, and will provide guidance on preparing for autonomous vehicles and other emerging mobility options through technology upgrades the City will need to make. When the Complete Streets Plan is finalized, the City will be eligible for grant opportunities that provide funding for projects included in a transportation or mobility plan.

## Community Outreach

The Complete Streets process included a community outreach and engagement program to integrate community input into the Complete Streets Plan. Input and feedback was gathered in a variety of formats, including:

- Via the comments feature of the project website ([www.beverlyhills.org/CompleteStreets](http://www.beverlyhills.org/CompleteStreets))
- By developing a video that explains the concept of a “complete street,” available on the project website and broadcast on local TV
- Via an online survey, which received 250 unique responses
- Through five different events: two workshops, a pop-up event, and a walk audit (attendance from all events totaled approximately 170 people)

The image below shows a summary of feedback received from the online survey for all modes of travel. Overall, this information suggests the community wants safer, more convenient infrastructure, and more reliable travel options.



The first community workshop, held on March 12, 2018 and attended by approximately 40 people, centered on establishing guiding values and goals for the Complete Streets Plan. Meeting facilitators asked participants to select a word to describe Beverly Hills streets in the present and



in the future. The most common words selected by participants to describe the present suggested an emphasis on cars, such as “congested,” “speeding,” and “traffic.” The most common word selected by participants to describe the future was “safe.”

Meeting participants were also asked to help refine and prioritize project goals and values. The same was asked of online survey respondents. The most common responses were:

- Values: Enhance safety, improve traffic flow, improve the quality of life, increase and diversify transportation choices, and improve the environmental health and sustainability of Beverly Hills
- Goals: Improve and prioritize pedestrian spaces, expand bike routes and lanes, improve first/last mile connections with transit stops, reduce traffic congestion, provide flexible curb space, reduce greenhouse gas emissions, and incorporate green infrastructure.

Additionally, participants expressed a desire for design recommendations that will promote/maintain the City’s “village” atmosphere; to consider diverse user groups including tourists, visitors, and businesses; and to facilitate the need for coordination with adjacent cities during plan implementation.

On Saturday, April 15, 2018, approximately 40-60 community members stopped by the Beverly Hills Complete Streets Plan booth at the City’s Earth Day event. Participants were engaged in two main activities:

- A sticker voting activity to identify the complete streets design strategies they most want to see in the city
- A mapping exercise in which participants were asked to identify corridors, areas, and intersections in the city they would like to see the plan improve

All participants were either Beverly Hills residents, workers, or those who visit the City regularly from adjacent neighborhoods.

Booth participants said the top ways they would improve mobility in Beverly Hills were through improved pedestrian, vehicular, and bicycle networks, and traffic calming. Their top priorities for complete streets elements were crossing warning devices, bike lanes, and traffic calming, followed by crosswalks/raised crosswalks and green infrastructure.

Approximately 20 community members attended the second workshop for the Beverly Hills Complete Streets Plan on Wednesday, May 30, 2018. The focus of the workshop was to identify priority corridors and to make network recommendations that would be used to guide the plan. Participants reviewed maps addressing modes of travel including transit, vehicular, bicycle, and pedestrian. There were 48 specific comments provided, with the bicycle and pedestrian maps comprising 71% of the total responses.

Several common themes emerged throughout the workshop:

- Support of/interest in a shuttle route
- Desire for improved crosswalks
- Challenging biking conditions at Crescent Drive and Wilshire Boulevard, on Sunset Boulevard, and on Rodeo Drive



- Improved bicycle amenities including green bike lanes, protected bike lanes, and bike parking
- A need for enhanced pedestrian safety along Gregory Way, Olympic Boulevard, and Beverly Drive
- Use of traffic calming measures on Wilshire Boulevard and Olympic Boulevard

On Saturday June 9, 2018, approximately 25 community members attended a walk audit to study firsthand how streets in Beverly Hills could be improved. Participants were split into groups to conduct a 90-minute walk audit on one of two street segments, followed by tabletop exercises focused on how to re-design each corridor. The first group walked along Crescent Drive between South Santa Monica and Wilshire Boulevards, and the second group traveled along South Santa Monica Boulevard between Crescent Drive and Roxbury Drive. Participants were then asked to identify issues for pedestrians, bicyclists, drivers, and transit users along their respective routes and to offer suggestions for improvement.

On Crescent Drive, participants were most concerned with vehicular speeding and conflicts between vehicles and bicyclists/pedestrians at intersections. They also noted that the introduction of the Metro Purple Line would change pedestrian travel on this corridor, and there are needs for rideshare drop-off areas at the future station and enhanced parking options on Crescent Drive. Participants identified potential infrastructure for Crescent Drive, including reduced turning radii and additional turn lanes at South Santa Monica Boulevard, scramble crossings, enhanced visibility of speed limit signs, shared-use mobility zones, a pedestrian bridge at the future Metro Purple Line station, and digital parking occupancy signage on garages to reduce demand for on-street parking.

On South Santa Monica Boulevard, participants were most concerned with vehicular speeding. They identified narrow sidewalks as inhibiting pedestrian activity for restaurants and small businesses located on the north side of the street. Participants indicated support for future pedestrian scrambles and an extension of the street reconfiguration pilot that was installed at the time of the audit (which has since been reversed).

Approximately 25 community members attended the third workshop for the Complete Streets Plan on Wednesday, August 22, 2018. The consultant team delivered a presentation summarizing draft plan progress, which included potential network maps for walking, biking, transit, and vehicles. Following a brief Q & A session, participants were invited to circulate around the room to review the potential network maps up close and provide suggestions, summarized below:

- Intersection improvements at Rexford Drive/Charleville Boulevard
- Pedestrian bridge on La Cienega Boulevard between Olympic Boulevard and Gregory Way
- Street trees on Olympic, Wilshire, and Robertson Boulevards to improve aesthetics
- Wider sidewalks for outdoor dining, such as through revised building set-backs
- Parking protected bike lanes
- Bikeways on Gregory Way and Doheny Drive
- Reduced fare for the bike share program
- Bicycle training classes
- Transit stop amenities, including benches, shaded areas, and trash bins
- Bus lanes
- Higher capacity buses and north/south bus routes (not within City jurisdiction)
- Parking structures and kiss-and-ride facilities at the future Metro Purple Line stations



- Left turn restrictions

Community feedback received has been used to shape the potential improvements included in this report, which reflect the community values and goals outlined at the start of this planning process, and addresses key concerns brought up by community members through the online survey and the five in-person events and workshops.

### **Potential Infrastructure Improvements**

Figures 1 through 3 show the locations for potential infrastructure improvements in Beverly Hills. These maps are intended to identify conceptually where the City could focus its efforts in enhancing bicycle, pedestrian, and transit corridors. After plan adoption, each project would go through its own community outreach process and specific details about design would be determined with public feedback during implementation.



Figure 1: Potential Bikeway Corridors

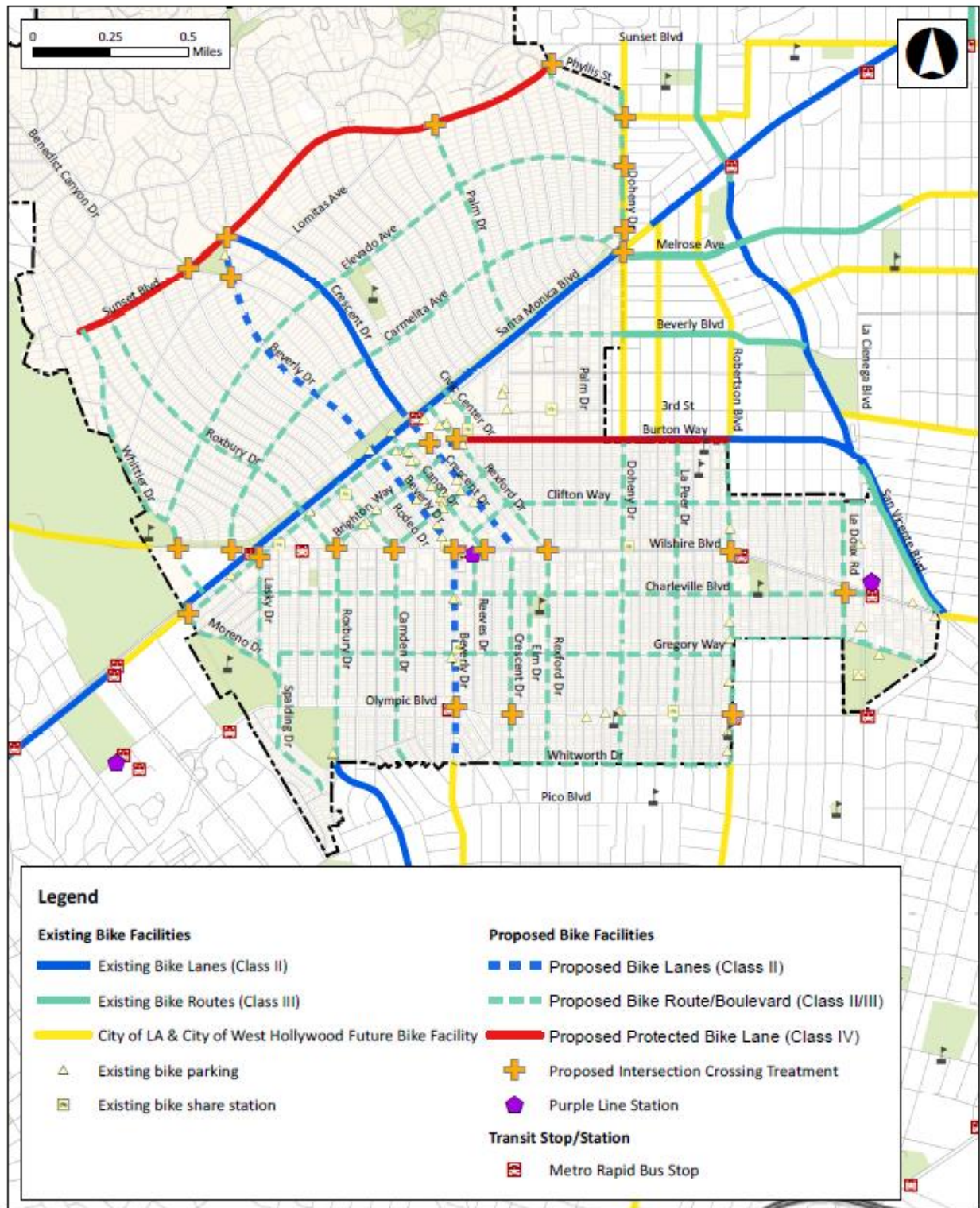


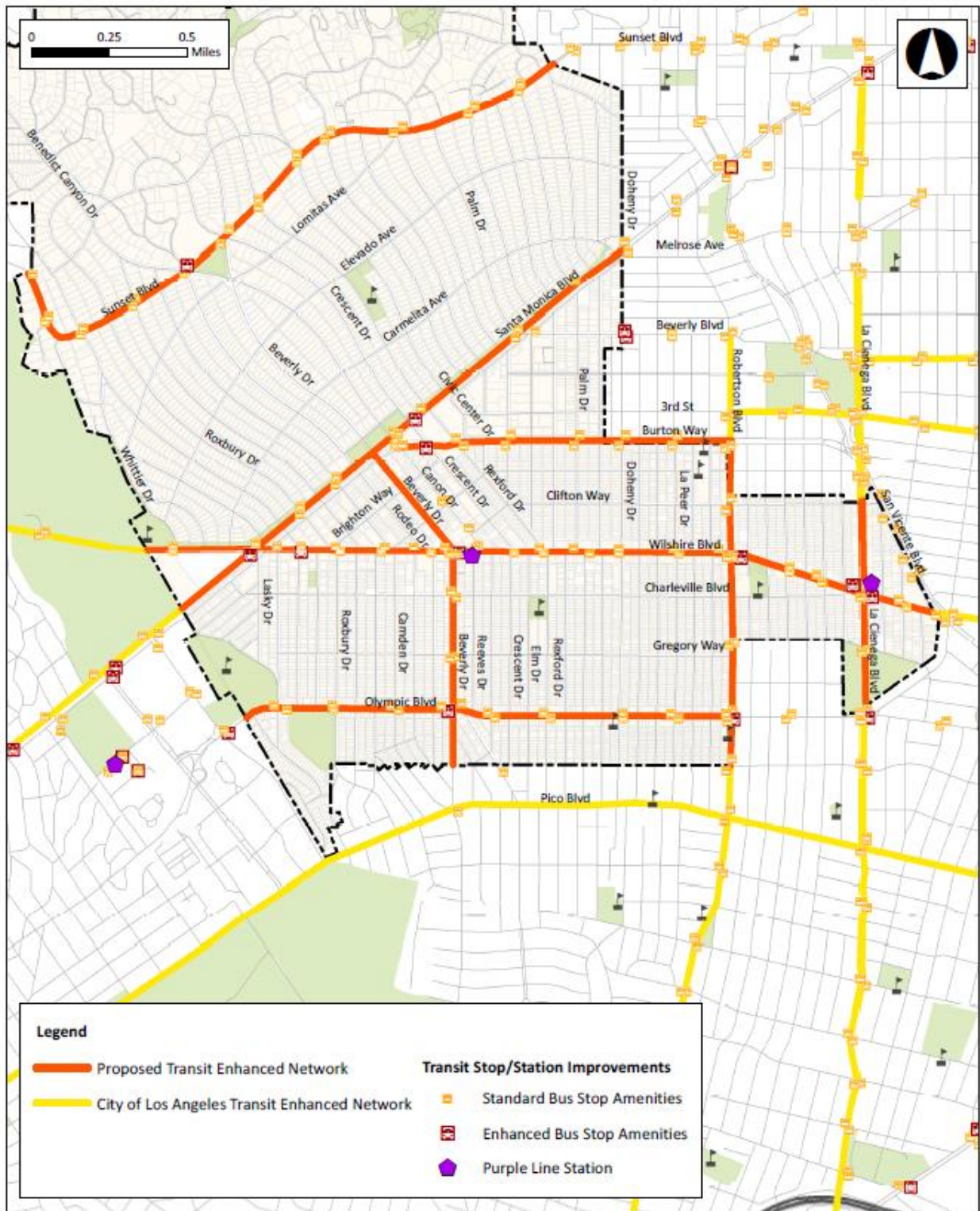


Figure 2: Potential Pedestrian Enhanced Corridors





Figure 3: Potential Transit Enhanced Corridors







## Bicycle Infrastructure

In 2012, the City completed a Bikeway Feasibility Study to evaluate the potential implementation of bikeways on Beverly Drive, Crescent Drive, Carmelita Avenue, Burton Way, Charleville Boulevard, and Reeves Drive. That effort led to the installation of bike lanes on Crescent Drive between Sunset Boulevard and North Santa Monica Boulevard, shared lane markings (shared travel lane between bicyclists and drivers) on Crescent Drive between North Santa Monica Boulevard and Wilshire Boulevard, and bike lanes on Burton Way between Crescent Drive and eastern City limits. Additionally, the City installed high visibility green bike lanes on North Santa Monica Boulevard between western City limits and Doheny Drive as part of the North Santa Monica Boulevard Reconstruction Project.



During the public outreach process, 68 percent of survey respondents said they want safer conditions for biking. 49 percent cited safety concerns as a discouragement from biking and 61 percent cited lack of dedicated bikeways as a discouragement from biking. Overall, 77 percent of respondents described the existing conditions for biking as poor or fair. Because the City's streets are built out, providing dedicated space for bicyclists is challenging as it means reallocating space from parking or travel lanes. In addition, the majority of the City's streets are two-lane, residential streets where options for reallocating space are substantially more limited.

As such, potential bikeways are focused mostly on residential streets with enhancements to calm traffic, ease crossings at intersections, and guide bicyclists along designated bikeways and to key destinations. In the short-term, these bikeways (bike routes/boulevards) may be shared travel lanes with vehicles or have bike lanes only in one direction due to constraints. However, it is predicted that in the future autonomous vehicles will reduce the need for privately owned vehicles and in turn the need for parking; if that proves true, reduced on-street parking demand will provide more opportunities to install bike lanes in the long-term, especially on neighborhood streets.

**Figure 1** shows the locations for potential bikeways in Beverly Hills, including bike lanes, protected bike lanes, and bike routes/bike boulevards, which are described in detail in the table below. These locations address public feedback by providing more separation from motor vehicle traffic and prioritizing low-stress facilities. Upon implementation of the complete bicycle network, people of all ages and abilities would be able to comfortably ride bicycles through the city to key destinations, including commercial areas, schools, parks, and transit stops and stations.

Classification	Description	Photo
Class I Bike Paths	<ul style="list-style-type: none"><li>• Off-street, completely separate from the roadway</li><li>• Provide exclusive right-of-way for bicyclists (and pedestrians)</li><li>• Cross flow by motor traffic is minimized</li><li>• May provide separate pedestrian lanes</li></ul>	
Class II Bike Lanes	<ul style="list-style-type: none"><li>• On-street, striped lane for one-way bicycle travel</li><li>• Typically adjacent to vehicle traffic traveling in the same direction</li><li>• Can include buffers for separation from moving traffic and parked vehicles</li><li>• Can be placed in one direction in constricted rights-of-way</li></ul>	



Classification	Description	Photo
Class III Bike Routes	<ul style="list-style-type: none"> <li>• Designated preferred route for bicyclists on streets shared with motor vehicles</li> <li>• Established by signage and optional pavement markings</li> <li>• Can include traffic calming and varying levels of separation from motor vehicle traffic to create a bike boulevard</li> </ul>	
Class IV Separated Bikeways	<ul style="list-style-type: none"> <li>• On-street bike lane physically separated from motor vehicle traffic through bollards, planters, or other vertical delineation</li> <li>• Often accompanied by bicycle signals through intersections</li> </ul>	

Potential bike route/boulevards in Beverly Hills include:

- North of Santa Monica Boulevard: Carmelita Avenue, Elevado Avenue, Palm Drive, Beverly Boulevard, Roxbury Drive, Whittier Drive, Cinthia Street, and Doheny Drive
- Subway Connections: Clifton Way, Le Doux Road, Reeves Drive, Charleville Boulevard, Gregory Way, and Canon Drive
- Neighborhood Connections: Camden Drive, Crescent Drive, Doheny Drive, Elm Drive, La Peer Drive, Lasky Drive, Robertson Boulevard, Spalding Drive, and Whitworth Drive
- Downtown: Brighton Way, Camden Drive, Civic Center, Dayton Way, Moreno Drive, Rexford Drive, and South Santa Monica Boulevard

Enhancements for bike routes/boulevards to make them more comfortable to people on bikes would be evaluated during the design phase and are listed below. Through a combination of these treatments, the City could provide a high quality, low-stress network of bikeways without initially providing dedicated space for bicyclists (bike lanes) on each street and in each direction. However, dedicated space would substantially enhance the level of comfort for bicyclists and should absolutely be explored wherever possible.

- High visibility, green-backed shared lane markings
- High visibility intersection treatments, like green-backed intersection crossing markings to highlight the path of travel through intersections
- Bike detection/indicators at signalized intersections
- Traffic calming treatments, such as traffic circles, diverters, or speed feedback signs
- Bicyclist-activated flashing beacons at unsignalized intersections of residential streets with major streets
- Wayfinding signage and pavement markings to guide bicyclists, such as along bikeways that zig zag

Streets for potential Class II bike lanes in Beverly Hills include:

- Beverly Drive from Sunset Boulevard to Whitworth Drive
- Crescent Drive from Santa Monica Boulevard to Wilshire Boulevard



Beverly Drive and Crescent Drive are identified as potential bike lanes because they are commercial corridors with higher traffic volumes and parking turnover, which leads to more potential conflicts between bicyclists and motorists. Providing a space for bicyclists separate from motor vehicles would reduce conflicts that could lead to collisions and would help organize the street by moving bicyclists out of the travel lanes.

While Beverly Drive north of North Santa Monica Boulevard is wide enough to stripe bike lanes without reconfiguring the street, the remaining segment of Beverly Boulevard and the entire segment of Crescent Drive would require a roadway reconfiguration to allocate space to bicyclists. Bike lanes on this segment of Crescent Drive would connect with the existing bike lanes north of North Santa Monica Boulevard and create a critical north-south connection to the future Metro Purple Line Rodeo Station. During the walk audit completed for the Complete Streets Plan, participants identified the need for a better bikeway on this section of Crescent Drive.

As a mitigation to construction for the Wilshire/Rodeo Metro Purple Line station, North Canon Drive will be closed at Wilshire Boulevard for at least two years. During that time, the City will work with the adjacent properties to monitor the closure. If it is determined that the closure is favorable, it is possible that it would be made permanent. In that case, the City would evaluate the change in travel patterns to determine if Canon Drive would be a more appropriate street for bike lanes than Crescent Drive.

Streets for potential Class IV protected bike lanes in Beverly Hills include:

- Burton Way from Rexford Drive to Robertson Boulevard
- Sunset Boulevard from Whittier Drive to Cinthia Street

Protected bike lanes are completely separated from traffic by vertical delineation, such as bollards, curbs, or parked cars. Burton Way is a potential protected bike lane because the existing bike lanes are located between the parking lane and the travel lane, in the “door zone.” Locating the bike lane between the curb and the parking lane and adding a small buffer would create a more comfortable biking environment because of reduced conflicts with vehicles driving, accessing parking, and opening car doors once parked. To stripe protected bike lanes on Burton Way, the street would need to be reconfigured, such as through removal of parking if there is less demand in the future. At the community workshops, participants indicated a desire for more parking protected bike lanes in Beverly Hills.

The City received a Metro Call for Projects grant in 2015 (funds have not yet been received) to fund narrowing the median and adding bike lanes on a 0.5-mile segment of Sunset Boulevard. Because of the high vehicle speeds and volumes on Sunset Boulevard, it would be more appropriate to further narrow the median to provide protected bike lanes and extend the bike lanes throughout the length of the street (approximately two miles) in Beverly Hills to create a safer and more useful bike facility with minimal (if any) impacts to vehicle traffic. Because of the speed differential between motorists and bicyclists on Sunset Boulevard, additional separation between the two modes is essential for bikeway installation.

Additional enhancements that can be installed on streets with bike lanes and protected bike lanes include:

- High visibility, green bike lanes
- Buffered bike lanes (bike lanes with an extra painted buffer)



- High visibility intersection treatments (bike boxes, intersection crossing markings, etc.)
- Protected intersections (all bike movements are protected from vehicles)
- Bicycle signals at intersections along protected bike lanes
- Bike detection/indicators at signalized intersections
- Wayfinding signage and pavement markings to guide bicyclists, such as along bikeways that zig zag

No locations for potential bike paths are identified as there is not currently sufficient right-of-way off-street for a contiguous path. This would not preclude the City from installing bike paths in the future should opportunities arise.

### Pedestrian Infrastructure

The Business Triangle in Beverly Hills is one of the most walkable neighborhoods in the Los Angeles region. The City was one of the first communities in the United States to implement pedestrian scrambles, and has since enhanced many downtown streets with wider sidewalks, midblock crossings, wayfinding signage, decorative lighting, and curb extensions to improve the pedestrian experience.

In 2015, the City received a Metro Call for Projects grant to improve pedestrian crossings at intersections throughout Beverly Hills (funding anticipated to be available in 2019/2020). The grant will fund new midblock crossings on the 400 blocks of Bedford and Camden Drives; curb extensions at the existing midblock crossing on the 200 block of South Beverly Drive; pedestrian refuge islands at the existing crosswalks at Wilshire Boulevard/Palm Drive and Robertson Boulevard/Chalmers Drive; enhanced crosswalks at Wilshire Boulevard and Beverly, Roxbury, Camden, and Bedford Drives; and upgrades to continental crosswalks at 20 additional intersections.

Recently, the City identified the standard crosswalk style in Beverly Hills as continental in an effort to make pedestrians in intersections more visible and is currently working to upgrade existing crosswalks citywide through maintenance. Through the Complete Streets Plan process, staff developed a draft crosswalk policy that identifies appropriate locations for marked crosswalks and supporting infrastructure enhancements (recommended for approval by the Traffic and Parking Commission at a previous meeting) that will be applied to all future crosswalk installations.

While these efforts will continue to improve the pedestrian experience throughout Beverly Hills, there is room for improvement on commercial corridors outside the heart of the Business Triangle. During the public outreach process, 50 percent of survey respondents said they wanted safer conditions for walking. Meeting participants noted that they want safer crosswalks, and improved safety on key corridors like Olympic Boulevard and Wilshire Boulevard. Community members also identified during workshops that improvements like street trees and wider sidewalks would enhance walkability on corridors like Wilshire Boulevard and Robertson Boulevard.

Best practices for improving walkability that the City could implement include:

- New and upgraded sidewalks and curb ramps (as part of maintenance)
- Tightened curb radii to slow speeds (as part of maintenance)
- Median and pedestrian refuge islands to shorten crossing distances
- Curb extensions (including chokers and chicanes)
- Leading pedestrian intervals, also known as pedestrian head starts
- Streetscape improvements (pedestrian-scale lighting, landscaping, etc.)



- Advanced limit lines to stop vehicles before the crosswalk (as part of maintenance)
- Pedestrian-activated flashing beacons or in-roadway flashing lights (new crosswalks)
- Head-in or reverse angled parking for an additional sidewalk buffer
- Parklets and public plazas
- Pedestrian scrambles
- Decorative/creative crosswalks

**Figure 2** shows potential priority corridors for pedestrian improvements in Beverly Hills. These include streets with destinations that attract pedestrian activity, like retail and office space, but are in need of upgrades to make them more walkable since they have not been through recent urban design enhancement processes like many of the streets in the Business Triangle, and streets where the City has received grants for new crossings. Conceptual corridor-wide pedestrian improvement plans would be developed during implementation for each priority pedestrian corridor included in the draft plan to determine where specific improvements should be located. This would include a targeted, neighborhood-level community outreach process for each street. Potential streets include:

- Bedford Drive from North Santa Monica Boulevard to Wilshire Boulevard (grant received)
- Beverly Drive from Wilshire Boulevard to Olympic Boulevard (grant received)
- Camden Drive from North Santa Monica Boulevard to Wilshire Boulevard (grant received)
- Crescent Drive from North Santa Monica Boulevard to Wilshire Boulevard
- Doheny Drive from Phyllis Street to south of Beverly Boulevard (City limits)
- Doheny Drive from Burton Way to Whitworth Drive
- Linden Drive from South Santa Monica Boulevard to Wilshire Boulevard
- Moreno Drive-Spalding Drive from South Santa Monica Boulevard to Olympic Boulevard
- Olympic Boulevard from western City limits to eastern City limits
- Robertson Boulevard from Burton Way to Whitworth Drive
- Roxbury Drive from North Santa Monica Boulevard to Wilshire Boulevard
- South Santa Monica Boulevard-Burton Way from western City limits to eastern City limits
- Wilshire Boulevard from western City limits to eastern City limits
- Wilshire Boulevard adjacent to the subway stations

### Transit Infrastructure

Existing bus service in Beverly Hills is predominantly offered by LA Metro, including both local and rapid lines. Additionally, Santa Monica Big Blue Bus, LADOT, and the Antelope Valley Transit Authority operate buses that travel through Beverly Hills. The City does not operate a fixed route transit service, however manages bus stops on City property, including the provision of street furniture.

In 2023, the Wilshire/La Cienega station of the Metro Purple Line extension will open, followed by the Wilshire/Rodeo station at Wilshire Boulevard and Reeves Drive. While it will fall under Metro's jurisdiction to operate the subway line and manage the station plazas at street level, it will fall under the City's jurisdiction to improve the routes leading to and from the future stations, providing quality first/last mile connections.

During the public outreach process, 77 percent of survey respondents describe the existing transit service in Beverly Hills as poor or fair. 30 percent of respondents said they find transit service



inconvenient and/or unreliable and 42 percent say they would use transit more if service was more frequent. Community workshop participants were enthusiastic about improvements to transit stop amenities, including more benches, shaded areas, and trash bins. They also commented on the need for higher capacity buses, bus lanes, and additional north-south routes.

While the draft Complete Streets Plan will not recommend service changes because the City does not operate the existing transit services, it will make recommendations to the public right-of-way that could improve transit reliability and enhance the user experience. Potential bus stop improvements include minimum standard infrastructure for low ridership bus stops and enhanced amenities at high ridership bus stops, available public right-of-way permitting. At minimum, all bus stops within Beverly Hills would have substantial upgrades to street furniture, including shelter, seating, lighting, trash/recycling bins, poles/signs with route information and schedules, a system map (or link to one), a paved boarding area, and ADA-compliant pedestrian connections. High ridership stops, most of which are Metro Rapid bus stops, would also have street furniture, as well as real-time travel information to display to passengers when the next bus is coming, bicycle parking, and potentially bike share/micromobility connections, bus bulbs (curb extensions for bus loading), and raised platforms for level boarding. Providing this infrastructure should make the user experience dramatically more comfortable and make transit more attractive to potential users.

The City could also improve transit along the corridor through the use of infrastructure and policies to improve reliability and efficiency on city streets, including:

- Bus bulbs on major transit corridors so buses do not have to pull in and out of traffic (increasing trip times), and so passengers have a place to wait that does not interfere with the flow of people walking on the sidewalk
- Prohibiting ride hailing activity on major transit corridors during peak times to improve traffic flow and reduce trip times
- Implementing flexible curb zones to accommodate different uses at different times of day, such as peak hour bus lanes

**Figure 3** shows potential locations to enhance low (standard) and high (enhanced) ridership bus stops in Beverly Hills along the potential transit enhanced network, which are streets with existing transit routes; however, those routes may change with the opening of the Metro Purple Line extension or as a result of Metro's in-progress Next Gen Bus Study.

The draft plan will also include recommendations and design guidance on first/last mile connections. Potential guidance could include:

- Improve travel time competitiveness of active transportation users
- Provide a clear path of travel
- Enhance pathway safety
- Enhance pathway quality
- Provide clear and intuitive navigation
- Provide cut-throughs and short-cuts for active transportation users
- Provide pedestrian scrambles at Metro Purple Line stations
- Support multi-modal transfer activity
- Encourage appropriate parking behavior of dockless bikes and scooters
- Provide covered and secure bicycle parking



- Locate passenger loading zones off of congested corridors and major transit corridors to improve traffic flow
- Delineate shared use mobility zones

### Vehicle Infrastructure

In conjunction with the Complete Streets Plan, the City is in the process of updating its signal system to prepare for advancements in vehicle /signal technology. Through Metro Call for Projects grants, the City has synchronized signals on all major corridors starting in the 1990s. Much of the equipment is approaching the life cycle for replacement. A new software system will allow the City to store signal timing data in a robust database, which would provide greater capabilities for the City to optimize signal operations; reduce the likelihood of system crashes; and allow for implementation of future technology, such as connected and autonomous vehicles, that cannot operate on the City's current system.

The City developed a planning document which includes city staff/consultant roles, planning, implementation, and operations for the upgraded traffic signal system. The project is currently in the planning phase. The City retained KOA Corporation to conduct inventories at each signalized intersection, which includes the hardware/software in the cabinet, signals poles, and signal infrastructure on the poles. The Traffic Management Center located in the Public Works Department is also included as part of the inventory for upgrade. Following the inventory, KOA Corporation will provide the City a narrative on their findings, make recommendations, and provide bidding documents for implementing a new traffic management system and layout of a new Traffic Management Center.

During the public outreach process, 59 percent of survey respondents stated that they wanted to see improved traffic flow in Beverly Hills and 65 percent believe the plan should reduce congestion. Meeting participants identified support for left-turn restrictions to improve traffic flow and suggested better vehicle access to the Metro Purple Line stations, both in terms of parking and drop-off/pick-up.

The recommendations in the draft plan to enhance vehicle infrastructure will be aimed at making the roadways more efficient for drivers; potential improvements for vehicles are not currently mapped as they are not concentrated onto specific corridors, can be applied citywide, and/or require neighborhood-level targeted community outreach. For example, potential vehicle infrastructure for major corridors includes turn restrictions and citywide signal upgrades, as well as treatments for traffic calming on neighborhood streets, using the Southwest Traffic Calming pilot program to inform future traffic calming projects citywide.

In addition, the plan will include recommendations for curbside management for major retail corridors and at the future Metro Purple Line stations. In the short-term, this could include a pilot program with shared use mobility zones for taxis/shuttles, TNCs, bike share, and dockless mobility options, and in the long-term this could mean digitizing the curb so that the curb use changes based on demand. City staff are currently participating in an inter-jurisdictional curbside management forum hosted by Metro to discuss best practices and learn from other cities in order to apply successful techniques to Beverly Hills.

Best practices on implementation of treatments to enhance driving or improve traffic and neighborhoods are listed below. After the City has purchased software to analyze collisions (in progress) and has results from the Southwest Traffic Calming pilot program, staff should better be able to map where specific measures would be most appropriate.



- Speed humps
- Speed tables (raised crosswalks)
- Raised intersections
- Traffic circles
- Travel lane narrowing
- Roadway reconfiguration
- Roadway closures (full or partial)
- Diagonal diverters
- Forced turn barrier (triangular islands that force right turns)
- Extended median barrier (intersection medians)
- Turn restrictions
- Speed legends (MPH pavement markings)
- Improved striping and signage visibility
- Traffic signal coordination

### **Potential Policies**

Potential new or amended policies to expand safe, convenient, and environmentally-friendly transit options in Beverly Hills are listed below. If included in the plan, these would be explored after adoption of the Complete Streets Plan and would be approved during a separate process as needed. The potential policies listed below are directly related to input received from the community during the public feedback process, which informed the goals and values of the draft Complete Streets Plan.

- Implement a series of policies to support first/last mile, like developing streetscape guidelines and standards, integrating TAP with bike share, developing bus stop guidelines and standards, providing secure bike parking areas, and implementing an electric car share program
- Implement a series of policies to expand electric vehicle infrastructure and accelerate adoption among residents and businesses
- Prioritize ongoing and future capital improvement projects that make biking, walking, and taking transit competitive with driving
- Prioritize the implementation of low-stress bikeways that have the fewest conflicts with motor vehicles
- Develop a permit process for dockless bike share and scooters
- Adopt a crosswalk policy, which will be included as an appendix to the draft plan, that identifies appropriate locations for marked crosswalks and supporting infrastructure enhancements (recommended for approval by the Traffic and Parking Commission at a previous meeting)
- Develop a transportation demand management (TDM) ordinance to guide how infrastructure is used and minimize single-occupancy vehicle trips
- Consider updating parking policies to reduce requirements for mixed-use developments and those with adequate TDM programs, expand the parking supply through shared-use agreements, and adopting a bike parking ordinance
- Consider amending the Municipal Code to allow bicyclists on the sidewalk (or a portion of) in business districts under some conditions until adequate off-street facilities are installed



## Potential Programs

Potential programmatic improvements based on community input and the goals/values of the draft plan are listed below. These programs would supplement infrastructure to educate the community on transportation options, encourage them to try other modes of travel, and better evaluate the implementation of transportation projects.

- Develop an annual or biannual traffic safety report that prioritizes the locations with the highest collisions for improvements
- Establish an electric car share program as a first/last mile strategy and to reduce the need for car ownership
- Institute an electric vehicle program to expand charging stations
- Implement a curbside management pilot program with shared use mobility zones and/or digitized curb zones
- Establish data governance to use big data to inform decision making
- Implement an effective, robust bicycle and pedestrian awareness campaign to promote safety and travel options (grant received)
- Initiate a parklet and plaza pilot program to expand sidewalks and public space
- Organize a Safe Routes for Seniors program to help older adults safely and conveniently travel without vehicles
- Promote the City as a role model in smart, eco-friendly transportation choices, such as by providing subsidized transit passes, purchasing a fleet of electric cars for site visits, and implementing a “guaranteed ride home” program for employees that don’t drive to work
- Implement bike friendly business districts that support people who travel on bikes
- Establish a bike valet program at large public events
- Encourage City and community participation in Rideshare Week to reduce single-occupancy commuting
- Consider a reverse angled parking pilot program to educate the community on the benefits and determine appropriate locations
- Apply for a grant to host an Open Streets event, like CicLAvia
- Consider a pilot program to extend the Wilshire Boulevard bus lanes into Beverly Hills
- Consider partnering with regional agencies that may pursue congestion pricing

## Next Steps

Staff is requesting the following feedback from the Commission:

- Is anything missing from the list of potential infrastructure, policies, and programs?
- Are the potential infrastructure, policies, and programs moving in the right direction?
- Should anything in the potential infrastructure, policies, and programs be removed?
- Which potential infrastructure, policies, and programs should be prioritized for short-term implementation (first five years after plan adoption)?

Staff will use the information collected at the January 10<sup>th</sup> Study Session to develop a draft Beverly Hills Complete Streets Plan with recommendations for multi-modal infrastructure, policies, and programs. Based on the priority projects identified by the Commission, staff will consult with the Public Works Department to develop a feasible five-year implementation action plan that outlines which projects the City could complete within the first five years of plan adoption (short-term). This will be included as a chapter in the draft plan.



The following timeline is proposed to complete the draft plan:

- January/February: City Council/Traffic and Parking Commission Liaison meeting
- February: Evening special meeting of the Traffic and Parking Commission to present the Draft Plan (pending Liaison Committee direction)
- March/April: Introduce Draft Plan to City Council for adoption



# **Attachment A**



# WORKSHOP HIGHLIGHTS



## SUMMARY:

Approximately 40 community members, several Council and Commission members, and City staff from multiple departments attended the first workshop for the Beverly Hills Complete Streets Plan on Monday, March 12, 2018.

**BEVERLY HILLS PRESENT/FUTURE:** Meeting facilitators asked participants to select a word to describe Beverly Hills streets in the present and in the future. The most common words selected by participants to describe the present suggest an emphasis on cars, such as “congested,” “speeding,” and “traffic.” The most common word selected by participants to describe the future was, “safe.”

## VALUES AND GOALS:

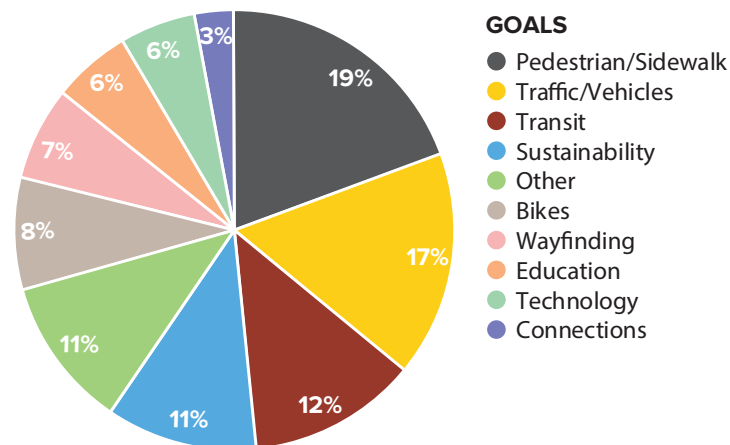
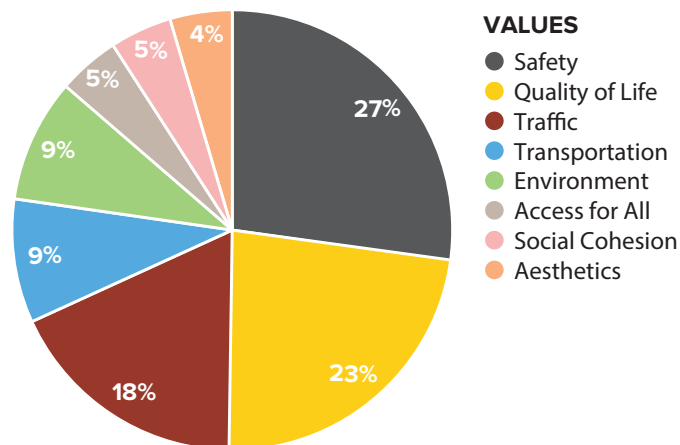
Values—Safety (25%), Quality of Life (22%), and Traffic (18%) rose to the top as most important for event participants.

Goals—Several common themes emerged when participants were asked to prioritize Plan goals:

- Expand bicycle infrastructure
- Reduce collisions and employ traffic calming measures
- Improve wayfinding / signage
- Improve and prioritize pedestrian spaces
- Expand transit routes, increase frequency / speed, connect to active transportation
- Increase street trees and plantings
- Educate all roadway users

Additionally, participants expressed a desire for design recommendations that will promote/maintain the City’s “village” atmosphere; to consider diverse users groups including tourists, visitors, and businesses; and to facilitate the need for coordination with adjacent cities during Plan implementation.

**NEXT STEPS:** The values and goals for the Plan will reflect feedback received from this event, as well as feedback received from the online survey currently being conducted ([www.beverlyhills.org/completestreetsSURVEY](http://www.beverlyhills.org/completestreetsSURVEY)). Additional events are planned to gather further public input throughout the development of the Plan, including a walk audit, pop up event at the City’s Earth Day Celebration, and two additional workshops. Visit the project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)) to stay up to date on event dates and details. Updates on this project will also be shared in monthly Traffic and Parking Commission (TPC) meetings. For the latest TPC meeting schedule, please visit: <http://www.beverlyhills.org/citygovernment/commissions/trafficandparkingcommission/>





# EARTH DAY POP-UP HIGHLIGHTS



## EVENT SUMMARY:

Approximately 40-60 community members, stopped by the Beverly Hills Complete Streets Plan booth at the City's Earth Day event on Saturday, April 15, 2018. Participants were engaged in two main activities: 1) a sticker voting activity to identify the complete streets design strategies they most want to see in the City; and 2) a mapping exercise in which participants were asked to identify corridors, areas, and intersections in the City they would like to see this Plan improve. All participants were either Beverly Hills residents, workers, or those who visit the City regularly from adjacent neighborhoods. Consultant staff, City staff, and Health & Safety Commissioner Lisa Schwartz were on hand to answer questions and engage with participants. See response summary on page 2.

## SURVEY UPDATE:

186 survey responses have been collected as of 4/24/2018. The survey platform (Survey Monkey), captures respondent's IP addresses to ensure each response is unique. To date, the survey has been advertised on the project's website, at all project events, and social media.

**NEXT STEPS:** The project team is preparing for three additional events to gather public input:

**1) May 30th Workshop:** This event will focus on gathering input on the draft maps identifying corridors and intersections this Plan proposes to improve. Recommended plan improvements have been informed by previous planning studies completed to date by the City, the existing conditions and best practice analysis being conducted by the Consultant team as part of this project, and feedback received from community members at the March 12th and April 15th events.

**2) June 9th Complete Streets Walk Audit:** Consultant team members and City staff are currently planning this event, which will consist of a walking tour of two half-mile corridor segments. This will be followed by group mapping exercises to document patterns of behavior observed on the walk, and to identify other areas of the City where participants have observed issues they want addressed through this Plan.

**3) August 22nd Workshop:** This workshop will summarize how community feedback has shaped plan recommendations and will present the Plan draft for a round of community input.

Visit the project website ([www.beverlyhills.org/completestreets](http://www.beverlyhills.org/completestreets)) to stay up to date on event dates and details. Updates on this project will also be shared in monthly Traffic and Parking Commission (TPC) meetings. For the latest TPC meeting schedule, please visit: [www.beverlyhills.org/TPC](http://www.beverlyhills.org/TPC)

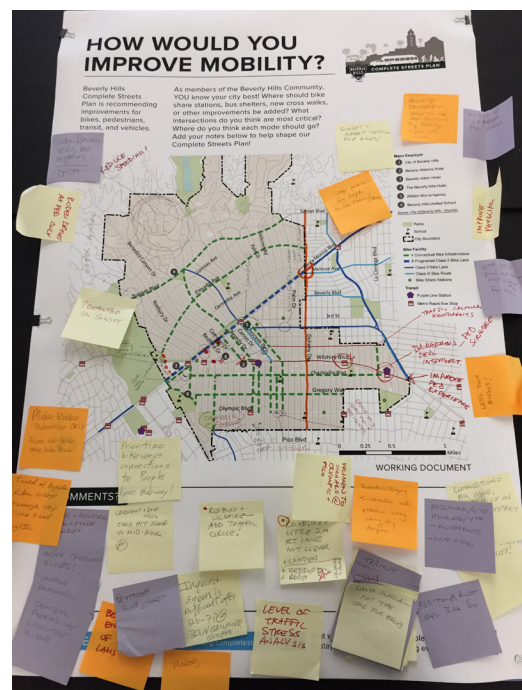
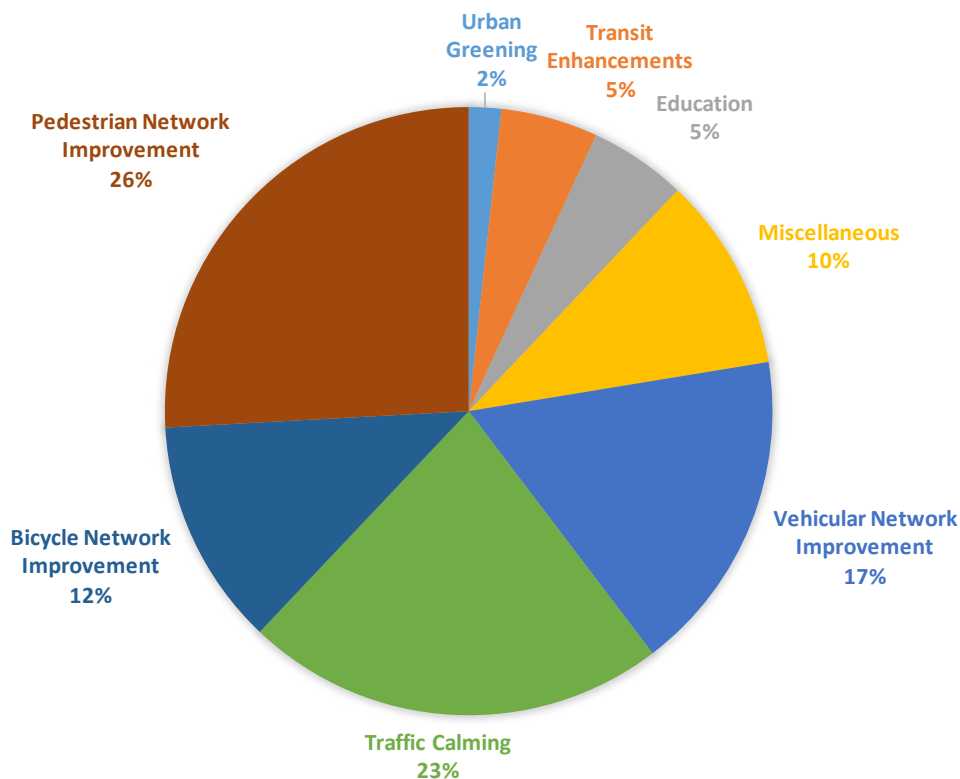




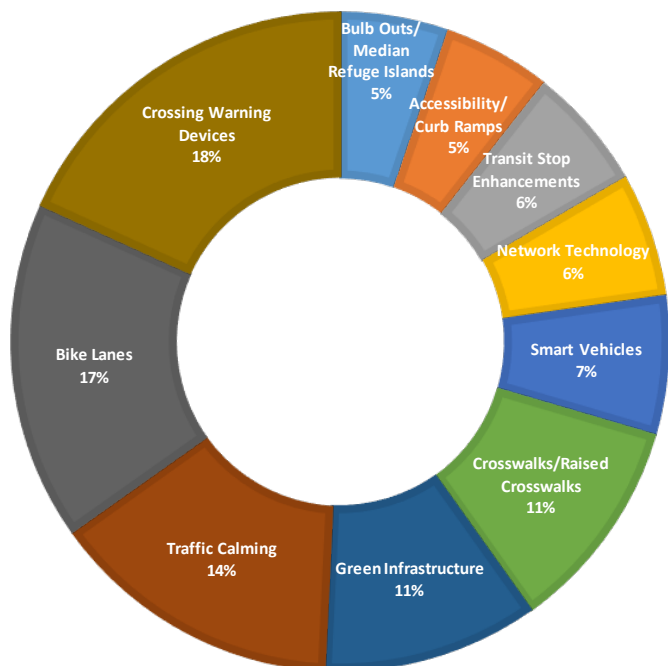
# EARTH DAY POP-UP RESPONSE SUMMARY



## "How would you improve mobility?" - 58 comments recorded



## Vote for your top 3 priority Complete Streets elements - 44 participants





# WORKSHOP HIGHLIGHTS



## SUMMARY:

Approximately 20 community members attended the second workshop for the Beverly Hills Complete Streets Plan on Wednesday, May 30th, in addition to Council and Commission Members, and Beverly Hills staff from a cross section of departments. The focus of the workshop was to identify priority corridors and to make network recommendations that will be used to guide the Plan.

## AREAS OF CONCERN:

Participants reviewed maps addressing modes of travel including transit, vehicular, bike, and pedestrian. There were 48 specific comments provided, with the bike and pedestrian maps comprising 71% of the total responses. In some cases, maps elicited feedback for different modes of transportation. When this happened, the comments were likely to be related to bikes or pedestrians.

## COMMENTS AND RECOMMENDATIONS:

Participants had the most feedback on Bike (31%) and Pedestrian (29%) network maps. Vehicular (25%) and Transit (15%) maps received fewer comments. Comments were most frequently related to Bike network connectivity (15%), and Crossing Improvement, Safety Concern, and Traffic Calming each representing 10%.

Several common themes emerged throughout the workshop:

- Support of/interest in a shuttle route
- Desire for improved crosswalks
- Challenging biking conditions at Crescent and Wilshire, Sunset Blvd., and Rodeo Dr.
- Improved bike amenities including green lanes, protected lanes, and bike parking
- A need for enhanced pedestrian safety along Gregory Way, Olympic, and Beverly
- Use of traffic calming measures on Wilshire and Olympic

## NEXT STEPS:

Community feedback will be incorporated into the network maps for each modality. Additional events are planned that will continue to solicit feedback and public input throughout the plan development, including a June 9th Walk Audit, an August 22nd Workshop, and monthly Traffic and Parking Commission meetings.





# WALK AUDIT HIGHLIGHTS



## **SUMMARY:**

Approximately 25 community members attended a walk audit for the Beverly Hills Complete Streets Plan on Saturday, June 9th, in addition to Commissioners and City staff from a cross-section of departments. Participants were split into groups to conduct a 90-minute walk audit, followed by tabletop exercises focused on how to re-design each corridor. The first group walked from Crescent Drive to Wilshire Boulevard while the second group traveled along South Santa Monica Boulevard. Participants were then asked to identify safety concerns for pedestrians, bicyclists, vehicles, and transit along their route and to offer suggestions for improvement.

## **ROUTE 1: CRESCENT DRIVE TO WILSHIRE BOULEVARD**

Participants were most concerned with vehicular speeding and conflicts between vehicles and cyclists/pedestrians at intersections. They also noted the introduction of the Purple Line and how that would impact pedestrian travel as well as a need for rideshare drop-off areas. Additionally, they addressed the need to enhance parking options along this route.

## **RECOMMENDATIONS:**

Participants desired design solutions to slow traffic. The intersection of Crescent and South Santa Monica was the area of greatest concern. Suggestions included:

- Reducing the turn radius
- Adding a second turn lane
- Enhancing visibility of speed limit signs
- Introducing scramble crossings

Another theme was the desire to indicate shared-use zones for bikes, scooters, and pedestrians. Participants were interested in the potential for a pedestrian overpass to encourage more pedestrian traffic. Finally, along Crescent, they recommended adding digital parking occupancy signage and to remove permit parking on the east side.





## **ROUTE 2: SOUTH SANTA MONICA BOULEVARD**

Participants were most concerned with vehicular speeding along South Santa Monica Boulevard. Additionally, they identified narrow sidewalks as inhibiting pedestrian activity for the restaurants and small businesses located on the North side of the street.

### **RECOMMENDATIONS:**

Participants were most concerned with the traffic infractions along this route among vehicles and cyclists, though they did not offer many suggestions for improvement other than enforcement of existing rules (ex. no right turn on red).

They were excited about the scramble crossings and suggested additional data be collected a few months after introduction in order to understand the impact. They were supportive of the partial road diet and eager to see it implemented on a larger stretch of the corridor.

They also noted that utility boxes make the sidewalk more narrow, inhibiting outdoor patio space for area businesses. In addition to business concerns, they noted that wheelchairs and strollers have a hard time navigating this area.

### **NEXT STEPS:**

Community feedback will be incorporated into the network maps for each modality. Additional events are planned that will continue to solicit feedback and public input throughout the plan development, including an August 22nd Workshop, and monthly Traffic and Parking Commission meetings.





# WORKSHOP HIGHLIGHTS



## SUMMARY:

Approximately 25 community members attended Workshop 3 for the Beverly Hills Complete Streets Plan on Wednesday, August 22nd, in addition to **Traffic & Parking Commissioners** and Beverly Hills staff from a cross-section of departments. Iteris delivered a presentation summarizing draft plan progress, which included an overview of the city-wide network maps for the 4 modalities: walking, biking, transit, and vehicles. Following a brief Q & A session, participants were invited to circulate around the room to absorb information on the boards, segmented by each modality.



A summary of comments for each is below. Overall, the materials were well-received by participants. Some minor comments were recorded and will be considered as Iteris works towards finalizing maps.

## PEDESTRIAN:

Participants expressed an interest in intersection improvements at Rexford and Charleville, as well as a pedestrian crossover bridge at La Cienga between Olympic and Gregory. Some felt that adding trees on Olympic, Wilshire, Robertson would improve the aesthetics of the parkways. Lastly, community members were interested in future planning efforts to assess building set-backs to allow for wider sidewalks for outdoor dining.

## BIKE:

Several community members indicated parking protected bike lanes would be preferred to reverse angle parking, expressing concerns about driver confusion. Participants expressed interest in a Class III bike lane on Gregory Way, and Class II or Class III bike lane on Doheny between Santa Monica Boulevard and Beverly. The community members also suggested reduced fare for the bikeshare program and bicycle training classes that would encourage more people to bike safely in Beverly Hills.

## TRANSIT:

Community members are enthusiastic about improvements to transit stop amenities, including more benches, shaded areas, and trash bins. They also commented on the need for higher capacity buses, bus lanes, and north/south routes in Beverly Hills, which falls outside the scope of this project.



**VEHICLES:**

Participants were concerned that additional pedestrian lights and signage could lead to confusion among drivers and they suggested consistent interventions whenever possible. Left-turn restrictions overall were positively received. They suggested more parking structures at the light-rail station near La Cienega and Wilshire, as well as adding a “kiss and ride” drop-off area.

**NEXT STEPS:**

Community feedback will be incorporated into the network maps for each modality as Iteris moves forward to delivering a draft plan in the fall. Additional opportunities for public input will be provided by the comments features on the website, and at monthly Traffic and Parking Commission meetings where this project has a standing agenda item.

