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# LA County TOD Access Study

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# LA County TOD Access Study

## Introduction

The County of Los Angeles' Department of Regional Planning has proposed a Transit Oriented Districts (TODs) Program as part of the County's General Plan Update. The program has several goals, including increasing housing opportunities, coordinating land use and transportation planning, and planning for complete streets. Through the General Plan Update, the County is expanding and establishing TODs throughout the County.

The purpose of this study is to assess the station access capacity and needs within nine proposed TODs in Los Angeles County. The following stations are included:

- Aviation/LAX Green Line Station
- Vermont Green Line Station
- Hawthorne Green Line Station
- Imperial-Wilmington Rosa Parks Station (Blue and Green Lines)
- Florence Blue Line Station
- Firestone Blue Line Station
- Slauson Blue Line Station
- Sierra Madre Villa Gold Line Station
- I-110 West Carson Station

This document assesses the state of the public amenities that facilitate and support pedestrian, bicycle, and transit access to the transit stations. The report also includes conceptual bicycle and pedestrian infrastructure plans and recommendations that address the existing and needed infrastructure to support the TODs.

The intent of these recommendations is to provide preliminary guidance, which will inform the DRP's forthcoming specific plans for the TODs. While the treatments are based on a careful study of existing conditions, they will generally require additional, more detailed analyses. These studies will occur concurrently with the above-mentioned specific plans.

This document incorporates comments and inputs received from the following entities:

- The County of Los Angeles Department of Regional Planning
- The County of Los Angeles Department of Public Works
- The County of Los Angeles Department of Public Health
- Los Angeles County Metropolitan Transportation Authority (Metro)
- Southern California Association of Governments

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# Overview of Conceptual Infrastructure Plans

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# LA County TOD Access Study

## Background

### Background

This report includes an assessment of existing conditions at each of the Transit Oriented Districts (TODs). The analysis is based on available data, fieldwork conducted at each of the stations, and observation. Data was provided by the Los Angeles County Department of Regional Planning (DRP), the Los Angeles County Department of Public Works (DPW), and the Los Angeles County Metropolitan Transportation Authority (Metro).

Based on this assessment, this report provides recommendations to improve pedestrian and bicycle access at each of the TODs. The recommendations are based on assumptions and guiding principles that Ryan Snyder Associates (RSA) and Stantec Consulting followed when developing bicycle and pedestrian access improvements for the nine TODs in unincorporated Los Angeles County. The intent of these recommendations is to provide preliminary guidance, which will inform the DRP's future TOD specific plans.

This report identifies locations where bicycle and pedestrian enhancements are needed to improve safety and comfort. The report also recommends conceptual treatments for these locations. While the treatments are based on a careful study of existing conditions, they will generally require additional, more detailed analyses. These studies will occur concurrently with the abovementioned specific plans. With the specific plans, one of DRP's goals is to encourage walking and bicycling in the County's TODs. Accordingly, future traffic analyses of RSA's recommendations should also prioritize walking and bicycling in these areas.

These recommendations also reinforce broader County mobility goals. The County's General Plan Mobility Element Update recognizes the importance of planning for and accommodating a wide spectrum of road users including pedestrians, bicyclists, drivers, and transit patrons. The Mobility Element thus takes a flexible, complete streets approach to street design. This approach strives to balance the needs of these various, and at times competing, user groups.

The County's TODs represent a special focus area for complete streets implementation. Here, the County is increasing density, promoting mixed use, focusing infrastructure improvements, and, as mentioned above, encouraging walking and bicycling. With greater densities and an increased reliance on transit, walking, and bicycling, designing streets that safely and effectively accommodate multiple travel modes will become paramount.

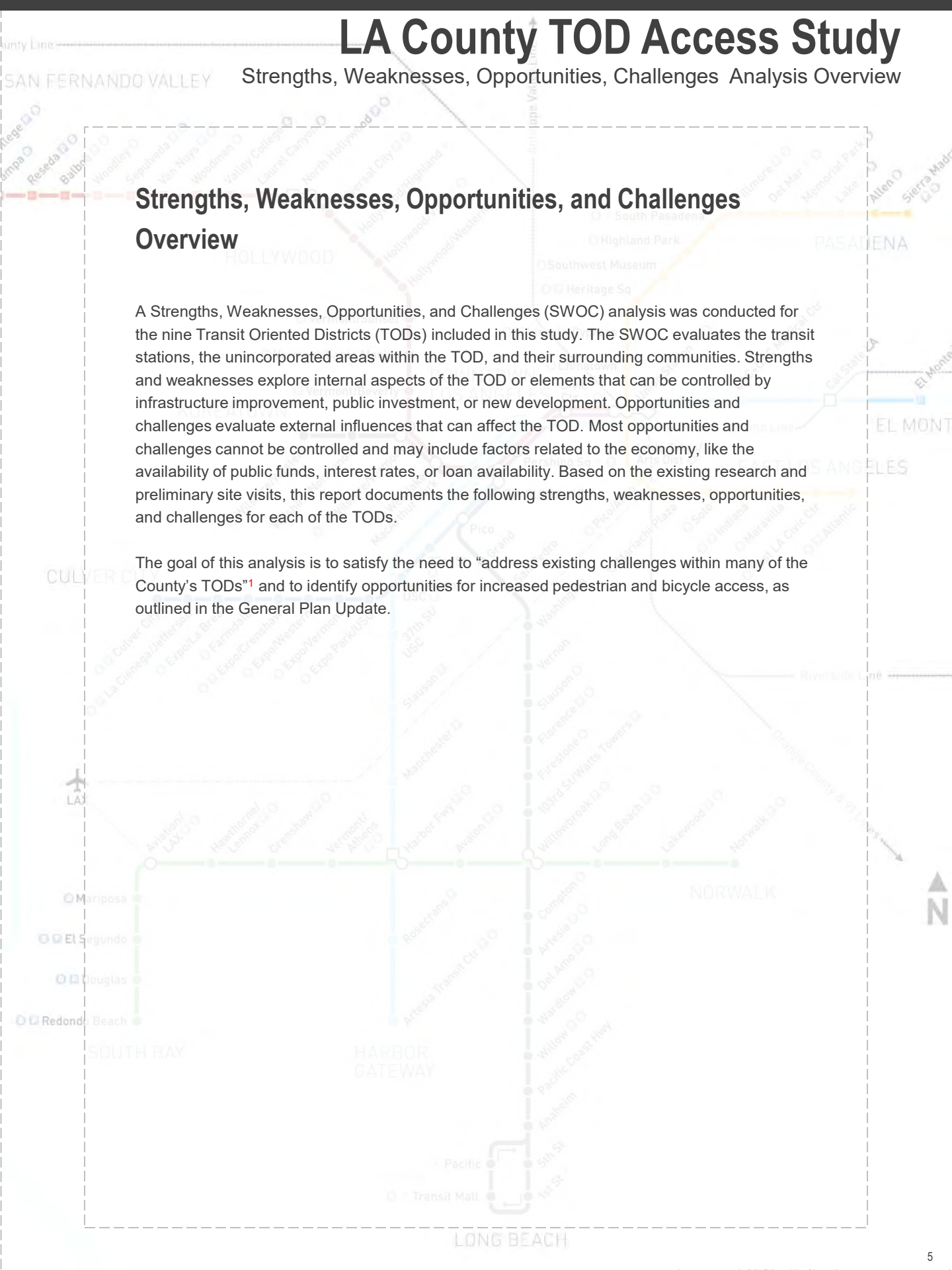
# LA County TOD Access Study

Strengths, Weaknesses, Opportunities, Challenges Analysis Overview

## Strengths, Weaknesses, Opportunities, and Challenges Overview

A Strengths, Weaknesses, Opportunities, and Challenges (SWOC) analysis was conducted for the nine Transit Oriented Districts (TODs) included in this study. The SWOC evaluates the transit stations, the unincorporated areas within the TOD, and their surrounding communities. Strengths and weaknesses explore internal aspects of the TOD or elements that can be controlled by infrastructure improvement, public investment, or new development. Opportunities and challenges evaluate external influences that can affect the TOD. Most opportunities and challenges cannot be controlled and may include factors related to the economy, like the availability of public funds, interest rates, or loan availability. Based on the existing research and preliminary site visits, this report documents the following strengths, weaknesses, opportunities, and challenges for each of the TODs.

The goal of this analysis is to satisfy the need to “address existing challenges within many of the County’s TODs”<sup>1</sup> and to identify opportunities for increased pedestrian and bicycle access, as outlined in the General Plan Update.



# LA County TOD Access Study

## Guiding Principles & Assumptions

### Pedestrian Improvements

These recommendations for pedestrian improvements at intersections contained in this report are based on several overarching principles. The County may incorporate these findings when conducting other capital improvements including new development and redevelopment, and can incorporate them into existing or new policies.

#### 1. Shorten pedestrian crossings.

Reduced crossing distances create a safer walking environment by reducing the time that pedestrians are exposed to potential conflicts with cars and bicyclists. Road diets, refuge islands, and curb extensions are examples of devices to use.

#### 2. Reduce curb radii.

Large curb radii allow cars to speed around corners, creating potential safety hazards for pedestrians crossing the street. By reducing the radii, cars must slow down before turning, and will be more likely to yield to pedestrians in the crosswalks.

#### 3. Send pedestrians in the direction of travel.

Ramps at corners in the direction of travel help reduce conflict and shorten crossing distances.

#### 4. Create and add buffers to sidewalks.

Buffers can take many shapes and forms including planted parkway strips, street furnishings, on-street parking, bikeways, and others. They provide a barrier between pedestrians on the sidewalk and moving traffic, creating a more comfortable walking environment. They also provide space for driveway ramps, allowing them to slope down to the street without interfering with the traveled way of the sidewalk.

#### 5. Provide refuges.

Crossing islands, including median gaps, allow pedestrians to cross one direction of travel at a time, and improve crossing safety.

#### 6. Slow traffic speeds.

Pedestrians are very vulnerable users, and have an 85% chance of death if hit at 40 mph. Slow traffic speeds create a more comfortable walking environment, improve safety, and encourage pedestrian activity.

#### 7. Create public space.

Bulb-outs, curb extensions, and sidewalk buffers allow for space to enhance the pedestrian environment with public art, landscaping, outdoor dining, and seating. This creates a more interesting walking environment and can promote outdoor activity.



# LA County TOD Access Study

## Guiding Principles & Assumptions

### Pedestrian Improvements

By following these general principles, the County will be able to incrementally create a more pedestrian-friendly environment. The recommendations are conceptual, but will work with careful engineering design considerations.

The County should check drainage prior to implementing proposed curb extensions (bulb-outs, tapered curb-extensions, etc.). Costs of drainage modifications may be reduced by using sustainable streetwater management techniques using infiltration, such as rain gardens, permeable concrete, and bioswales.

All improvements planned at freeway on- and off-ramps will require coordination and approval from Caltrans. All improvements planned at rail transit stations will require coordination and approval from Metro. All improvements planned along freight railroad rights-of-way will require coordination with respective railroads.



# LA County TOD Access Study

## Guiding Principles & Assumptions

### Intersection Improvements

All recommended corner modifications—bulb-outs and reduced curb returns—assume the inclusion of perpendicular curb ramps with truncated domes. Proposed designs create a small curb radius, in order to constrain the speed of turning vehicles. The graphics included in the conceptual infrastructure plans depict in a general manner what the corner will look like. All recommended protected left turn phases will require a warrant study, which considers traffic operations and pedestrian volumes, prior to implementation.

Metro bus stops are distinguished from other transit services (DASH, Link) which do not have long vehicles and so can more easily maneuver around regular bulb-outs. Where there are Metro bus stops or stops of other transit agencies that operate full-size buses, and bulb-outs are feasible, this report nearly always recommends bus bulbs. Recommendations for placing bus bulbs consider the following factors, among others, as appropriate:

- Driveways
- Bus turning movements
- Presence of on-street parking
- Number of buses using stop



# LA County TOD Access Study

## Guiding Principles & Assumptions

### Bicycle Improvements

Several assumptions were followed when planning for bikeways. These guidelines can be incorporated into County policy and practice when rethinking a street's cross-section, especially in future development.

In certain instances, this report recommends (1) modifications or (2) additions to bikeways designated in the County's Bicycle Master Plan. The first case comprises streets on which Class III bike routes are proposed in the County Bicycle Master Plan, but which our field analyses indicate could be reasonably modified to include Class II bike lanes. The second case includes instances where additional bikeways, beyond those proposed in the Bicycle Master Plan, would significantly improve bicycle access to transit stations.

The following assumptions informed the recommendations included in this report:

- Assume an 11-foot preferred lane width for all through travel lanes. This is the County standard. 10-foot lanes may be considered on a case-by-case basis upon a review of the existing geometric design, accident history, and traffic volumes
- Assume a minimum width of 10-feet for a center-turn lane
- Assume a preferred width of 8-feet for parking lanes, which may be reduced to 7-feet where conditions necessitate a narrower parking lane to accommodate a bike lane



# LA County TOD Access Study

## Guiding Principles & Assumptions

### Bicycle Improvements

- The minimum width of a bike lane is 5 feet, but prefer to use 6 feet as the standard wherever possible
- If bike lanes fit with the existing roadway configuration using the assumed travel lane widths above, the road configuration will remain constant
- Recommend colored bike lanes on major boulevards where existing vehicle volumes are comparatively high, and in retail corridors
- On quiet local streets that provide routes to the station, recommend sharrows and signs
- On busier roadways or in more urban areas where there is on-street parking on both sides and bike lanes do not fit with the above assumptions, recommend more frequent and prominent Type B sharrows (described in the Bikeway Types section below)
- Bike paths may be recommended to create connections in the network across undeveloped land areas
- Bike paths are also recommended along other rights of way, such as rivers and rail lines
- Prefer 6'-wide bike lanes, but will recommend 7' if space permits
- Where there is excess road space for at least one half-mile, this report recommends the inclusion of a painted buffer with the bike lane

### Road Diet Feasibility

This report assumes that a road diet from 4 lanes to 2 lanes with center-turn lane and bike lanes could be implemented with minimal impact for a road with average daily traffic (ADT) of 20,000 and under, and that a road diet from six lanes to four lanes with center-turn lane and bike lanes could be implemented for a road with an ADT of 40,000 and under. A traffic study is required for each roadway segment where a road diet is proposed or where any travel or turn lanes are proposed for removal. Changes to the roadway may also require an amendment to the County's Highway Plan.

The recommendations below are "short-term," meaning that they take as fixed the existing curb-to-curb width and location of medians. If the County or new development adds sidewalks, parkways, medians, or any other curb and gutter, maintain at a minimum 6-foot bike lanes on streets that have a recommended bike lane. On those streets that have bicycle routes, if new development creates enough room for bicycle lanes, the County should consider adding them.

# LA County TOD Access Study

## Guiding Principles & Assumptions

### Bike Parking

The following guidelines should be considered when enhancing or modifying bicycle parking at all stations. In addition to these overarching guidelines, this report contains individual recommendations for enhancing bike parking at each station.

Each station should have bicycle parking for passengers. A combination of racks and higher security parking, such as bicycle lockers, will serve both casual users who ride occasionally, and those who regularly use the system. Table 1-1 displays existing bicycle parking, as well as bicycle parking utilization, for study area stations. (Note: Metro only collects bicycle parking utilization data at stations that have bicycle lockers, which amounts to three of the nine studied stations.)

The baseline bicycle parking for each station should be racks to accommodate eight bicycles and high security parking for six bicycles; however, these figures should be adjusted up or down based on demand. Where existing secure parking is fully utilized, the County and Metro should consider the full slate of secure parking options shown on the following pages, such as on-demand bicycle lockers or bike stations.

Since space is often the primary constraint to additional bike parking, the County and Metro should consider finding additional locations for bike parking. Car parking spaces can be converted to bike parking, for example, either within the boundaries of the station or on the County streets immediately adjacent to the station. Adjacent parcels and other rights-of-way may provide opportunities to site additional parking.

In addition to parking availability, security is also an important bike parking design consideration. Many bicycle racks at Metro stations are located in unsecured, if not secluded, locations outside the fare-paid area. The threat of bicycle theft from these racks, both perceived and actual, appears to be a critical deterrent to their usage. To combat theft and thereby increase the attractiveness of bicycle parking, racks and lockers should be placed as close to the passenger platform as possible. Placing bike parking near locations with high pedestrian activity, near a station attendant, or near transit security offices further increases the security of the bicycle parking. The County and Metro should strive to locate new bicycle parking in secure locations of this nature as well as relocate or enhance the security of existing bicycle parking.



# LA County TOD Access Study

## Guiding Principles & Assumptions

### Bike Parking

Finally, all Metro stations that have stairways to access train platforms should include runnels—channels along the sides of stairways that allow cyclists to roll their bikes up and down the stairs rather than having to carry them.

TABLE 1-1: METRO STATION BIKE PARKING INVENTORY AND UTILIZATION

	Total Lockers	Rented Lockers	Bike Rack Spaces	Avg. Bikes on Racks	Bike Rack Usage	Bikes Locked to Fence	Location of Bike Racks
<b>BLUE LINE</b>							
Firestone	0	0%	8	N/A	N/A	N/A	Located by mosaic pillar
Florence	0	0%	12	N/A	N/A	N/A	Located by station entrance gates
Imperial/Wilmington/Rosa Parks	6	33%	34	6	18%	8	Racks are located next to both the blue and green line entrances. Blue line racks are generally full, but green line racks are underutilized. Bikes are routinely locked onto fences. A strategy to provide more protected bike storage with more security and in the path of pedestrians is recommended.
Slauson	0	0%	4	N/A	N/A	N/A	Located under cement wall
<b>GOLD LINE</b>							
Sierra Madre Villa	16	56%	10	3	30%	0	Lockers located on 4th floor parking garage
<b>GREEN LINE</b>							
Aviation	20	85%	12	7	58%	0	Underneath platform; additional racks were added in 2012 to meet the demand and decrease the number of bikes locked to the fence
Hawthorne/Lennox	0	0%	4	N/A	N/A	N/A	Adjacent to station entrances
Vermont/Athens	0	0%	0	N/A	N/A	N/A	No bicycle parking at station
<b>SILVER LINE</b>							
Carson	0	0%	0	N/A	N/A	N/A	No bicycle parking at station
<b>TOTALS</b>	<b>42</b>	<b>58%</b>	<b>50</b>		<b>35%</b>		

Source: Metro

Note: Metro bicycle contractor routinely counts bicycles locked in lockers, on racks, and on fences only at stations with bicycle lockers. Bike rack usage rates are not kept on stations without lockers.

# LA County TOD Access Study

## Guiding Principles & Assumptions

### Bike Parking

Table 1-2: Secure Bike Parking

	<b>Bike Stations</b>	<b>Bike Lockers: Subscription</b>	<b>Bike Lockers: Shared System</b>	<b>Bike Lids</b>	<b>Self-Service Bike Cage</b>	<b>Automated Parking</b>
<b>Description</b>	Provides valet-attended parking. Other services (lockers, changing rooms, showers, bicycle repair, etc.) optional	Metal or plastic crates for storing bicycles. Self-serve	Metal or plastic crates for storing bicycles. Self-serve	Plastic shell that covers 1-2 bicycles and is secured by the user's padlock	Bicycle racks behind a locked door. Free-standing cages, or fenced-in room	Large device that stores bicycles, often underground, and moves and retrieves them by mechanical means
<b>Method of Access</b>	Electronic key access, must purchase membership	Subscribers assigned a specific locker	Electronic key accesses network of lockers on first-come, first-served basis	First-come, first-served	Electronic or other entry through door for subscribers	A card swipe system tags and retrieves bikes
<b>Typical Fees</b>	Monthly/annual subscription	Deposit and monthly/annual fee	Fees charged electronically by use (several cents per hour)	None	Monthly/annual subscription in some, but not all	Monthly/annual subscription
<b>Benefits</b>	High level of service and security.	Users guaranteed a spot. More secure than racks	Higher utilization than subscription lockers. Users pay only for what they use. More secure than racks	Nearly as secure as lockers. No advance registration required	Lower operating costs than attended parking. More secure than open racks. High potential utilization	Space-efficient, high level of service and security
<b>Cons</b>	High capital and operating costs. Additional agency owned infrastructure	Potential for patrons to store items other than bicycles. Waitlists for subscriptions common. Low utilization	Potential for patrons to store items other than bicycles. Electronic payment system increases operating costs	Operating and maintenance costs unknown. User must have a padlock and U-lock	Additional agency-owned infrastructure. Lower security and service to patrons than attended parking	High capital and operating costs. Additional agency-owned infrastructure

Source: Modified from TCRP Report 153: Guidelines for Providing Access to Public Transportation Stations

# LA County TOD Access Study

## Guiding Principles & Assumptions

### Circular Intersection Treatments

Circular intersection treatments such as roundabouts, mini-traffic circles (called “mini circles”), and mini-roundabouts offer the following advantages over signal-controlled intersections and stop controlled intersections:

- **They handle more traffic flow.** Since no one stops for long, if at all, more traffic can get through. Since street capacity is determined more at the intersections than at midblock, they allow for more streets to have road diets.
- **They reduce crashes.** By eliminating T-bone crashes, and reducing the number of conflict points, there are fewer crashes. Further, since those crashes that occur happen at slow speeds the severity is generally significantly less than for signal or stop-controlled intersections.
- **They calm traffic.** By slowing traffic down circular intersections calm traffic. They also even the flow of traffic at slower speeds as compared with speed humps that have spikes in slowing and speeding.
- **They facilitate bicycle travel.** By allowing bicycles to traverse intersections without stopping circular intersections eliminate a barrier for cyclists. Stopping and reaccelerating makes bicycling significantly more difficult and time consuming. Further, by reducing the number and severity of crashes, and by calming traffic circular intersections make for safer and more comfortable bicycling.

This report recommends circular intersections at a few of the key intersections. However, they should be studied and considered at many more locations along the proposed network of bikeways and linear projects at the following intersection types:

- Roundabouts at the intersections of large two-lane streets, and those road-dieted to two lanes with bike lanes
- Mini-circles at the intersections of small two-lane streets, especially those where two bike routes intersect. Also, wherever bike routes have intersections with stop controls



### Bikeway Types

#### **Bike Path**

A bike path provides for bicycle travel on a paved right-of-way completely separated from a street or highway. Some also provide for the travel of pedestrians and/or other users, and these are referred to as multipurpose paths. Bike paths are often planned along uninterrupted linear rights-of-way, such as rivers and rail rights-of-way.



# LA County TOD Access Study

## Bikeway Types



### Bikeway Types

## Cycle Track

A cycle track is a physically separated bicycle facility that runs within a roadway. It can allow bicyclists to travel in both directions on one side of the road. A physical barrier, such as planters, bollards, or a curbed and landscaped area, separates bicycle traffic from vehicle traffic. At intersections, a separate phase for bicyclists must be installed. Cycle tracks are not technically considered a traffic control device and so there is no restriction on their use in either the California or the Federal MUTCD. The California Traffic Control Devices Committee (CTCDC) is currently reviewing cycle tracks.

### Bikeway Types

## Colored Bike Lanes

Colored bike lanes are simply bike lanes with colored pavement underneath the standard bike lane markings as required by the California MUTCD. The primary goal of colored pavement is to enhance the bikeway by making it more visible. The colored pavement also narrows the feel of the street, providing a traffic calming effect.

To date, the colored pavement marking is not a standard item per the California MUTCD. It is approved on an interim basis at the federal and the state level. In order to implement these colored bike lanes, the County will need to notify the CTCDC



# LA County TOD Access Study

## Bikeway Types

### Bikeway Types

#### **Buffered Bike Lanes**

A painted buffer area, usually between the bike lane and the adjacent travel lane, provides some space between bicycles and motor vehicles. The buffer may also go between parked cars and the bike lane. Although it is somewhat unclear, California code appears to allow for a painted buffer of up to 2 feet or less in width where there is on-street parking, with no width restrictions where there is no on-street parking. The CTCDC is currently reviewing this issue.





### Bikeway Types

## Road Diets with Bike Lanes

This plan recommends a series of “road diets.” A road diet is the removal of at least one travel lane. Road diets are recommended in order to reallocate existing pavement and right-of-way to other uses including bikeways, sidewalks, landscaping, etc. The road diets recommended in this plan make it possible to accommodate bikeways. A traffic study will be required prior to implementation.

# LA County TOD Access Study

## Bikeway Types

### Bikeway Types

## Sharrows

A sharrow, or shared-lane arrow, is a marking used to indicate the preferred path of travel for bicyclists in a lane that bicyclists and motorists share. The sharrow reminds motorists that they may encounter people on bikes, and that people on bikes may occupy the full travel lane. The sharrow also encourages bicyclists to ride in the center of the lane, away from opening car doors. The sharrow is an approved marking per the MUTCD.



### Bikeway Types

## Type B Sharrows

The “Type B” Sharrow is a more prominent way to implement the sharrow marking. There are several ways to do this. Long Beach, CA painted a green swath underneath the sharrow, as shown in the photo. Brookline, MA uses large sharrows spaced close together with longitudinal lines flanking the path of bicycle travel. This is also referred to as a “lane within a lane” treatment.



# LA County TOD Access Study

## Bikeway Types

### Bikeway Types

## Bicycle Boulevard

A bicycle boulevard is a signed bicycle route that functions as a through street for bicyclists, and not for motor vehicles. Every ½ mile to a mile, a diverter prevents motor vehicles from driving on these streets for long distances. This keeps traffic volumes low and the streets pleasant to ride on. The diverters can be physical features at intersections that require cars to turn right of left. They can also take the form of signal phasing and lane striping at intersections that requires cars to turn, while cyclists may continue traveling straight. Bike boulevards can also include features such as mini circles to replace 4-way stops, or 2-way stops that allow through bicycle traffic on the boulevard while stopping cross-traffic.





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# LA County TOD Access Study

## Recommendations That Will Require Additional Study

### Recommendations That Will Require Additional Study

Given that the recommendations contained in this report are conceptual in nature additional studies will be required before implementation of specific improvements. This section notes several such improvements that have been recommended, but do not currently conform to County standards and/or practices. Implementation of these improvements should be decided on a case-by-case basis; however, this list is not intended to be exhaustive.

The implementation of the following improvements will require additional study:

- Zebra-stripe crosswalks
- The removal of pedestrian push buttons to set the pedestrian walk phase to automatic
- Marked, uncontrolled crosswalks across multi-lane roadways
- Advance stop bars
- Crossing/median nose islands at intersections
- Roadway lane reductions on roads classified as major highways in the County Highway Master plan

### Cost Estimates\* & Feasibility Assessments

Cost estimates were prepared based upon all of the recommended improvements indicated for each station. A separate cost estimate was prepared for each location in its entirety. A 20 percent contingency was applied to each cost estimate and allowances were included for design and construction management. A larger contingency was applied for some projects, especially when other agencies such as Caltrans or City of Los Angeles are involved to account for unexpected requirements.

Cost estimates were generally conservative, as appropriate for budgeting or funding applications. Cost estimates for small projects are especially conservative and may cost much less if included with other larger projects.

The cost estimates generally require a level of assessment for engineering feasibility, and the approach can affect the cost estimate. Comments on feasibility or potential issues were provided in the assessments for each station and improvement, where appropriate.

### Striping to Add Bicycle Lanes

It is rarely possible to add bicycle lanes (including green pavement coloring) without additional work items, primarily due to the presence and demand for parking on many area roadways. If the parking cannot be readily prohibited, it is normally necessary to modify the entire street striping cross section.

For projects that propose to add bike lanes, the cost estimate is provided for the restriping of the entire street, if the narrowing of the lanes or a similar approach would permit retention of parking, in addition to provision of bicycle lanes. The costs would be reduced by up to 60 percent, if the parking is permanently prohibited to provide bicycle lanes. But customarily, prohibiting of parking in high demand is often not feasible.

Projects that require restriping the street will cost less for the work proposed if the street is being repaved at the same time. The cost of repaving is generally not included in the cost estimate. Often bike lane striping projects are closely coordinated with street maintenance, especially if the projects are of lower priority and can wait for pavement maintenance.

### Lane Widths

National guidelines such as the American Association of State Highway and Transportation Officials (AASHTO) allow for lane widths in urban areas to be as narrow as 10 feet. Recent studies have indicated that in most low-speed cases, lane widths of 10 feet have not resulted in decreased safety. Los Angeles County has not liberally used lane widths for through lanes below 12 feet, except where additional travel or turn lanes could be provided. This is especially true where six lanes have been provided on roadways with 100-foot rights of way and raised 14-foot medians.

Ten foot travel lanes may be required in study areas where bike lanes are recommended and parking is to be preserved. In most cases, these lanes will be bordered by a median or two-way left turn lane to the left and a bicycle lane to the right.

\*Complete cost estimates are provided for each TOD in Appendices A-I

# LA County TOD Access Study

## Cost Estimates & Feasibility Assessments

### Cost Estimates & Feasibility Assessments

#### Lane Widths (cont.)

Buses, trucks, and wide vehicles sometimes have difficulty using narrow lanes, especially because their mirrors can cause the vehicle width to be equal or wider than the lane width. Their problems are especially applicable where two opposing traffic lanes are divided by a single centerline stripe and where the lane is immediately adjacent to a curb or sidewalk. When lanes are narrowed to provide a left turn lane or to provide a bicycle lane to the right, there is little concern for usage by wide vehicles.

If it is possible to provide 11-foot lanes adjacent to a median, in lieu of 10 feet, this approach is often preferable, because it will reduce scuffing of the median by tires. In evaluating the feasibility of reducing lanes to provide bike lanes while preserving parking, it was presumed that 11-foot lanes would be desired for multi-lane through roadways.

#### Bike/Joint Use Trails

Cost estimates are especially conservative for bicycle trails, especially where they travel for long distances, cross major streets, and travel along flood channels or freeway rights of way. Dip crossings under roadway bridges can vary widely in cost, but they are greatly preferable to grade crossings, where feasible.

When provided along freeway rights of way, contingencies can be very high. In some cases a structure may be required to permit sufficient level area within an area that serves as a slope.

Detailed route feasibility studies are advised for trails of significant length along waterways, freeways, or rights of way not owned by Los Angeles County.

#### Green Pavement

A relatively low cost per square foot assumption was used for green bike lanes, based upon the use of paint for coloring. Paint may require reapplication every two to three years to maintain proper appearance. In heavy vehicle traffic areas, a longer life coating is often desired, but this can cost three times more than paint. The estimates should be adequate for limited use of longer life treatments in limited areas, but the estimates would not provide for longer life markings when used for long distances along bicycle lanes.

The lowest cost permanent colored pavement treatment involves applying a thin layer of colored asphalt on the proposed bike lane surface. This asphalt is then covered by a thin mill or slurry sealant. While this method is used extensively in other countries, it has not been employed frequently in the U.S. This is likely due to the fact that colored pavement is not yet fully approved by the Federal Highway Administration (FHWA). One drawback of this method is that it cannot be removed easily, thus it is not normally considered if the improvement is considered on a trial basis.

## Cost Estimates & Feasibility Assessments

### Pedestrian Gates

These gates add negligible cost to new railroad gate installations, but existing railroad crossing gate sites cannot be easily retrofitted for pedestrian gates. As a result, the cost estimate for pedestrian gates is relatively high and may not be as reliable as other estimates. It is especially difficult to predict the cost of track signaling improvements that can be required to operate pedestrian gates properly.

### Road Diets

Road diets appear to be very promising for many multilane roadways in the TODs. Most road diets proposed were evaluated for traffic feasibility based upon observed geometrics, traffic volumes or traffic count records. Criteria that assist in evaluating traffic feasibility for lane reduction include the following:

- For roadways that do not provide left turn lanes at major intersections, road diets are virtually always feasible from a traffic standpoint, because the inner through lanes generally function as left turn lanes at major intersections.
- Road diets are also normally feasible for roadways that provide only one lane in each direction beyond the areas proposed for road diets.
- Road diets are also normally feasible when a four lane road is controlled by all way stop controls within or beyond the road diet segment; however, the road diet may require alternative treatment to remove the all ways stop control (traffic signal or roundabout)
- It may be necessary to preserve a right turn lane approaching major intersections based upon detailed intersection analyses, and this could affect the feasibility or size of bulb outs.

From a geometric standpoint, road diets to provide bicycle lanes are almost always feasible because the width available from eliminating a lane is generally equal to or greater than the width needed to provide for two bicycle lanes.

Traffic volumes on roadways nearby in the City of Los Angeles often have unusually high daily volumes in comparison to peak hour traffic volumes. Daily traffic volume thresholds often used to identify feasibility for road diets may be low for area roadways. Four-lane to three-lane road diets may be feasible for up to 25,000 daily vehicles, while 20,000 - 22,000 is often used as a cut off for preliminary analyses.

### Roundabouts

When road diets result in an intersection between crossing two-lane roadways, a single-lane roundabout is often feasible within the paved area already provided. If the diagonal measurement from curb return-to-curb return exceeds 80 feet, a roundabout will normally be feasible. The roundabout may often be the superior alternative based upon traffic performance, safety for all users, and reduced life-cycle costs from removal of traffic signals. Low volume single-lane roundabouts are suitable along bikeway facilities, because they can frequently allow bicyclists to proceed through intersections without stopping. They are also very safe and will reduce delays for pedestrians.

# LA County TOD Access Study

## Cost Estimates & Feasibility Assessments

### Cost Estimates & Feasibility Assessments

#### Roundabouts (cont.)

The cost estimate for a roundabout will be very similar to the costs for liberal use of curb extensions, especially if the design is able to minimize reconstruction of existing pavements. Costs of pedestrian signal and pushbutton upgrades can also be eliminated if the traffic signal is removed.

#### Traffic Circles

Traffic circles are smaller than roundabouts. They generally will require long vehicles to turn left in front of the circle. They are appropriate only for roadways carrying less than 3,000 daily vehicles that intersect with lower volume roadways, such as along proposed bicycle boulevards. They cost much less than roundabouts and can often be provided liberally where 4-way intersections are provided.

# LA County TOD Access Study

## Potential Funding Sources

The following section outlines potential funding sources for the recommended improvements contained in this report. The list of sources is not exhaustive and is intended to provide preliminary guidance.

### Potential Funding Sources: Federal

#### MAP-21 (Moving Ahead for Progress in the 21<sup>st</sup> Century)

"MAP-21 creates a new discretionary pilot program for transit-oriented development planning grants. Eligible activities include comprehensive planning in corridors with new rail, bus rapid transit, or core capacity projects. The comprehensive plans should seek to enhance economic development, ridership, and other goals; facilitate multimodal connectivity and accessibility; increase access to transit hubs for pedestrian and bicycle traffic; enable mixed-use development; identify infrastructure needs associated with the project; and include private sector participation. MAP-21 authorizes \$10 million for FY 2013 and \$10 million for FY 2014" (Federal Transit Administration, 2012).

For more information visit <<http://www.fta.dot.gov/map21/>>

#### Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) was reauthorized under MAP-21, and received a substantial increase in funding relative to SAFETEA-LU. It aims to achieve a significant reduction in traffic fatalities and serious accidents through the implementation of infrastructure-related highway safety improvements. These improvements may be on any public road or publicly owned bicycle and pedestrian pathway or trail, and can include the use of devices such as traffic signals, curb extensions, and crosswalks. In 2009, \$1.296 billion in funds was available nationwide.

For more information visit <<http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm>>, <[http://safety.fhwa.dot.gov/safetealu/fact\\_sheets/ftsht1401.cfm](http://safety.fhwa.dot.gov/safetealu/fact_sheets/ftsht1401.cfm)>, <[http://www.bikeleague.org/resources/reports/pdfs/highway\\_safety\\_improvement\\_program.pdf](http://www.bikeleague.org/resources/reports/pdfs/highway_safety_improvement_program.pdf)>

#### Recreational Trails Program

The Recreational Trails Program was reauthorized under MAP-21. The California State Parks and Recreation Department administered Recreational Trails Program (RTP) funds under SAFETEA-LU, and will likely continue to administer the state's half of the funds under MAP-21. RTP annually funds recreational trails, including bicycle and pedestrian paths. Cities, counties, districts, state agencies, federal agencies and non-profit organizations may apply. A 12 percent match is required. Federal, state, local and private funds may be used to match the grant. There is no limit to the grant request; however, there are different requirements within the grant application depending on whether the project requires more or fewer than \$100,000.

More information can be found at:

Tel. (916) 653-7423

[localservices@parks.ca.gov](mailto:localservices@parks.ca.gov)

For more information visit <[http://www.parks.ca.gov/?Page\\_id=24324](http://www.parks.ca.gov/?Page_id=24324)>, <<http://www.fhwa.dot.gov/environment/rectrails/>>

# LA County TOD Access Study

## Potential Funding Sources

### Potential Funding Sources: State

#### Bicycle Transportation Account (BTA)

The State Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the BTA emphasizes projects that benefit bicycling for commuting purposes. Agencies may apply for these funds through the Caltrans Office of Bicycle Facilities. Applicant cities and counties are required to have an approved bicycle plan that conforms to Streets and Highways Code 891.2 to qualify and compete for funding on a project-by-project basis. Cities may apply for these funds through the Caltrans Office of Bicycle Facilities. A local match of 10% is required for all awarded funds. Every year \$7.2 million is allocated for bicycle projects statewide. The Non-motorized Transportation Plan establishes a regional network from which local plans can build upon for local-serving bicycle and pedestrian routes. Once a jurisdiction has an approved bicycle plan that meets the requirements of the Street and Highways Code 891.2, they may apply for the Caltrans grant.

For more information visit: <<http://www.dot.ca.gov/hq/MassTrans/State-TDA.html>>, <<http://www.dot.ca.gov/hq/LocalPrograms/bta/btawebPage.htm>>

#### Safe Routes to School (SR2S)

The Safe Routes to School (SR2S) program is separate from the federal Safe Routes to School Program. This program, initiated in 2000, is meant to improve school commute routes by improving safety to bicycle and pedestrian travel through bikeways, sidewalks, intersection improvements, traffic calming, and ongoing programs. This program funds improvements for elementary, middle, and high schools. A local match of 10 percent is required for this competitive program, which allocates approximately \$24.25 million annually, or \$40 million to \$50 million in two-year cycles. Each year the state legislature decides whether to allocate funds to the program. Caltrans administers SR2S funds through its district offices.

For more information visit: <<http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm>>

#### CalTrans: Community-Based Transportation Planning Goals

This program awards funds to coordinate transportation and land-use planning projects that encourage community involvement and partnerships. Projects must support livable/sustainable community concepts with a transportation or mobility objective, and promote community identity and quality of life. Metropolitan planning organizations, regional transportation planning agencies, cities, counties, and transit agencies may apply. The maximum funding per application is \$300,000.

For more information visit: <<http://www.dot.ca.gov/hq/tpp/offices/ocp/cbtp.html>>



### Potential Funding Sources: Local

#### Metro's Call for Projects

As part of Los Angeles County Transportation Improvement Program, Metro administers the annual Call for Projects program. The program "distributes discretionary capital transportation funds to regionally significant projects," including bicycle and pedestrian improvements tied to transit. In 2001, Metro recommended funding for 72 projects countywide, totaling \$123.516 million (Metro, 2012).

For more information visit <[http://www.metro.net/projects/call\\_projects/](http://www.metro.net/projects/call_projects/)>

#### Measure R Local Return

A portion of this Los Angeles County half-cent sales tax revenue returns to local jurisdictions according to population. The money may be spent on a variety of transportation projects, including bicycle projects. Of the \$40 billion which will be collected over the 30 years from Measure R's passage in 2008, \$5.91 billion (approximately 15%) will be returned to local jurisdictions for improvements such as street resurfacing, rehabilitation and reconstructions, bikeways, pedestrian improvements, and streetscapes. Cities may spend this money as they choose from these categories. The distribution of funds varies by year.

For more information visit <<http://www.metro.net/projects/measurer/>>

#### Resurfacing and Repaving

The County should take advantage of opportunities to add bicycle lanes and other markings upon resurfacing and repaving of streets. While other lanes are restriped, the bike facilities can be painted as well. This requires close coordination with DPW so that low cost bicycle upgrades are not left out of street maintenance projects.

#### New Construction

Future road widening and construction projects are one means of providing bike lanes, pedestrian improvements, and trails. To ensure that roadway construction projects provide appropriate measures where needed, it is important that an effective review process or ordinance is in place to ensure that new roadways incorporate the needs of all users. Developers may also be asked to dedicate land toward the widening of roadways in order to provide for enhanced bicycle mobility and ensure consistency with the Bicycle Master Plan.

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# LAX/Aviation Green Line Station



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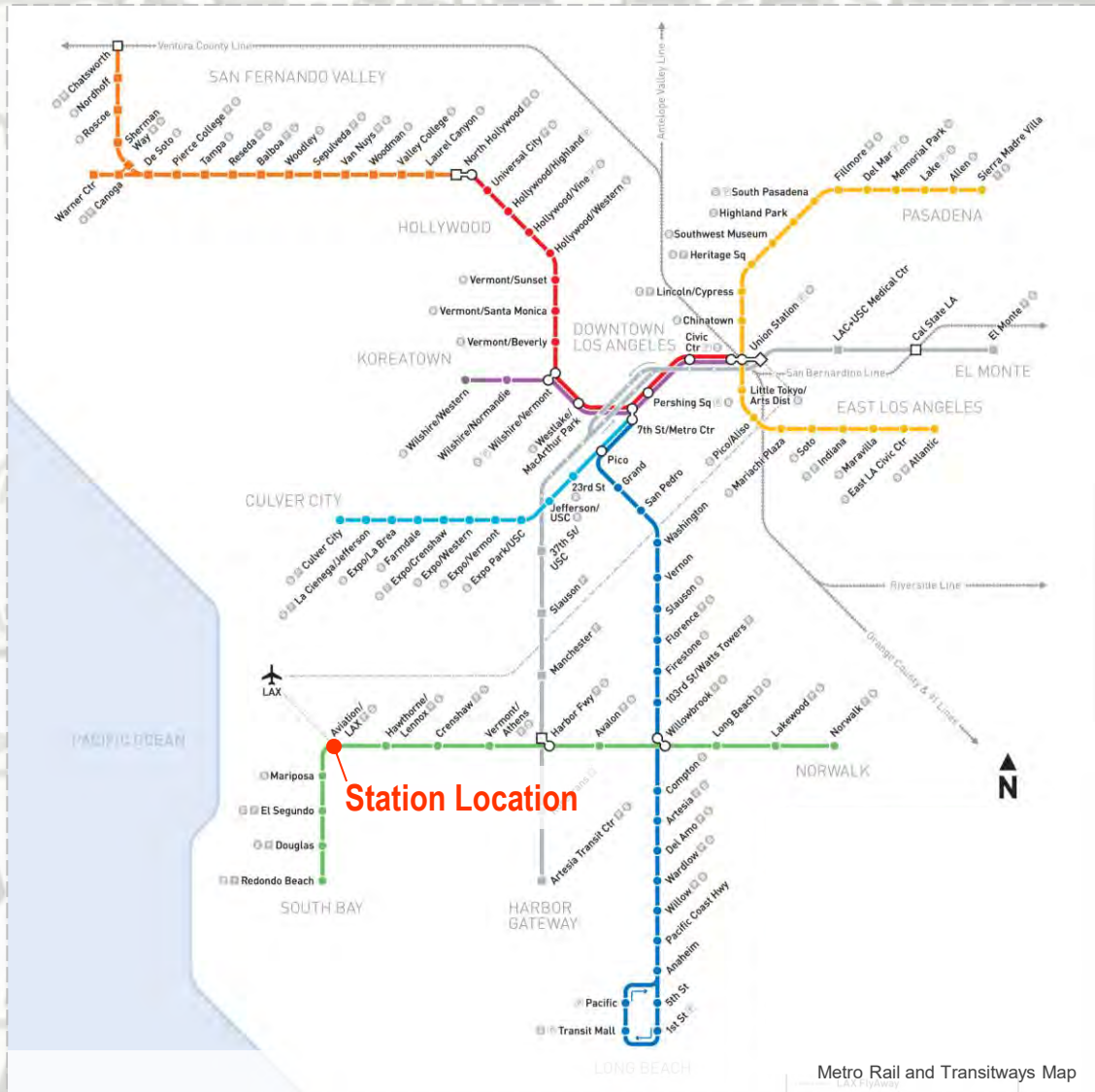
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# LAX/Aviation Green Line Station



## The LAX/Aviation Green Line Station

is located at Aviation Boulevard and Imperial Highway. The station platform is just south of the I-105 Freeway.

# LAX/Aviation Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Located close to job centers and LAX
- Small residential neighborhood in close proximity to station

## WEAKNESSES

- Lack of bicycle infrastructure on nearby streets
- Traffic and noise pollution
- Freeway serves as a barrier for pedestrians and bicyclists
- Lack of healthy destinations

## OPPORTUNITIES

- Enhance connection to job centers
- Wide rights-of-way
- Leverage planned transit connection to LAX
- Several Metro-owned properties around current and planned transit sites
- Existing bicycle storage facilities at station
- High number of bicyclists and pedestrians in the area
- Planned bicycle infrastructure improvements

## CHALLENGES

- Uncertainty about public dollars to make improvements



# LAX/Aviation Green Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The LAX/Aviation Green Line Station is located at Aviation Boulevard and Imperial Highway. The station platform is just south of the I-105 Freeway in the City of Los Angeles and serves the unincorporated community of Del Aire.

### Strengths

- Located close to job centers and LAX
- Small residential neighborhood in close proximity to station

The LAX/Aviation station is close to the Los Angeles International Airport (LAX) and the surrounding jobs cluster, making it an attractive destination for many transit users. In addition, there is a small residential neighborhood near the station, creating another potential user base.

### Weaknesses

- Lack of bicycle infrastructure on nearby streets
- Traffic and noise pollution
- Freeway serves as a barrier for pedestrians and bicyclists
- Lack of healthy destinations

Major streets in the Transit Oriented District (TOD), including Century and Aviation Boulevards are wide arterials with consistently heavy traffic. As the Urban Land Institute (ULI) Technical Assistance Panel (TAP) Report notes, the “size and scale of the street conflicts with scale for the buildings that line the street and pedestrians trying to cross the street.”<sup>2</sup> In addition, the existing bike lane along Aviation Boulevard stops short of the station, creating an impediment for cyclists. The study area also is deficient in healthy destinations. There are a limited number of places to purchase healthy food and there is little accessible open space to provide recreation opportunities.

# LAX/Aviation Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Enhance connection to job centers
- Wide rights-of-way
- Leverage planned transit connection to LAX
- Several Metro-owned properties around current and planned transit sites
- Existing bicycle storage facilities at station
- High number of bicyclists and pedestrians in the area
- Planned bicycle infrastructure improvements

The station is located near the large job center that surrounds LAX. A ULI study notes that this transit investment could have a “significant impact on the way people intersect with the airport.”<sup>3</sup> In addition, the study points to the number of Metro-owned properties surrounding the transit station, representing significant opportunities for transit-oriented development and neighborhood revitalization. The area also has “potential for a large, multi-block commercial development node” that would benefit from increased pedestrian and bicycle infrastructure.<sup>4</sup> In addition, the station’s surrounding streets are relatively wide, which provide an opportunity to make pedestrian and bicycle improvements.

As observed, there are a number of bicyclists and pedestrians in the area, including commuters and workers in the surrounding commercial spaces. The station has bike racks and bicycle lockers. In addition, the County’s bicycle plan calls for Class II bike lanes on Aviation Boulevard and Imperial Highway.<sup>5</sup>

## Challenges

- Uncertainty about public dollars to make improvements

While Metro is currently planning for a transit connection from the Green Line to LAX, it is unclear what monies will be available to upgrade pedestrian and bicycle infrastructure in the TOD.





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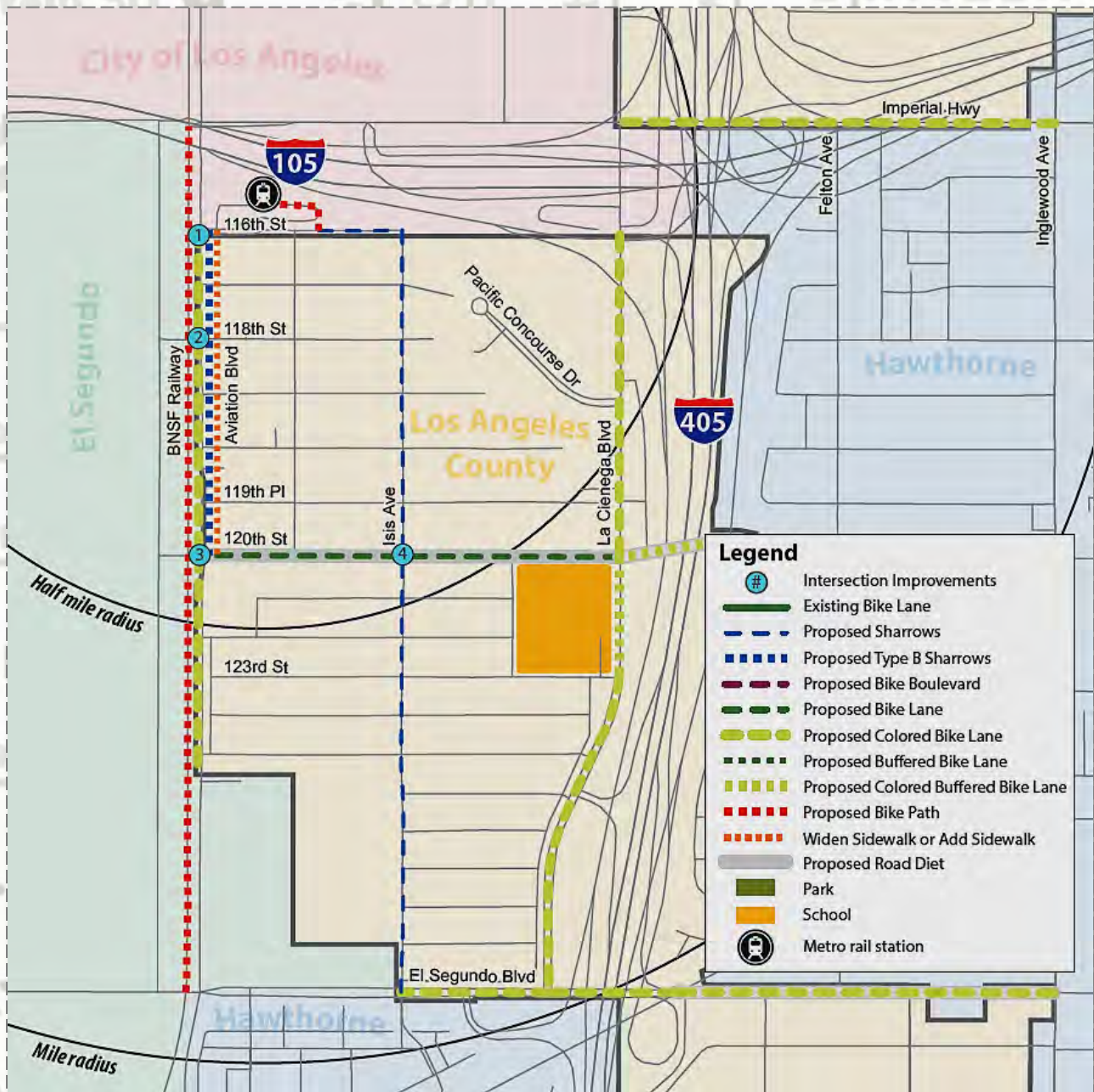
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# LAX/Aviation Green Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

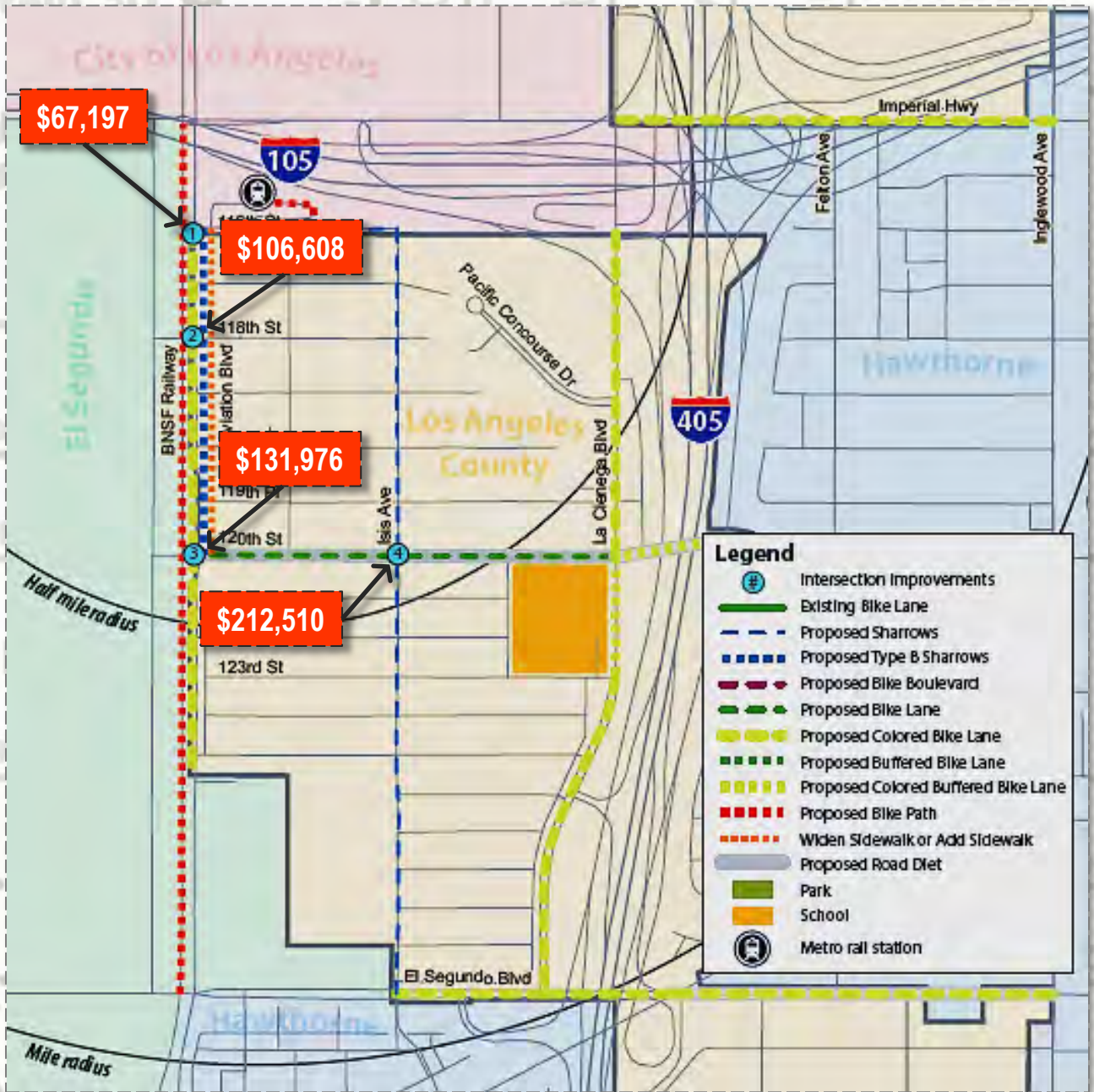


See Appendix A for detailed information on recommended bikeways and linear concepts

# LAX/Aviation Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$3.650 million**

See Appendix A for detailed cost estimates

# LAX/Aviation Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement #1

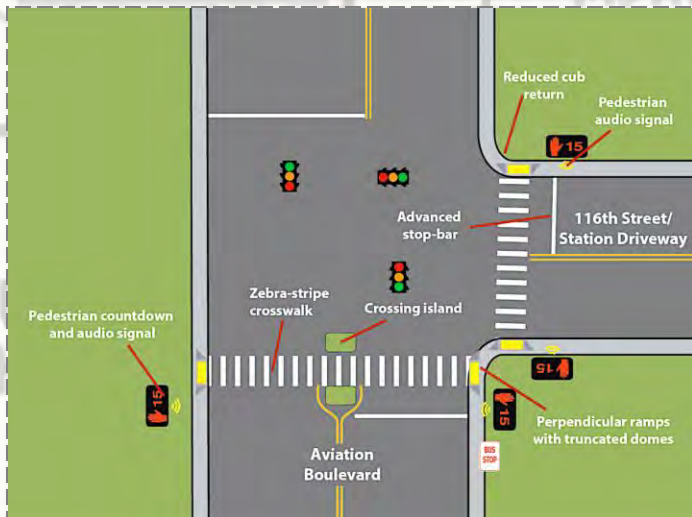
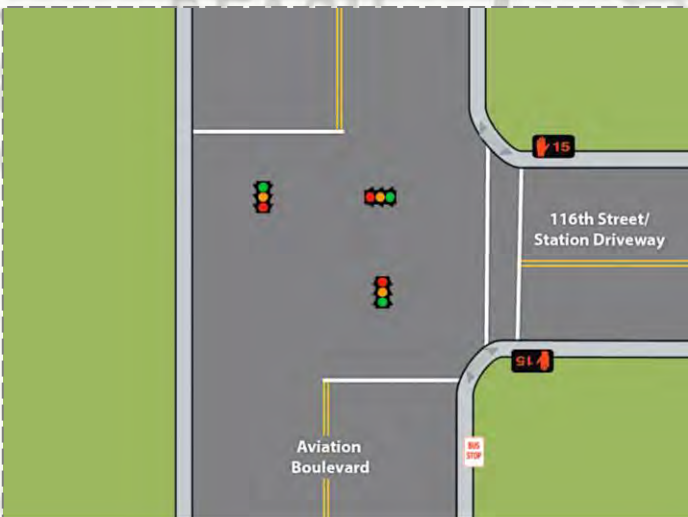
### 116<sup>th</sup> Street/Station Driveway & Aviation Boulevard

#### EXISTING

- 116th St./Station Driveway has 4 lanes
- Aviation Blvd. has 4 lanes, center turn lane, and parking on the east side
- Signalized T-intersection
- All pedestrian crossings across Aviation Blvd. prohibited
- Bus stop on Aviation Blvd. (northbound, near side)
- Existing pedestrian countdown signals on east leg of intersection

#### RECOMMENDED

- Open crossing across Aviation Blvd. on south leg of intersection in conjunction with bicycle path along BNSF Railway right-of-way. At time of path construction, add to south leg:
  - Zebra-stripe crosswalk (1)
  - Pedestrian countdown signals (2)
  - Audio signals (2)
  - Advanced stop bar (1)
  - Crossing islands (1 pair)
  - Directional curb ramps (2)
- Add zebra-stripe crosswalk to east leg (1)
- Add audio signals to east leg (2)
- Add advanced stop bar to east leg (1)
- Reduce curb returns on east leg (2)
- Coordinate with City of Los Angeles and City of El Segundo



# LAX/Aviation Green Line Station

## Existing Conditions & Recommendations

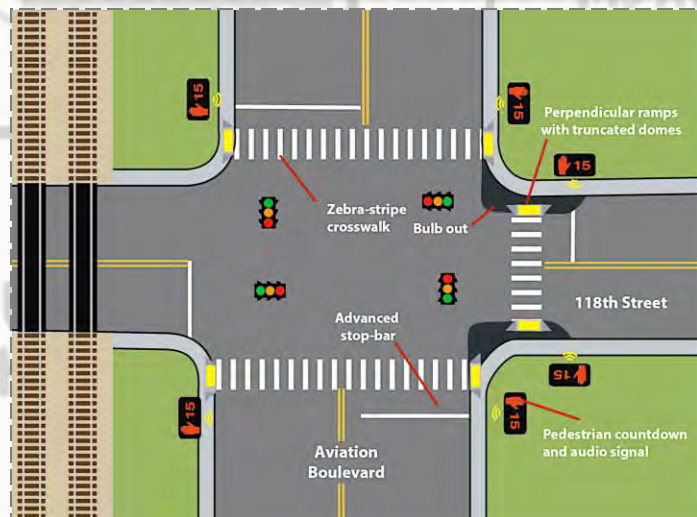
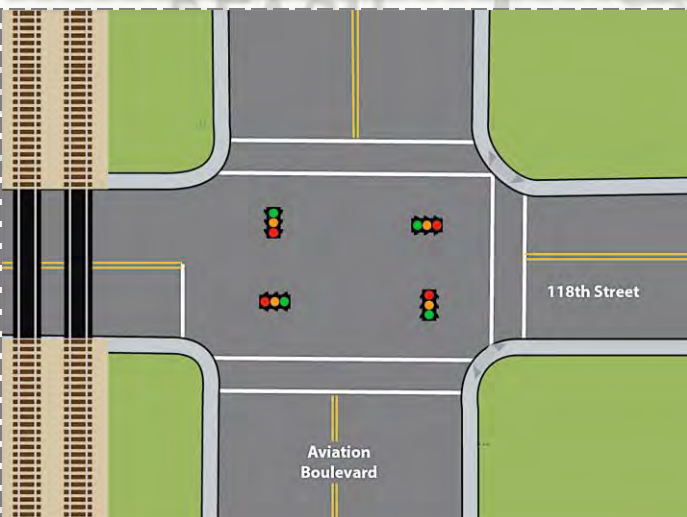
### Intersection Improvement #2 118<sup>th</sup> Street & Aviation Boulevard

## EXISTING

- 118th St. has 2 lanes with on-street parking
- Aviation Blvd. has 4 lanes, center turn lane, and parking on the east side
- Signalized intersection
- ADA-noncompliant landing areas on west side of intersection

## RECOMMENDED

- Add zebra-stripe crosswalks to north, east, and south legs (3)
- Add pedestrian countdown signals to north, east, and south legs (6)
- Add audio signals to north, east, and south legs (6)
- Add advanced stop bars to north, east, and south legs (3)
- Add bulb-outs on northeast and southeast corners to cross 118th St. (2)
- Add curb ramps on west side of intersection to cross Aviation Blvd. (2)
- Coordinate with City of El Segundo





# LAX/Aviation Green Line Station

Existing Conditions & Recommendations

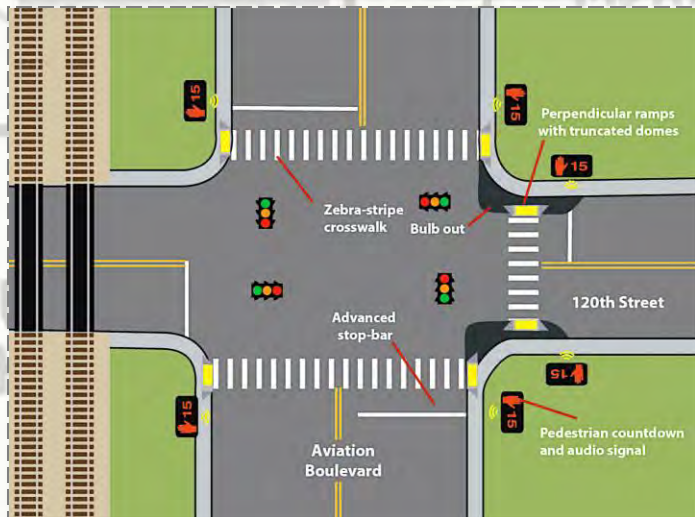
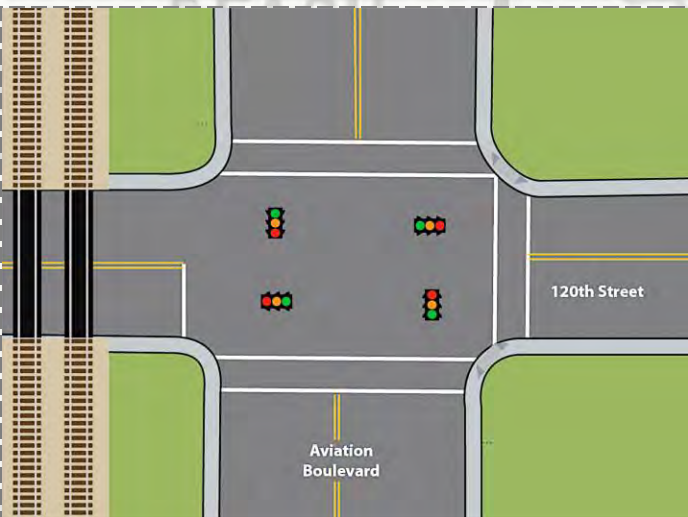
## Intersection Improvement #3 120<sup>th</sup> Street & Aviation Boulevard

### EXISTING

- 120th St. has 2 lanes with on-street parking
- Aviation Blvd. has 4 lanes, center turn lane, and parking on the east side
- Signalized intersection
- ADA-noncompliant landing areas on west side of intersection

### RECOMMENDED

- Add zebra-stripe crosswalks to north, east, and south legs (3)
- Add pedestrian countdown signals to north, east, and south legs (6)
- Add audio signals to north, east, and south legs (6)
- Add advanced stop bars to north, east, and south legs (3)
- Add bulb-outs on northeast and southeast corners to cross 120th St. (2)
- Add curb ramps on west side of intersection to cross Aviation Blvd. (2)
- Coordinate with City of El Segundo



# LAX/Aviation Green Line Station

## Existing Conditions & Recommendations

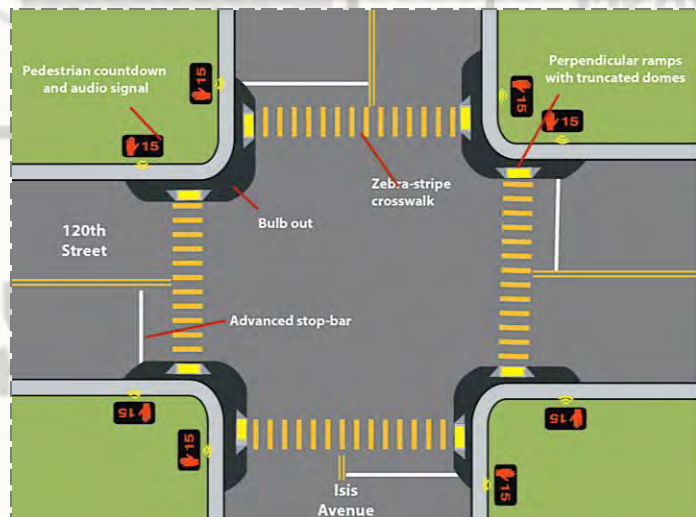
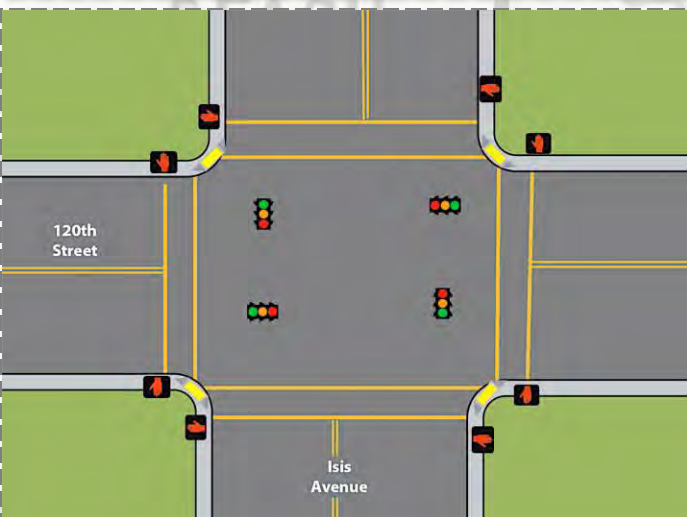
### Intersection Improvement #4 120<sup>th</sup> Street & Isis Avenue

## EXISTING

- 120th St. has 2 lanes with on-street parking
- Isis Ave. has 2 lanes with on-street parking
- Signalized intersection
- Yellow lateral line crosswalks for all crossings and truncated domes on all corners

## RECOMMENDED

- Add yellow zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all signalized crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on all curb faces to cross 120th St. and Isis Ave. (8)



# LAX/Aviation Green Line Station

## Existing Conditions & Recommendations

### Local Transit Serving the Station

The LAX/Aviation Station serves the Green Line Light Rail and various bus transit systems, including Metro standard bus routes and express routes, along with local bus routes for Culver City, Santa Monica, and Beach Cities transit. There is also a shuttle service dedicated solely for the nearby LAX Airport.

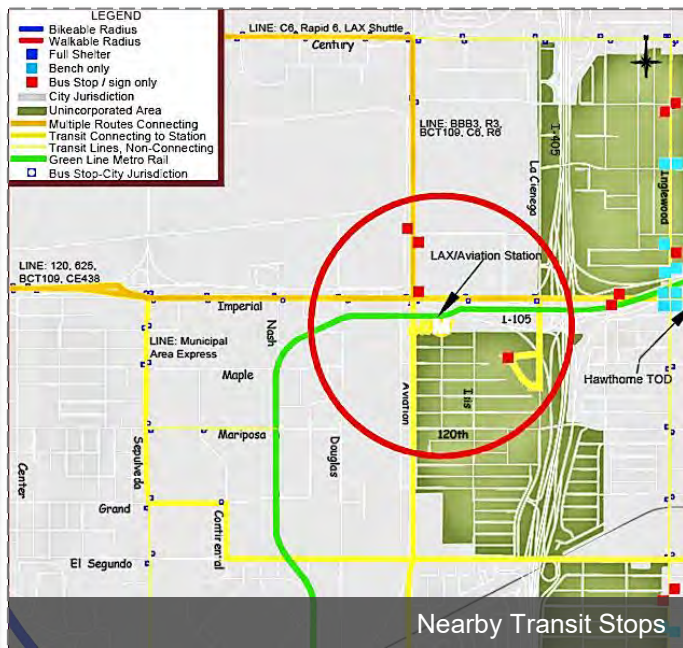
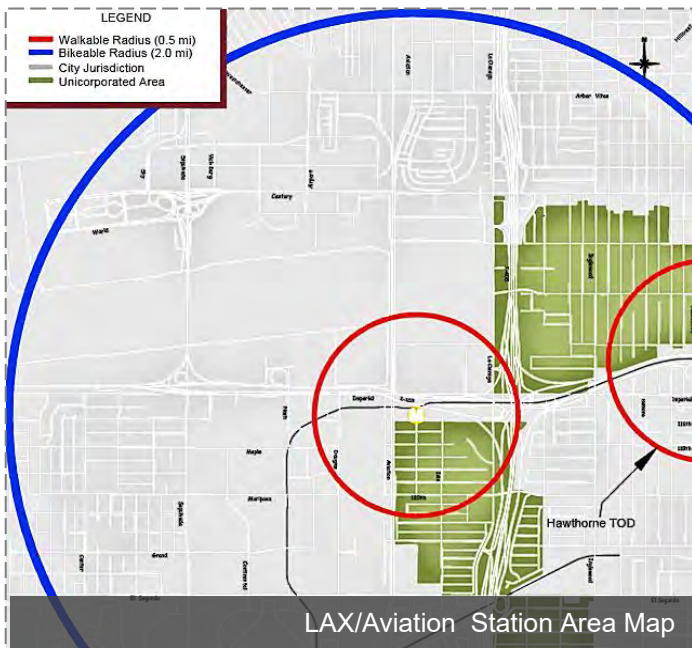
Destinations served directly by these transit lines include LAX, downtown Los Angeles, the Fox Hills Mall, and the Los Angeles Superior Court. Connections to other bus lines allow destinations to include the South Bay beach cities, the UCLA, and various local cities, including Culver City, El Segundo, Long Beach and Torrance.

### Local Transit Stops

Most of the local transit stops surrounding the LAX/Aviation station are not located within unincorporated County jurisdiction. Inglewood Avenue serves as the eastern most boundary of the unincorporated community of Del Aire, so the bus stops along Inglewood Avenue were inventoried, although it is likely that many stops on the east side of the roadway are not within the County's jurisdiction.

### Recommended Transit Improvements

A total of 13 stops are located in the County's jurisdiction. This includes those along both sides on Inglewood Avenue, north of Imperial Highway, the stop off of La Cienega Boulevard (on Pacific Concourse Drive), and those along the west side of Inglewood Avenue, south of El Segundo Boulevard. This report also includes one stop on the north side of Imperial Highway between Inglewood Avenue and the I-405 freeway. Recommended improvements are detailed in Appendix A.





# Vermont Green Line Station



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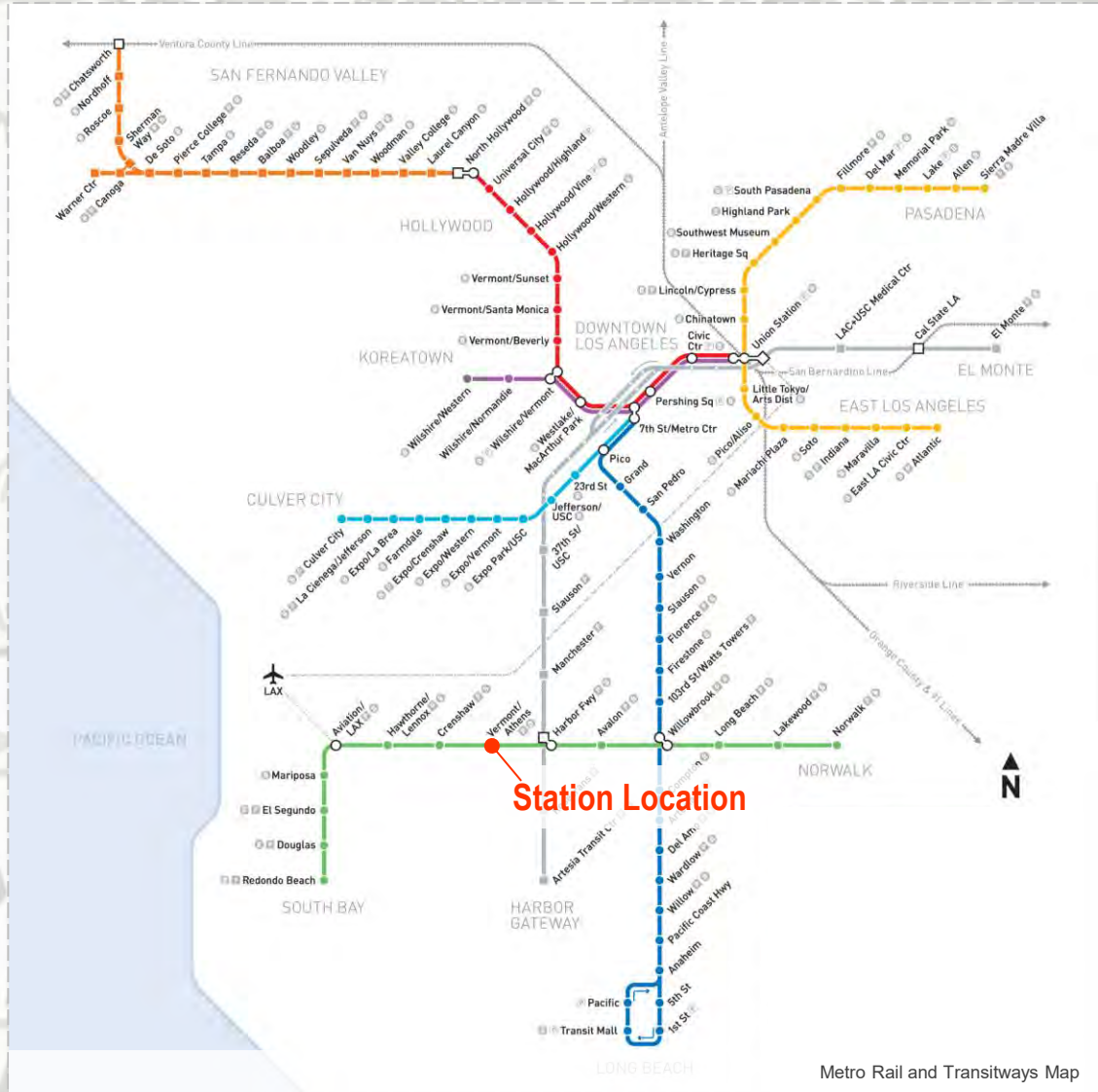
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# Vermont Green Line Station



## The Vermont Green Line Station

is located in the median of the I-105 Freeway below Vermont Avenue. The station serves the unincorporated community of West Athens-Westmont.

# Vermont Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Existing train station
- Established infrastructure
- Involved community stakeholders
- County facilities, grocery store, and nearby educational facilities

## WEAKNESSES

- Located in the median of the freeway
- Traffic and noise pollution
- Lack of pedestrian infrastructure
- Lack of open space and greenery
- Lack of bicycle infrastructure on nearby streets
- Personal safety concerns

## OPPORTUNITIES

- Width of Vermont presents opportunities for improved bike & pedestrian infrastructure
- Vacant & underutilized lots could be redeveloped
- Strengthen connections to existing neighborhood amenities
- Station enhancements
- Planned bicycle infrastructure improvements

## CHALLENGES

- Non-existent market for transit-oriented development
- Little prospect of private development
- Uncertainty about public dollars to make improvements
- Potential community opposition to change



# Vermont Green Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Vermont Green Line Station is “located in the median of the I-105 Freeway below Vermont Avenue. From the street level, Metro Green Line passengers descend via a stairway or elevator to reach the light rail platform. On Vermont Avenue outside the station entrance, there are bus stops for Metro Rapid and local bus services.”<sup>6</sup> The station serves the unincorporated community of West Athens-Westmont.

### Strengths

- Existing train station
- Established infrastructure
- Involved community stakeholders
- County facilities, grocery store, and nearby educational facilities

The existing train station, established infrastructure, and “involved community stakeholders provide a good opportunity for effective localized planning in the Vermont Station TOD.”<sup>7</sup> County investments in the area, including a new Sheriff’s Station, and nearby Los Angeles Southwest College provide connection opportunities. The Ralph’s grocery store provides a local market and “well-maintained, relatively dense and stable single family residential population provides a user-base for the light rail transit system.”<sup>8</sup>

### Weaknesses

- Located in the median of the freeway
- Traffic and noise pollution
- Lack of pedestrian infrastructure
- Lack of open space and greenery
- Lack of bicycle infrastructure on nearby streets
- Personal safety concerns

As with many of the other Transit Oriented Districts (TODs) in unincorporated LA County, the Vermont Green Line Station is located in the middle of the I-105 Freeway, which limits “access to the station, expose[s] residents to traffic and noise pollution, and create[s] hostile environments for pedestrians.”<sup>9</sup> In addition, the segment of Vermont Avenue surrounding the station lacks sidewalks and has a neglected streetscape that deters pedestrians.<sup>10</sup> Neighborhood concerns about personal safety in the area around the station also limit pedestrian activity.<sup>11</sup> Bicycle infrastructure near the station is lacking with no designated bike lanes, and no bike paths nearby. The station does provide bicycle racks, but they are underutilized. The station lacks bicycle lockers, and Metro notes that “the railroad tracks located south of the transit station pose a major problem for cyclists trying to access the Vermont station.”<sup>12</sup> The tracks present “a barrier between residents south of it and the transit station.”<sup>13</sup>

# Vermont Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Width of Vermont presents opportunities for improved bike & pedestrian infrastructure
- Vacant & underutilized lots could be redeveloped
- Strengthen connections to existing neighborhood amenities
- Station enhancements
- Planned bicycle infrastructure improvements

The TOD has many opportunities for improved pedestrian and bicycle access to the station. Most notably, the wide right-of-way and large median on Vermont provide “major opportunities for pedestrian and bicyclist improvements.”<sup>14</sup> The County has proposed Class II bike lanes on Vermont Avenue, Imperial Highway, and 110<sup>th</sup> Street.<sup>15</sup> A bike boulevard is also proposed along nearby Budlong Boulevard. Vacant lots within the District provide an opportunity for redevelopment and infrastructure upgrades. In addition, connectivity to existing area features (i.e., the Ralph’s grocery store, Los Angeles Southwest College, and County facilities) could be enhanced. Improvements to the station itself “could create a more aesthetically pleasing and inviting portal” for transit riders, bicyclists, and pedestrians.<sup>16</sup>

## Challenges

- Non-existent market for transit-oriented development
- Little prospect of private development
- Uncertainty about public dollars to make improvements
- Potential community opposition to change

There are many challenges in this TOD. Most importantly, the Urban Land Institute (ULI) found that there is “a non-existent market currently in place to support transit oriented development in the Vermont Station area.”<sup>17</sup> Private investment in this area will likely need public subsidies that are increasingly hard to come by. In addition, “some members of the existing community are resistant to change and may not embrace all of the proposed improvements of TOD.”<sup>18</sup>





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**Existing Conditions**  
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# Vermont Green Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements



See Appendix B for detailed information on recommended bikeways and linear concepts

# Vermont Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$7.726 million**

See Appendix B for detailed cost estimates

# Vermont Green Line Station

Existing Conditions & Recommendations

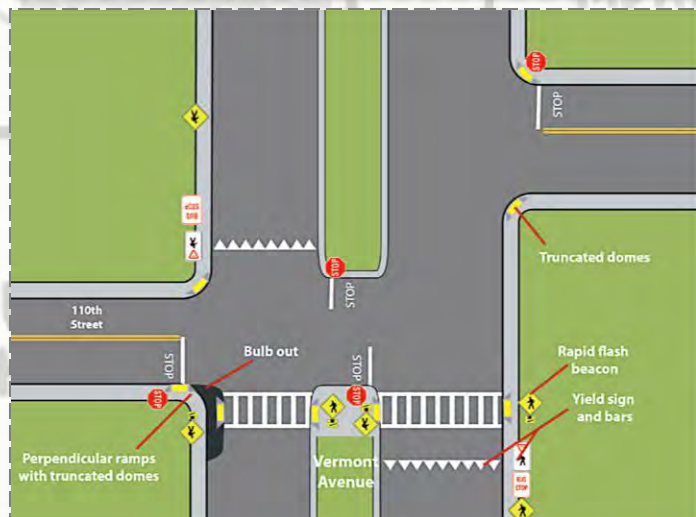
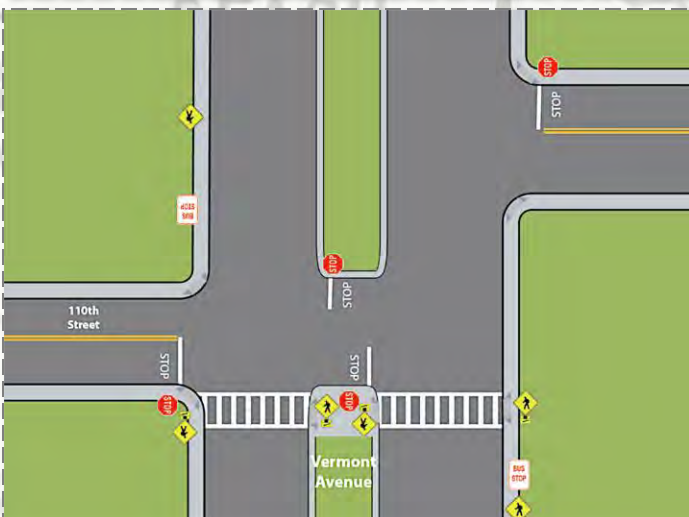
## Intersection Improvement #1 110<sup>th</sup> Street & Vermont Avenue

### EXISTING

- 110th St. has 2 lanes and on-street parking
- Vermont Ave. has 6 lanes, center median, bike lane in the northbound direction, and on-street parking
- Stop-controlled offset intersection for 110th St.
- Bus stops on Vermont Ave. (northbound, near side; southbound, near side)
- Existing ladder crosswalk across the south approach of Vermont Ave. with pedestrian crossing signs and advanced

### RECOMMENDED

- Add advanced yield markings (2)
- Add advanced yield signs (2)
- Add rectangular rapid flashing beacons (4)
- Add bulb-out on the southwest corner to cross Vermont Ave. (1)



# Vermont Green Line Station

## Existing Conditions & Recommendations

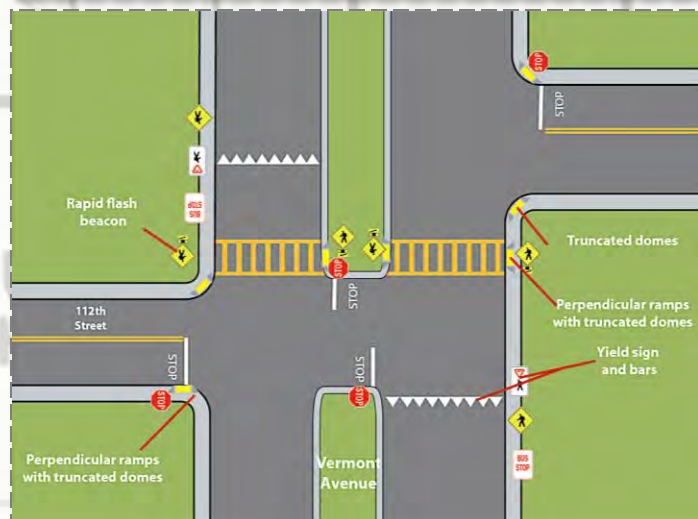
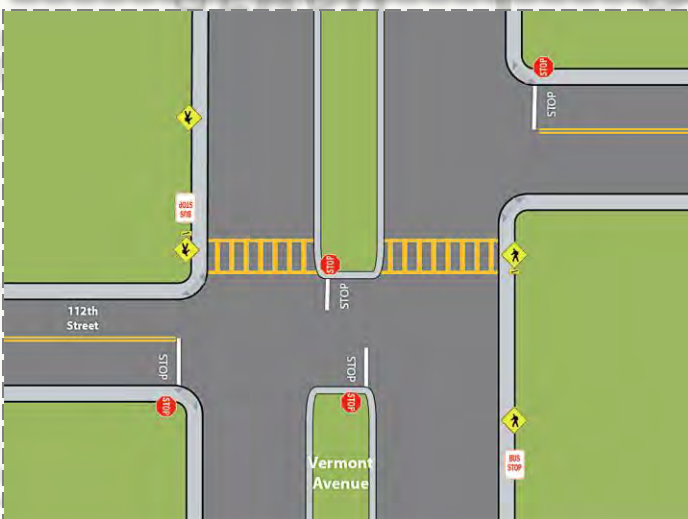
### Intersection Improvement #2 112<sup>th</sup> Street & Vermont Avenue

## EXISTING

- 112th St. has 2 lanes and on-street parking
- Vermont Ave. has 6 lanes, center median, bike lane in the northbound direction, and on-street parking
- Stop-controlled offset intersection for 112th St.
- Bus stops on Vermont Ave. (northbound, near side; southbound, near side)
- Existing yellow ladder crosswalk across the north approach of Vermont Ave. with pedestrian crossing signs and advanced pedestrian warning signs

## RECOMMENDED

- Add advanced yield markings (2)
- Add advanced yield signs (2)
- Add rectangular rapid flashing beacons (4)
- Add sidewalk and curb ramps to Vermont Ave. median island on north side of intersection





# Vermont Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement #3

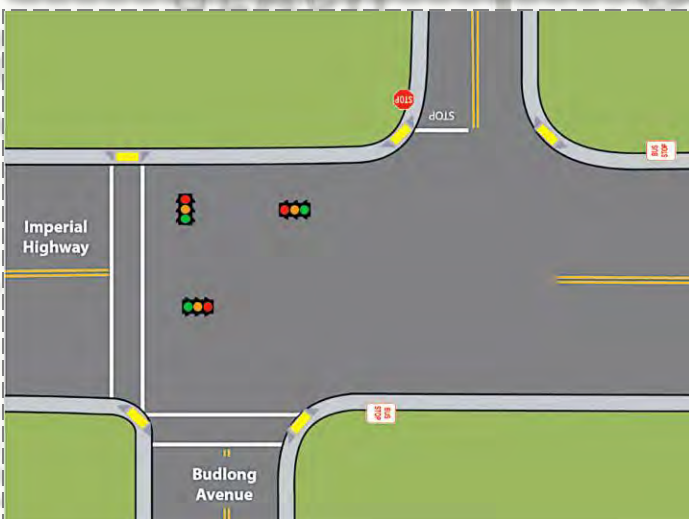
### Imperial Highway & Budlong Avenue

#### EXISTING

- Imperial Hwy. has 6 lanes and a center turn lane
- Budlong Ave. has 2 lanes and on-street parking
- Stop-controlled offset intersection for Budlong Ave.
- Pedestrian crossing of east approach of west leg of Budlong Ave. prohibited
- Bus stops on Imperial Hwy. (eastbound, far side of west leg of Budlong Ave.; westbound, near side of east leg of Budlong Ave.)
- 5 diagonal ramps with truncated domes

#### RECOMMENDED

- Signalize intersection of Imperial Hwy. and east leg of Budlong Ave.
- Add zebra-stripe crosswalks across south approach of west leg of Budlong Ave. to cross Budlong Ave., west approach of west leg of Budlong Ave. to cross Imperial Hwy., north approach of east leg of Budlong Ave. to cross Budlong Ave., and east approach of east leg of Budlong Ave. to cross Imperial Hwy. (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northeast, northwest, southeast, and southwest corners to cross Budlong Ave. (4)
- Add crossing islands to cross Imperial Hwy. on west approach of west leg of Budlong Ave. and on east approach of east leg of Budlong Ave. (2 pairs)
- Remove left turn pockets on Imperial Hwy. between east and west legs of Budlong Ave. and replace with 2-way median cycletrack



# Vermont Green Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #4

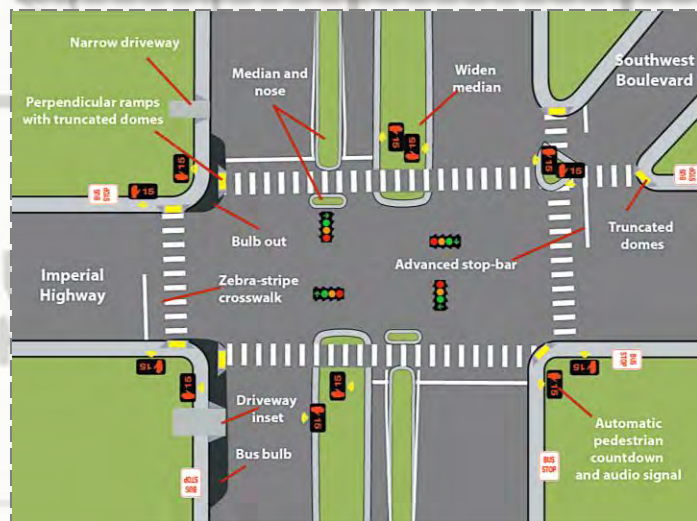
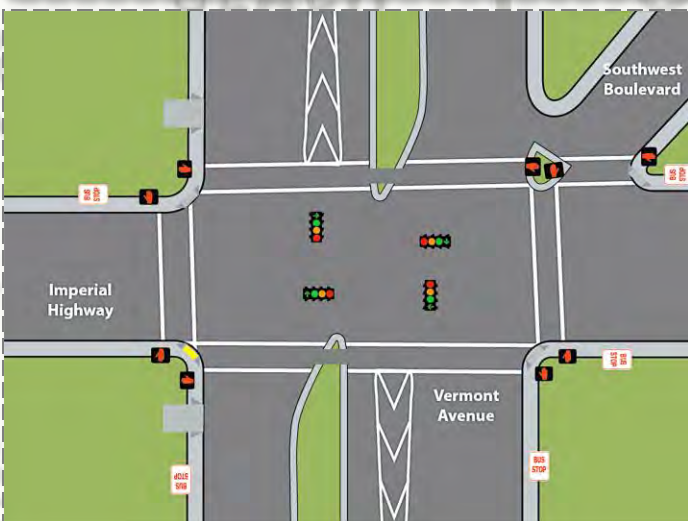
## Imperial Highway, Vermont Avenue & Southwest Boulevard

### EXISTING

- Imperial Hwy. has 6 lanes and a center-turn lane
- Vermont Ave. has 6 lanes, center median /left turn lanes, bike lane in the northbound direction, and on-street parking
- Southwest Blvd. has 2 lanes and on-street parking
- Signalized intersection with protected left turns from Imperial Hwy. and Vermont Ave.; access to Southwest Blvd. is stop-controlled
- Bus stops on Imperial Hwy. (eastbound, far side; westbound, near side and far side) and Vermont Ave. (southbound, far side; northbound, near side)
- 1 diagonal ramp with truncated domes on the southwest corner
- 2-stage crossing to cross Vermont Ave.

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (6)
- Add pedestrian countdown signals to all signalized crossings (12)
- Add audio signals to all signalized crossings (12)
- Add advanced stop bars to all crossings (5)
- Remove pushbuttons and set walk phase to automatic
- Narrow driveway and add bulb-out to the northwest corner to cross Vermont Ave. (1)
- Add bus bulb with inset driveway to the southwest corner to cross Vermont Ave. (1)
- Widen median islands on Vermont Ave. by removing taper
- Modify noses of median islands: widen width of curb ramps/pedestrian refuge area for ADA compliance
- Add additional median islands on Vermont Ave. to hatched areas between through and left turn lanes; add median nose to create refuge area (2 pairs)



# Vermont Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement #5

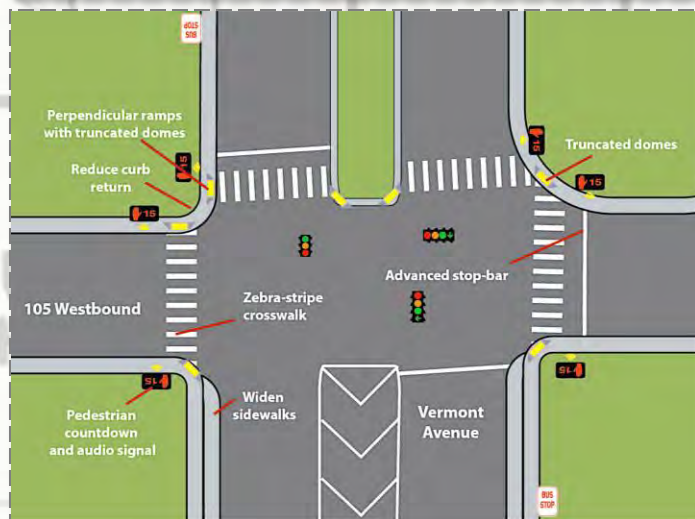
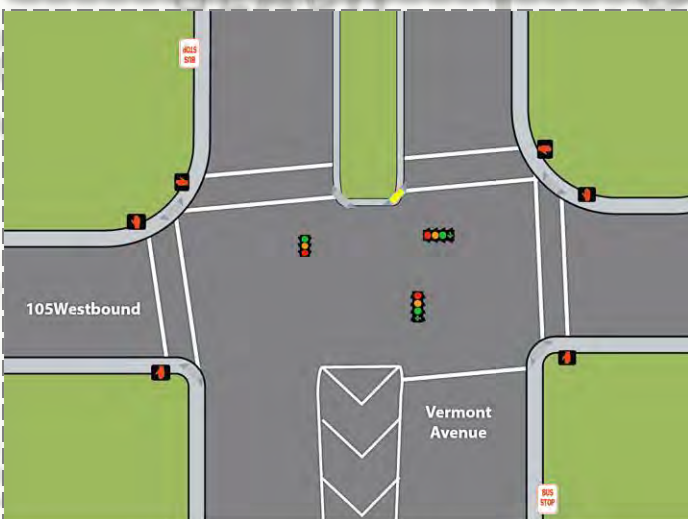
### I-105 Westbound Ramps & Vermont Avenue

#### EXISTING

- I-105 ramps have 2 lanes
- Vermont Ave. has 6 lanes, center median /left turn lanes, bike lane in the northbound direction, and on-street parking
- Signalized intersection with protected left turns from northbound Vermont Ave.
- Pedestrian crossing of south approach of Vermont Ave. prohibited
- Bus stops on Vermont Ave. (northbound and southbound, midblock at Vermont/Athens Station)
- Existing pedestrian countdown signals at all permitted crossings
- 1 diagonal ramp with truncated domes on east side of median island
- 2-stage crossing to cross Vermont Ave.

#### RECOMMENDED

- Add zebra-stripe crosswalks across west, north, and east approaches (3)
- Add audio signals to all crossings (6)
- Add advanced stop bars to southbound and westbound approaches (2)
- Add truncated domes to southwest corner (1)
- Widen east and west sidewalks along Vermont Ave. by 10' between I-105 westbound ramps and I-105 eastbound ramps/116th Pl. (2)
- Reduce curb returns on northwest corner to cross I-105 ramps and Vermont Ave. (1)
- Coordinate with Caltrans and City of Los Angeles



# Vermont Green Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #6

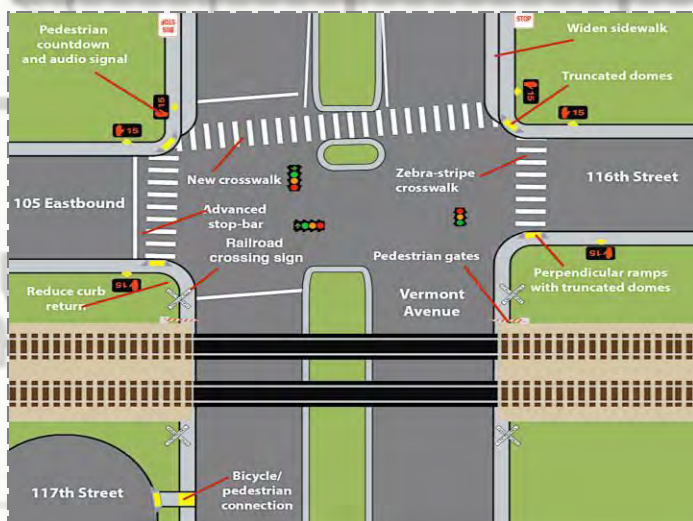
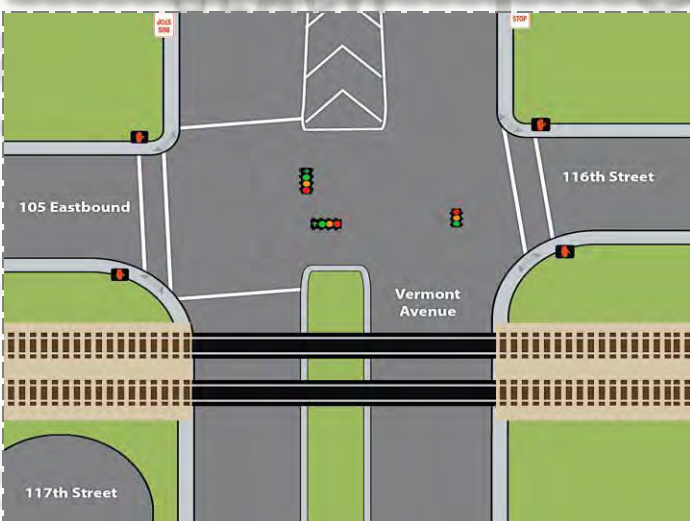
## I-105 Eastbound Ramps/116<sup>th</sup> Place & Vermont Avenue

### EXISTING

- I-105 ramps/116th Pl. have 2 lanes
- Vermont Ave. has 6 lanes, center median /left turn lanes, bike lane in the northbound direction, and on-street parking
- Signalized intersection with protected left turns from southbound Vermont Ave.
- All pedestrian crossings across Vermont Ave. prohibited
- Bus stops on Vermont Ave. (northbound and southbound, midblock at Vermont/Athens Station)
- Railroad tracks parallel to I-105 ramps/116th Pl. south of intersection

### RECOMMENDED

- Open pedestrian crossing across north leg to cross Vermont Ave.
- Add zebra-stripe crosswalks across west, north, and east approaches (3)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add advanced stop bars to southbound and eastbound approaches (2)
- On north leg of intersection, add median island to hatched area between southbound through and left turn lanes; add median nose to create refuge area (1 pair)
- Widen east and west sidewalks along Vermont Ave. by 10' between I-105 westbound ramps and I-105 eastbound ramps/116th Pl. (2)
- Reduce curb returns on southwest and southeast corners to cross I-105 ramps/116th Pl. (2)
- Add pedestrian gate arms to the railroad crossings at the southwest and southeast corners (2)
- Add concrete railroad crossing track insets to southbound Vermont Ave. mirroring those present on northbound Vermont Ave.
- Add bicycle/pedestrian connection from Vermont Ave. to 117th St. consisting of a short path and curb ramps
- Coordinate with Caltrans, City of Los Angeles, and Union Pacific Railroad



# Vermont Green Line Station

Existing Conditions & Recommendations

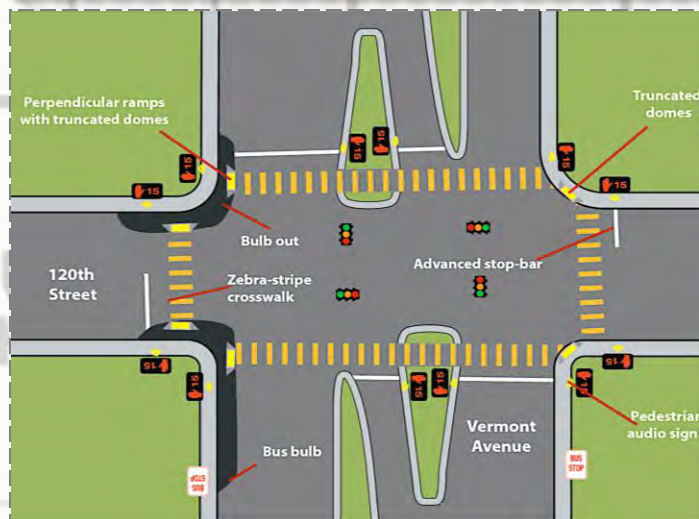
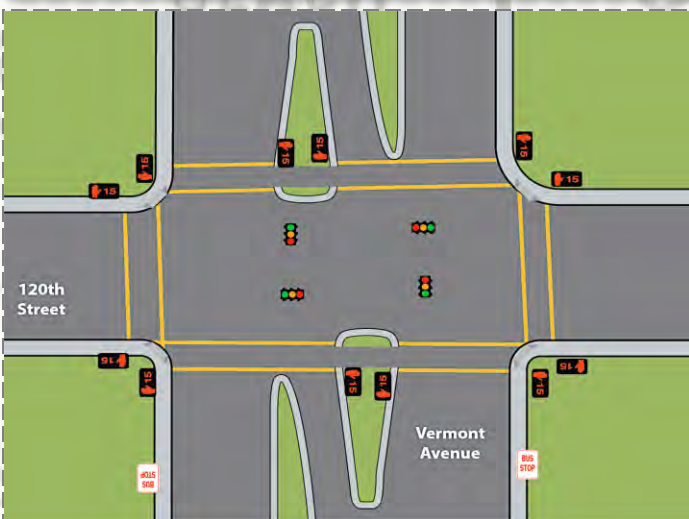
## Intersection Improvement #7 120<sup>th</sup> Street & Vermont Avenue

### EXISTING

- 120th St. has 4 lanes, left turn lane, and on-street parking
- Vermont Ave. has 6 lanes, center median /left turn lanes, and on-street parking
- Signalized intersection with permissive left turns
- Bus stops on Vermont Ave. (northbound, near side and far side; southbound, far side)
- Yellow lateral line crosswalks and pedestrian countdown signals for all crossings

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add audio signals to all crossings (12)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northwest corner to cross 120th St. and Vermont Ave. and on the southwest corner to cross 120th St. (3)
- Add bus bulb on the southwest corner to cross Vermont Ave. (1)



# Vermont Green Line Station

## Existing Conditions & Recommendations

### Local Transit Serving the Station

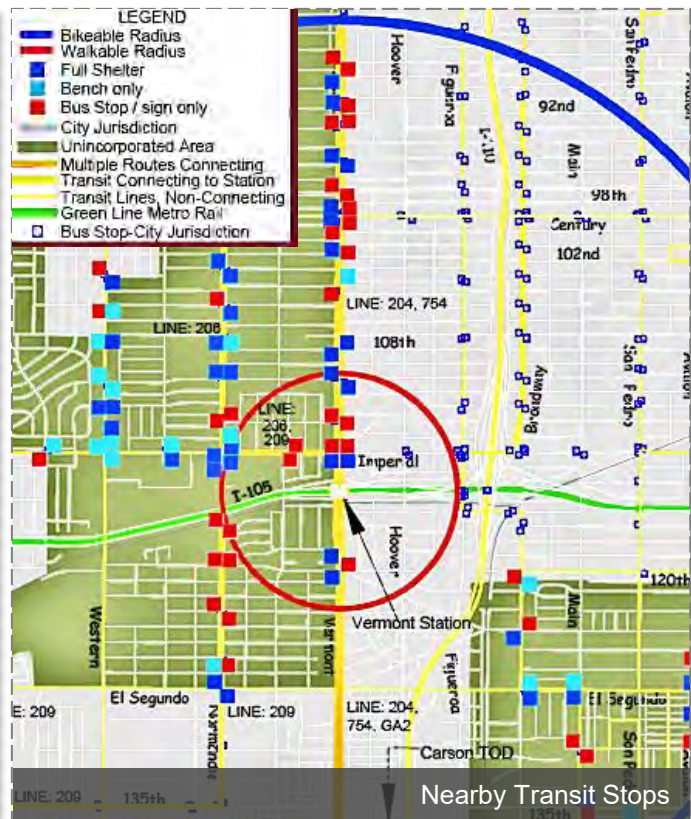
The Vermont Station serves the Green Line Light Rail route and local bus routes. These include Metro routes 204, 206, 209 and 754. It also provides service for Gardena Bus Lines route 2. Destinations served directly include the City of Gardena, and the neighborhoods of Koreatown and Los Feliz in the City of Los Angeles.

### Local Transit Stops

The Vermont Station has a large number of transit stops within a 3-mile radius. 113 stops were inventoried in relation to the Vermont Station, although some may be within City limits.

### Recommended Transit Improvements

Those within County jurisdiction that are recommended for improvements are detailed in Appendix B.



# Hawthorne Green Line Station



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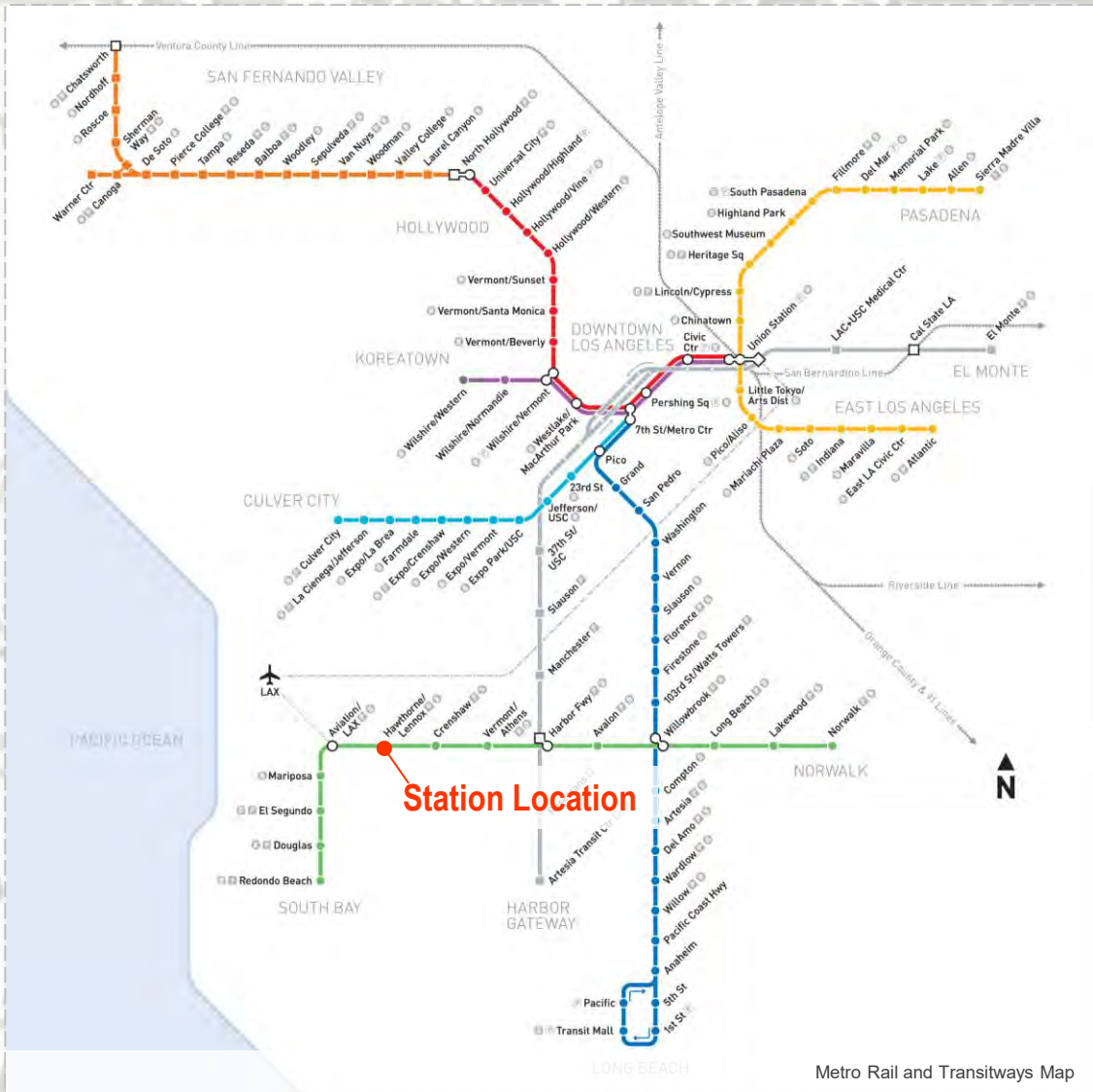
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# Hawthorne Green Line Station



## The Hawthorne Green Line Station

is located in the median of the I-105 Freeway in Lennox. The unincorporated community of Lennox is approximately one square mile and has approximately 25,000 residents.

# Hawthorne Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Existing train station
- Proximity to LAX
- Proximity to schools
- High number of bicyclists and pedestrians in the area

## WEAKNESSES

- Located in the median of the freeway
- In spite of efficient circulation, high volume streets and speeds create a dangerous environment for pedestrians and cyclists
- Mostly low-density residential neighborhood
- Lack of amenities and narrow sidewalks
- Lack of bicycle infrastructure on nearby streets
- Lack of healthy destinations

## OPPORTUNITIES

- Strong pedestrian community already established in the neighborhood
- Community has already identified local pedestrian and bicycle routes
- Lennox Avenue commercial and civic center is a strong community anchor and destination
- Planned bicycle infrastructure improvements

## CHALLENGES

- Multiple jurisdictions and lack of coordinated planning efforts
- Uncertainty about public dollars to make improvements

# Hawthorne Green Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Hawthorne Green Line Station is located in the median of the I-105 Freeway and serves the unincorporated community of Lennox. The station elevators and entrances lead to the east and west sides of Hawthorne Boulevard, where there are bus stops for Metro bus services. The major north/south corridor is Hawthorne Boulevard and the major east/west corridors are Century Boulevard (to the north) and Imperial Highway and El Segundo Boulevard (to the south).<sup>19</sup>

### Strengths

- Existing train station
- Proximity to LAX
- Proximity to schools
- High number of bicyclists and pedestrians in the area

The Lennox neighborhood contains six schools, which can serve as key linkages and anchors for pedestrian and bicycle improvements. Metro notes that “at the station, the overall area provides ample room for pedestrians and cyclists on the sidewalk.”<sup>20</sup> The station is in close proximity to major destinations, including schools and a small commercial district along Lennox Avenue. The neighborhood’s services, including “food retail, other retail, places of worship, and medical services, are primarily located along the major corridors of Hawthorne Boulevard and Inglewood Avenue.”<sup>21</sup>

### Weaknesses

- Located in the median of the freeway
- In spite of efficient circulation, high volume streets and speeds create a dangerous environment for pedestrians and cyclists
- Mostly low-density residential neighborhood
- Lack of amenities and narrow sidewalks
- Lack of bicycle infrastructure on nearby streets
- Lack of healthy destinations

While the area around the station provides adequate sidewalk space for users, the sidewalks lack shade and other amenities for passengers waiting at bus stops. On the streets surrounding the station, some sidewalks are too narrow and/or “cluttered with road signs, electrical poles and newspaper racks,” making it difficult for pedestrians to maneuver.<sup>22</sup>

# Hawthorne Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Weaknesses (cont.)

Streets around the station lack curb cuts for people with strollers, the elderly, cyclists and handicapped individuals. A lack of trash bins increases the amount of litter at the station, park-and-ride lot, and surrounding street. Metro users note that the station lacks adequate lighting during the nighttime, contributing to a perceived lack of safety in the area.<sup>23</sup>

Hawthorne Boulevard is a wide arterial. At the northern end of the station, the street measures 128 feet across, with seven traffic lanes. The speed limit is 35 miles per hour, but traffic typically exceeds that limit.<sup>24</sup> The station area is adjacent to I-105 on-ramps. The speed of the exiting and entering cars pose a danger to pedestrians and cyclists. Pedestrians note that cars often turn on the red light in and out of the on-ramp without stopping or stopping in the designated crosswalk. In addition, the traffic along Hawthorne Boulevard and the 105 Freeway creates a high level of noise that is even more pronounced on the station platform.<sup>25</sup>

There are no bike routes, bike lanes, or bike paths within a quarter mile of the station. The station itself has four bike racks and no bicycle lockers.<sup>26</sup>

The study area also has a deficit in healthy destinations. There are a limited number of places to purchase healthy food and there is little accessible open space to provide recreation opportunities.



# Hawthorne Green Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis

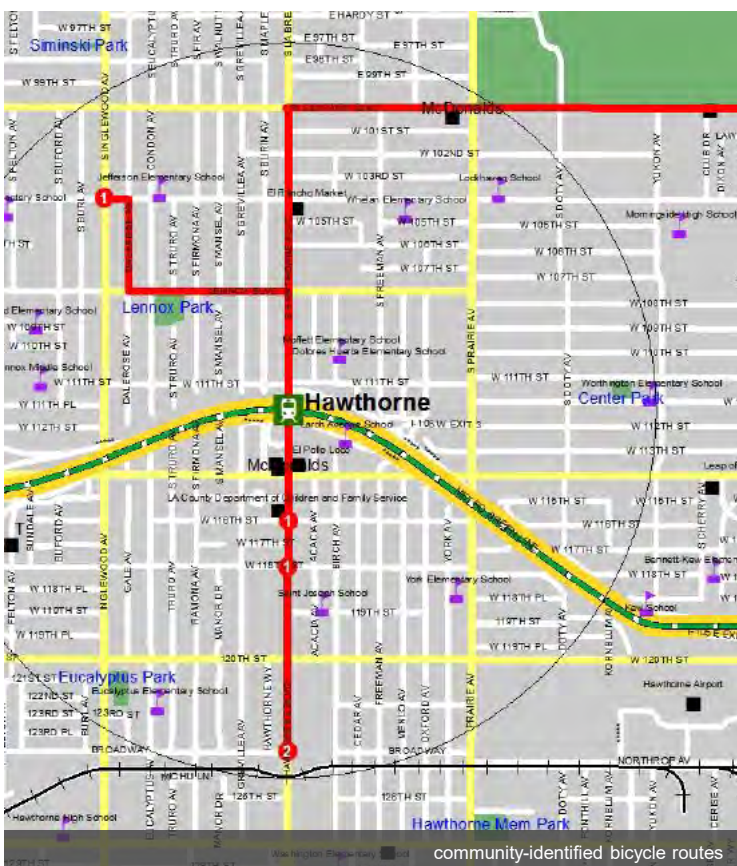
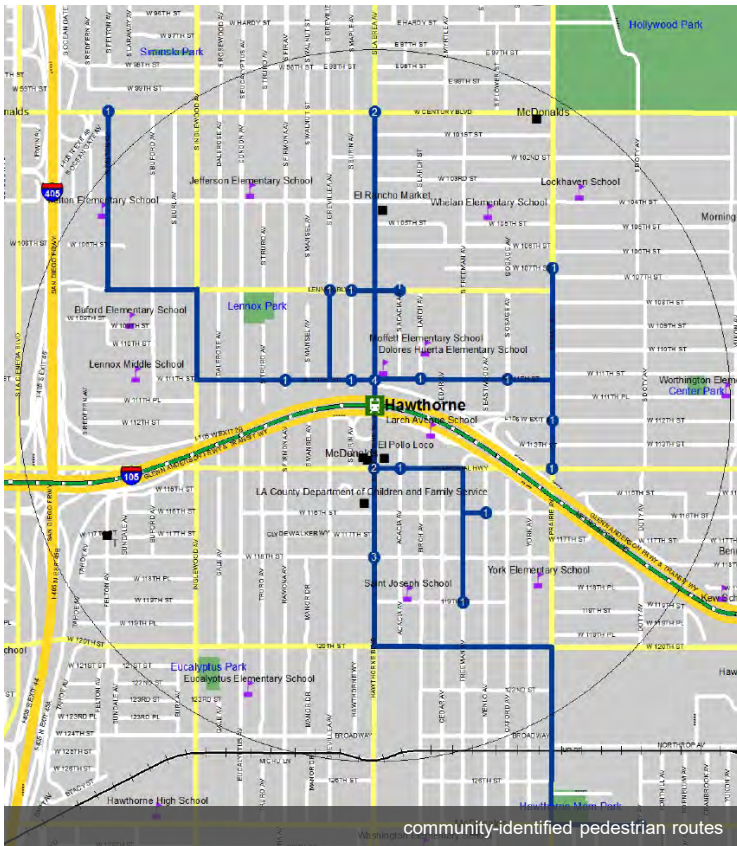
### Opportunities

- Strong pedestrian community already established in the neighborhood
- Community has already identified local pedestrian and bicycle routes
- Lennox Avenue commercial and civic center is a strong community anchor and destination
- Planned bicycle infrastructure improvements

The Los Angeles County Draft General Plan identifies the Hawthorne Boulevard Corridor and the intersection between Hawthorne and Lennox as an area that provides opportunities for mixed use and design improvements.<sup>27</sup> In particular, the area along Lennox Avenue is predominantly commercial and “experiences high pedestrian volumes at all times of the day and evening.”<sup>28</sup> The community expressed a desire to improve “pedestrian crossings and sidewalks in the area.”<sup>29</sup>

The community also identified pedestrian and bicycle routes around the station. Pedestrian routes called out by residents include 114th Street, Hawthorne Boulevard, Prairie Avenue, and 120th Street. Major bicycle routes include Century Boulevard, Hawthorne Boulevard, and Lennox Boulevard.<sup>30</sup> Although some of these bicycle routes are outside of the County’s jurisdiction, the County’s Bicycle Master Plan includes a proposed Class II bike lane along Hawthorne Boulevard and a several Class III bike routes along Lennox Boulevard, Inglewood Avenue, Buford Avenue, 104th Street, and 111th Street.<sup>31</sup>

In spite of current conditions, a report by Metro finds that people nevertheless do walk and bike in and around this designated TOD, often with small children, which poses a unique opportunity to improve the area for Lennox residents.<sup>32</sup>



# Hawthorne Green Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Challenges

- Multiple jurisdictions and lack of coordinated planning efforts
- Uncertainty about public dollars to make improvements

Multiple cities have jurisdiction around the station, making coordination on station improvements challenging. For example, many cyclists around the area tend to ride on the sidewalk (for lack of dedicated bike lanes), but nearby jurisdictions have differing policies on sidewalk riding; the City of Hawthorne permits it, the City of Inglewood and the County of Los Angeles do not.

In addition, the ability to publicly finance improvements remains unclear. The cost for recommended infrastructure upgrades and improvements would be spread between Hawthorne, Inglewood, and the County.<sup>33</sup>





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**Existing Conditions**  
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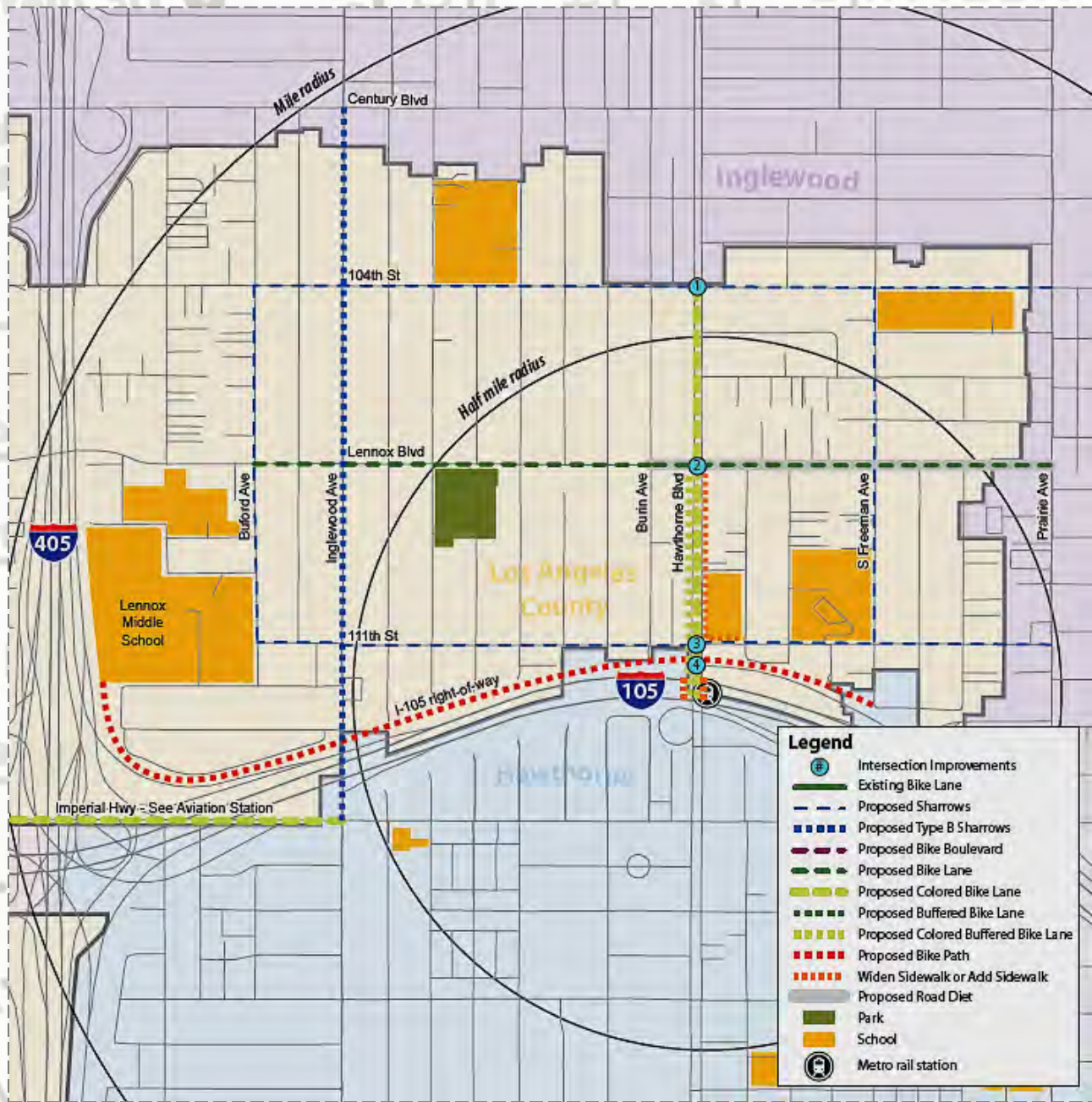
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# Hawthorne Green Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements



See Appendix C for detailed information on recommended bikeways and linear concepts

# Hawthorne Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$4.957 million**

See Appendix C for detailed cost estimates

# Hawthorne Green Line Station

Existing Conditions & Recommendations

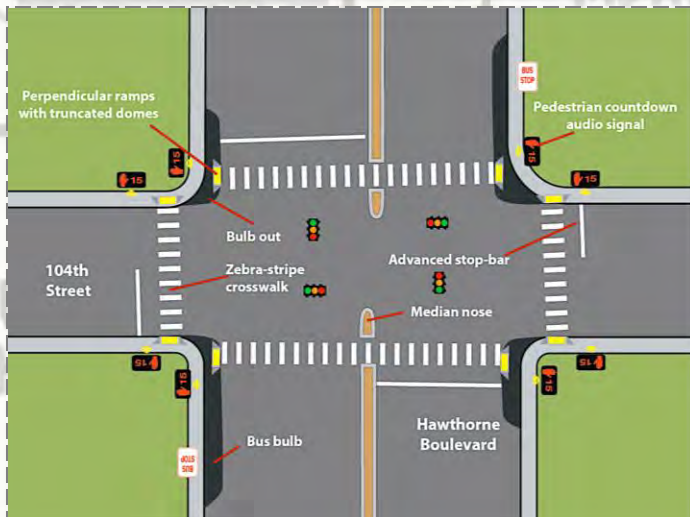
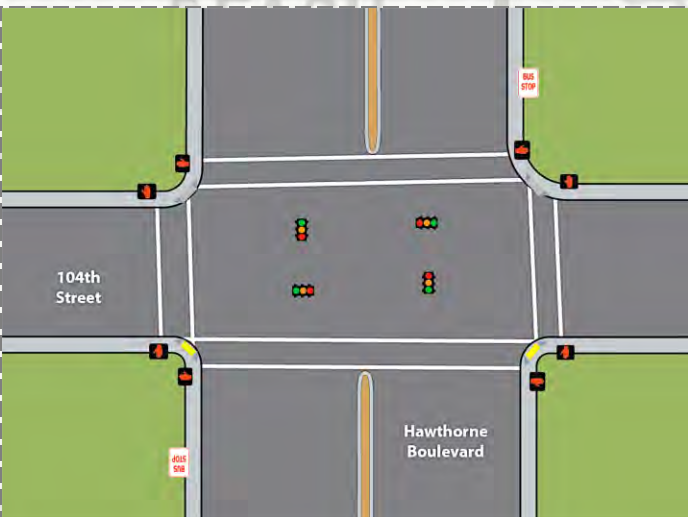
## Intersection Improvement #1 104<sup>th</sup> Street & Hawthorne Boulevard

### EXISTING

- 104th St. has 2 lanes with on-street parking
- Hawthorne Blvd. has 6 lanes, median, and on-street parking
- Signalized intersection
- Bus stops on Hawthorne Blvd. (northbound, far side; southbound, far side)
- Existing truncated domes on south corners

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northwest and southeast corners to cross Hawthorne Blvd. (2)
- Add bus bulbs on the northeast and southwest corners to cross Hawthorne Blvd. (2)
- Reduce curb returns on all crossings of 104th St. (4)
- Truncate medians and add median nose on Hawthorne Blvd. to create refuge area (2)



# Hawthorne Green Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #2

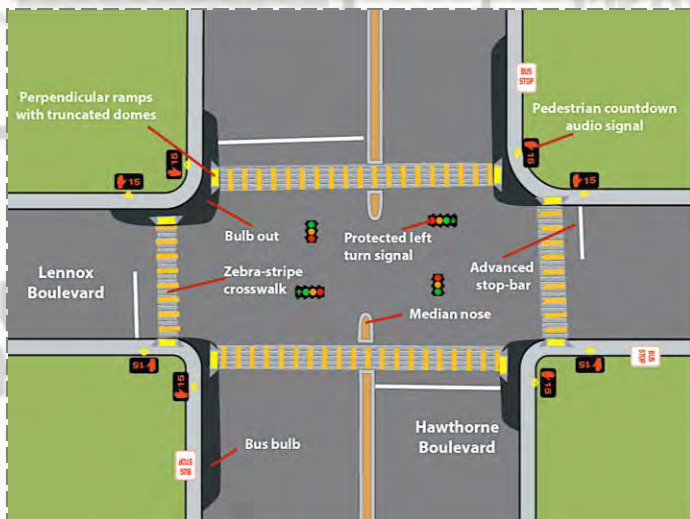
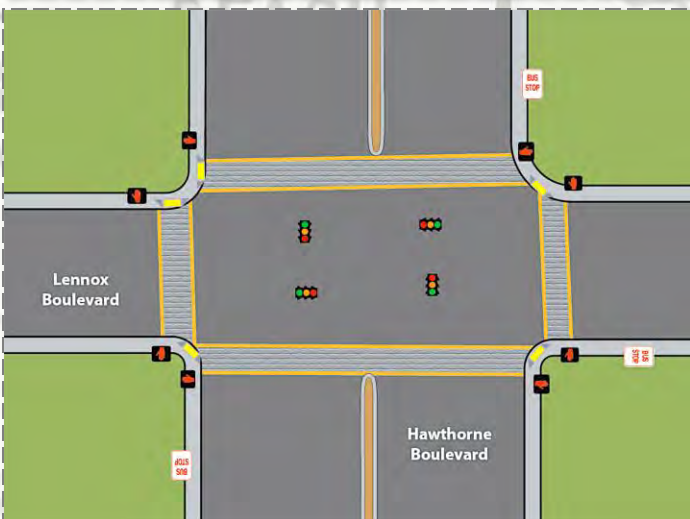
## Lennox Boulevard & Hawthorne Boulevard

### EXISTING

- Lennox Blvd. has 2 lanes with on-street parking on the west leg and 4 lanes with on-street parking on the east leg
- Hawthorne Blvd. has 6 lanes, median, and on-street parking
- Signalized intersection with permissive left turns from Lennox Blvd.
- Bus stops on Lennox Blvd. (eastbound, far side) and on Hawthorne Blvd. (northbound, far side; southbound, far side)
- Yellow lateral line crosswalks with textured brick appearance across all crossings, truncated domes on all corners, and directional curb ramps on northwest corner

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add protected left turns from Lennox Blvd.
- Add leading pedestrian interval for all crossings
- Add bulb-outs on the northwest corner to cross Lennox Blvd. and on the northwest and southeast corners to cross Hawthorne Blvd. (3)
- Add bus bulbs on the northeast and southwest corners to cross Hawthorne Blvd. (2)
- Reduce curb returns on northeast, southeast, and southwest crossings of Lennox Blvd. (3)
- Truncate medians and add median nose on Hawthorne Blvd. to create refuge area (2)



# Hawthorne Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement #3

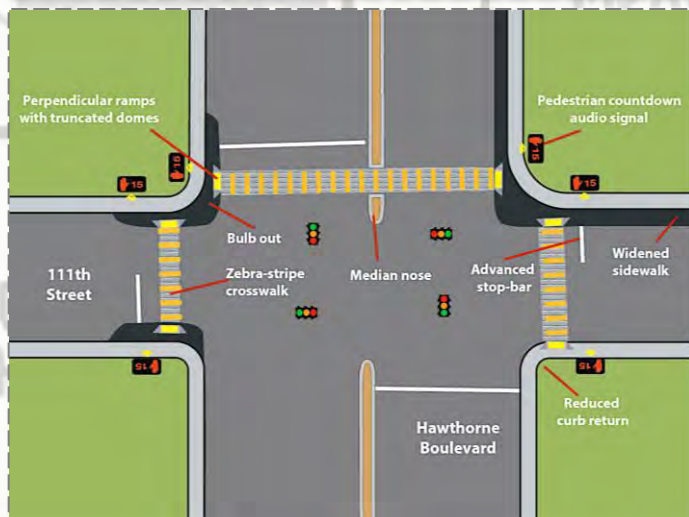
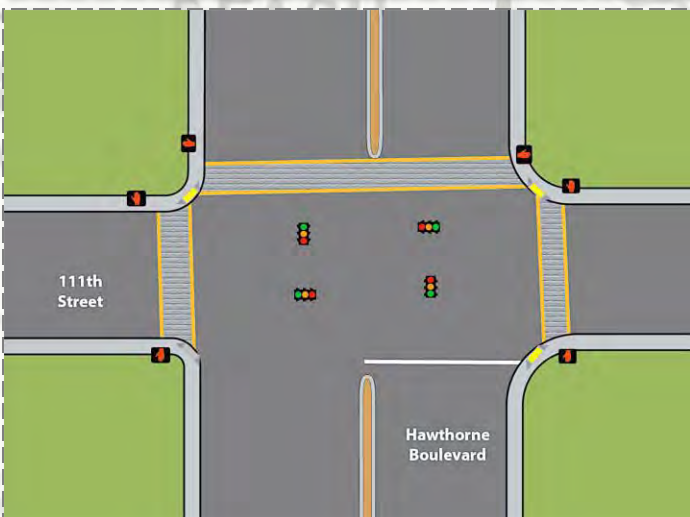
### 111<sup>th</sup> Street & Hawthorne Boulevard

#### EXISTING

- 111th St. has 2 lanes with on-street parking
- Hawthorne Blvd. has 6 lanes, median, and on-street parking
- Signalized intersection
- Pedestrian crossing of the south leg prohibited
- Yellow lateral line crosswalks with textured brick appearance across all crossings and truncated domes on all corners except southwest

#### RECOMMENDED

- Add zebra-stripe crosswalks to all permitted crossings (3)
- Add pedestrian countdown signals to all permitted crossings (6)
- Add audio signals to all permitted crossings (6)
- Add advanced stop bars to all permitted crossings (3)
- Add bulb-outs on the northwest and southwest corners to cross 111th St. and on the northwest corner to cross Hawthorne Blvd. (5)
- Replace westbound right-turn lane on 111th St. with widened sidewalk and widen sidewalk on east side of Hawthorne Blvd. north of 111th St.
- Reduce curb return on southeast corner (1)
- Truncate median and add median nose on Hawthorne Blvd. at north leg of intersection (1)



# Hawthorne Green Line Station

Existing Conditions & Recommendations

## Intersection Improvement #4

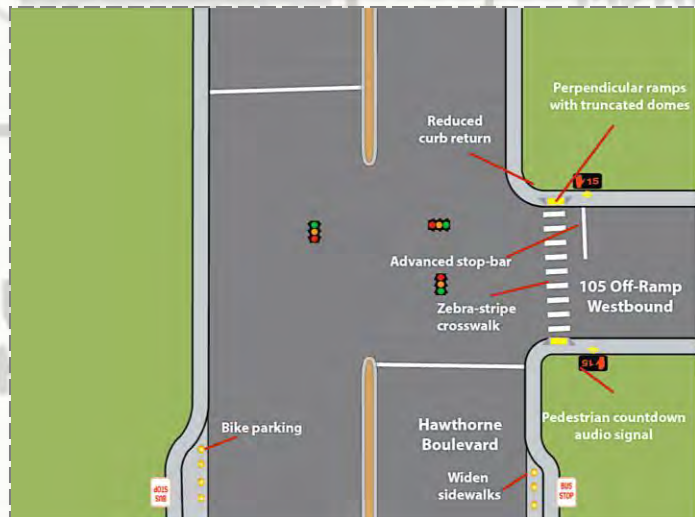
### I-105 Westbound Off-Ramp & Hawthorne Boulevard

#### EXISTING

- I-105 ramps have 3 lanes
- Hawthorne Blvd. has 6 lanes with a median
- Signalized T-intersection
- All crossings across Hawthorne Blvd. prohibited
- Bus stops on Hawthorne Blvd. (northbound and southbound, midblock south of intersection at Hawthorne/Lennox Station)

#### RECOMMENDED

- Add zebra-stripe crosswalk to east leg (1)
- Add pedestrian countdown signals to east leg (2)
- Add audio signals to east leg (2)
- Add advanced stop bar to east leg (1)
- Reduce curb return on northeast and southeast corners (2)
- Remove bus pull-outs at Hawthorne/Lennox Station and replace with widened sidewalk
- Add bike parking to widened sidewalk



# Hawthorne Green Line Station

## Existing Conditions & Recommendations

### Local Transit Serving the Station

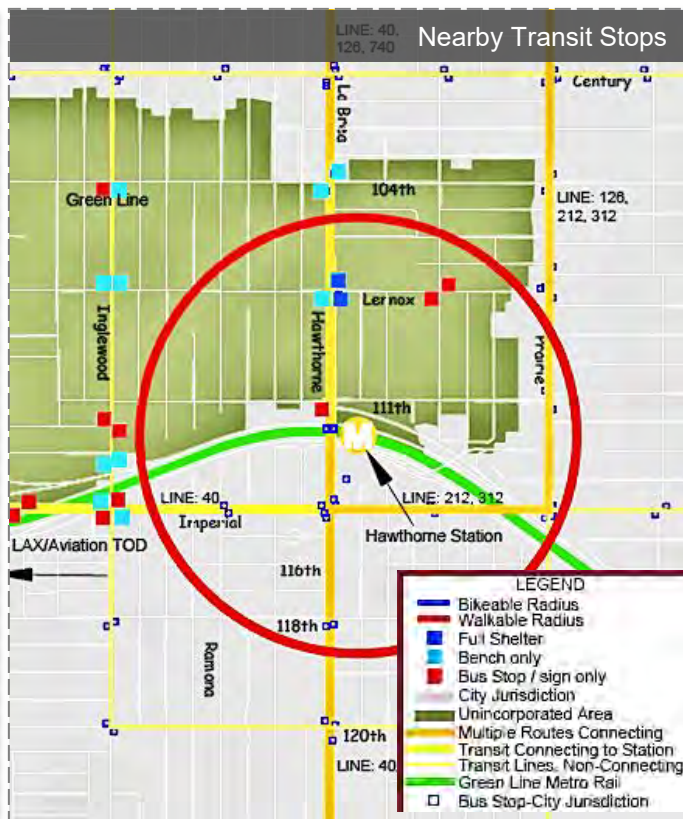
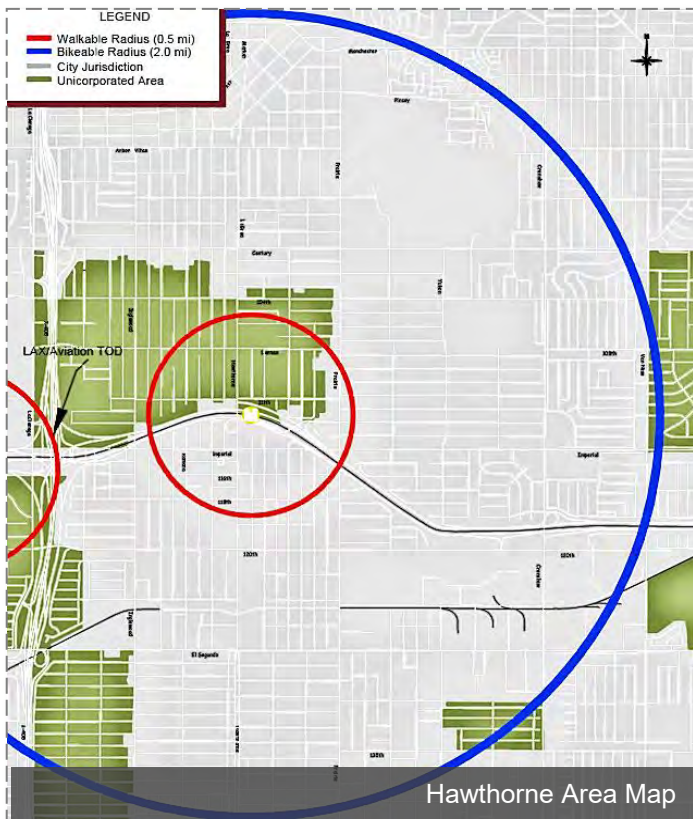
The Hawthorne Station serves the Green Line Light Rail route and local Metro bus transit routes 126, 207, 210, 710 and 757. Major destinations with direct service include El Camino College, Hollywood, Koreatown, Los Angeles Southwest College, South Bay Galleria and the Wilshire/Western Metro Rail Station.

### Local Transit Stops

There are 25 local transit stops located within the County jurisdiction and within the Hawthorne Station vicinity. Most of the transit stops offer minimal amenities (i.e., sign or bench only). The remaining 16% (10 stops) offer shelter amenities.

### Recommended Transit Improvements

The areas recommended for improvement are detailed in Appendix C.



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# Imperial-Wilmington Rosa Parks



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# Imperial-Wilmington Rosa Parks



## The Imperial-Wilmington Rosa Parks Station

is a major transfer point between the Metro Blue and Green rail lines; it is located just below the I-105 Freeway and serves the unincorporated community of Willowbrook.

# Imperial-Wilmington Rosa Parks Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Linkages to community assets
- High ridership station and transfer point for transit riders
- Well served by transit

## WEAKNESSES

- Station area is inhospitable for transit users
- Traffic and noise pollution
- Green line platform located in median of the freeway
- Lack of bicycle infrastructure on nearby streets
- Inadequate bicycle parking at the station
- Lack of pedestrian infrastructure
- Personal safety concerns

## OPPORTUNITIES

- High number of cyclists already utilizing the station
- Wide streets with relatively low traffic volumes could make good bike routes
- Strong ridership station suggests opportunity for development
- Nearby commercial development could be connected to the station with new sidewalks
- Planned bicycle infrastructure improvements

## CHALLENGES

- Multiple jurisdictions and lack of coordinated planning efforts
- Surrounding areas suffer from disinvestment and blight
- Station area is noisy, dark and inhospitable
- Uncertainty about public dollars to make improvements

# Imperial-Wilmington Rosa Parks Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Imperial-Wilmington Rosa Parks station is a major transfer point between the Metro Blue and Green rail lines, making the station one of the more heavily used interchanges in the Metro system.<sup>34</sup> The station is located in the unincorporated community of Willowbrook. The Green Line platform is located in the median of the I-105 Freeway, while the Blue Line platform is located below the freeway.

## Strengths

- Linkages to community assets
- High ridership station and transfer point for transit riders
- Well served by transit

The station is located near several key community assets. Six schools are located within one mile of the station. The Kenneth Hahn Shopping Plaza is located just south of the station.<sup>35</sup> Furthermore, the station serves as a transfer point between the rail lines and several municipal bus lines, including: Metro Local, Metro Rapid, City of Los Angeles Department of Transportation (LADOT) Dash, the Willowbrook Shuttle, and the Lynwood Trolley.<sup>36</sup>

## Weaknesses

- Station area is inhospitable for transit users
- Traffic and noise pollution
- Green line platform located in median of the freeway
- Lack of bicycle infrastructure on nearby streets
- Inadequate bicycle parking at the station
- Lack of pedestrian infrastructure
- Personal safety concerns

Due to its proximity to the 105 Freeway and shopping centers, the area around the station generates a considerable amount of traffic, noise and pollution. This creates an inhospitable environment for pedestrians, particularly near the freeway on- and off-ramps. Furthermore, the street grid itself contains diagonal streets and train tracks, further complicating navigation for pedestrians and bicyclists. The area around the station and station entrances are poorly lit (partly due to its location under the freeway overpass).

Pedestrian infrastructure around the station is lacking. A study notes that “the station entrances lack proper signage, curb ramps and sidewalks.” In addition, “many walking areas that pedestrians use are unpaved dirt paths with poor lighting.”<sup>37</sup> The area also has faded crosswalks, trash, and a lack of landscaping that act as deterrents for pedestrians.

The TOD lacks on-street bikeways and the station does not have enough bike rack parking capacity, leading some cyclists to lock their bikes to a fence near the station. Bike lockers, however, are underutilized.<sup>38</sup>

In addition, area residents were “concerned about personal security at this station,” indicating a lack of perceived safety.<sup>39</sup>

# Imperial-Wilmington Rosa Parks Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- High number of cyclists already utilizing the station
- Wide streets with relatively low traffic volumes could make good bike routes
- Strong ridership station suggests opportunity for development
- Nearby commercial development could be connected to the station with new sidewalks
- Planned bicycle infrastructure improvements

The high number of cyclists already utilizing the station create an opportunity to retain and increase ridership through bike infrastructure improvements as well as through educational programs. A study of the area notes that "Willowbrook Ave., among others, has strong potential to be a signed bike route, because it is a through street and has relatively low traffic volumes."<sup>40</sup> Indeed, the County Bicycle Master Plan includes a proposed Class III bike route along Willowbrook Avenue. Bike routes are also proposed along 124th Street, 119th Street, Success Avenue, and Slater Avenue. Class II bike lanes are proposed along 120th Street, Wilmington Avenue, and El Segundo Boulevard.<sup>41</sup> These planned improvements to areas in the unincorporated County provide opportunities to improve pedestrian infrastructure in tandem with the bicycle improvements.

With 16,500 passenger boardings and 14,500 alightings each weekday at this station (from rail and the different bus lines), the area presents a unique opportunity for transit-oriented development.

## Challenges

- Multiple jurisdictions and lack of coordinated planning efforts
- Surrounding areas suffer from disinvestment and blight
- Station area is noisy, dark and inhospitable
- Uncertainty about public dollars to make improvements

The station area sits within unincorporated Los Angeles County and the City of Los Angeles. While multiple studies and a station master plan have been created for this site, it is unclear what public dollars are available to finance the recommended improvements.



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**Existing Conditions**  
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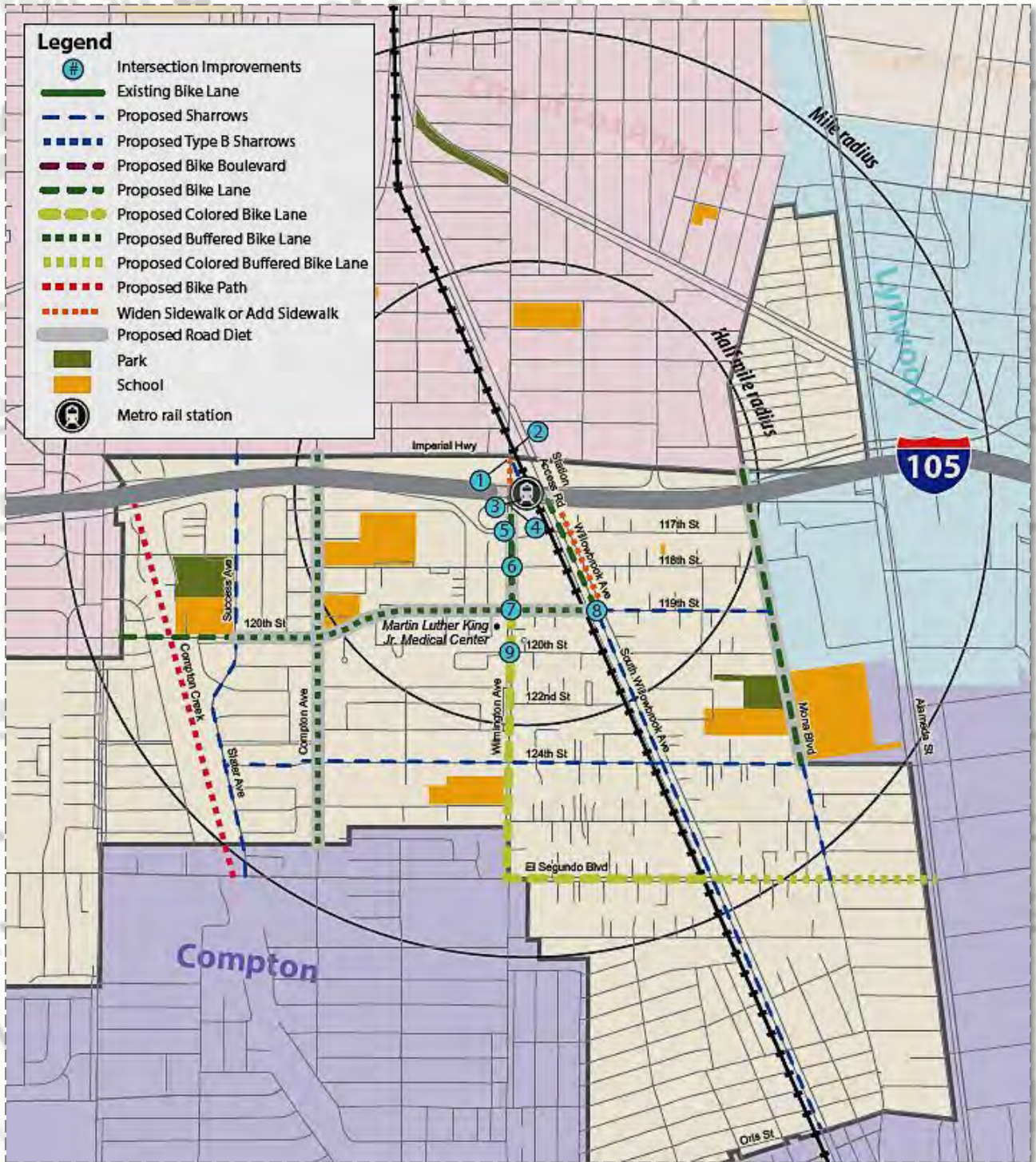
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# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

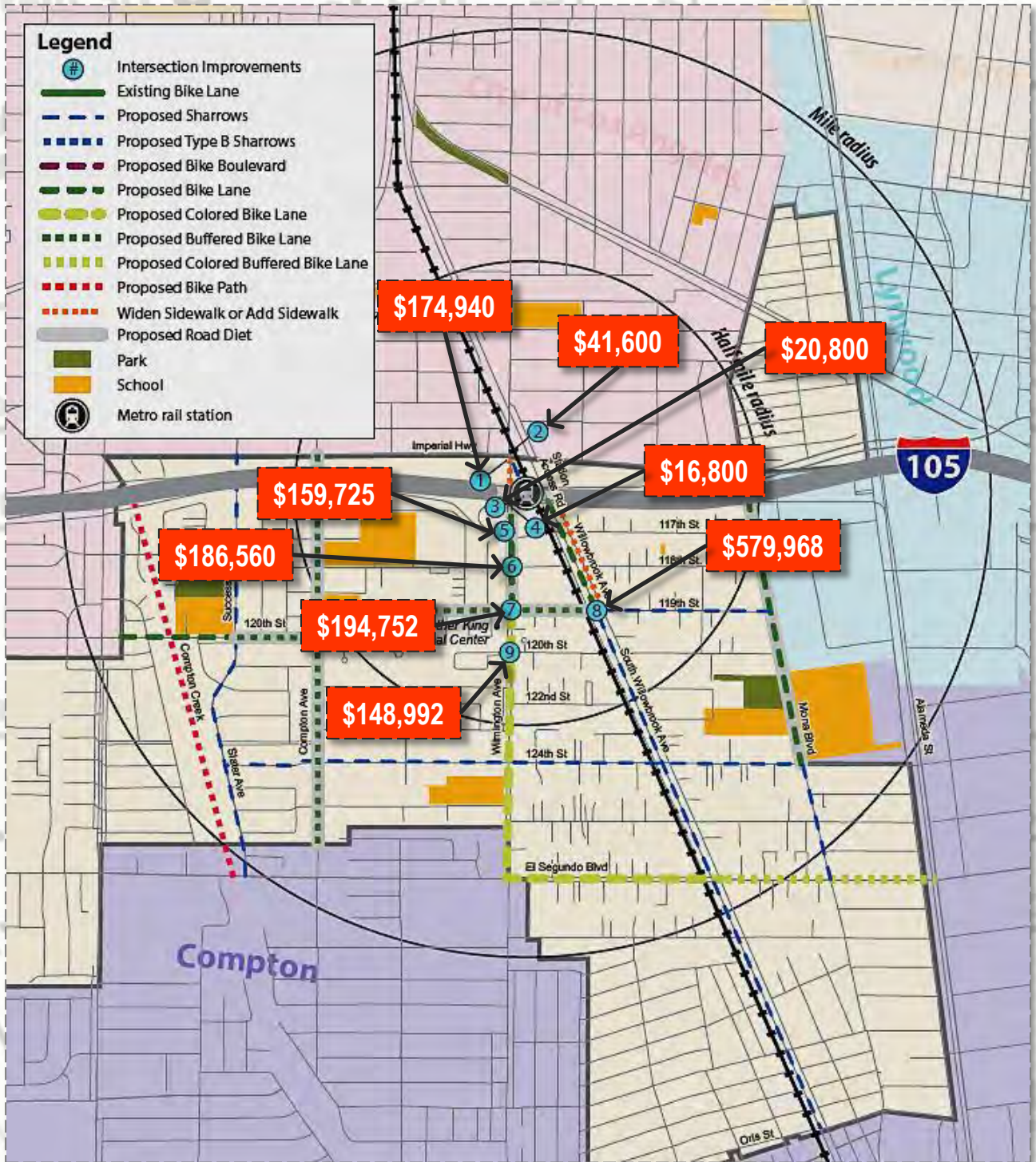


See Appendix D for detailed information on recommended bikeways and linear concepts

# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$4.892 million**

See Appendix D for detailed cost estimates

# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

## Intersection Improvement #1

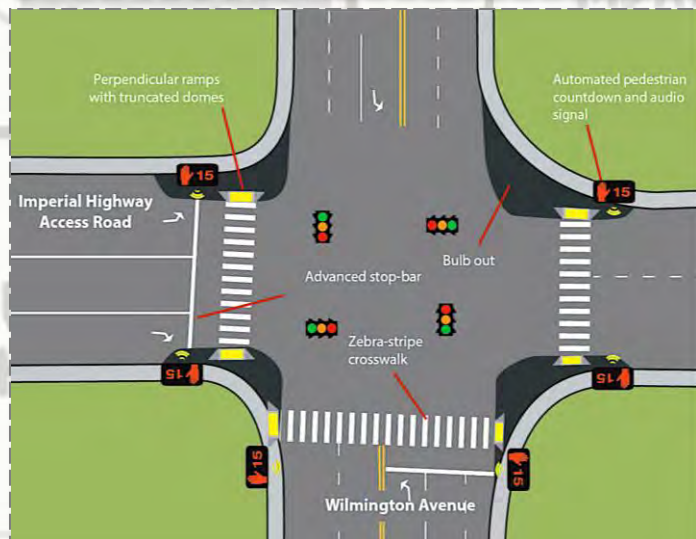
### Imperial Highway Eastbound Access Road & Wilmington Avenue

#### EXISTING

- Imperial Hwy. access road is one-way eastbound, with a through lane, a left-turn lane, a right turn lane, and a wide median between these eastbound lanes and another westbound access road
- Wilmington Ave. has 4 lanes, center turn lane, and on-street parking north of Imperial Hwy.
- Signalized intersection with protected left turns from Wilmington Ave.
- No pedestrian crossing on Wilmington Ave. from north side of the access road — this is functionally the middle of an intersection
- Existing perpendicular ramps on the southwest and southeast corners

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (3)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add passive pedestrian detection to all crossings (6)
- Add advanced stop bars to all approaches (2)
- Add bulb-outs on all corners to cross Imperial Hwy. access road
- Because access road is one-way, bulb-outs on the north side can be large
- Coordinate with City of Los Angeles



# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

## Intersection Improvement #2

### Imperial Highway Westbound Access Road, Mid-Block

#### EXISTING

- Imperial Hwy. access road is one-way westbound with on-street parking on the north side
- Pedestrians accessing the station from points northeast must come this way

#### RECOMMENDED

- Add zebra-stripe crosswalk west of concrete column that elevates Imperial Hwy., so that motorists' sightlines on crossing pedestrians are clear
- Add advanced yield markings (1)
- Add advanced yield sign (1)
- Add pedestrian crossing sign (1)
- Add advance pedestrian warning sign (1)
- Add bulb-out on the north side of the access road (1)
- Add curb ramp to median (1)
- Remove no crossing sign located south of median
- Will require coordination with City of Los Angeles

Imperial Highway  
Access Road -Westbound

Structural Column

Perpendicular ramps  
with truncated domes

Yield sign  
and bars

Bulb out

Zebra-stripe  
crosswalk

Imperial Highway  
Access Road -Westbound

Structural Column

### Intersection Improvement #3

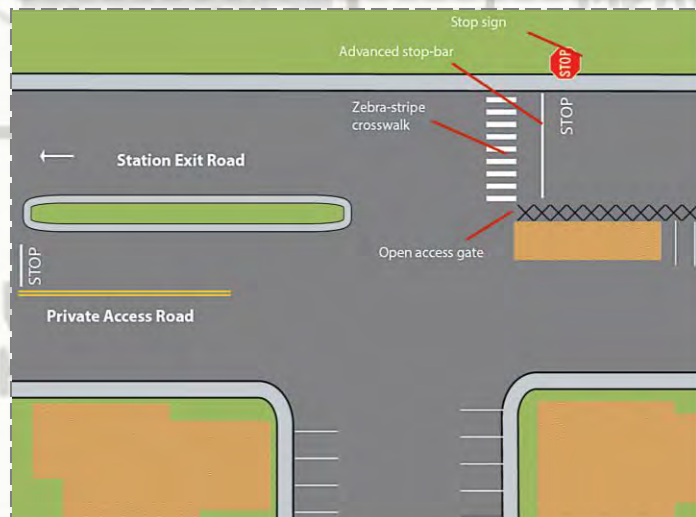
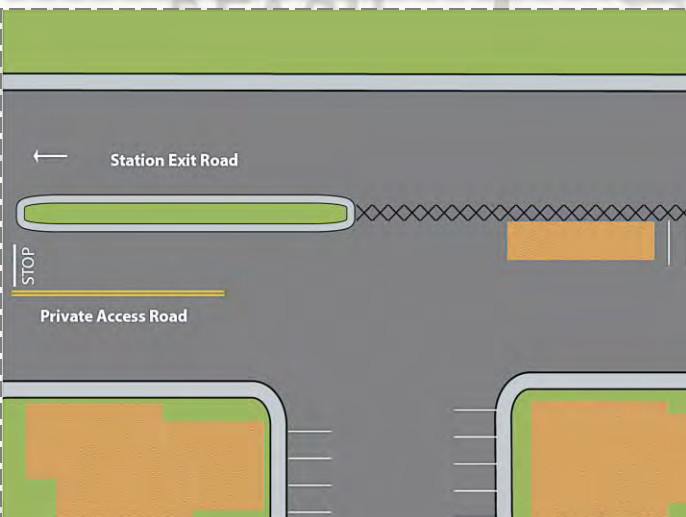
## Private Access Road & South Side of Station

### EXISTING

- Private property with access road and stores directly abuts south side of station
- Existing access gate between station and shopping center is locked

### RECOMMENDED

- Open access gate
- Add zebra-stripe crosswalk to cross internal station exit road on south side of station and to connect to the shopping center (1)
- Add stop sign (1)
- Add advanced stop bar (1)



# Imperial-Wilmington Rosa Parks Station

## Existing Conditions & Recommendations

### Intersection Improvement #4

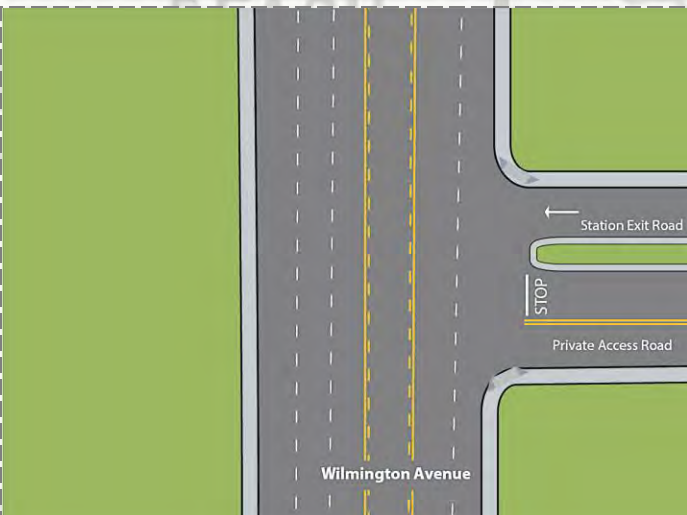
## Private Access Road, Station Exit Road & Wilmington Avenue

### EXISTING

- Private access road has 2 lanes
- Wilmington Ave. has 5-6 lanes
- Stop-controlled T-intersection for private access road/station exit road

### RECOMMENDED

- Add zebra-stripe crosswalk to cross private access road and station exit road (2)
- Conduct warrant study and add stop sign to station exit road (1)
- Add advanced stop bar to station exit road (1)



# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

## Intersection Improvement #5

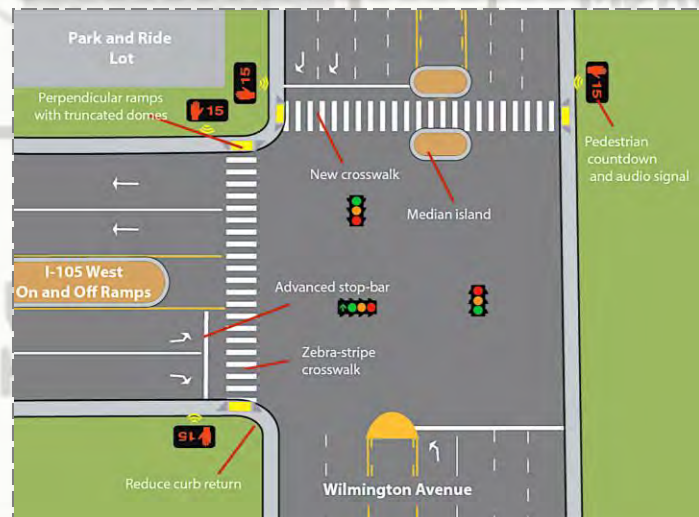
### I-105 Westbound Ramps & Wilmington Avenue

#### EXISTING

- I-105 west on-ramp has 2 lanes, and I-105 off-ramp has one right turn lane and one left-turn lane
- Wilmington Ave. has 4-5 lanes, 2 southbound right turn lanes, center turn lane, and median
- Signalized T-intersection with protected left turns northbound from Wilmington
- Pedestrian crossing of north and south legs prohibited
- Park and ride lot for station patrons on northwest corner

#### RECOMMENDED

- Open pedestrian crossing of north leg (1)
- Add zebra-stripe crosswalks to all crossings (2)
- Add pedestrian countdown signals to all crossings (4)
- Add audio signals to all crossings (4)
- Add advanced stop bars to all crossings (2)
- Add crossing islands to the north leg (1)
- Reduce curb return and make intersection geometry more square on northeast and southeast corners (2)
- With addition of north leg crosswalk, create protected left-turn phase for left turns from I-105, so that these left turns do not conflict with the walk phase for crossing pedestrians



# Imperial-Wilmington Rosa Parks Station

## Existing Conditions & Recommendations

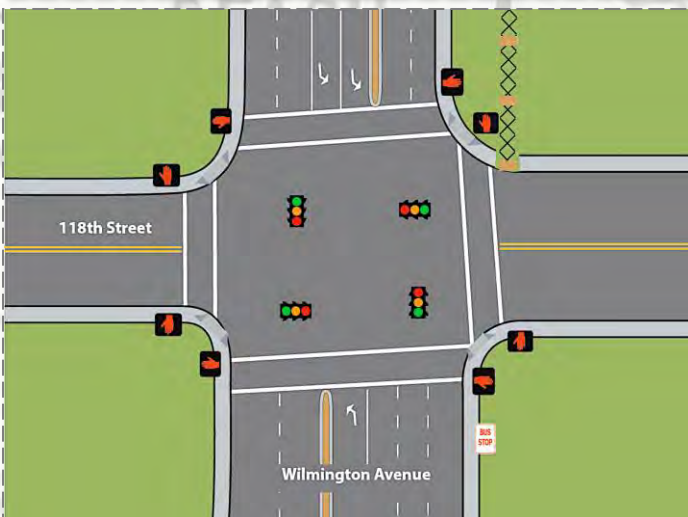
### Intersection Improvement #6 118<sup>th</sup> Street & Wilmington Avenue

## EXISTING

- 118th St. has 2 lanes, and is private access road east of Wilmington Ave.
- Wilmington Ave. has 5 lanes and center turn lane
- Signalized intersection
- Bus stop on Wilmington Ave. (northbound, near side)

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on all corners to cross 118<sup>th</sup> St. (4)
- Create sidewalk connection from northeast corner to existing sidewalk on private development by paving new sidewalk and removing gate
- Bulb-outs on the east leg and sidewalk connection will require coordination with landowner





# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

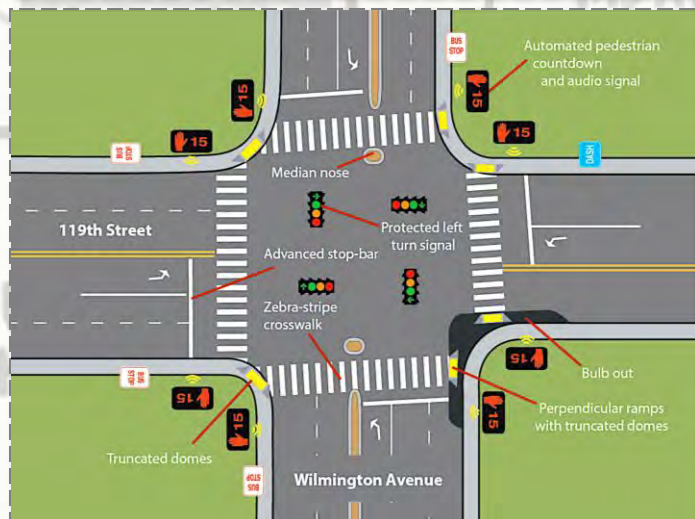
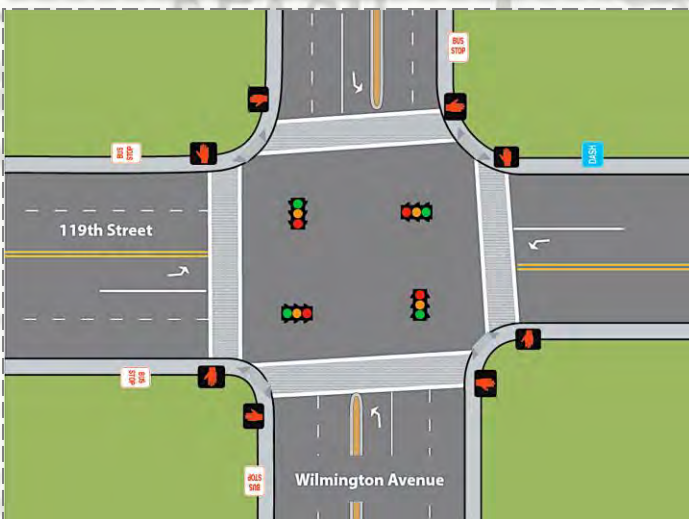
## Intersection Improvement #7 119<sup>th</sup> Street & Wilmington Avenue

### EXISTING

- 119th St. has 2 lanes, center turn lane, and on-street parking
- Wilmington Ave. has 4 lanes, center turn lane, and on-street parking
- Signalized intersection
- Four lateral line crosswalks with brick texture
- Bus stops on 119th St. (eastbound, near side; westbound, far side) and Wilmington Ave. (northbound and southbound, far sides)
- DASH stop on 119th St. (westbound, near side)

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add passive pedestrian detection to all crossings (8)
- Add bulb-outs on both faces of the southeast corner (2)
- Reduce curb return on the northeast corner (1)
- Add median noses on Wilmington Ave. (2)
- Add protected left-turns from all approaches (4)



# Imperial-Wilmington Rosa Parks Station

## Existing Conditions & Recommendations

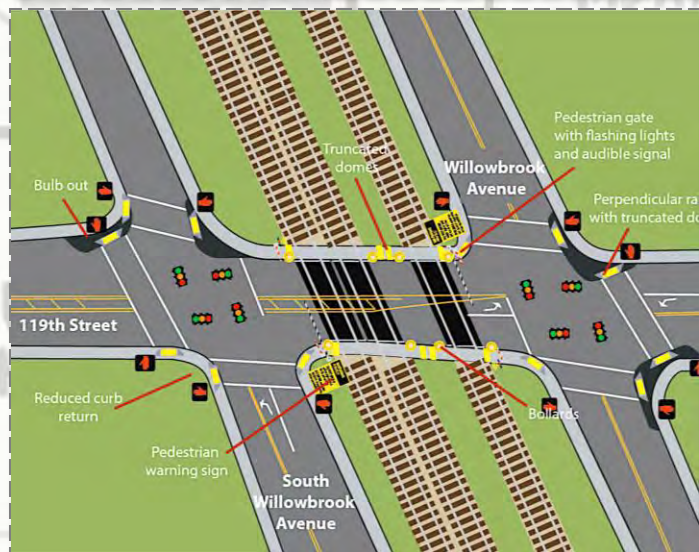
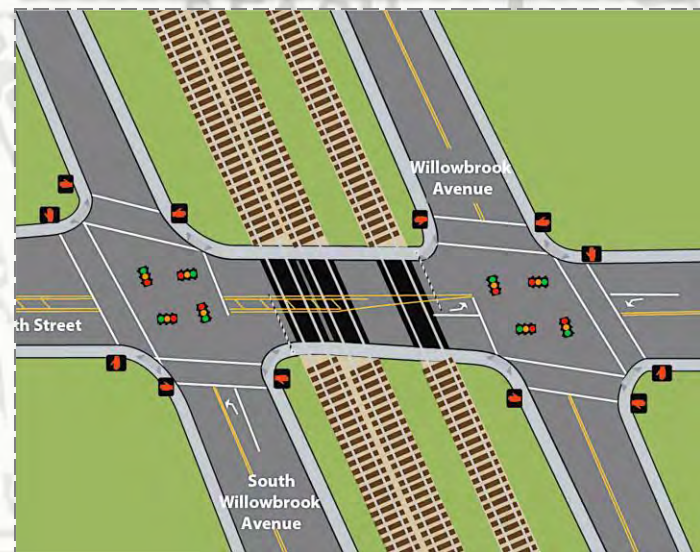
### Intersection Improvement #8 119<sup>th</sup> Street & Willowbrook Avenue

## EXISTING

- 119th St. has 2 lanes, painted median/center turn lane, and on-street parking
- Willowbrook Ave. W. is one-way southbound north of 119th St., and has 2 lanes and on-street parking south of 119th St.
- Three railroad tracks run between Willowbrook Ave. W. and Willowbrook Ave. E.
- Willowbrook Ave. E has 2 lanes and onstreet parking

## RECOMMENDED

- Add protected left turn phase to Willowbrook Ave.
- Add edge lines across tracks on both sidewalks (2)
- Add pedestrian gate arms to all approaches (4)
- Add bollards or curbs to segregate vehicle traffic from sidewalk on both sides
- Add truncated domes on all approaches to all tracks
- Add bulb-outs to cross 119th St. on the northwest corner with South Willowbrook Ave. and on the northeast and southeast corners with Willowbrook Ave. (3)
- Add bulb-out on the northeast corner to cross South Willowbrook Ave. (1)
- Add bulb-outs on the northeast and southeast corners to cross Willowbrook Ave. (2)
- Reduce curb return on the southwest corner of South Willowbrook Ave. and 119th St. (1)
- Add warning signs or poles to alert pedestrians to the paths of the vehicular gate arms (2)



# Imperial-Wilmington Rosa Parks Station

Existing Conditions & Recommendations

## Intersection Improvement #9 120<sup>th</sup> Street & Wilmington Avenue

### EXISTING

- 120th St. has 2 lanes, median/center turn lane west of Wilmington Ave., and onstreet parking east of Wilmington Ave.
- Wilmington Ave. has 4 lanes, center turn lane, and on-street parking
- Signalized intersection
- Bus stops on Wilmington Ave. (northbound, far side; southbound, far side in a bus bay)
- Pedestrian crossing prohibited on south leg
- Three lateral line crosswalks with textured brick appearance

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (3)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add passive pedestrian detection to all crossings (8)
- Add advanced stop bars to all crossings (3)
- Add bulb-outs on the northeast, southeast, and northwest corners to cross 120th St. (3)
- Add median islands on the west leg (1)
- Add median nose to the north leg (1)
- Note: bus bulb on the northeast corner to cross Wilmington Ave. not proposed to preserve space for proposed bike lane



# Imperial-Wilmington Rosa Parks Station

## Existing Conditions & Recommendations

The Rosa Parks Station acts as a major bus hub, serving many bus routes operated by Metro and other regional and municipal transit agencies.

## Local Transit Serving the Station

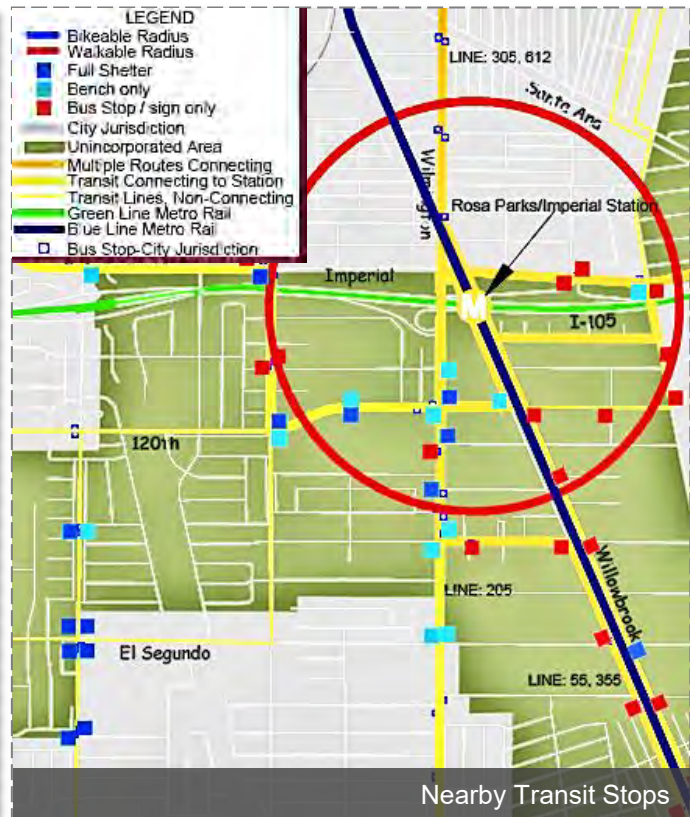
The Imperial/Rosa Parks Station serves the Metro Green and Blue Line rail routes and numerous local bus routes. These include Metro routes 55, 120, 202, 205, 305, and 612. The station also provides service for Gardena Bus Lines Route 5, the King Medical Center Shuttle, Willowbrook Shuttles A and B, the Lynwood Breeze Route D and LADOT DASH for the Watts area. Destinations served directly include the unincorporated community of West Athens-Westmont, the Artesia Transit Center, Beverly Hills, Crenshaw District, Huntington Park, Los Angeles Convention Center, Los Angeles County King Medical Center, Nokia Theatre, Staples Center, Watts, West Hollywood, and UCLA.

## Local Transit Stops

The Imperial/Rosa Parks Station has 45 local transit stops located within the County jurisdiction within a three-mile radius. Many stops provide full shelters with benches (19 of the 49 locations, or 39%). Another 12 locations, or 24% provide benches, and the remaining 37% (18 locations) provide minimal amenities (i.e., sign only).

## Recommended Transit Improvements

The Rosa Parks Station has 30 station locations that are recommended for improvements. Those within County jurisdiction that are recommended for improvements are detailed in Appendix D.



# Florence Blue Line Station



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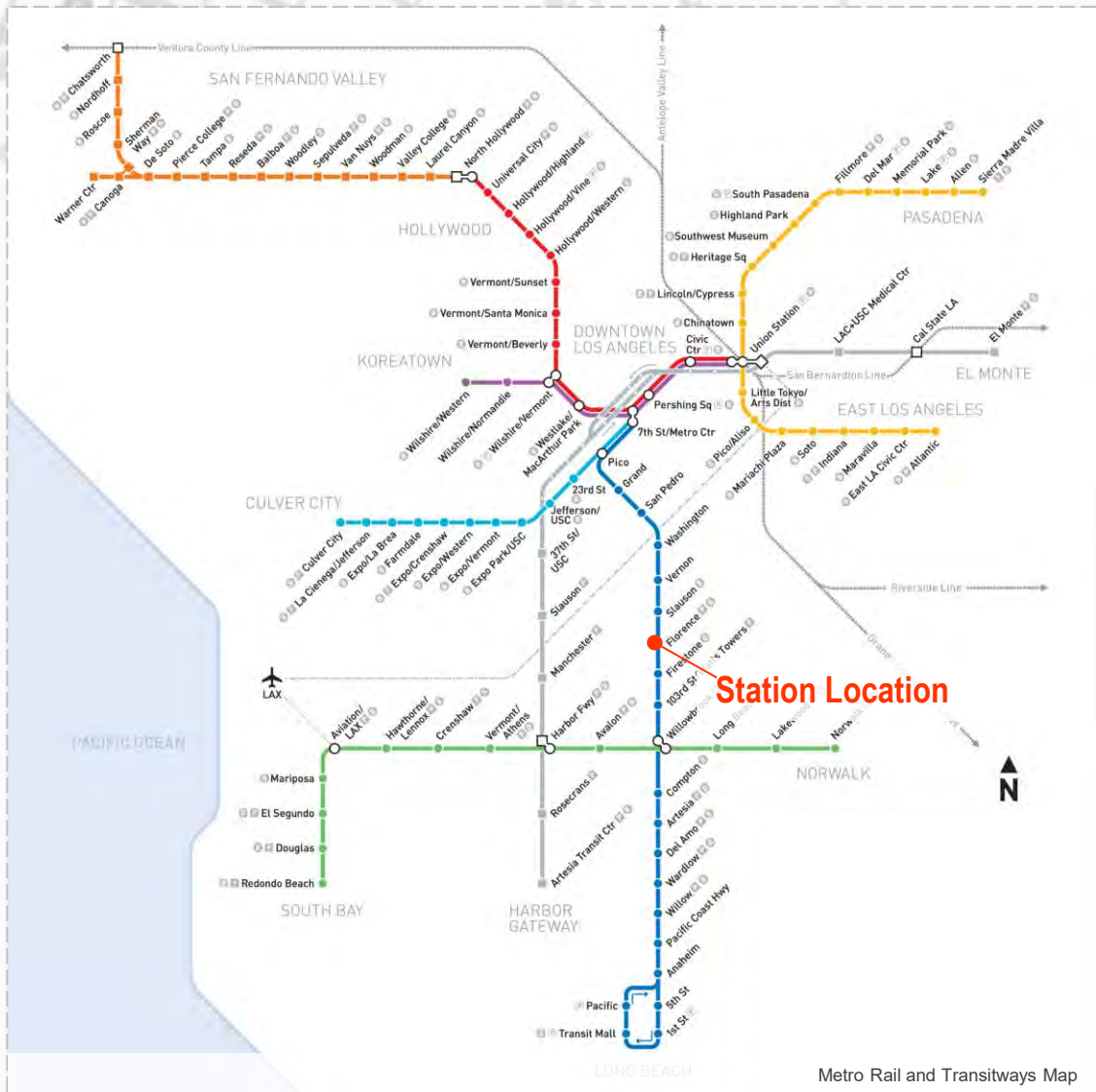
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# Florence Blue Line Station



**The Florence Blue Line Station** is located in the Florence-Firestone unincorporated area of Los Angeles County.

# Florence Blue Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Nearby community facilities, including schools, Roosevelt County Park, and a senior center
- Station in close proximity to a mix of uses
- Compact commercial land uses in the area
- Approved funding for pedestrian enhancements
- High number of pedestrians in the area
- Transit-dependent community

## WEAKNESSES

- Personal safety concerns
- Lack of pedestrian infrastructure and wayfinding signage
- Lack of bicycle infrastructure on nearby streets

## OPPORTUNITIES

- Link retail and community facilities to transit station
- Complement approved pedestrian enhancements with bicycle improvements
- Planned bicycle infrastructure improvements

## CHALLENGES

- Perception of the local economic environment



# Florence Blue Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Florence Blue line station is located in the Florence-Firestone unincorporated area of Los Angeles County. The station is southwest of Firestone Boulevard and Graham Avenue and is served by numerous transit providers, including Metro, LADOT, and County shuttle services.

## Strengths

- Nearby community facilities, including schools, Roosevelt County Park, and a senior center
- Station in close proximity to a mix of uses
- Compact commercial land uses in the area
- Approved funding for pedestrian enhancements
- High number of pedestrians in the area
- Transit-dependent community

The station area contains several community facilities that would benefit from increased connectivity from the Blue Line station. There are three elementary schools located within a half-mile of the station stop. In addition, Roosevelt County Park is located adjacent to the stop, which includes a senior center and two Head Start programs on nearby Graham Avenue. Florence Avenue, the station area's major thoroughfare is a high traffic retail node containing restaurants, markets and other shops. The area is also well-served by transit, with local and regional connections to Metro Local, Metro Rapid and LADOT Dash bus lines.<sup>42</sup> Florence Avenue, in particular "becomes full of pedestrian and bicycle traffic on the sidewalks and streets during peak-hours."<sup>43</sup>

## Weaknesses

- Personal safety concerns
- Lack of pedestrian infrastructure and wayfinding signage
- Lack of bicycle infrastructure on nearby streets

Transit users express a need for more security and patrolling in and around the station area.<sup>44</sup> The station area currently lacks lighting, particularly off the main streets, as well as landscaping and trees on Florence Avenue. Moreover, the station area lacks wayfinding signage from Florence to other nearby destinations. In addition, there is an opportunity to develop "on-street bikeways on secondary streets and low-traffic residential streets, such as Nadeau St. and Miramonte Ave."<sup>45</sup>

# Florence Blue Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Link retail and community facilities to transit station
- Complement approved pedestrian enhancements with bicycle improvements
- Planned bicycle infrastructure improvements

Many transit riders use the Florence Station to access retail on Florence Avenue. The popularity of the avenue creates an opportunity to make Florence a more pedestrian-friendly street. The County has planned the Florence Avenue Pedestrian Improvement project, slated for completion in 2014. The project's goal is to provide "pedestrian oriented improvements . . . including pedestrian lighting, landscaping, signage, crosswalk treatment, and bus and street furniture."<sup>46</sup> The County Bicycle Master Plan proposes Class II bike lanes on Florence and Compton Avenues. A bicycle boulevard is proposed along Maie Avenue in the station vicinity.<sup>47</sup> These planned investments present opportunities to leverage existing investments.

## Challenges

- Perception of the local economic environment

Transit users expressed a need for more economic development opportunities along Florence Avenue, as it would increase safety and investment in the area.<sup>48</sup>



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**Existing Conditions**  
**& Recommendations**

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# Florence Blue Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

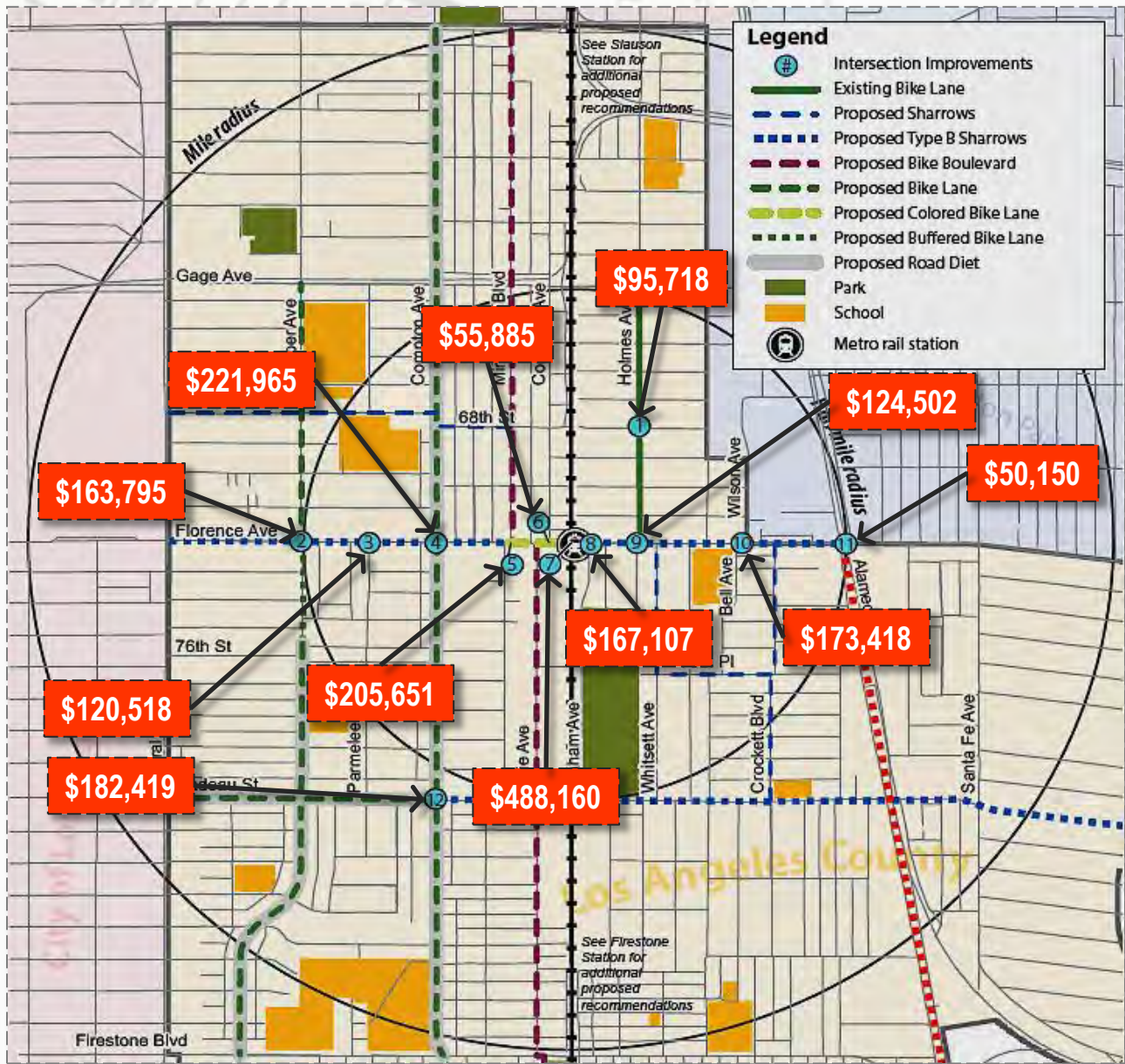


See Appendix E for detailed information on recommended bikeways and linear concepts

# Florence Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$4.554 million**

See Appendix E for detailed cost estimates

# Florence Blue Line Station

Existing Conditions & Recommendations

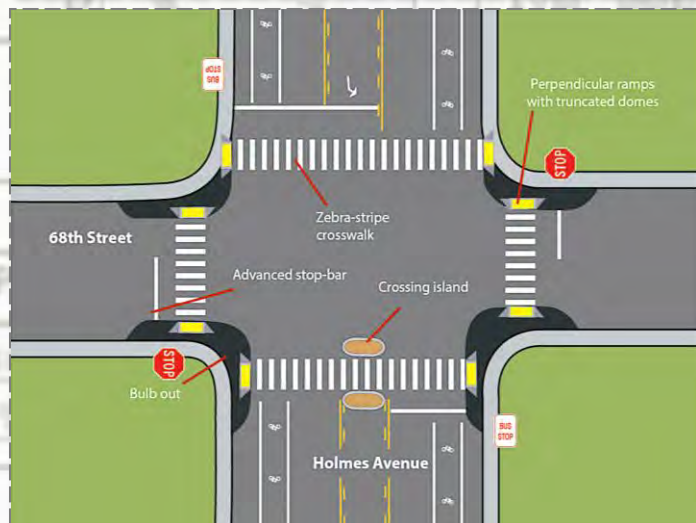
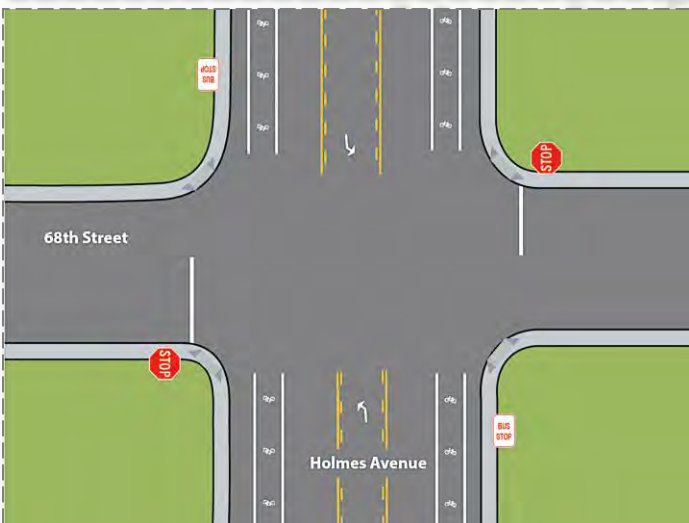
## Intersection Improvement #1 68<sup>th</sup> Street & Holmes Avenue

### EXISTING

- 68th St. has 2 lanes and on-street parking
- Holmes Ave. has 2 lanes, center turn lane, bike lanes, and on-street parking
- Stop-controlled intersection for 68th St.
- Bus stops on Holmes Ave. (northbound, near side; southbound, near side)

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northwest, northeast, southeast, and southwest corners to cross 68th St., and on the southeast and southwest corners to cross Holmes Ave. (6)
- Add crossing islands to the south leg to cross Holmes Ave. (1)



# Florence Blue Line Station

## Existing Conditions & Recommendations

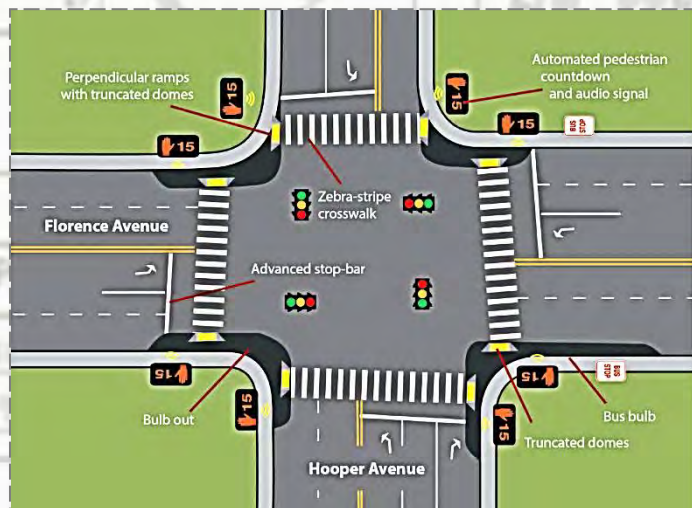
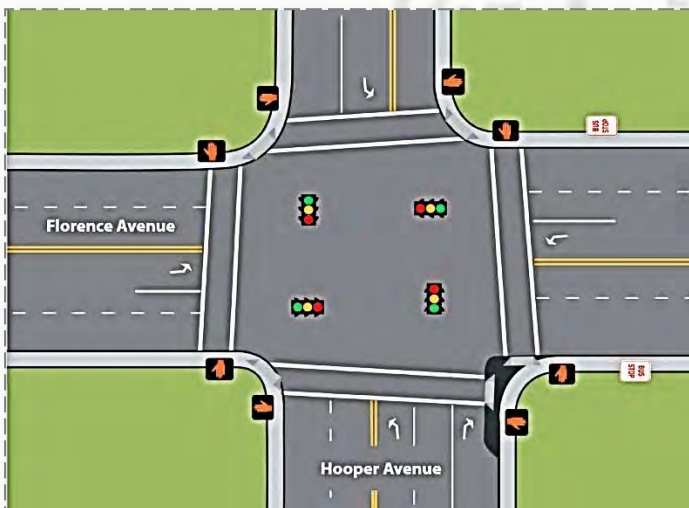
### Intersection Improvement #2 Florence Avenue & Hooper Avenue

## EXISTING

- Florence Ave. has 4 lanes, center turn lane, and on-street parking
- Hooper Ave. has 2-4 lanes, center turn lane, and on-street parking
- Signalized intersection
- Bus stops on Florence Ave. (eastbound, far side; westbound, near side)
- Existing bulb-out on southeast corner to cross Hooper Ave.

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add passive pedestrian detection to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northeast, northwest, and southwest corners to cross Florence Ave. and on the southwest corner to cross Hooper Ave. (4)
- Add bus bulb on the southeast corner to cross Florence Ave. (1)





# Florence Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #3

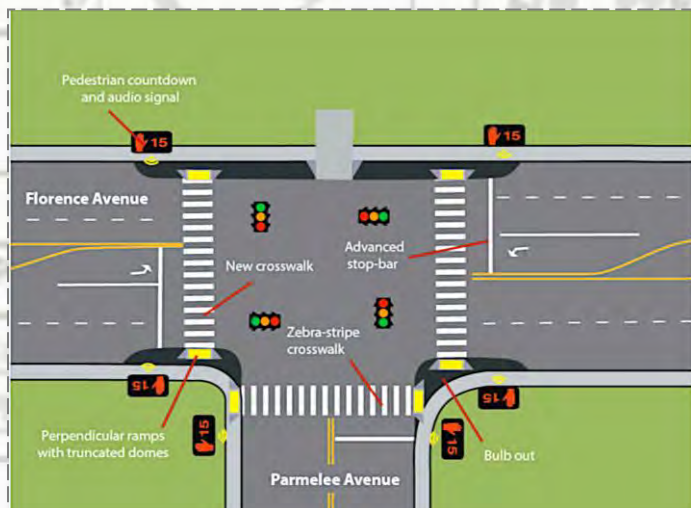
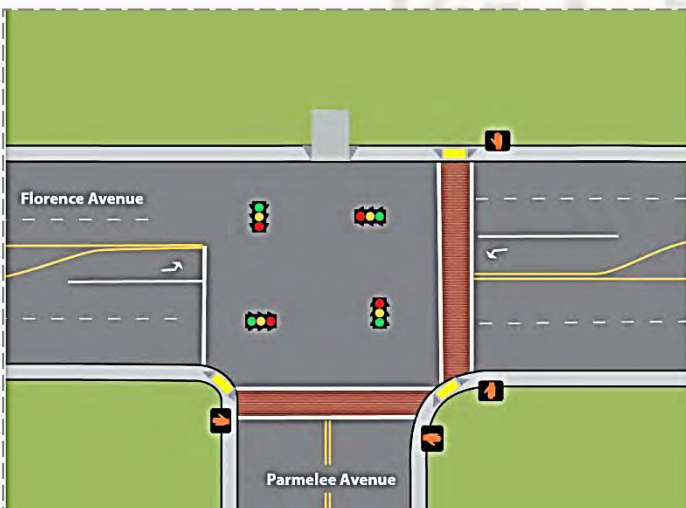
### Florence Avenue & Parmelee Avenue

#### EXISTING

- Florence Ave. has 4 lanes, center turn lane, and on-street parking
- Parmelee Ave. has 2 lanes and on-street parking
- Signalized T-intersection
- Pedestrian crossing of west leg prohibited
- Two lateral line crosswalks with textured brick appearance
- Three diagonal ramps with truncated domes

#### RECOMMENDED

- Open pedestrian crossing of west leg
- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs to all corners to cross Florence Ave. (4)
- Add curb extension connecting bulb-outs on the north side of Florence Ave.



# Florence Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #4

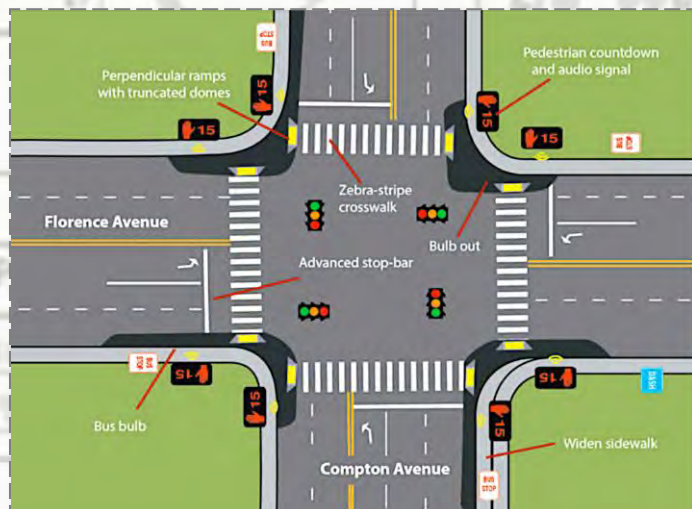
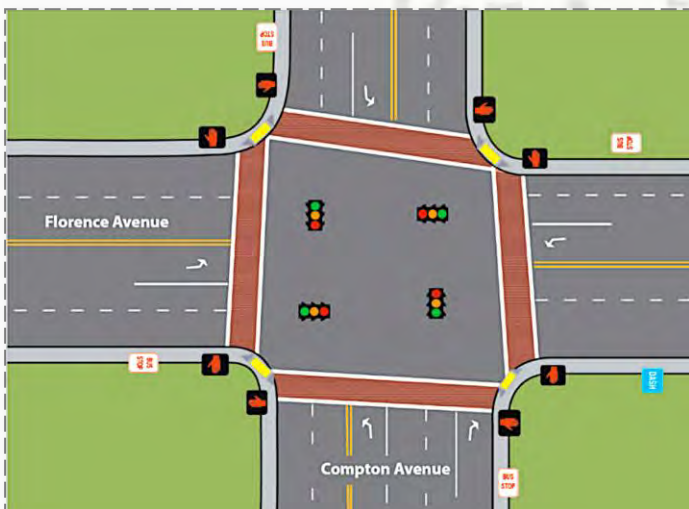
## Florence Avenue & Compton Avenue

### EXISTING

- Florence Ave. has 4 lanes, center turn lane, and on-street parking
- Compton Ave. has 4 lanes, center turn lane, northbound right turn lane, and on-street parking
- Signalized intersection
- Bus stops on Florence Ave. (eastbound, near side; westbound, near side, offset from intersection) and Compton Ave. (southbound, near side; northbound, near side)
- DASH stop on Florence Ave. (eastbound, far side)
- Bus stop on Compton Ave. on southwest corner does not have ADA compliant landing area
- Four lateral line crosswalks with textured brick appearance
- Four diagonal ramps with truncated domes

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs to the southeast, northeast, and northwest corners to cross Florence Ave., and to the southwest and northeast corners to cross Compton Ave. (5)
- Add bus bulbs to the southwest corner to cross Florence Ave., and to the southeast and northwest corners to cross Compton Ave. (3)
- Remove either northbound center turn lane or northbound right turn lane on Compton Ave. to make room for bus bulb, widened sidewalk, and ADA compliant landing area on the southeast corner
- Option: consolidate westbound bus stops with DASH stop on Florence Ave., and add bus bulb on the northwest corner to cross Florence Ave.



# Florence Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #5

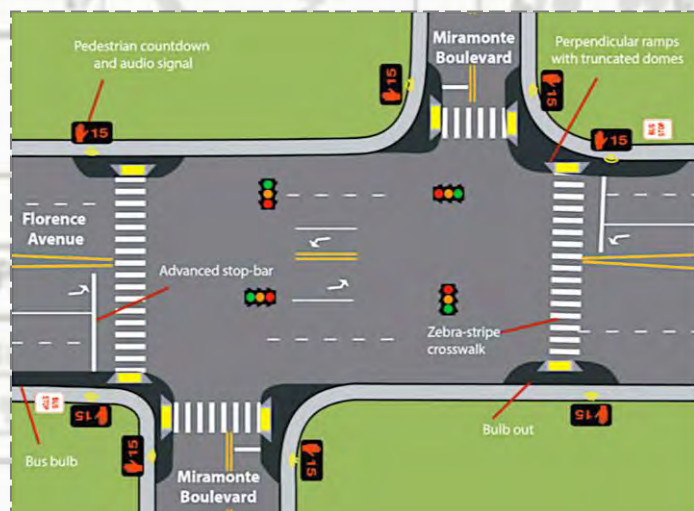
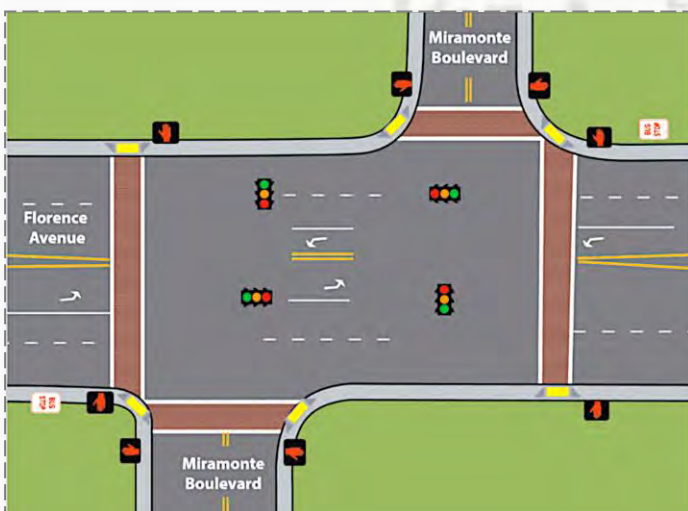
### Florence Avenue & Miramonte Boulevard

#### EXISTING

- Florence Ave. has 4 lanes, center turn lane, and on-street parking
- Miramonte Blvd. has 2 lanes and on-street parking
- Miramonte Blvd. alignment is offset at intersection
- Signalized intersection
- Bus stops on Florence Ave. (eastbound, near side; westbound, near side)
- Four lateral line crosswalks with brick texture
- Four diagonal ramps with truncated domes

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-out on the northwest corner to cross Florence Ave. (aligned with the west leg of the intersection), on the southeast corner to cross Florence Ave., and on all faces to cross Miramonte Blvd. (4)
- Add bus bulbs on the southwest and northeast corners to cross Florence Ave. (2)



# Florence Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #6

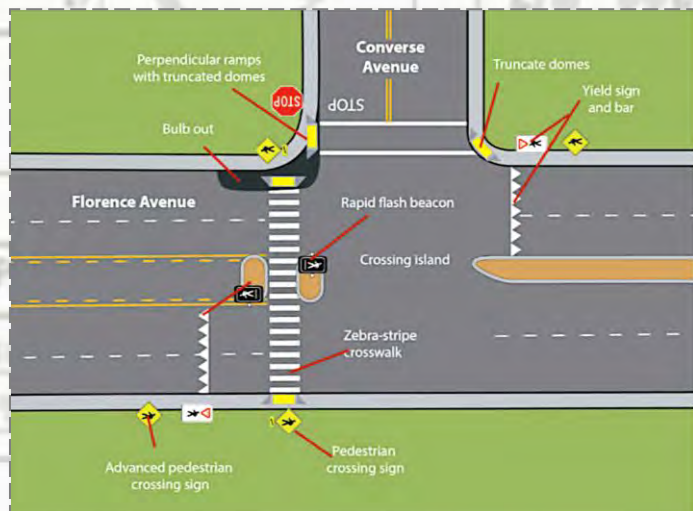
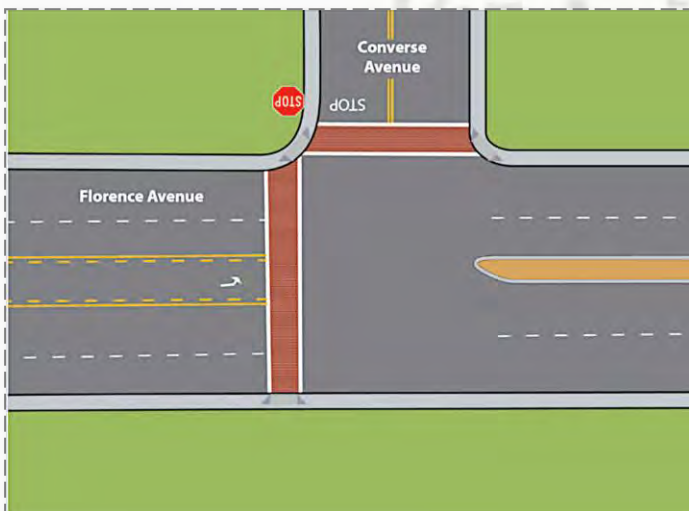
## Florence Avenue & Converse Avenue

### EXISTING

- Florence Ave. has 4 lanes, center turn lane, and on-street parking
- Converse Ave. has 2 lanes and on-street parking
- Stop-controlled T-intersection for Converse Ave.
- Lateral line crosswalk with brick texture to cross Florence Ave. from west side of Converse Ave.

### RECOMMENDED

- Add zebra-stripe to crosswalk (1)
- Add advanced yield markings to both approaches of crosswalk (2)
- Add advanced pedestrian warning signs to both approaches (2)
- Add pedestrian crossing signs (2)
- Add bulb-out to cross Florence Ave. on the north end of the crosswalk (1)
- Add median islands (1)
- Add rectangular rapid flash beacon (1)



# Florence Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #7

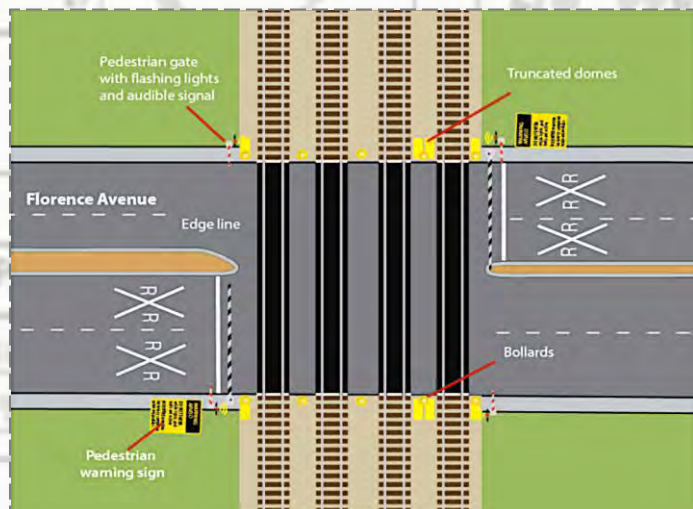
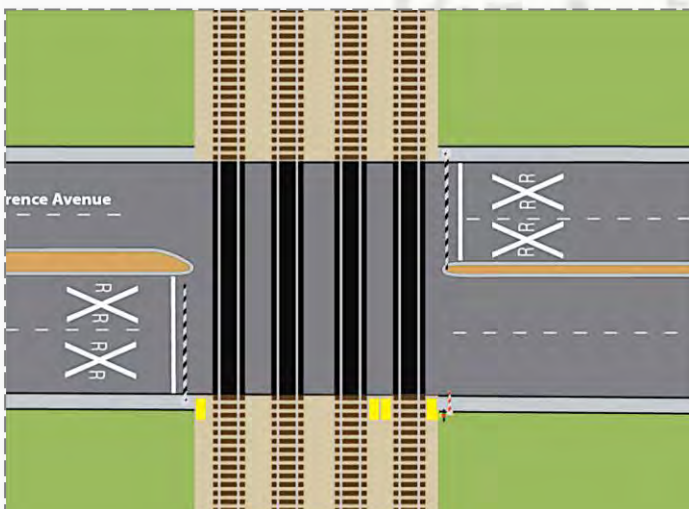
### Florence Avenue & Metro Blue Line Tracks

#### EXISTING

- Florence Ave. has 4 lanes, center median, and on-street parking
- Railroad right-of-way has 4 tracks, 2 of which are highly active Metro Blue Line tracks
- Pedestrian gate arm with audible warning device on the southeast corner
- Base of vehicular gate arm swings into sidewalk on southwest and northeast corners
- Three sets of truncated domes on south sidewalk: one west of all tracks, one between the two sets of Blue Line tracks, and one east of all tracks
- Existing advisory signage warning pedestrians not to enter when the gates are down

#### RECOMMENDED

- Add edge lines across tracks on both sidewalks (2)
- Add pedestrian gate arms to the northeast, northwest, and southwest corners (3)
- Add bollards or curbs to segregate vehicle traffic from sidewalk on both sides
- Add truncated domes to the north side in the same locations as they are found on the south side
- Add warning signs or poles to alert pedestrians to the path of the vehicular gate arm



# Florence Blue Line Station

## Existing Conditions & Recommendations

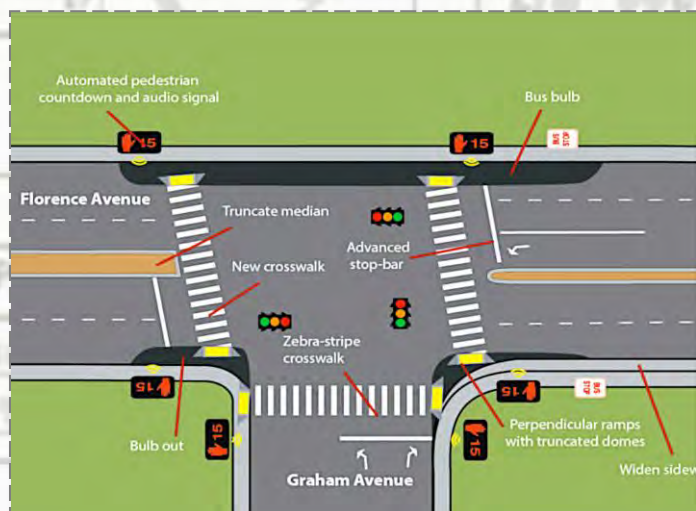
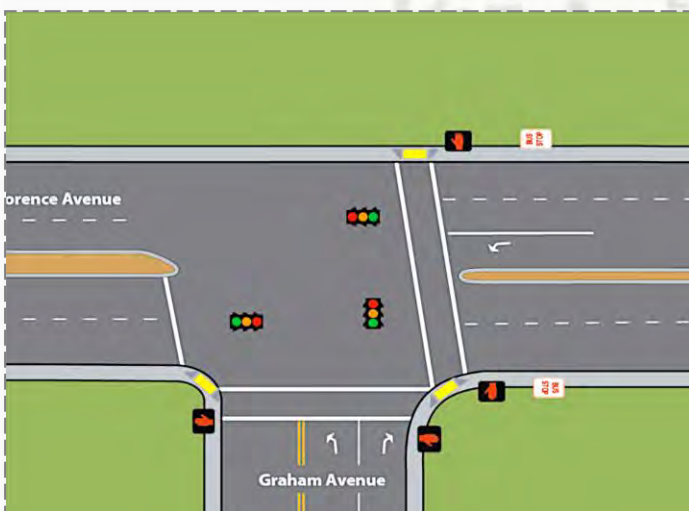
### Intersection Improvement #8 Florence Avenue & Graham Avenue

## EXISTING

- Florence Ave. has 4 lanes, center turn lane/median, and on-street parking
- Graham Ave. has one lane southbound, a northbound left-turn lane, and a northbound right turn lane
- Signalized T-intersection
- Bus stops on Florence Ave. (eastbound, far side, westbound, near side)
- Pedestrian crossing prohibited on west leg
- Advanced stop bar on east leg
- Diagonal ramps with truncated domes on the southwest, southeast, and northeast corners
- Pushbuttons to cross Florence Ave.

## RECOMMENDED

- Open pedestrian crossing on west leg
- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add passive pedestrian detection to all crossings (6)
- Add advanced stop bars to all remaining crossings (3)
- Add bulb-outs on the northwest and southwest corners to cross Florence Ave.
- Add bus bulbs on the northeast and southeast corners to cross Florence Ave.
- Truncate median on west leg to keep crosswalk alignment clear
- Widen sidewalk on south side of Florence between Graham Ave. and station entrance



# Florence Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #9

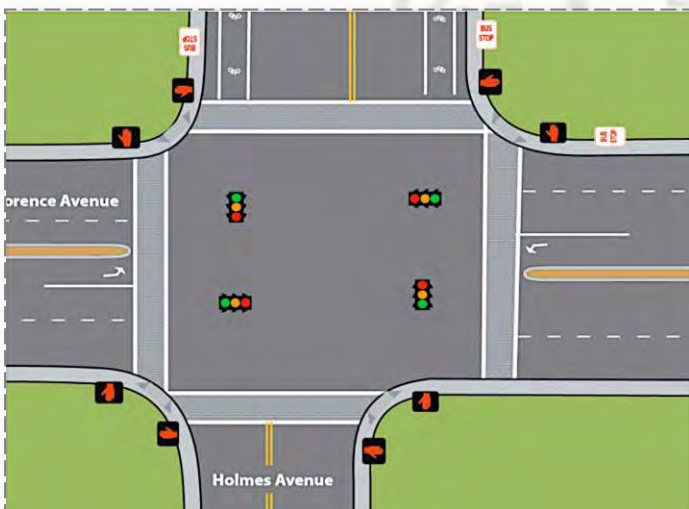
### Florence Avenue & Holmes Avenue

#### EXISTING

- Florence Ave. has 4 lanes, center turn lane/median, and on-street parking
- Holmes Ave. has 2 lanes, and north of Florence Ave. has on-street parking and bike lanes
- Alignment of Holmes Ave. is offset at intersection
- Signalized intersection
- Bus stops on Florence Ave. (westbound, near side) and Holmes Ave. (northbound, far side; southbound, near side)
- Four lateral line crosswalks with textured brick appearance
- Four diagonal ramps with truncated domes

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add passive pedestrian detection to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb outs on the northwest, northeast, southwest, and southeast corners to cross Florence Ave., and on the northwest corner to cross Holmes Ave. (5)
- Add bus bulb on the northeast corner to cross Florence Ave. (1)
- Restripe southbound travel lanes to add bulb out on the northwest corner to cross Holmes Ave.



# Florence Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #10

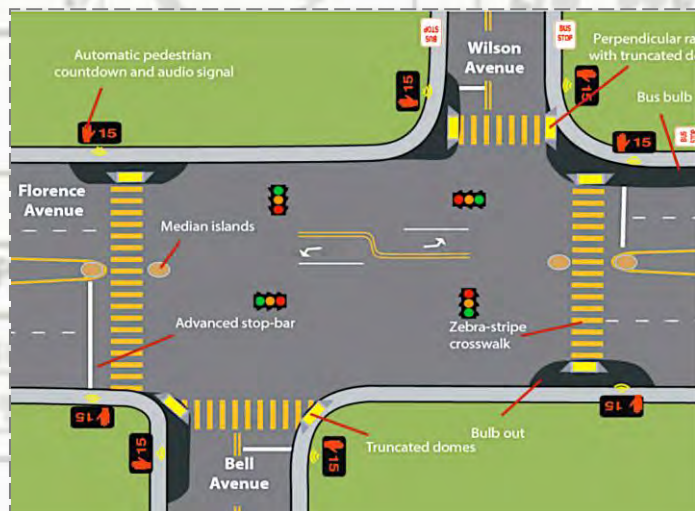
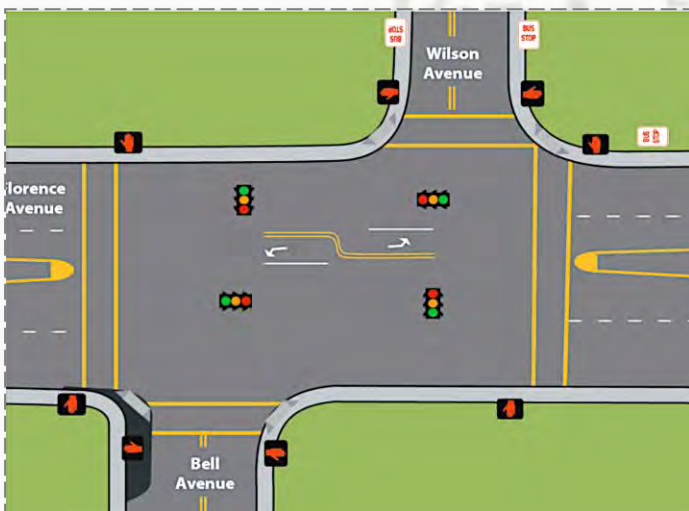
## Florence Avenue, Bell Avenue & Wilson Avenue

### EXISTING

- Florence Ave. has 4 lanes, center turn lane, and on-street parking
- Bell Ave. has 2 lanes and on-street parking
- Wilson Ave. has 2 lanes and on-street parking
- Signalized intersection
- Four lateral line crosswalks with textured brick appearance
- Pedestrian crossing of Florence Ave. prohibited on the west side of Wilson Ave. and the east side of Bell Ave.
- Bulb-out to cross Bell Ave. on southwest corner

### RECOMMENDED

- Add zebra-stripe crosswalks to existing crossings (4)
- Add pedestrian countdown signals to existing crossings (8)
- Add audio signals to existing crossings (8)
- Add passive pedestrian detection to all crossings (8)
- Add advanced stop bars to existing crossings (4)
- Add bulb-outs to cross Florence Ave. on the northwest corner (aligned with west side of Bell Ave.), and southeast corner (aligned with east side of Wilson Ave.)
- Add bulb-out on the west side of Wilson Ave. to cross Wilson Ave.
- Add bus bulb to cross Florence Ave. on the northeast corner
- Realign east leg crossing of Florence Ave. at Wilson Ave. to make it perpendicular
- Add median islands with refuge area on the west crossing and east crossing of Florence Ave.





# Florence Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #11

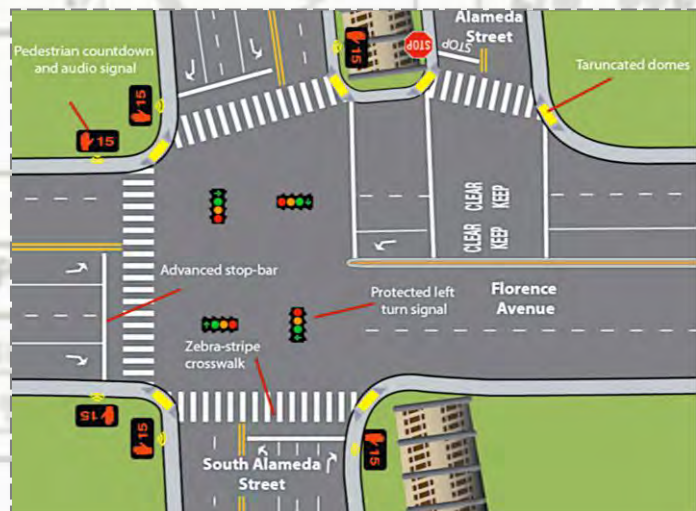
### Florence Avenue, South Alameda Street & Alameda Street

#### EXISTING

- Florence Ave. has 4 lanes, center turn lane, and eastbound right turn lane
- S. Alameda St. has 4 lanes, center turn lane, and right turn lanes
- Alameda St. has two lanes and on-street parking
- Alameda Corridor runs below-ground parallel to S. Alameda St. and interacts with pedestrian crossings
- Signalized intersection with permissive left turns
- Pedestrian crossing of Florence Ave. on east leg prohibited from Alameda St.
- Lateral line crosswalk on south leg has textured brick appearance

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add advanced stop bars to all crossings (4)
- Add protected left turns from Florence Ave. and S. Alameda St.
- Coordinate with City of Huntington Park



# Florence Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #12

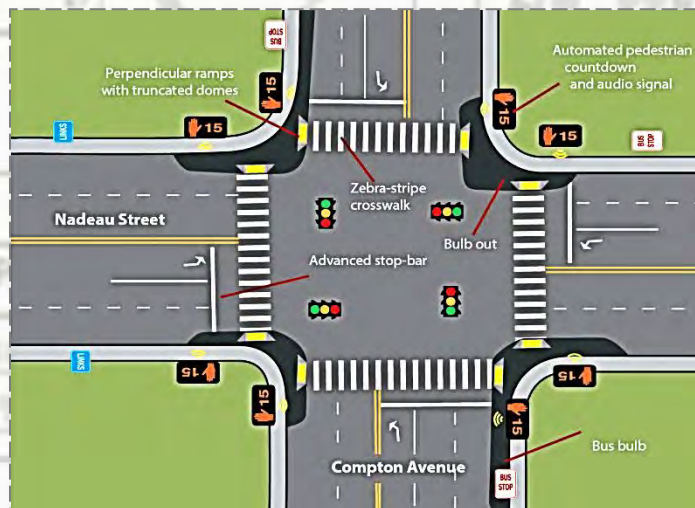
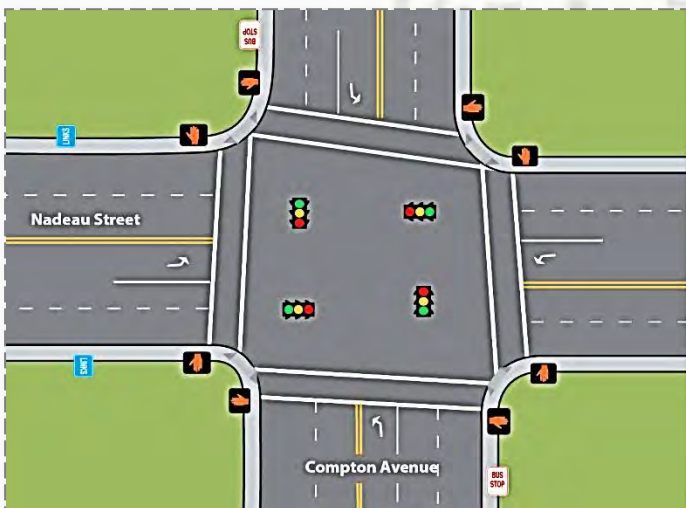
## Nadeau Street & Compton Avenue

### EXISTING

- Nadeau St. has 4 lanes, center turn lane, and parking
- Compton Ave. has 4 lanes, center turn lane, and parking
- Signalized intersection
- Bus stops on Compton Ave. (southbound, near side; northbound, near side)
- Link stops on Nadeau St. (westbound, far side; eastbound, near side)

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add passive pedestrian detection to all crossings (8)
- Add bulb-outs on the northwest corner to cross Nadeau St., on both faces of the northeast corner to cross Nadeau St., and on both faces of the southwest corner to cross Nadeau St. (6)
- Add bus bulbs on the northwest and southeast corners to cross Compton Ave. (2)



# Florence Blue Line Station

Existing Conditions & Recommendations

## Local Transit Serving the Station

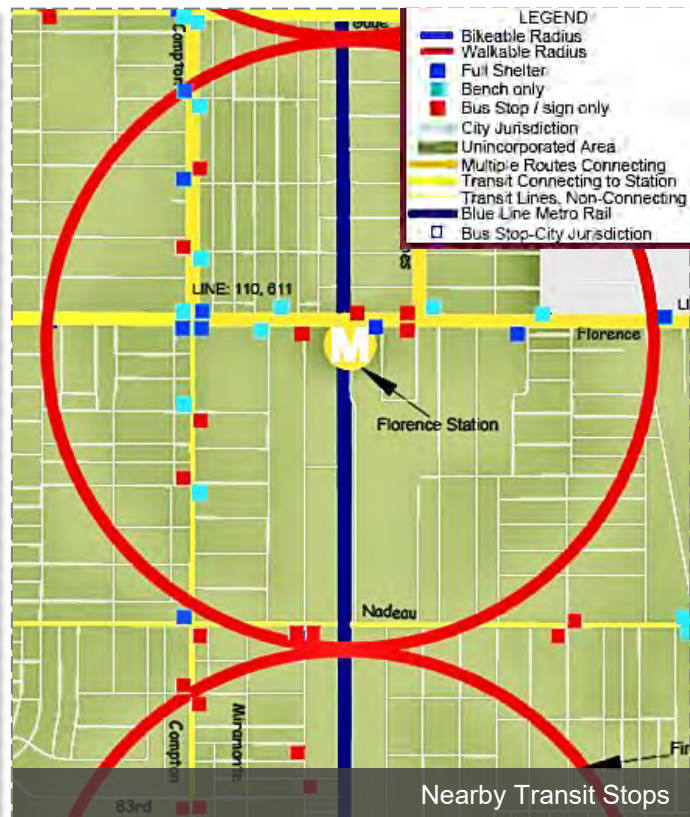
The Florence Station serves the Blue Line rail route and local bus routes. These include Metro routes 102, 110, 111 and 611. It also provides service for the LADOT DASH Chesterfield Square. Destinations served include the City of Gardena, Koreatown and Los Feliz.

## Local Transit Stops

There are 45 local transit stops located within the County's jurisdiction and within the Florence Station vicinity. Over 84% of the transit stops offer minimal amenities (i.e., sign or bench only). The remaining 16% (10 stops) offer shelter amenities.

## Recommended Transit Improvements

The transit stops located within County jurisdiction that are recommended for improvements are detailed in Appendix E.



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# Firestone Blue Line Station



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**Strengths** Madre Villa Carson Aviation/L

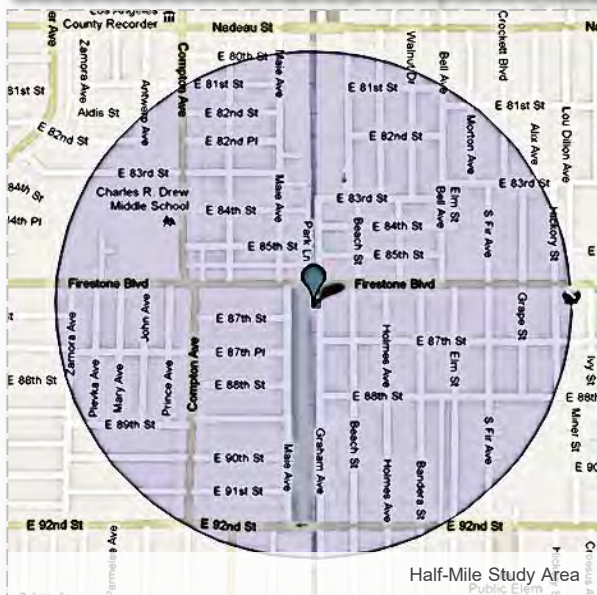
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**Opportunities** Slauson Sierra Madre Vi

**Challenges** Aviation/LAX Vermont Haw

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n Aviation Aviation/LAX Vermont Hawth

# Firestone Blue Line Station



## The Firestone Blue Line Station

is located south of Downtown Los Angeles, in the unincorporated community of Florence-Firestone. It is bordered by the cities of Los Angeles, Huntington Park, South Gate and Lynwood.

# Firestone Blue Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Transit-dependent community

## WEAKNESSES

- Personal safety concerns
- Station lacks landscaping and other aesthetic amenities
- Nearby bus stops lack benches or trash bins
- Lack of bicycle infrastructure on nearby streets
- Lack of pedestrian infrastructure
- Elevated train station

## OPPORTUNITIES

- Mixed land use pattern
- Identification and development of vacant or underutilized/underperforming lots can be used to spur the construction of mixed-use development in the area.
- Planned bicycle infrastructure improvements

## CHALLENGES

- Uneven front-facing commercial development along Firestone



# Firestone Blue Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Firestone Blue Line Station is located south of Downtown Los Angeles, in the unincorporated community of Florence-Firestone. The neighborhood is bordered by the cities of Los Angeles, Huntington Park, South Gate and Lynwood.<sup>49</sup>

### Strengths

- Transit-dependent community

The community around the Firestone station is transit-dependent and frequently uses nearby rail and bus lines. The Firestone station is well-served by connections to Metro and LADOT bus lines.

### Weaknesses

- Personal safety concerns
- Station lacks landscaping and other aesthetic amenities
- Nearby bus stops lack benches or trash bins
- Lack of bicycle infrastructure on nearby streets
- Lack of pedestrian infrastructure

The Firestone Station platform is elevated above a freight rail line at street level. As such, the station is removed from view of the main street below, causing riders to express a lack of personal security while waiting for the train. Furthermore, the station area lacks landscaping and other aesthetic amenities that would improve its appearance. Nearby bus stops lack adequate benches or trash bins.

The project area currently lacks bikeways, which leads cyclists onto the street or sidewalk, creating a dangerous environment for bicyclists, pedestrians and drivers.

The limited number of rail crossings in the Florence-Firestone community forces east-west pedestrian and vehicular traffic to utilize Firestone Boulevard, which creates safety issues for pedestrians.<sup>50</sup>

# Firestone Blue Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Mixed land use pattern
- Identification and development of vacant or underutilized/underperforming lots can be used to spur the construction of mixed-use development in the area.
- Planned bicycle infrastructure improvements

The land-use pattern around the Firestone Station is mainly compact, single family residential, with some medium-density residential north of Firestone Boulevard, and some industrial uses on the east side of the Blue Line.<sup>51</sup> This mix of land uses in a relatively small area provides opportunities to link a variety of land uses through pedestrian and bicycle improvements. The County has proposed Class II bike lanes on Firestone Boulevard and Compton Avenue and a bike boulevard along Maie Avenue.<sup>52</sup> The large transit-dependent population would provide a ready user-base for these improved facilities.

The 2009 Florence-Firestone Vision Plan recommends that action be taken to identify vacant or underutilized and/or underperforming lots in the Firestone Station area that would be prime locations for mixed use development..<sup>53</sup>

## Challenges

- Uneven front-facing commercial development along Firestone

In spite of considerable front-facing commercial façades along Firestone, the development is not continuous. Surface parking lots pose a challenge to encouraging more pedestrian activity in this district.



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Sierra Madre Villa Carson Aviation/LAX

**Existing Conditions**  
**& Recommendations**

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# Firestone Blue Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

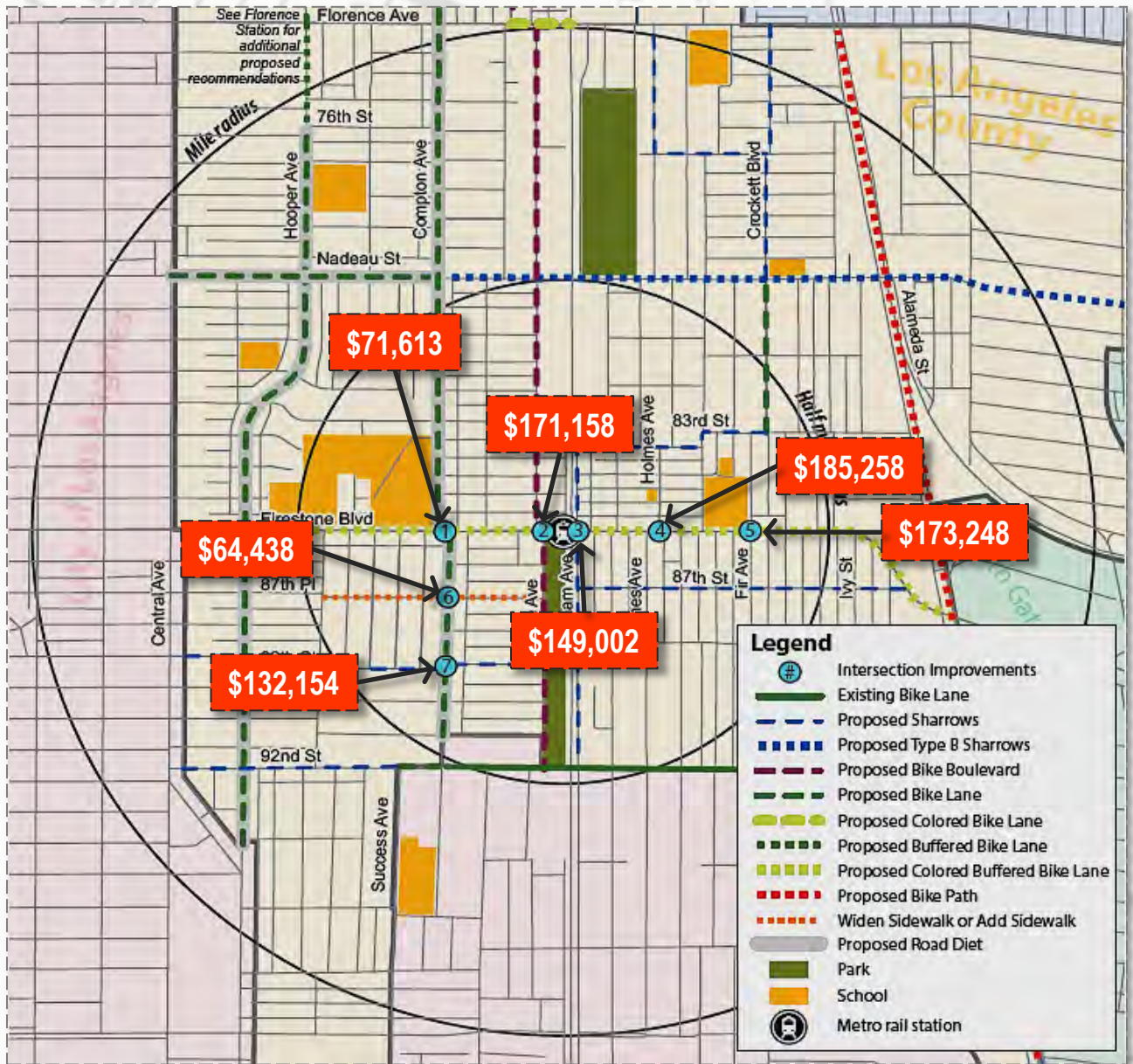


See Appendix F for detailed information on recommended bikeways and linear concepts

# Firestone Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$8.552 million**

See Appendix F for detailed cost estimates

# Firestone Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #1

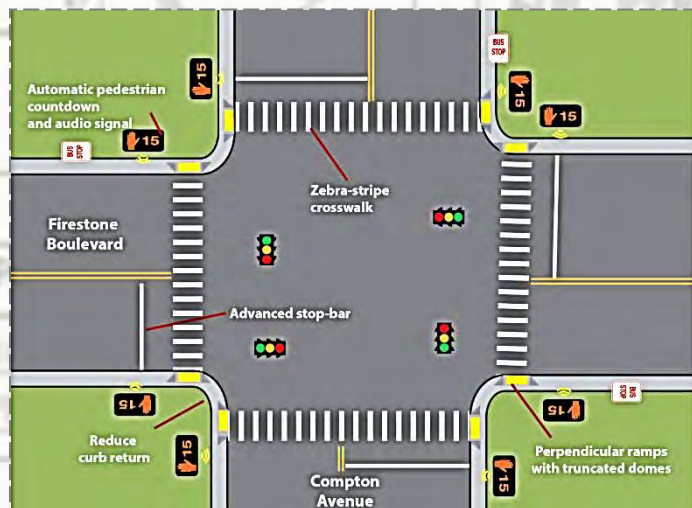
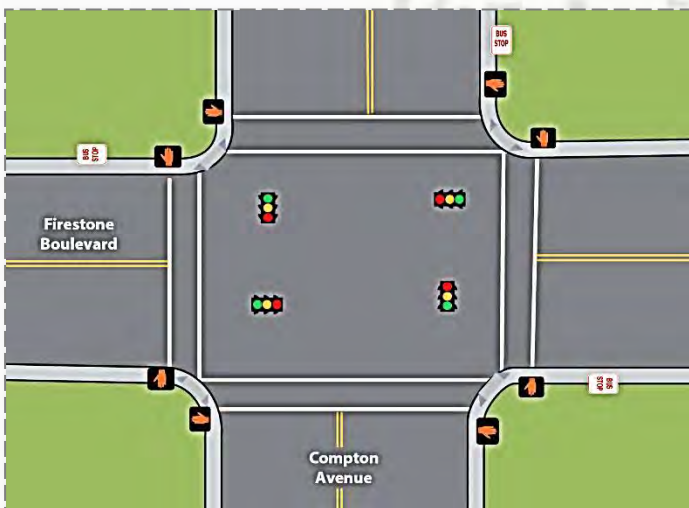
### Firestone Boulevard & Compton Avenue

#### EXISTING

- Firestone Blvd. has 4 lanes, center turn lane, and peak hour lanes in which on-street parking is allowed during the off-peak hours
- Compton Ave. has 4 lanes with on-street parking, and right turn lanes at the intersection
- Signalized intersection
- Bus stops on Firestone Blvd. (eastbound, far side; westbound, far side), and Compton Ave. (northbound, far side)
- Compton Avenue alignment is offset at intersection

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add advanced stop bars to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Reduce curb return on all corners
- Remove pushbuttons and set walk phase to automatic
- Add leading pedestrian interval for all crossings



# Firestone Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #2

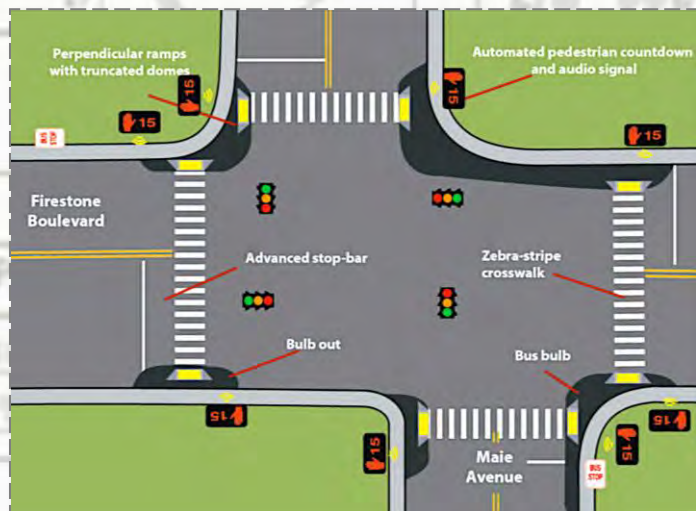
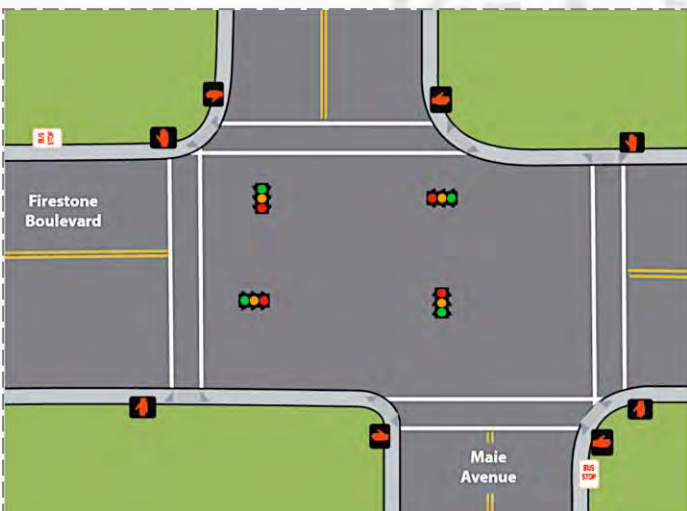
## Firestone Boulevard & Maie Avenue

### EXISTING

- Firestone Blvd. has 4 lanes, center turn lane, and peak hour lanes in which on-street parking is allowed during the off-peak hours
- Maie Ave. has 2 lanes with on-street parking
- Signalized intersection with protected left turns from Maie Ave.
- Bus stops on Firestone Blvd. (westbound, far side) and Maie Ave. (northbound, near side)
- Maie Avenue alignment is offset at intersection

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add advanced stop bars to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add bus bulb on southeast corner to cross Maie Ave. (1)
- Add bulb-outs to all faces of all remaining crossings (7)
- Bulb-out on north side of Firestone Blvd. on the east leg of the intersection will continue to the corner at Maie Ave.
- Remove pushbuttons and set walk phase to automatic
- Add leading pedestrian interval for all crossings





# Firestone Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #3

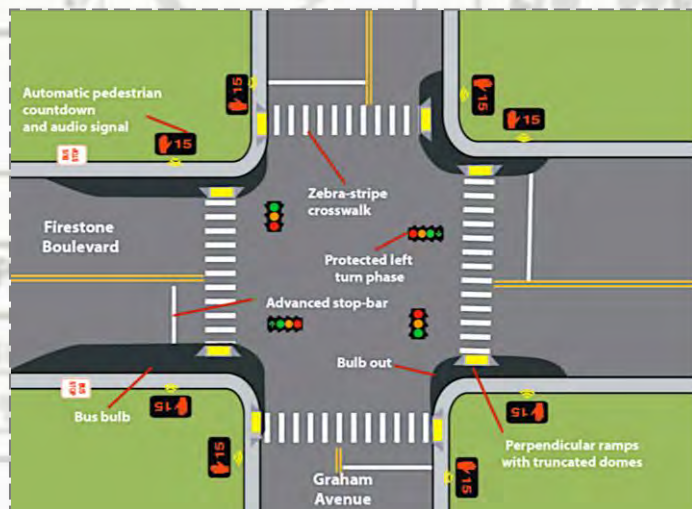
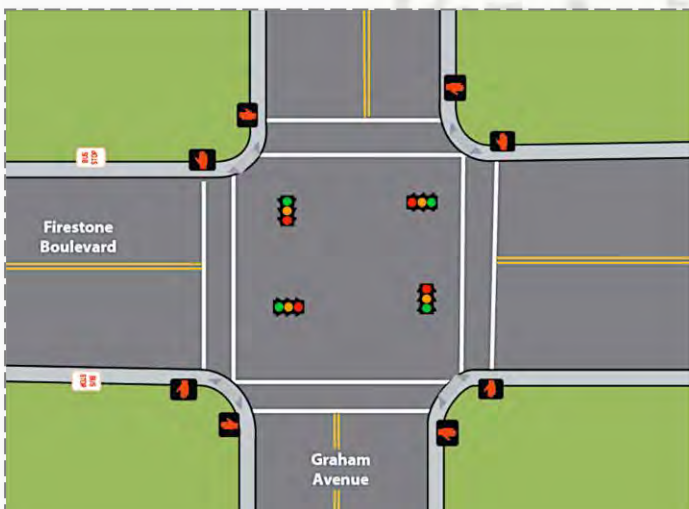
### Firestone Boulevard & Graham Avenue

#### EXISTING

- Firestone Blvd. has 4 lanes, center turn lane, and peak hour lanes in which on-street parking is allowed during the off-peak hours
- Graham Ave. has 2 lanes with on-street parking
- Signalized intersection
- Bus stops on Firestone Blvd. (eastbound, near side; westbound, far side)
- Pedestrian pushbuttons to cross Firestone Blvd.

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add advanced stop bars to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add bulb-outs to the northeast and southeast corners to cross Firestone Blvd., and to the northeast corner to cross Graham Ave.
- Add bus bulbs on the northwest and southwest corners to cross Firestone Blvd. (2)
- Remove pushbuttons and set walk phase to automatic
- Add leading pedestrian interval for all crossings
- Time pedestrian walk phase to cross Firestone Blvd. with bus arrivals



# Firestone Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #4

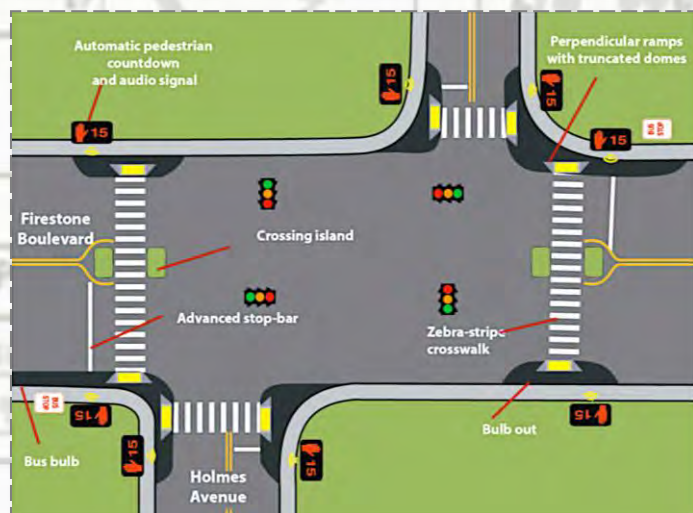
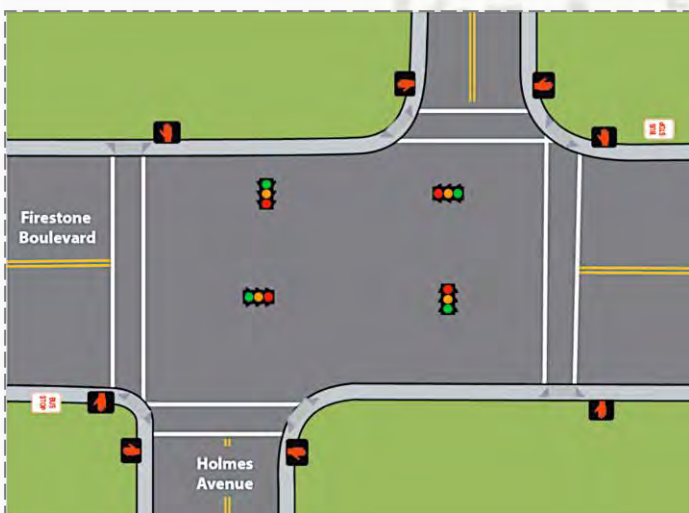
## Firestone Boulevard & Holmes Avenue

### EXISTING

- Firestone Blvd. has 4 lanes, center turn lane, and peak hour lanes in which on-street parking is allowed during the off-peak hours
- Holmes Ave. has 2 lanes with on-street parking
- Signalized intersection
- Bus stops on Firestone Blvd. (eastbound, near side; westbound, near side)
- Alignment of Holmes Ave. is offset at intersection

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-out on the northwest corner to cross Firestone Blvd. (aligned with the west leg of the intersection), on the southeast corner to cross Firestone Blvd., and on all faces to cross Holmes Ave. (6)
- Add bus bulbs on the southwest and northeast corners to cross Firestone Blvd. (2)
- Add crossing islands to both crossings of Firestone Blvd. (2)
- Remove pushbuttons and set walk phase to automatic
- Add leading pedestrian interval for all crossings



# Firestone Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #5

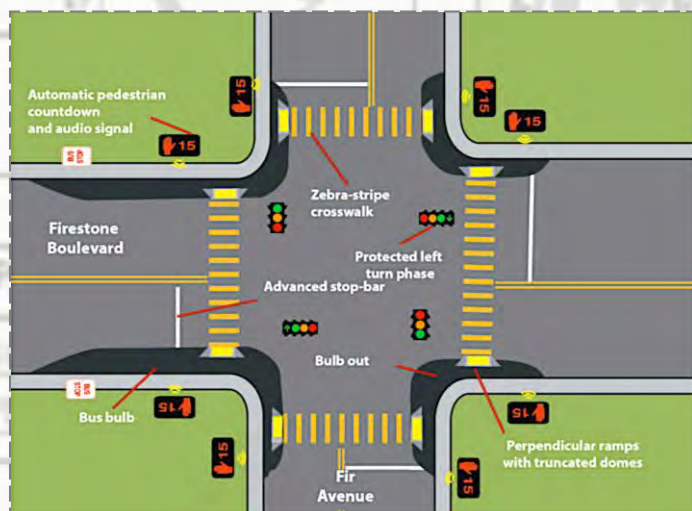
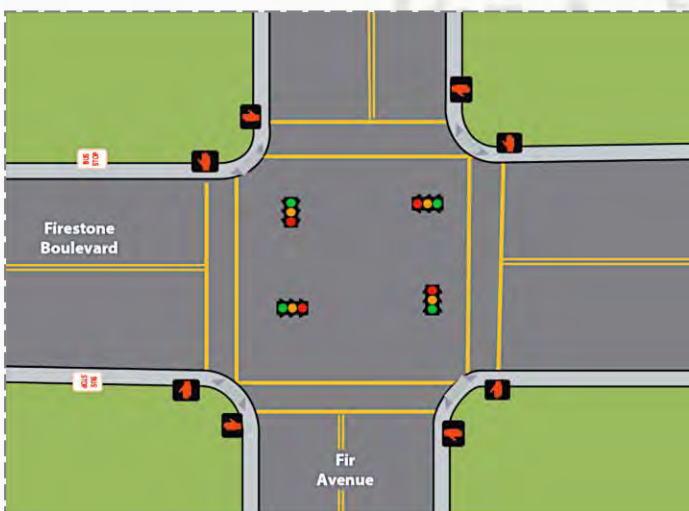
### Firestone Boulevard & Fir Avenue

#### EXISTING

- Firestone Blvd. has 4 lanes, center turn lane, and peak hour lanes in which on-street parking is allowed during the off-peak hours
- Fir Ave. has 2 lanes with on-street parking
- Signalized intersection with permissive left turns
- Bus stops on Firestone Blvd. (eastbound, near side; westbound, far side)
- Yellow lateral-line crosswalks indicate this is a school route

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northeast and southeast corners to cross Firestone Blvd., and on all faces to cross Fir Ave. (6)
- Add bus bulbs on the northwest and southwest corners to cross Firestone Blvd. (2)
- Remove pushbuttons and set walk phase to automatic
- Add leading pedestrian interval for all crossings
- Add protected left turn phases off Firestone Blvd.



# Firestone Blue Line Station

## Existing Conditions & Recommendations

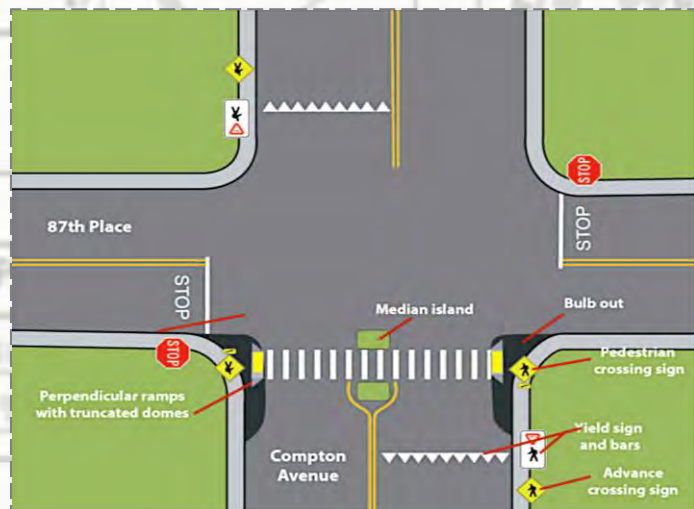
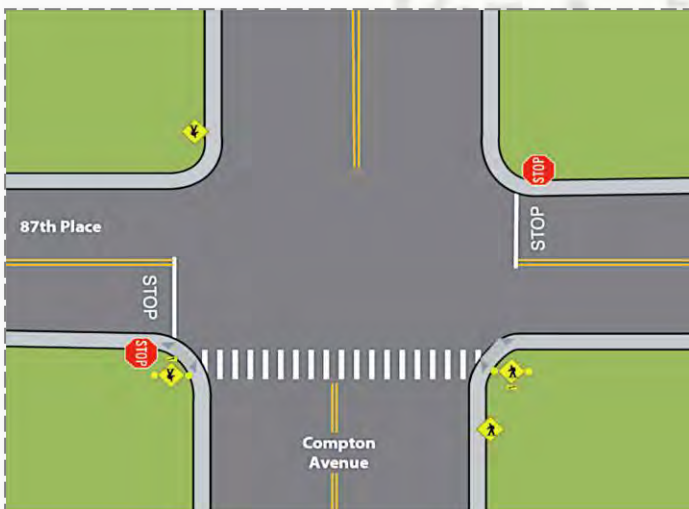
### Intersection Improvement #6 87<sup>th</sup> Place & Compton Avenue

## EXISTING

- 87th Pl. has 2 lanes with on-street parking
- Compton Ave. has 4 lanes with on-street parking
- Stop-controlled intersection for 87th Pl.
- Bilingual pedestrian-activated beacon to cross Compton Ave. on the south leg
- Zebra-stripe crosswalk to cross Compton Ave. on the south leg
- Set of old pedestrian crossing signs, one at the crossing and one advanced pedestrian crossing sign on the approach

## RECOMMENDED

- Add yield markings to both approaches (2)
- Remove outdated signs
- Add advanced pedestrian signs (2)
- Add pedestrian crossing signs (2)
- Add advanced yield signs (2)
- Add bulb-outs to the southeast and southwest corners to cross Compton Ave. (2)
- Add median islands to the south leg to cross Compton Ave. in conjunction with proposed road diet on Compton Ave. (1)



# Firestone Blue Line Station

Existing Conditions & Recommendations

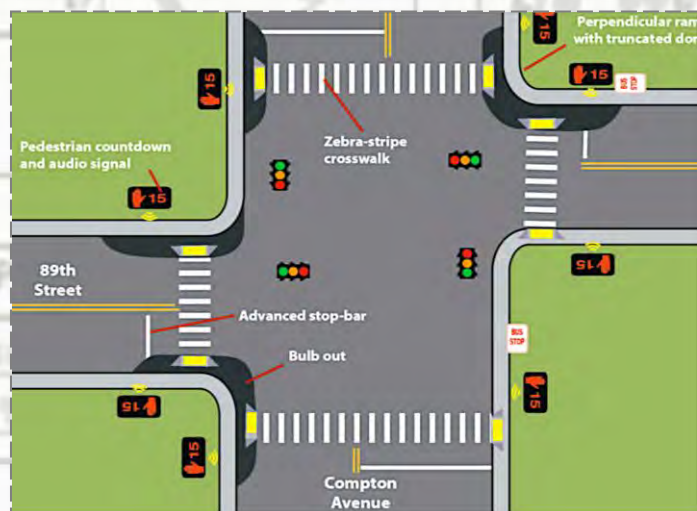
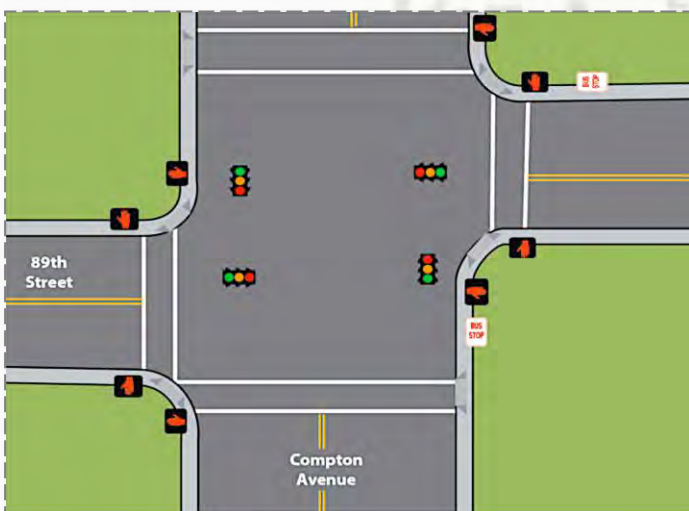
## Intersection Improvement #7 89<sup>th</sup> Street & Compton Avenue

### EXISTING

- 89th St. has 2 lanes with on-street parking
- Compton Ave. has 4 lanes and on-street parking
- Signalized intersection with protected left turns from 89th St.
- Bus stops on Compton Ave. (northbound, near side and 89th St. (westbound, near side)
- Alignment of 89th St. is offset at intersection

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northwest, northeast, and southwest corners to cross Compton Ave., and on both faces of the west leg to cross 89th St., and on the northeast corner to cross 89th St.
- Option: Replace signal with roundabout in conjunction with road diet on Compton Ave.



# Firestone Blue Line Station

## Existing Conditions & Recommendations

Firestone Station is an island platform located on the Blue Line right-of-way alongside Graham Avenue near the intersection of Firestone Boulevard.

## Local Transit Serving the Station

The Firestone Station serves the Blue Line rail route and local bus routes, including Metro routes 55, 115, 254, 355 and 612. Destinations served include Downey, East Los Angeles, Huntington Park, the Norwalk Metrolink Station, Watts and Westchester.

## Local Transit Stops

There are 33 local transit stops located within the County right-of-way and within the Firestone Station vicinity. Nearly half (46%, or 15 locations) offer minimal amenities (i.e., sign only). 33%, or 11 locations, offer seating, and the remaining 21% (7 stops) offer shelter amenities.

## Recommended Transit Improvements

There are approximately 26 stops in the Firestone Station area that are recommended for improvements, Details are provided in Appendix F.



# Slauson Blue Line Station



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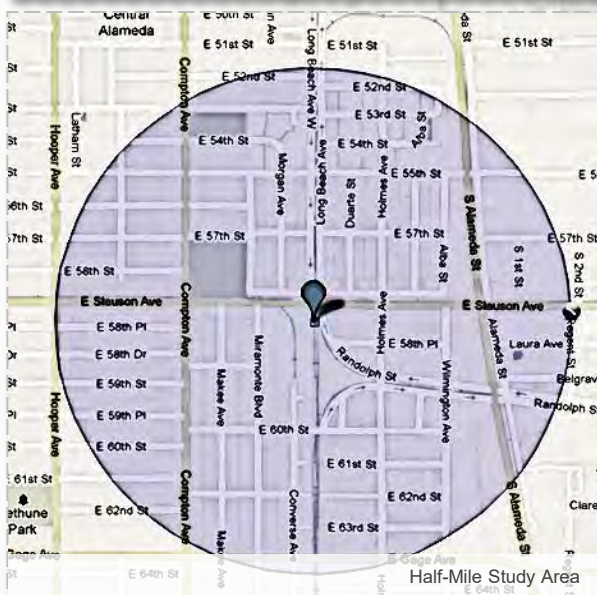
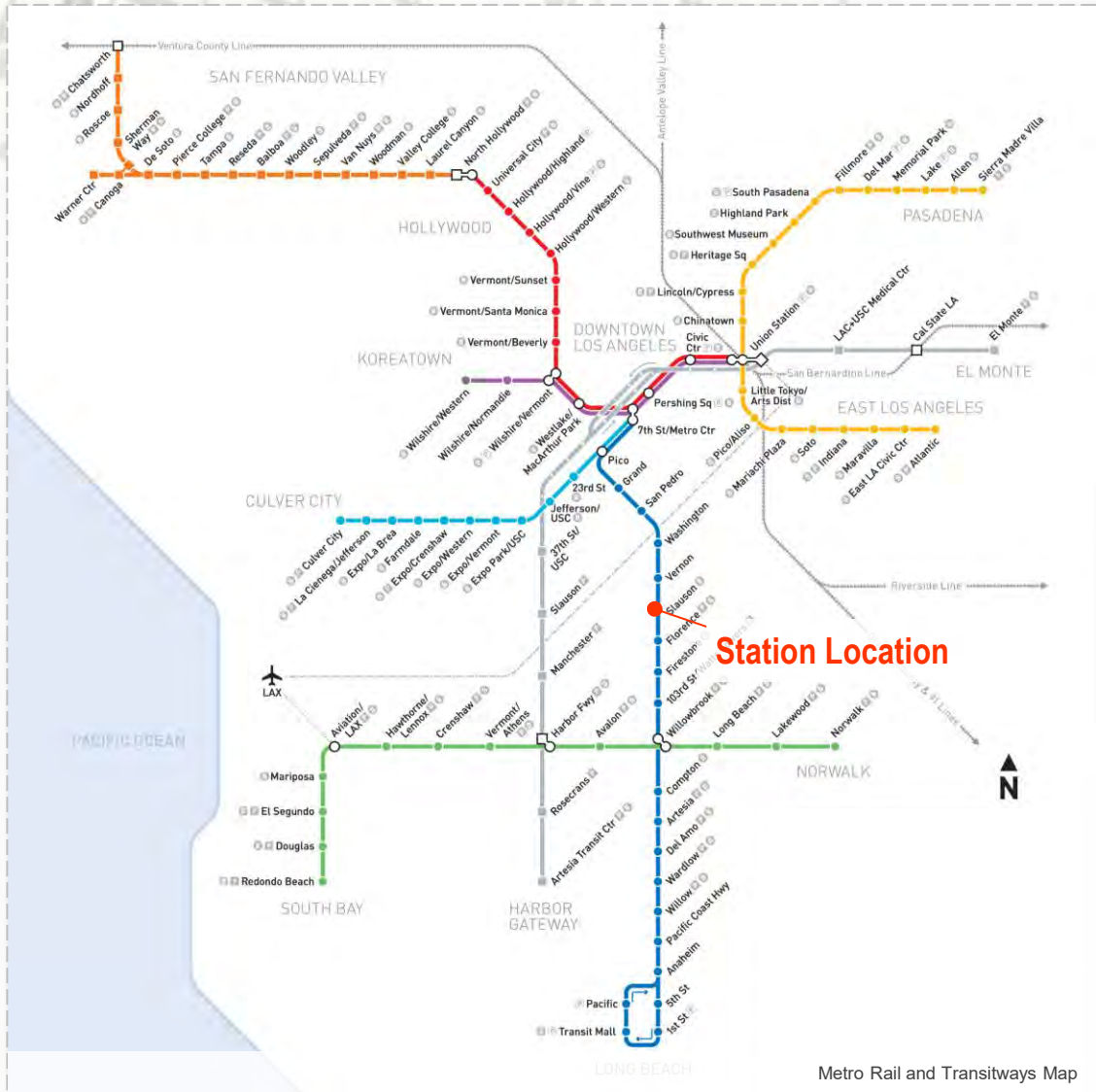
**Opportunities** Slauson Sierra Madre Vi

**Challenges** Aviation/LAX Vermont Haw

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# Slauson Blue Line Station



## The Slauson Station

sits in the unincorporated community of Florence-Firestone. The elevated platform is located at the intersection of East Slauson Avenue and Randolph Street.

# Slauson Blue Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Connectivity to job centers
- Existing cluster of light industrial and manufacturing
- Involved community stakeholders
- Transit-dependent community

## WEAKNESSES

- Elevated train station
- Lack of pedestrian infrastructure
- Lack of bicycle infrastructure on nearby streets
- Lack of active recreation spaces at the nearby park
- Mixture of residential and industrial uses may not be conducive to TOD
- Personal safety concerns

## OPPORTUNITIES

- Potential for intermodal connectivity to the station
- Opportunities for improved residential connections
- Sense of community pride
- Planned bicycle infrastructure improvements

## CHALLENGES

- Multiple jurisdictions and lack of coordinated planning efforts
- Potential community opposition to change

# Slauson Blue Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Slauson Station sits in the unincorporated community of Florence-Firestone. The elevated platform is located at the intersection of East Slauson Avenue and Randolph Street. While the station lies completely within unincorporated Los Angeles County, “the station’s half mile radius study area is located at the convergence of several jurisdictional boundaries.”<sup>54</sup> The City of Los Angeles is to the north and west and the cities of Vernon and Huntington Park are to the east.

## Strengths

- Connectivity to job centers
- Existing cluster of light industrial and manufacturing
- Involved community stakeholders
- Transit-dependent community

The Slauson Station and the Blue Line connect the neighborhood to regional job centers in Los Angeles and Long Beach. The area has an existing cluster of light industrial and manufacturing jobs that serve as a local employment center. The area also benefits from “an established and engaged residential community that would like to see improvements to the community.”<sup>55</sup>

## Weaknesses

- Elevated train station
- Lack of pedestrian infrastructure
- Lack of bicycle infrastructure on nearby streets
- Lack of active recreation spaces at the nearby park
- Mixture of residential and industrial uses may not be conducive to transit-oriented development
- Personal safety concerns

The station area is governed by “fractured leadership and is regulated by a multitude of jurisdictions with little or no coordinated planning efforts.” The elevated station does not connect well to the surroundings. There is “limited accessibility for pedestrians due to narrow sidewalks and a lack of nearby crosswalks.” Pedestrian access to the nearby recreational space (Augustus F. Hawkins Natural Park) is lacking. Residents also note that the park’s lack of active recreation spaces (e.g., basketball courts or soccer fields) encourages “limited usage.” The station does have bicycle racks, but they are underutilized. There are no bike lockers and the station lacks designated bicycle routes in close proximity. The mixture of residential and industrial land uses may present a problem for new development.<sup>56</sup>

# Slauson Blue Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Potential for intermodal connectivity to the station
- Opportunities for improved residential connections
- Sense of community pride
- Planned bicycle infrastructure improvements

Although the Blue Line has high ridership numbers, the “boarding and exiting numbers at the Slauson Station are comparably lower than at other Blue Line stations.” This presents an opportunity to boost boarding numbers at the station “by providing safe parking and a safe, clean station.”<sup>57</sup> In addition, higher densities in the station area mean that “increasing connectivity to the station would lead to a potential increase in ridership.”<sup>58</sup> Stakeholder interviews conducted by the Urban Land Institute reveal that there is a “strong sense of community pride.”<sup>59</sup>

Planned investments in bike lanes along Slauson, Compton, and Holmes Avenues present an opportunity to improve bicycle and pedestrian infrastructure for station users.<sup>60</sup>

## Challenges

- Multiple jurisdictions and lack of coordinated planning efforts
- Potential community opposition to change

One of the biggest challenges for this site involves “coordination among the various jurisdictions in the study area.”<sup>61</sup> Stakeholder feedback indicates that personal “safety is the single greatest threat to [the station’s] immediate recovery into a vital and thriving station.”<sup>62</sup> In addition, negative outside perceptions may hamper investment in the neighborhood.



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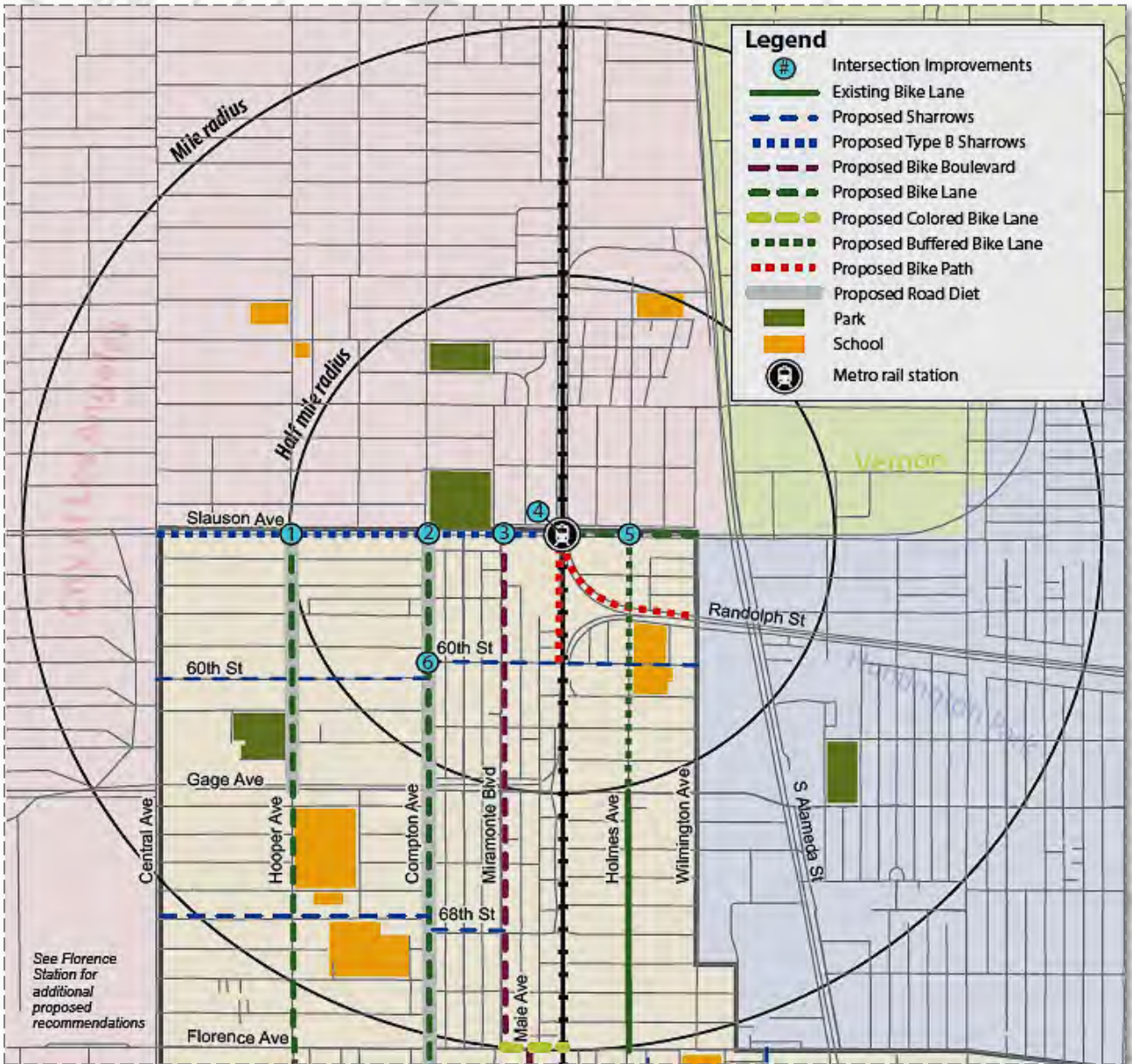
**Existing Conditions**  
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# Slauson Blue Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

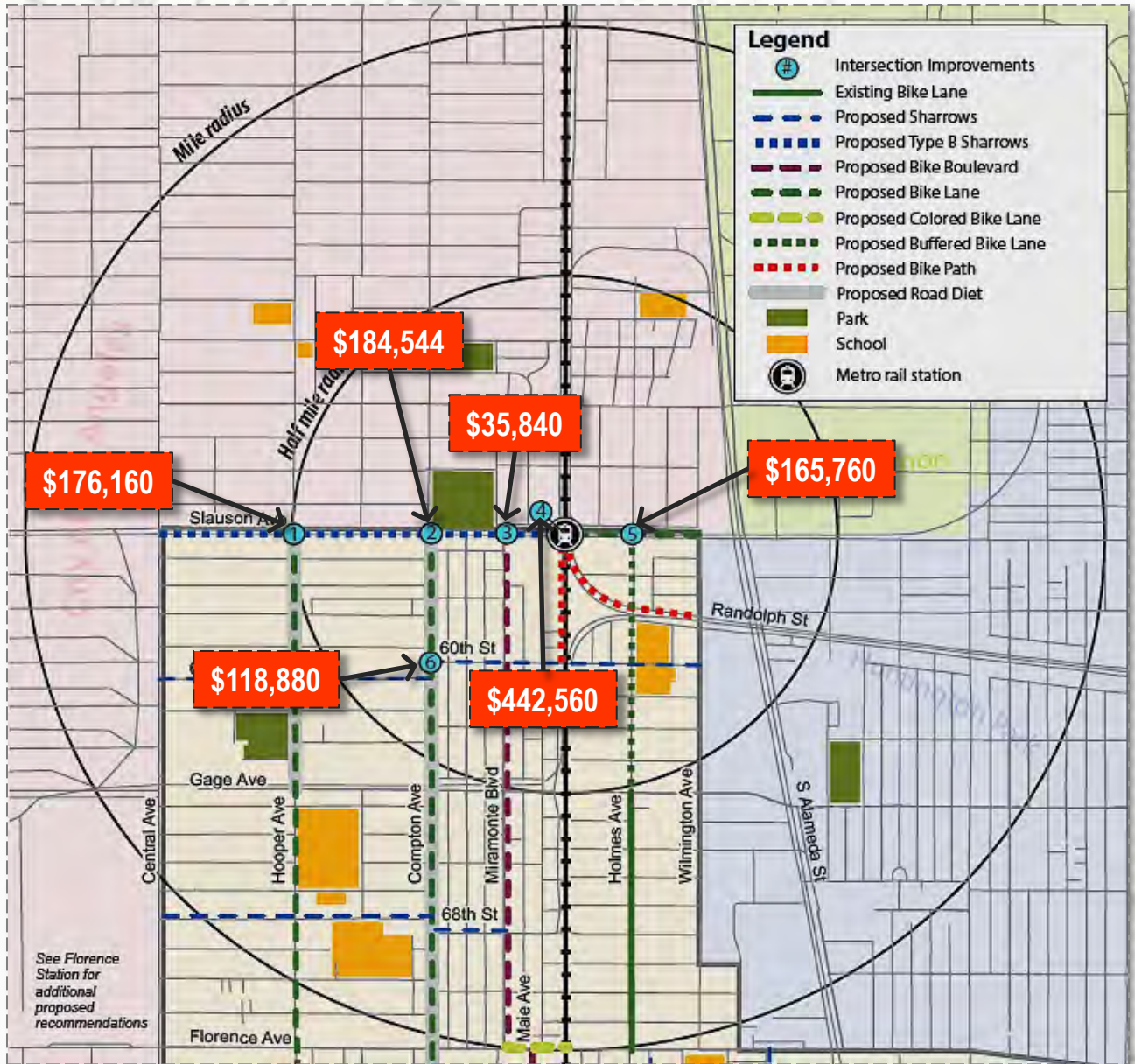


See Appendix G for detailed information on recommended bikeways and linear concepts

# Slauson Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$4.423 million**

See Appendix G for detailed cost estimates



# Slauson Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #1

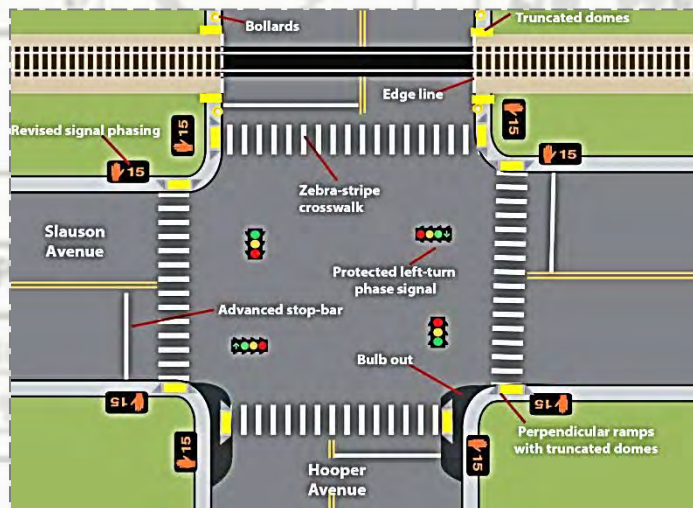
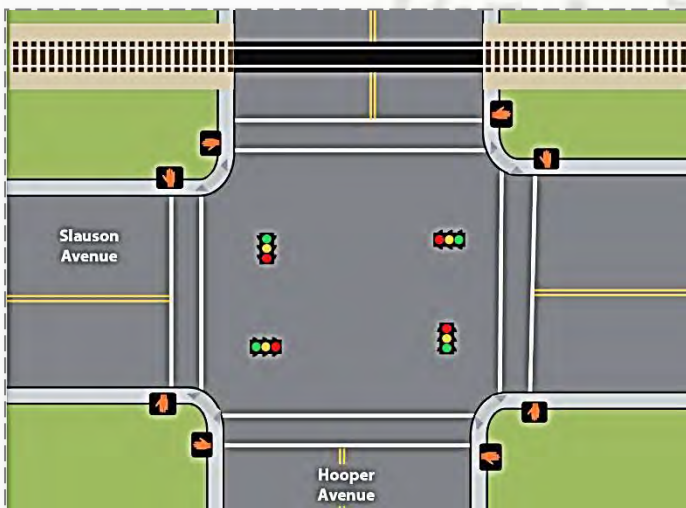
### Slauson Avenue & Hooper Avenue

#### EXISTING

- Slauson Ave. has 4 lanes, center turn lane, and on-street parking
- Hooper Ave. has 4 lanes with on-street parking south Slauson Ave.
- Signalized intersection with permissive left turns
- Railroad right-of-way runs parallel to Slauson Ave. just north of the intersection

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the southeast and southwest corners to cross Hooper Ave. (2)
- Add protected left-turn phase for turns from Slauson Ave.
- Revise signal phasing to maximize length of walk phase - end of walk phase should align with the end of the green phase, even when green phase is held for vehicle traffic
- Add truncated domes to all approaches of tracks (4)
- Add edge lines across tracks on both sidewalks (2)
- Add bollards or curbs to segregate vehicle traffic from sidewalk on both sides
- Optional treatments for pedestrian crossings of rail tracks, to apply depending on train volumes:
  - Add pedestrian gate arms to both approaches on both sidewalks (4)
  - Add warning signs or poles to alert pedestrians to the path of the vehicular gate arm
- Coordinate with City of Los Angeles



# Slauson Blue Line Station

## Existing Conditions & Recommendations

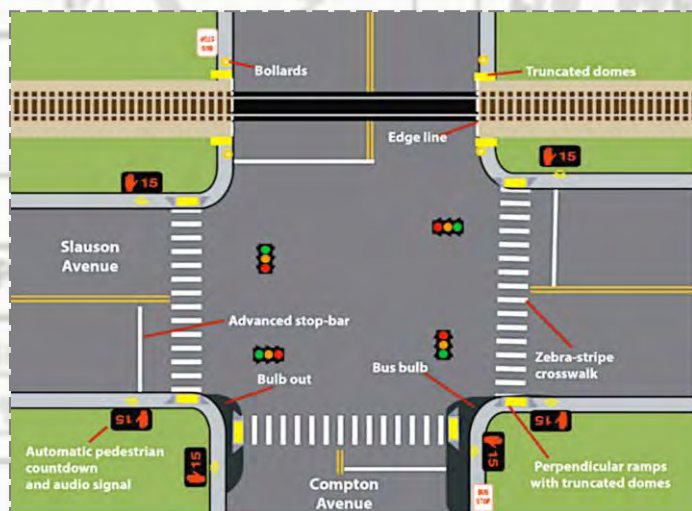
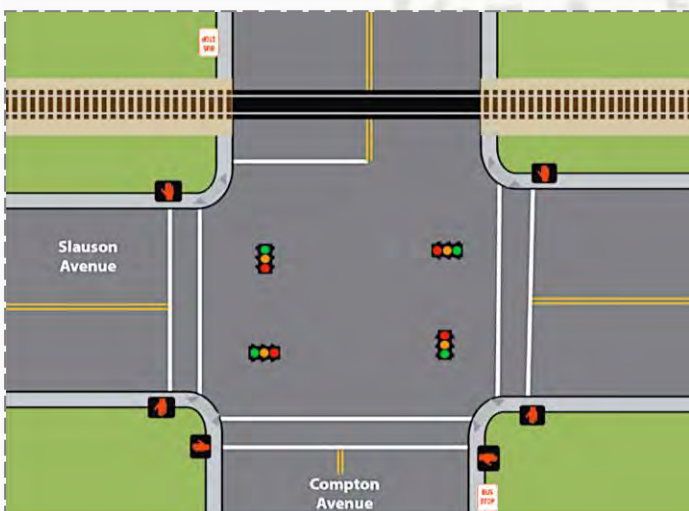
### Intersection Improvement #2 Slauson Avenue & Compton Avenue

## EXISTING

- Slauson Ave. has 4 lanes and center turn lane
- Compton Ave. has 4 lanes, center turn lane at the intersection, and on-street parking
- Signalized intersection
- Railroad right-of-way runs parallel to Slauson Ave. just north of the intersection
- Pedestrian crossing of the north leg prohibited
- Bus stops on Compton Ave. (northbound, near side; southbound, near side)

## RECOMMENDED

- Add zebra-stripe crosswalks to all permitted crossings (3)
- Add pedestrian countdown signals to all permitted crossings (6)
- Add audio signals to all permitted crossings (6)
- Add advanced stop bars to all permitted crossings (3)
- Remove pushbuttons and set walk phase to automatic
- Add bulb-out on the southwest corner to cross Compton Ave. (1)
- Add bus bulb on the southeast corner to cross Compton Ave. (1)
- Add truncated domes to all approaches of tracks (4)
- Add edge lines across tracks on both sidewalks (2)
- Add bollards or curbs to segregate vehicle traffic from sidewalk on both sides
- Optional treatments for pedestrian crossings of rail tracks, to apply depending on train volumes:
  - Add pedestrian gate arms to both approaches on both sidewalks (4)
  - Add warning signs or poles to alert pedestrians to the path of the vehicular gate arm
- Coordinate with City of Los Angeles



# Slauson Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #3

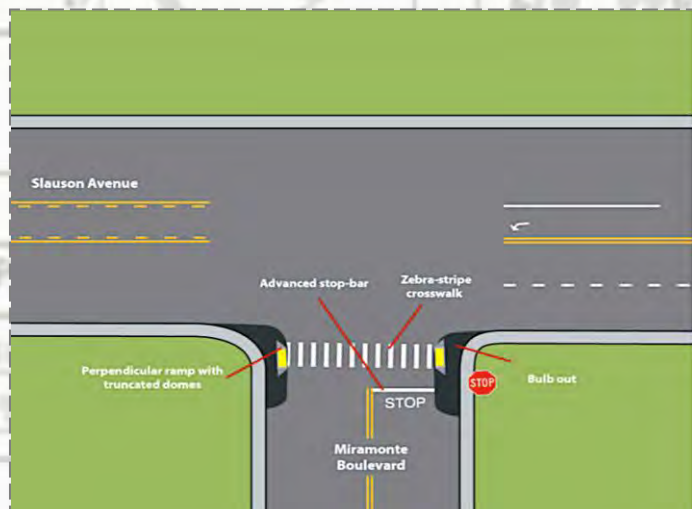
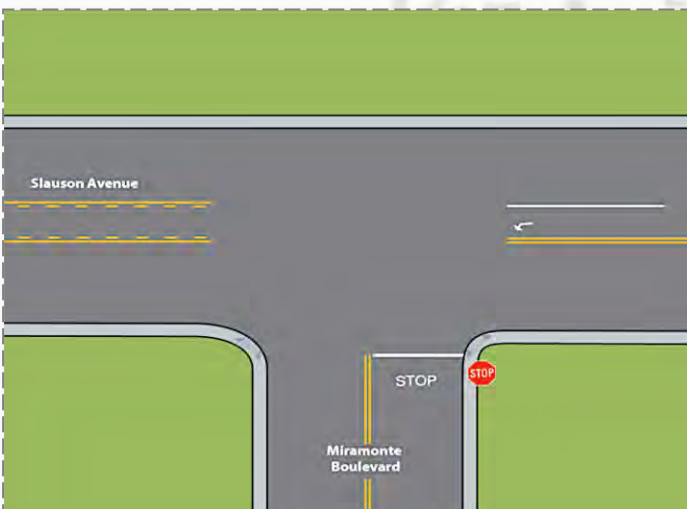
### Slauson Avenue & Miramonte Boulevard

#### EXISTING

- Slauson Ave. has 4 lanes and center turn lane
- Miramonte Blvd. has 2 lanes and on-street parking
- Stop-controlled T-intersection for Miramonte Blvd.

#### RECOMMENDED

- Add zebra-stripe crosswalk to crossing of Miramonte Blvd. (1)
- Add advanced stop bars to crossing of Miramonte Blvd. (1)
- Add bulb-outs to cross Miramonte Blvd. (2)



# Slauson Blue Line Station

## Existing Conditions & Recommendations

### Intersection Improvement #4

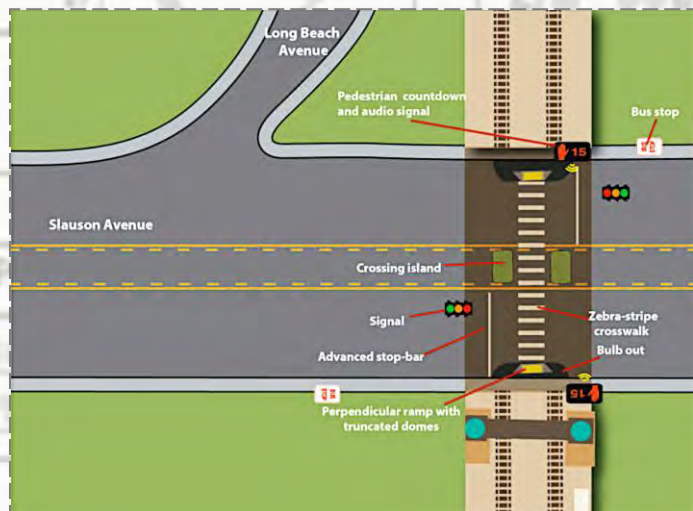
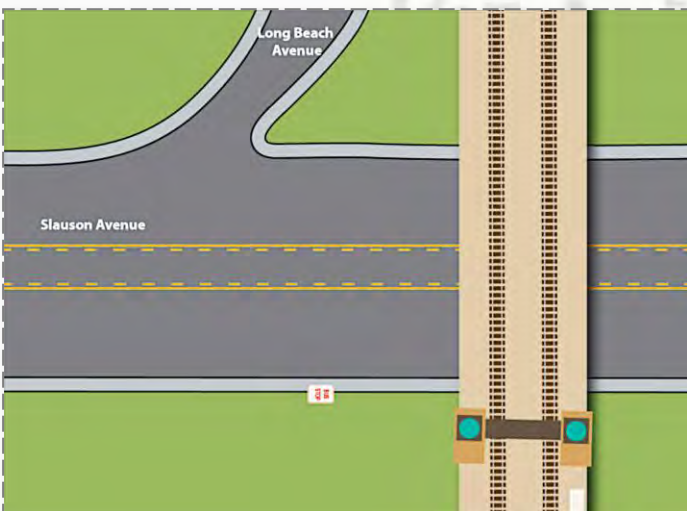
## Slauson Avenue & Metro Blue Line Station

### EXISTING

- Slauson Ave. has 4 lanes and painted center median
- No crosswalk or crossing treatments
- Bus stop on the south side of the street
- Many pedestrians observed crossing here
- Metro Blue Line tracks above grade at station

### RECOMMENDED

- Add half signal directly underneath Metro Blue Line tracks (1)
- Add zebra-stripe crosswalk (1)
- Add pedestrian countdown signals (2)
- Add audio signals (2)
- Add advanced stop bars (2)
- Add crossing islands (1)
- Add bus stop on the north side of the street for the Metro 108/358 Lines



# Slauson Blue Line Station

Existing Conditions & Recommendations

## Intersection Improvement #5

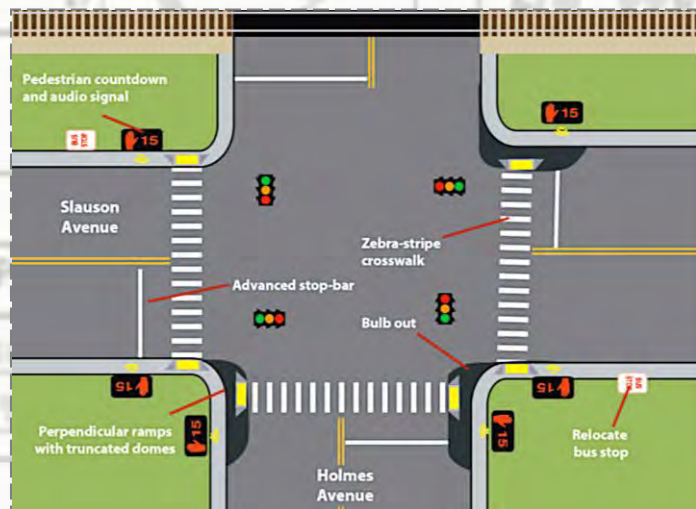
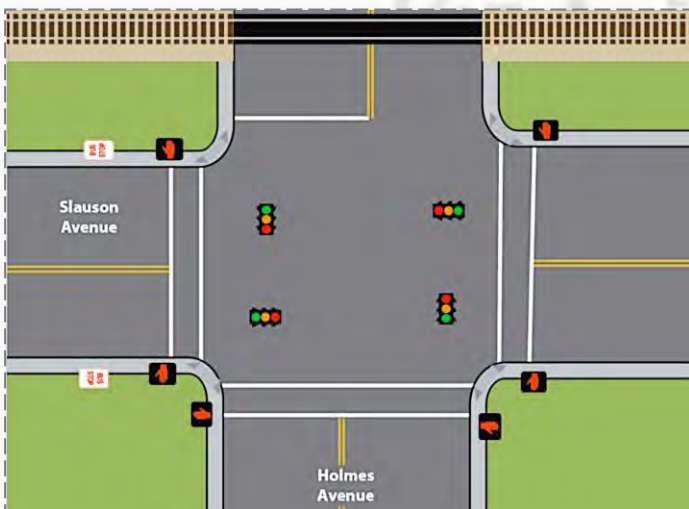
### Slauson Avenue & Holmes Avenue

#### EXISTING

- Slauson Ave. has 4 lanes, center turn lane, and on-street parking on the south side
- Holmes Ave. has 4 lanes, center turn lane, and on-street parking
- Signalized intersection
- Pedestrian crossing of the north leg prohibited
- Bus stops on Slauson Ave. (eastbound, far side; westbound, near side)
- No landing area at westbound bus stop
- Railroad right-of-way runs parallel to and north of Slauson Ave.

#### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (3)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add advanced stop bars to all crossings (3)
- Add bulb-outs on the southwest and southeast corners to cross Holmes Ave., and on the northeast corner to cross Slauson Ave. (3)
- Relocate westbound bus stop to the far side of the intersection where there is room to create a compliant landing area
- Option: Explore creating a pedestrian crossing of the north leg of this intersection and improving bus landing areas on the City of Los Angeles side of the street



# Slauson Blue Line Station

## Existing Conditions & Recommendations

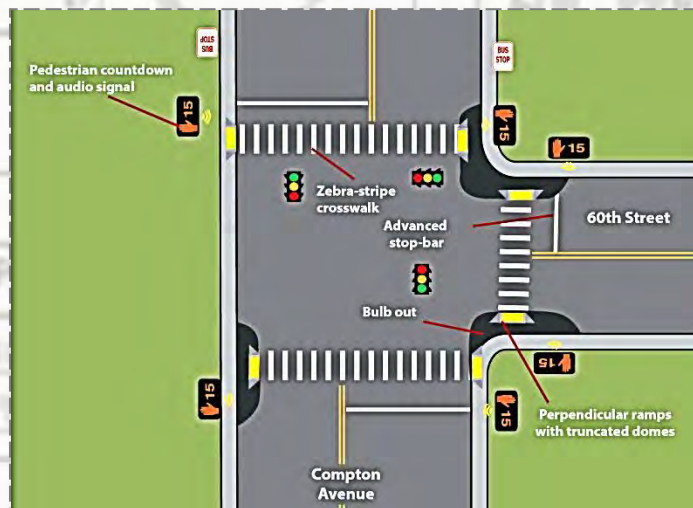
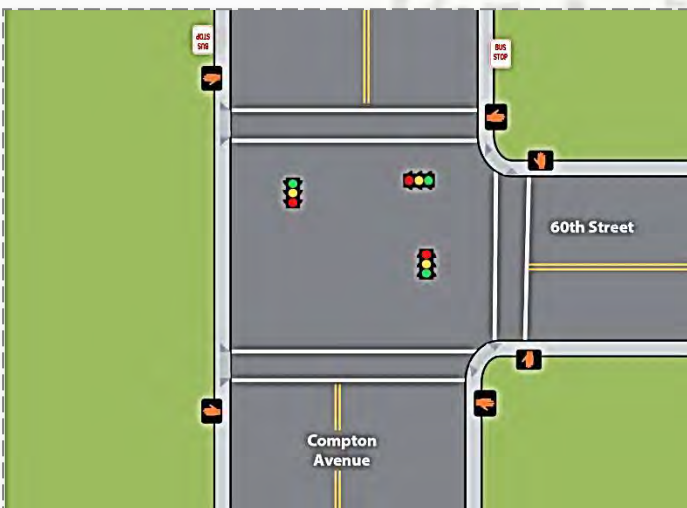
### Intersection Improvement #6 60<sup>th</sup> Street & Compton Avenue

## EXISTING

- 60th St. has 2 lanes and on-street parking
- Compton Ave. has 4 lanes, center turn lane, and on-street parking
- Signalized T-intersection
- Bus stops on Compton Ave. (northbound, far side; southbound, near side)

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (3)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add advanced stop bars to all crossings (3)
- Add bulb-outs on the northeast and southeast corners to cross 60th St., and on the northeast and southwest corners to cross Compton Ave. (4)



# Slauson Blue Line Station

## Existing Conditions & Recommendations

### Local Transit Serving the Station

The Slauson Station serves the Blue Line rail route and local transit, including Metro routes 108, 358 and 611. It also provides service for the LADOT DASH Southeast and Pueblo del Rio. Destinations served include the Bell, Cudahy, Huntington Park, Pico Rivera, and Westfield Culver City.

### Local Transit Stops

There are 36 local transit stops located within the County right of way and within the Slauson Station vicinity. Over 78% of the transit stops offer minimal amenities (i.e., sign or bench only). The remaining 22% (8 stops) offer shelter amenities.

### Recommended Transit Improvements

The Slauson Station locations that are recommended for improvements are detailed in Appendix G.



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# Sierra Madre Villa Gold Line Station



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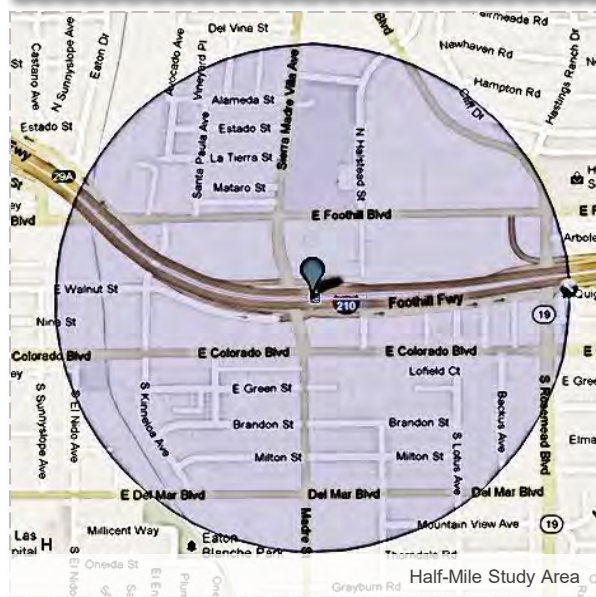
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# Sierra Madre Villa Gold Line Station



Metro Rail and Transitways Map



Half-Mile Study Area

## The Sierra Madre Villa Station

is the terminal station along the Gold Line. The station is located on the 210 Freeway right-of-way and serves the unincorporated community of East Pasadena-East San Gabriel.

# Sierra Madre Villa Gold Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Station area has a mix of residential and commercial uses
- Relatively high ridership numbers
- Proximity to commercial amenities along Foothill Boulevard
- Proximity to multiple bus lines
- Recent roadway and pedestrian improvements along Rosemead Boulevard

## WEAKNESSES

- Lower density population in surrounding study area
- The built environment has a suburban form with wide streets, parking in front of commercial buildings and separated land uses
- The street network is not well-linked
- Pedestrian bridge does not extend to the other side of the freeway that links unincorporated East Pasadena-East San Gabriel
- All station facilities are located in the City of Pasadena

## OPPORTUNITIES

- Local commercial center
- High prevalence of jobs
- Planned Gold Line extension may bring more users to station
- Planned bicycle infrastructure improvements

## CHALLENGES

- Multiple jurisdictions and lack of coordinated planning efforts
- Uncertainty about public dollars to make improvements

# Sierra Madre Villa Gold Line Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis

The Sierra Madre Villa station is the terminal station along the Gold Line. The line connects the cities of Pasadena and South Pasadena and the northeastern part of Los Angeles and Downtown. From Downtown the line extends to East Los Angeles. The station is located on the 210 Freeway right-of-way and serves the unincorporated community of East Pasadena-East San Gabriel.

## Strengths

- Station area has a mix of residential and commercial uses
- Relatively high ridership numbers
- Proximity to commercial amenities along Foothill Boulevard
- Proximity to multiple bus lines
- Recent roadway and pedestrian improvements along Rosemead Boulevard

Although the Sierra Madre Villa study area is largely residential, it was found to have the “highest mix of residential and commercial uses” in a study of Gold Line stations in 2007.<sup>63</sup> The station was also found to have “relatively higher boardings/alightings when compared to other stations” along the Gold Line.<sup>64</sup>

A study of the Gold Line corridor found that “development near the Sierra Madre Villa benefits from the proximity to the station, but also from the accessibility to commercial amenities along the nearby Foothill Boulevard.”<sup>65</sup> The site has also benefitted from recent improvements to Rosemead Boulevard, that include “new sidewalks . . . and curb ramps for wheelchair access.”<sup>66</sup>



# Sierra Madre Villa Gold Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Weaknesses

- Lower density population in surrounding study area
- The built environment has a suburban form with wide streets, parking in front of commercial buildings and separated land uses
- The street network is not well-linked
- Pedestrian bridge does not extend to the other side of the freeway that links unincorporated East Pasadena-East San Gabriel
- All station facilities are located in the City of Pasadena

The area around Sierra Madre Villa generally has a low population density when compared to other stations along the Gold Line and is composed of mostly single-family, affluent households with lower unemployment levels.<sup>67</sup> The station area demographics may translate to a lower prevalence of pedestrians and bicyclists accessing the station area.

Where there is higher density housing in the unincorporated community of East Pasadena-East San Gabriel just south of the 210 Freeway, there are few pedestrian amenities. The pedestrian bridge that serves the station does not span the entire length of the freeway, restricting access for users in the unincorporated areas. In addition, all of the station amenities (i.e., the station itself, the pedestrian bridge, and the parking garage) are all located in the City of Pasadena.



# Sierra Madre Villa Gold Line Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Local commercial center
- High prevalence of jobs
- Planned Gold Line extension could bring more users to station
- Planned bicycle infrastructure improvements

The Los Angeles County Draft General Plan identifies the Sierra Madre Villa Gold Line station and the local commercial center at the intersection of Colorado Boulevard and Rosemead Boulevard as an area with the opportunity for increased pedestrian and bicycle improvements. The County Bicycle Master Plan also includes proposed Class II bike lanes along Colorado Boulevard.<sup>68</sup> Moreover, along Rosemead Boulevard, there is a variety of retail, commercial and housing opportunities that can be better connected to the station and the Colorado/Rosemead intersection.<sup>69</sup>

The station has a “sizeable number of nearby jobs,” making it a potential draw for transit users.<sup>70</sup> In addition, the planned extension of the Gold Line may bring more users to the station, presenting an opportunity to leverage the nearby improvements.

## Challenges

- Multiple jurisdictions and lack of coordinated planning efforts
- Uncertainty about public dollars to make improvements

The station area is incorporated into several different planning areas and sits within different jurisdictions. The station area is included in the *East Colorado Specific Plan (2003)* and the *East Pasadena Specific Plan (2000)*.<sup>71</sup> Part of the station area includes unincorporated Los Angeles County, while the remainder is within Pasadena. The cities of Sierra Madre and Arcadia are nearby.

Although the aforementioned plans have been completed, it remains unclear how much public financing will be available to make public improvements.



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**Existing Conditions**  
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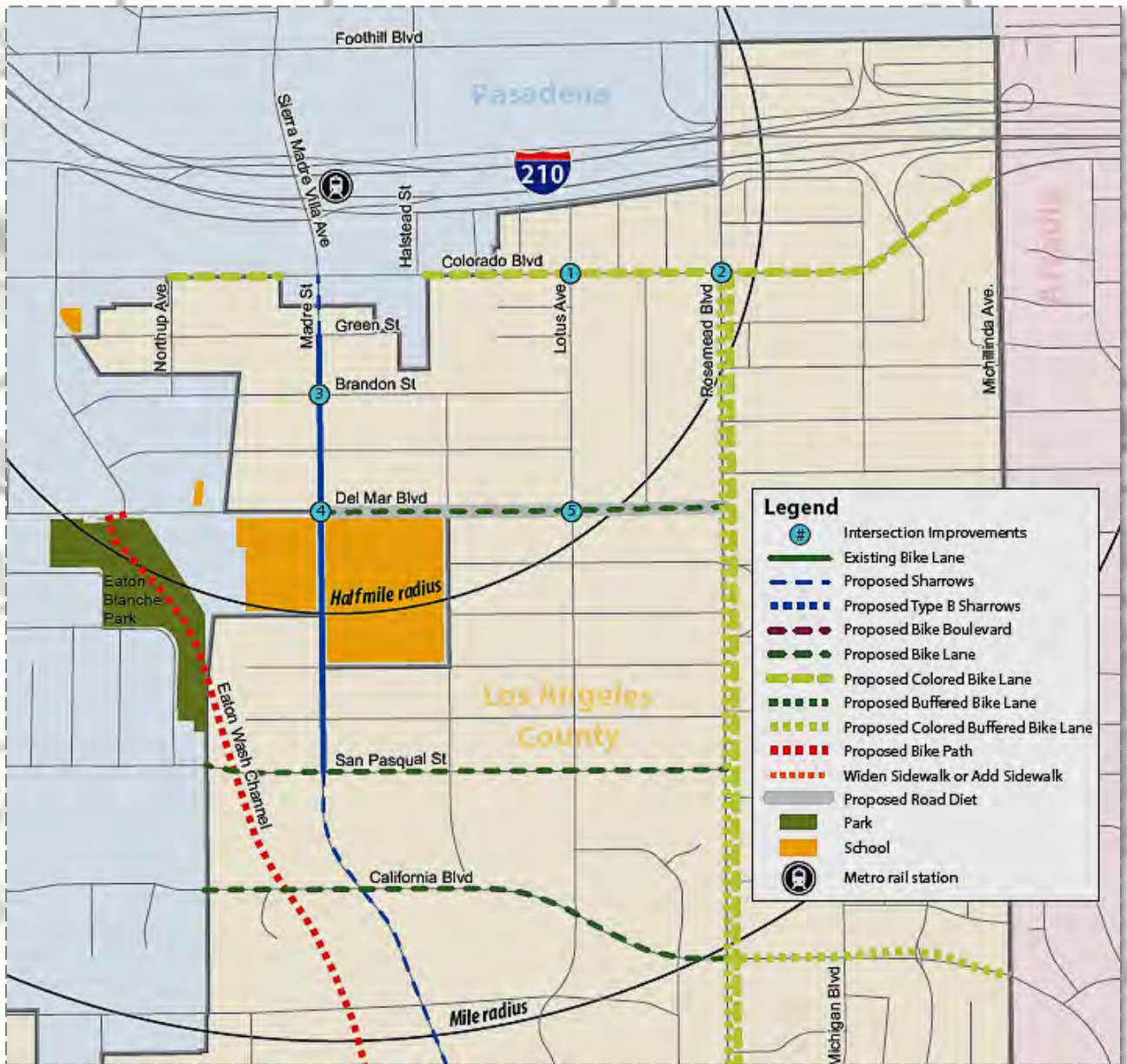
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# Sierra Madre Villa Gold Line Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

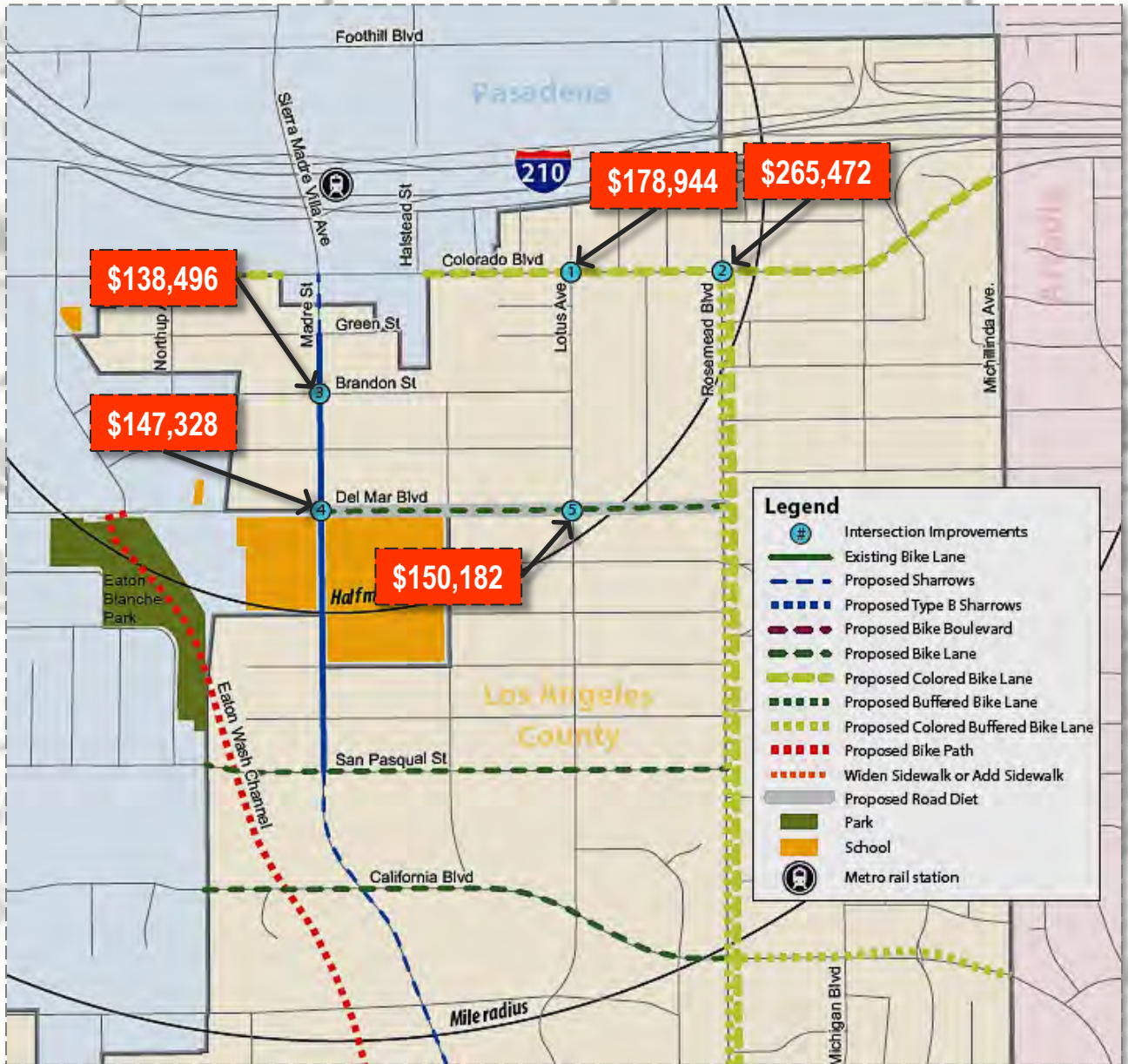


See Appendix H for detailed information on recommended bikeways and linear concepts

# Sierra Madre Villa Gold Line Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



**Total cost estimate for all recommended improvements = \$4.027 million**

See Appendix H for detailed cost estimates

# Sierra Madre Gold Line Station

Existing Conditions & Recommendations

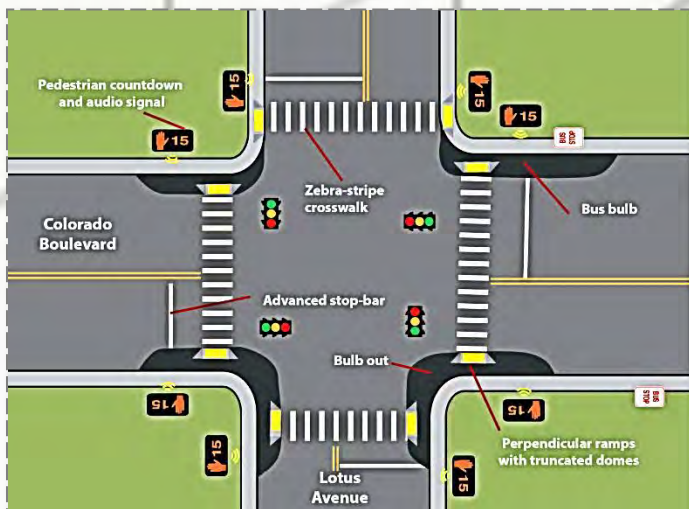
## Intersection Improvement #1 Colorado Boulevard & Lotus Avenue

### EXISTING

- Colorado Blvd. has 4 lanes, center turn lane, and on-street parking
- Lotus Ave. has 2 lanes and on-street parking
- Signalized intersection
- Bus stops on Colorado Blvd. (eastbound, far side, set back from intersection; westbound, near side)

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on the northwest, southwest, and southeast corners to cross Colorado Blvd. and on the southeast and southwest corners to cross Lotus Ave. (5)
- Add bus bulb on the northeast corner to cross Colorado Blvd. (1)



# Sierra Madre Gold Line Station

## Existing Conditions & Recommendations

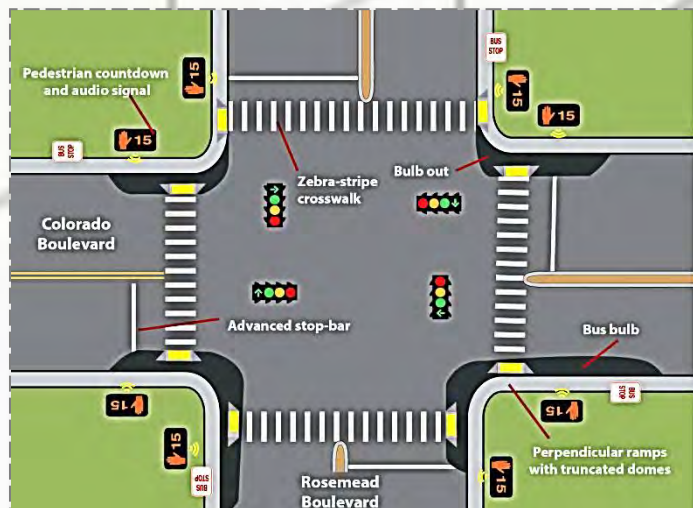
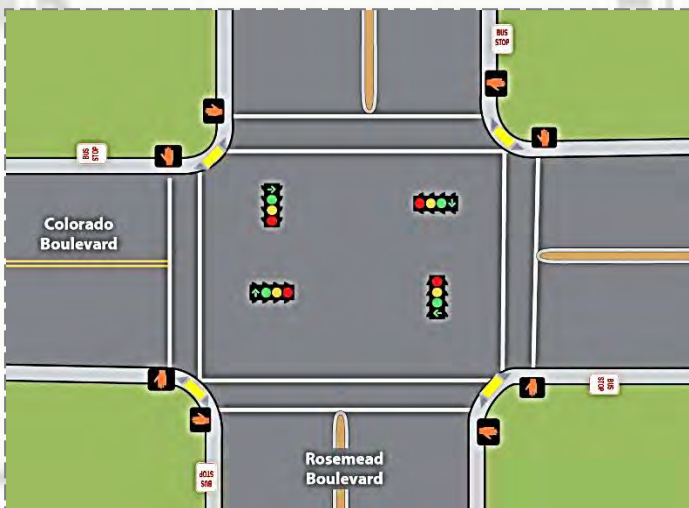
### Intersection Improvement #2 Colorado Boulevard & Rosemead Boulevard

## EXISTING

- Colorado Blvd. has 4 lanes, center turn lane, and on-street parking
- Rosemead Blvd. has 4 lanes, center median, and on-street parking
- Signalized intersection with protected left turns from Colorado Blvd. and Rosemead Blvd.
- Bus stops on Colorado Blvd. (eastbound, far side; westbound, far side) and on Rosemead Blvd. (northbound, far side; southbound, far side)
- Truncated domes at all crossings

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add leading pedestrian interval for all crossings
- Add bulb-outs on the northwest, northeast, and southwest corners to cross Colorado Blvd. and on the southeast corner to cross Rosemead Blvd. (4)
- Add bus bulbs on the southeast corner to cross Colorado Blvd. and on the southwest corner to cross Rosemead Blvd. (2)
- Remove northbound right-turn lane on Rosemead Blvd.



# Sierra Madre Gold Line Station

Existing Conditions & Recommendations

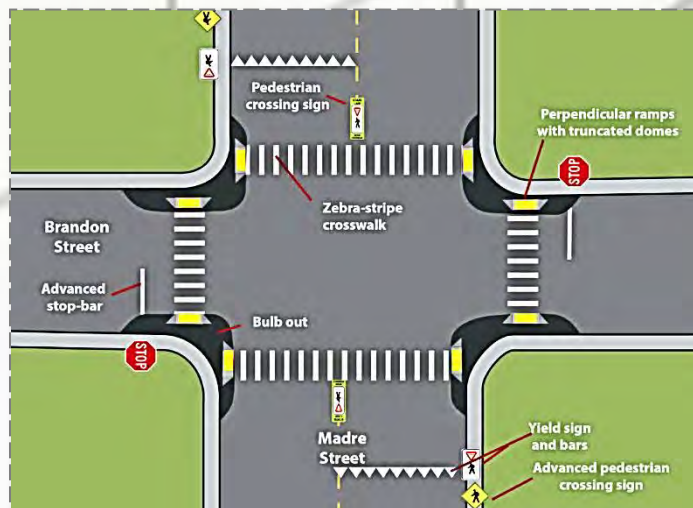
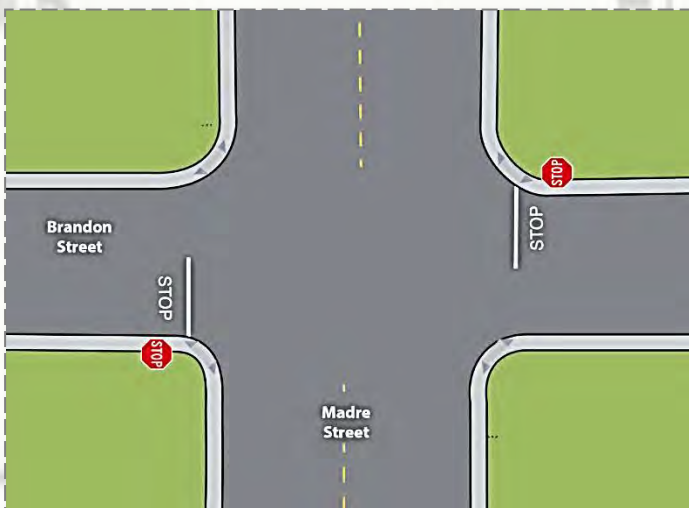
## Intersection Improvement #3 Brandon Street & Madre Street

### EXISTING

- Brandon St. has 2 lanes and on-street parking
- Madre St. has 2 lanes and on-street parking
- Stop-controlled intersection for Brandon St.
- No striped crosswalks

### RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add advanced stop bars on Brandon St. (2)
- Add advanced yield markings on Madre St. (2)
- Add advanced yield signs on Madre St. (2)
- Add R1-6 center pedestrian crossing signs on Madre St. (2)
- Add advanced pedestrian warning signs on Madre St. (2)
- Add bulb-outs to all corners (8)



# Sierra Madre Gold Line Station

## Existing Conditions & Recommendations

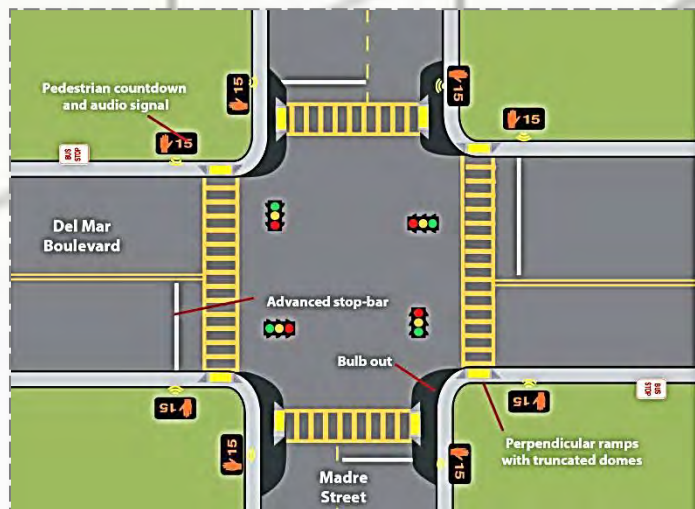
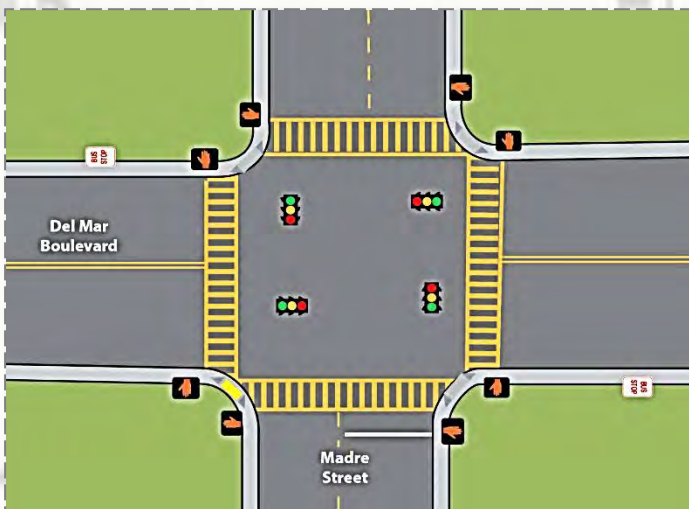
### Intersection Improvement #4 Del Mar Boulevard & Madre Street

## EXISTING

- Del Mar Blvd. has 4 lanes, center-turn lane, and on-street parking
- Madre St. has 2 lanes and on-street parking
- Signalized intersection
- Bus stops on Del Mar Blvd. (eastbound, far side; westbound, far side)
- Yellow ladder crosswalks for all crossings, advanced stop bar on northbound approach, and truncated domes on south corners

## RECOMMENDED

- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all signalized crossings (8)
- Add advanced stop bars to all crossings that lack them (3)
- Add bulb-outs on all crossing faces to cross Madre St. (4)
- Coordinate with City of Pasadena



# Sierra Madre Gold Line Station

Existing Conditions & Recommendations

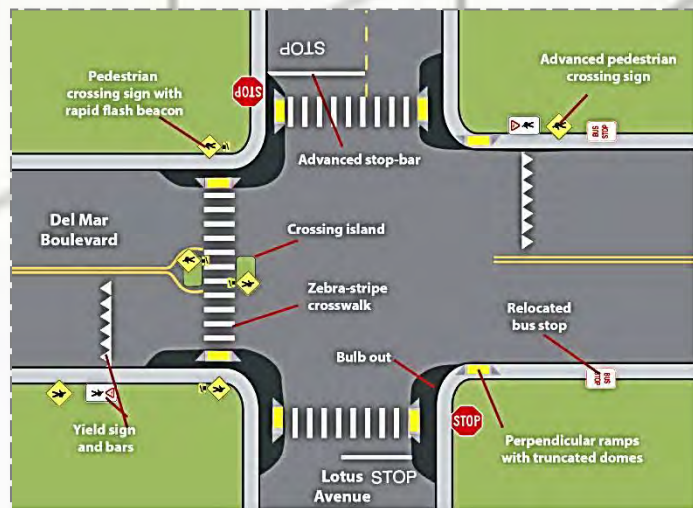
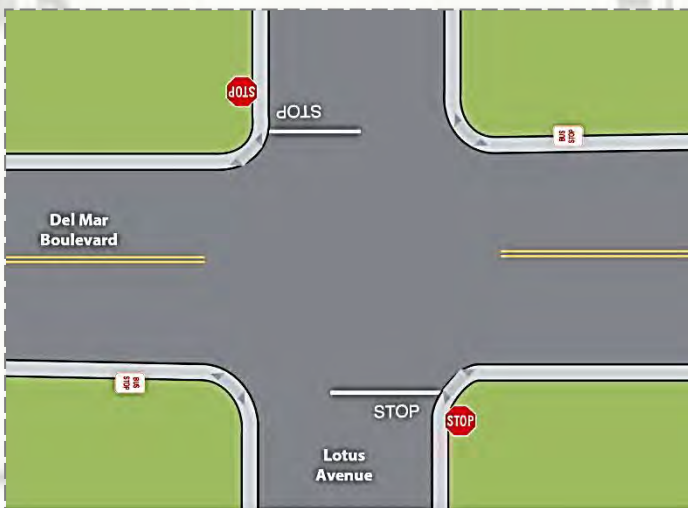
## Intersection Improvement #5 Del Mar Boulevard & Lotus Avenue

### EXISTING

- Del Mar Blvd. has 4 lanes, center-turn lane, and on-street parking
- Lotus Ave. has 2 lanes and on-street parking
- Stop-controlled intersection for Lotus Ave.
- Bus stops on Del Mar Blvd. (eastbound, near side; westbound, near side)
- No marked crosswalks

### RECOMMENDED

- Add zebra-stripe crosswalks across north, south, and west legs of intersection (3)
- Add advanced stop bars on Lotus Ave. (2)
- Add advanced yield markings on Del Mar Blvd. (2)
- Add advanced yield signs on Del Mar Blvd. (2)
- Add pedestrian crossing signs on with rectangular rapid flashing beacons on Del Mar Blvd. (4)
- Add advanced pedestrian warning signs on Del Mar Blvd. (2)
- Add bulb-outs on all crossing faces to cross Lotus Ave. and to northwest and southwest corners to cross Del Mar Blvd. (6)
- Add crossing islands to west leg of intersection (1 pair)
- Relocate eastbound bus stop to far side of Lotus Ave.



# Sierra Madre Villa Gold Line Station

## Existing Conditions & Recommendations

### Local Transit Serving the Station

The Sierra Madre Villa Station serves the Gold Line rail route and local bus routes. These include Metro routes 177, 181, 264, 266, 2268, and 487. It also provides service for the Foothill Transit route 187, and the Pasadena Area Rapid Transit System (ARTS) lines 31, 32, 40 and 60. Destinations served include the Claremont Transfer Center, Jet Propulsion Laboratory, John Muir High School, Los Angeles County Arboretum, the Montclair Transfer Center, Pasadena Civic Center, Pasadena High School, and the Santa Anita Fashion Park.

### Local Transit Stops

There are 49 local transit stops located within the County jurisdiction and within the Sierra Madre Villa Station vicinity. Most of the stations provide a bench (66%, or 32 of the 49 stops), with 9 of the locations (18%) providing full shelters, and only 16% (8 stops) providing no amenities.

### Recommended Transit Improvements

Although the Sierra Madre Villa Station is not located within the County jurisdiction, many of the local transit stop locations are. Some locations with benches only are not recommended for upgrades, if additional shade is not deemed necessary. See Appendix H for a detailed list of recommended improvements.





# I-110/West Carson Station



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# I-110/West Carson Station



Metro Rail and Transitways Map



## The Carson Station

is a stop along a designated bus lane located off of the 110 Freeway. The station serves the unincorporated community of West Carson.

# I-110 West Carson Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## STRENGTHS

- Nearby community facilities
- Located adjacent to park & ride facility

## WEAKNESSES

- Station platforms are located on the sides of the 110 Freeway
- Hostile pedestrian environment
- Lack of pedestrian infrastructure
- Lack of bicycle infrastructure on nearby streets and at station area
- Personal safety concerns

## OPPORTUNITIES

- Planned bicycle infrastructure improvements
- Use Harbor-UCLA medical facility as an anchor for development

## CHALLENGES

- Uncertainty about public dollars to make improvements
- Existing development patterns not conducive to transit-oriented development
- Just south of the terminus of the Silver Line

# I-110/West Carson Station

## Strengths, Weaknesses, Opportunities, Challenges Analysis



The Carson Station is a stop along a designated bus lane located off of the 110 Freeway. The Metro line 450 stops at this station. The platform is east of the Harbor-UCLA Medical Center and south of the Artesia Transit Center; it serves the unincorporated community of West Carson.

## Strengths

- Nearby community facilities
- Located adjacent to park & ride facility

The Carson Station is in close proximity to several community facilities, including three schools, the Harbor-UCLA Medical Center, and two recreational facilities. These facilities present opportunities to create pedestrian and bicycle links to the station. The Harbor-UCLA Medical Center, in particular, provides a potential user-base for the station.

## Weaknesses

- Station platforms are located on the sides of the 110 Freeway
- Hostile pedestrian environment
- Lack of pedestrian infrastructure
- Lack of bicycle infrastructure on nearby streets and at station area
- Personal safety concerns

The Carson Station's location on the freeway provides a hostile environment for pedestrians, exposing them to noise and traffic pollution.<sup>72</sup> Narrow sidewalks from the park & ride facility to the station area make it difficult for pedestrians to maneuver around the station. Given the station's relative isolation from activity on the streets above it, there are potential personal safety concerns. In addition, station users must cross busy freeway on- and off-ramps at un-signalized intersections to gain access to the station.

At the station itself, there is a lack of bicycle parking. The surrounding streets lack bicycle infrastructure such as bicycle lanes or designated bike routes.<sup>73</sup>

Housing around the station area consists largely of single-family, low-density homes, which may not be conducive to transit-oriented development.

# I-110/West Carson Station

Strengths, Weaknesses, Opportunities, Challenges Analysis

## Opportunities

- Planned bicycle infrastructure improvements
- Use Harbor-UCLA medical facility as an anchor for development

The County's Bicycle Master Plan calls for a Class II bike lane along Vermont Avenue and 223rd Street. A Class III bike route is proposed along 220th Street as well. There is also a proposed bikeway along Normandie Avenue, but this is outside of the County's jurisdiction.<sup>74</sup> These proposed bicycle improvements present opportunities to link to the station and to augment pedestrian infrastructure in the study area.

One of the biggest opportunities for the Carson Station is its proximity to the Harbor-UCLA Medical Center. The 538-bed Level I trauma center can serve as an anchor for new development. The medical facility serves as a major destination for employees, commuters, and visitors. Hence, improved pedestrian and bicycle access to the station and surrounding areas will help foster the station area's identity as a transit-oriented area.

## Challenges

- Uncertainty about public dollars to make improvements
- Existing development patterns not conducive to transit-oriented development
- Just south of the terminus of the Silver Line

As the County notes, the development patterns around the station area are not conducive to transit-oriented development. Housing stock near the station is largely low-density, single-family, with only one multi-family development in the area. Additionally, commercial development in the area consists of strip malls with a few small commercial buildings.<sup>75</sup> These existing patterns may make it difficult to promote large-scale TOD on this site.

The station is also south of the terminus of the Silver Line. While it is well-served by bus transit, the Carson Station does not benefit from the presence of a high-frequency bus rapid transit line like Metro's Silver Line.

As with other station areas, it remains unclear how much public financing will be available to make public improvements.



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**Existing Conditions**  
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# I-110/West Carson Station

Existing Conditions & Recommendations

## Map of Recommended Improvements

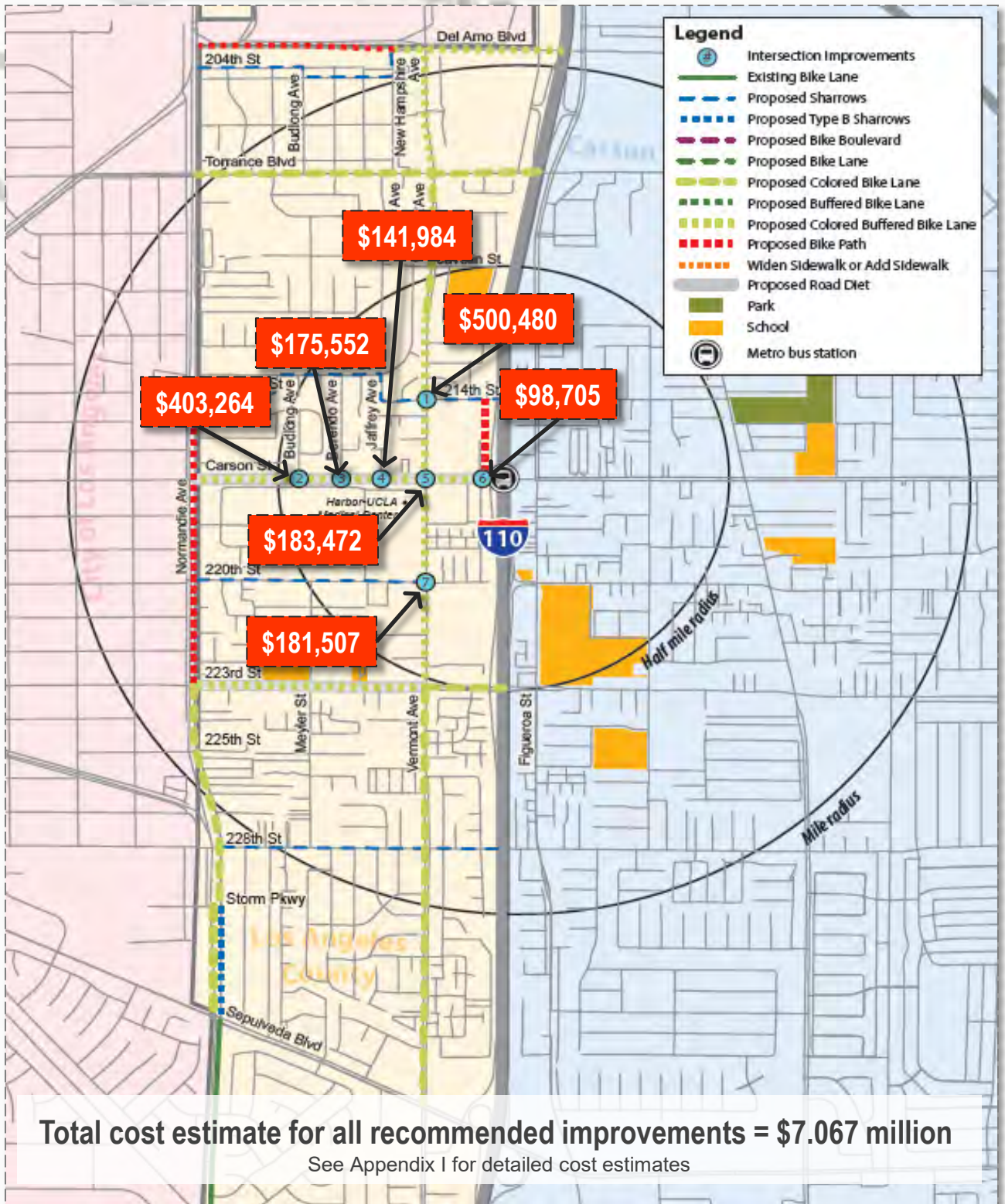


See Appendix I for detailed information on recommended bikeways and linear concepts

# I-110/West Carson Station

Existing Conditions & Recommendations

## Intersection Improvement Cost Estimates



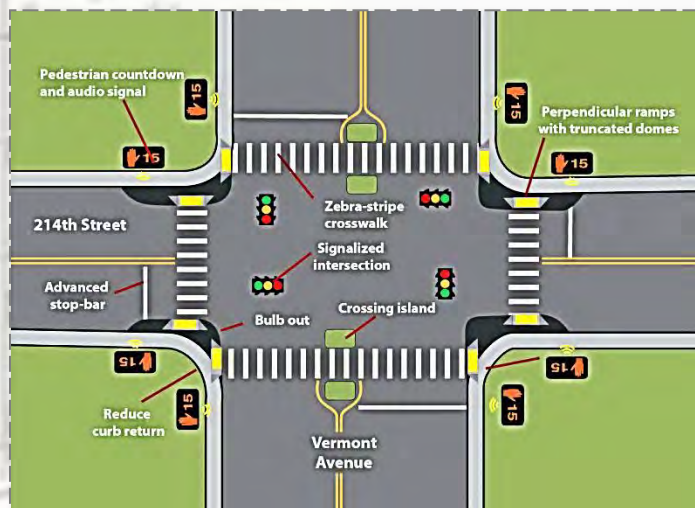
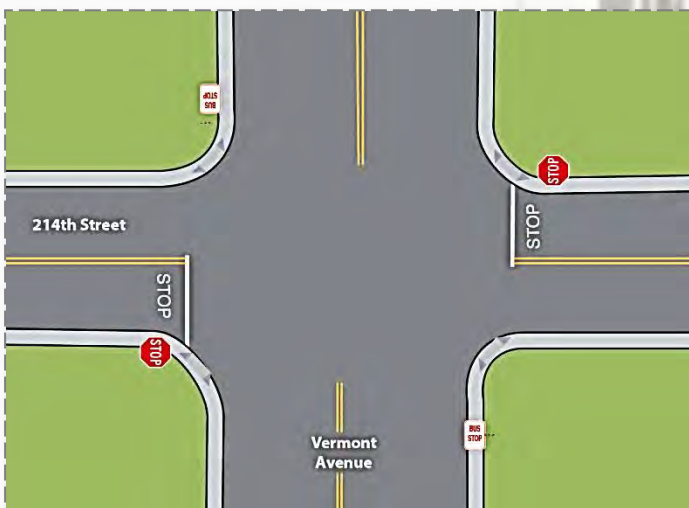
### Intersection Improvement #1 214<sup>th</sup> Street & Vermont Avenue

## EXISTING

- 214th St. has 2 lanes and on-street parking
- Vermont Ave. has 4 lanes, center-turn lane, and on-street parking (parking not permitted in vicinity of intersection)
- Stop-controlled intersection for 214th St.
- Bus stops on Vermont Ave. (northbound, near side; southbound, near side).

## RECOMMENDED

- Signalize intersection
- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add leading pedestrian interval for all crossings
- Add bulb-outs on all crossing faces of 214th St. (4)
- Reduce curb returns on all crossing faces of Vermont Ave. (4)
- Add crossing islands across Vermont Ave., preserving left turn lanes by reallocating right-of-way from parking lane (2 pairs)



# I-110/West Carson Station

## Existing Conditions & Recommendations

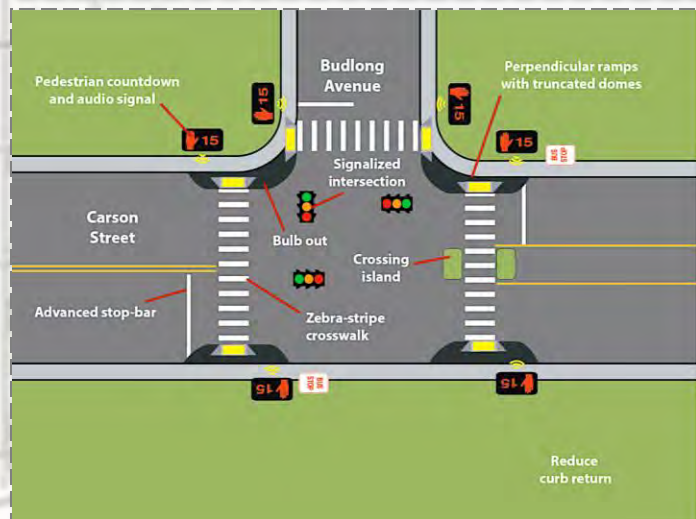
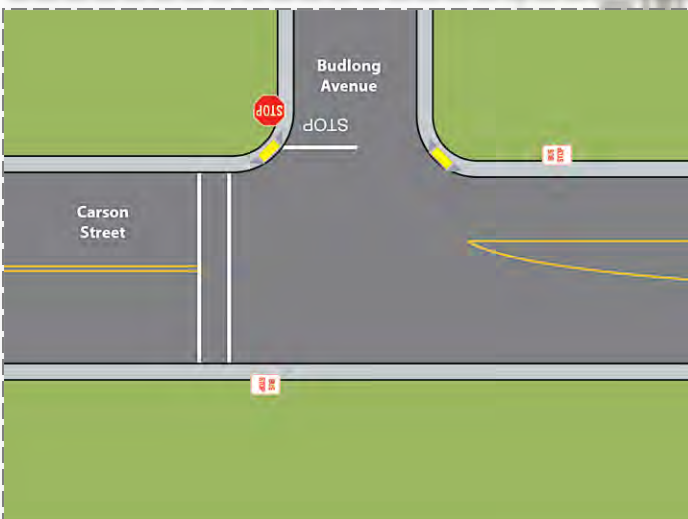
### Intersection Improvement #2 Carson Street & Budlong Avenue

## EXISTING

- Carson St. has 4 lanes, center-turn lane, and on-street parking
- Budlong Ave. has 2 lanes and on-street parking
- Unsignalized T-intersection
- Bus stops on Carson St. (eastbound, near side; westbound, near side)
- Former crosswalk on west crossing of Carson St. was removed
- Harbor-UCLA Medical Center located south of intersection

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (3)
- Signalize the intersection (use warrants) (6)
- Add pedestrian countdown signals to all crossings (6)
- Add audio signals to all crossings (6)
- Add advanced stop bars to all crossings (3)
- Add bulb-outs to both crossings of Carson St. (4)
- Add crossing islands to east crossing of Carson St. (1 pair)



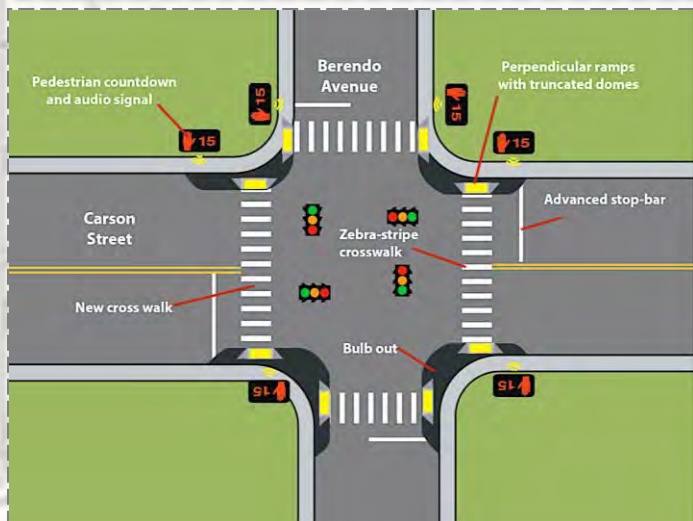
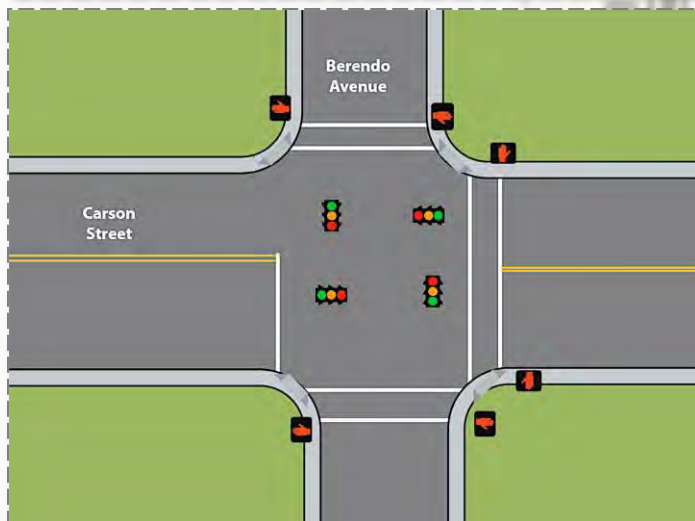
### Intersection Improvement #3 Carson Street & Berendo Avenue

## EXISTING

- Carson St. has 4 lanes, center-turn lane, and on-street parking
- Berendo Ave. has 2 lanes and on-street parking
- Signalized intersection
- Lateral-line crosswalks on the east crossing of Carson St. and both crossings of Berendo Ave.
- Harbor-UCLA Medical Center located south of intersection.

## RECOMMENDED

- Add zebra-stripe crosswalks to existing crossings and add a new zebra-stripe crosswalk to west crossing of Carson St. (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs to both Carson St. crossings and to south crossing of Berendo Ave. (6)



# I-110/West Carson Station

Existing Conditions & Recommendations

## Intersection Improvement #4

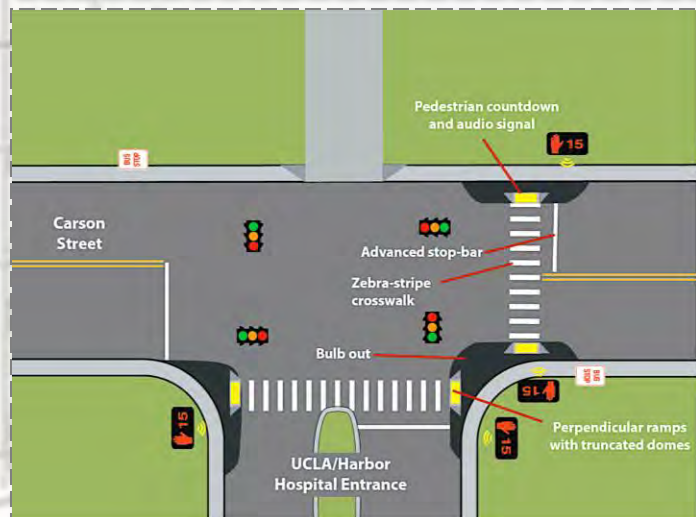
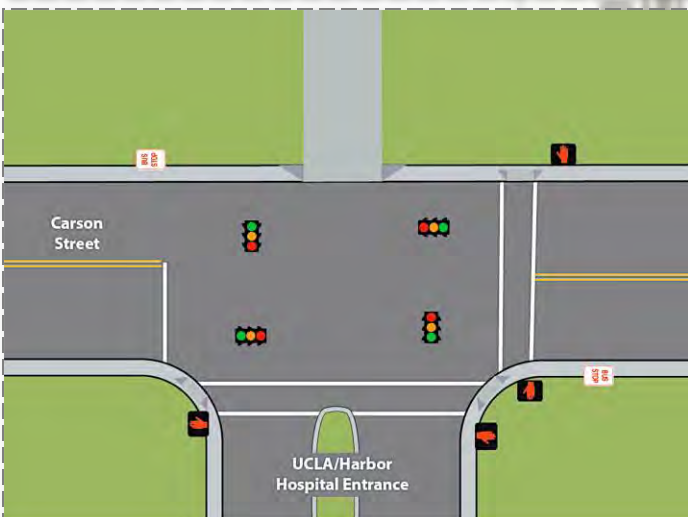
### Carson Street & Harbor-UCLA Medical Center Entrance

#### EXISTING

- Carson St. has 4 lanes, center-turn lane, and on-street parking
- Harbor-UCLA Medical Center entrance has 4 lanes
- Signalized intersection
- Bus stops on Carson St. (eastbound, far side; westbound, far side)
- Lateral-line crosswalks on the east crossing of Carson Street and the hospital driveway
- Harbor-UCLA Medical Center located south of intersection

#### RECOMMENDED

- Add zebra-stripe crosswalks to existing crossings (2)
- Add pedestrian countdown signals to both crossings (4)
- Add audio signals to both crossings (4)
- Add advanced stop bars to both crossings (2)
- Add bulb-outs to Carson St. crossing and driveway crossing (4)



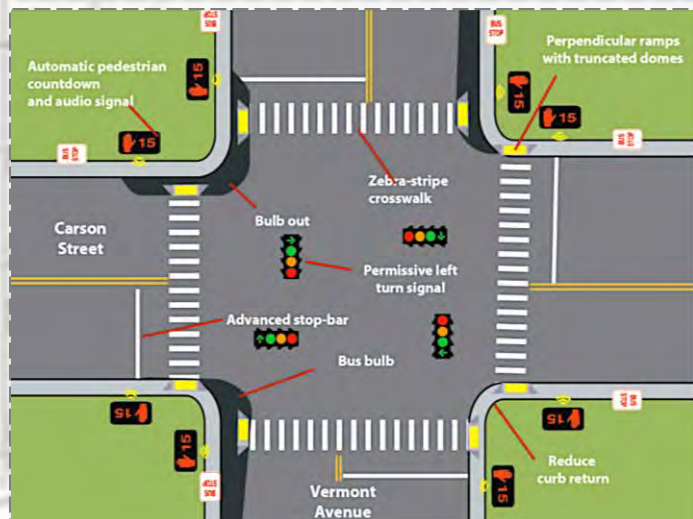
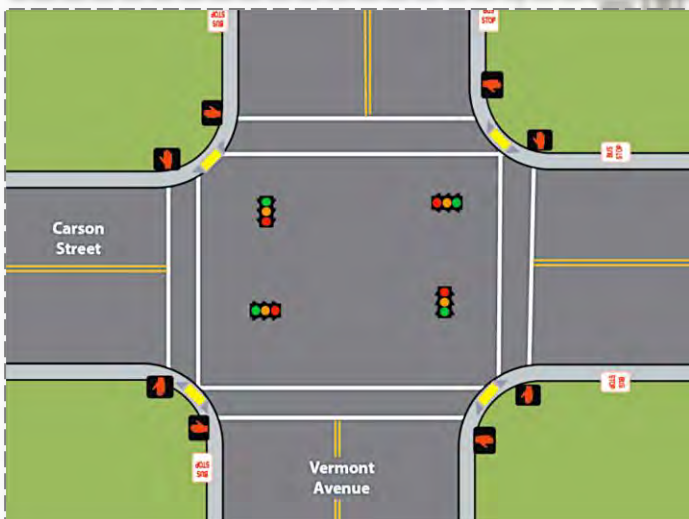
### Intersection Improvement #5 Carson Street & Vermont Avenue

## EXISTING

- Carson St. has 5 lanes (3 eastbound, 2 westbound), center-turn lane, and on-street parking on the north side of the street
- Vermont Ave. has 4 lanes, center-turn lane, and on-street parking
- Signalized intersection with protected/permissive left turns from Carson St. and Vermont Ave.
- Bus stops on Carson St. (eastbound, far side; westbound, near side) and Vermont Ave. (northbound, far side; southbound, near and far sides)
- Truncated domes on all corners
- Harbor-UCLA Medical Center located at southwest corner of intersection

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Remove pushbuttons and set walk phase to automatic
- Add leading pedestrian interval for all crossings
- Convert protected/permissive left turns to protected left turns for both Carson St. and Vermont Ave.
- Add bulb-outs on northwest corner to cross Carson St. and Vermont Ave. (2)
- Add bus bulbs on the northeast and southwest corners to cross Vermont Ave. (2)
- Reduce curb returns on northeast, southeast, and southwest corners to cross Carson St. (3)



# I-110/West Carson Station

Existing Conditions & Recommendations

## Intersection Improvement #6

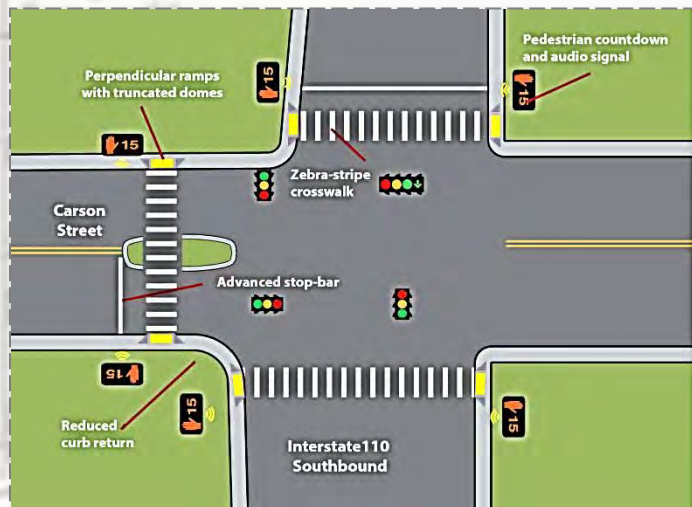
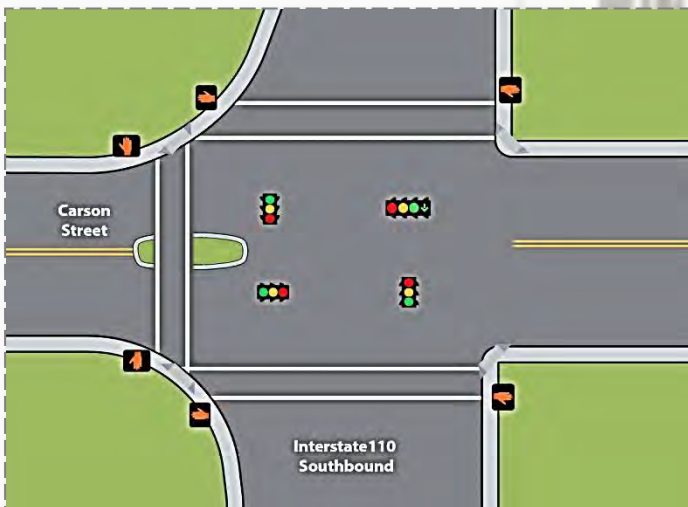
### Carson Street & Southbound I-110 Ramps

#### EXISTING

- Carson St. has 5 lanes (3 eastbound, 2 westbound), center-turn lane, and on-street parking on the north side of the street
- I-110 ramps have 2 lanes
- Signalized intersection with protected left turn on westbound Carson St.
- Pedestrian crossing of east leg prohibited  
Crossing island to cross west approach of Carson St.

#### RECOMMENDED

- Add zebra-stripe crosswalks to north, west, and south intersection approaches (3)
- Add pedestrian countdown signals to all marked crossings (6)
- Add audio signals to all marked crossings (6)
- Add advanced stop bars to southbound and eastbound approaches (2)
- Reduce curb returns on the northwest, and southwest corners to cross Carson St. (2)
- Coordinate with Caltrans





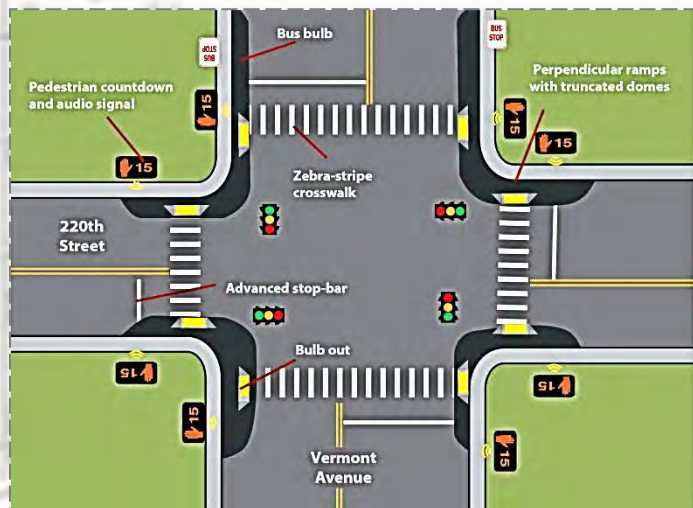
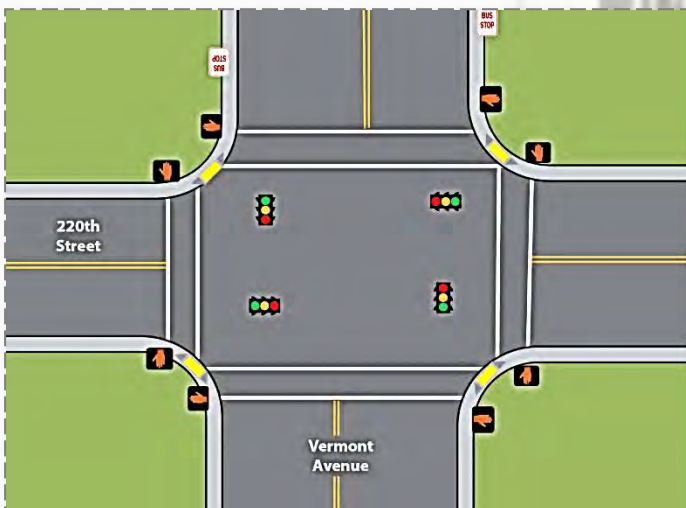
### Intersection Improvement #7 220<sup>th</sup> Street & Vermont Avenue

## EXISTING

- 220th St. has 2 lanes and on-street parking
- Vermont Ave. has 4 lanes, center-turn lane, and on-street parking (parking not permitted in vicinity of intersection)
- Signalized intersection
- Bus stops on Vermont Ave. (northbound, far side; southbound, near side)
- Truncated domes on all corners

## RECOMMENDED

- Add zebra-stripe crosswalks to all crossings (4)
- Add pedestrian countdown signals to all crossings (8)
- Add audio signals to all crossings (8)
- Add advanced stop bars to all crossings (4)
- Add bulb-outs on all crossing faces of 220th St., and on the southwest and southeast corners to cross Vermont Ave. (6)
- Add bus bulbs to the northwest and northeast corners to cross Vermont Ave. (3)



# I-110/West Carson Station

## Existing Conditions & Recommendations

The Carson Station Station is a Metro 450 bus stop located on the I-110 freeway. This station is comprised of two stops, one on each side of the freeway (one serving northbound and one serving southbound traffic). There is the potential of extending the Metro Silver Line to meet this station, but it currently does not provide direct access.

## Local Transit Serving the Station

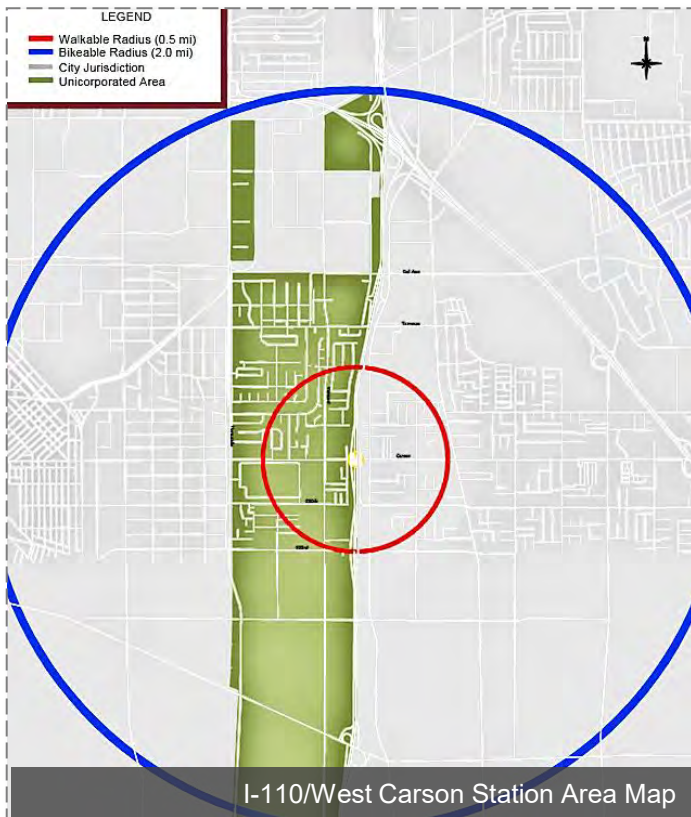
The Carson Station serves the Metro bus route 450. It also provides service for the Metro bus lines 205 and 550, and Torrance Transit lines 1 and 3. Destinations served include San Pedro, downtown Los Angeles, and Alpine Village.

## Local Transit Stops

There are 23 local transit stops located within the County right-of-way and within the Carson Station vicinity. All of the stop locations offer at least a bench, with 52% (12 stations) providing a full shelter.

## Recommended Transit Improvements

It is recommended that stops with only a bench provide a full shelter. Those recommended for improvement are listed in Appendix I.







# End Notes

## Strengths, Weaknesses, Opportunities, Challenges Analysis

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# LA County TOD Access Study



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