BICYCLE TRANSPORTATION ACTION PLAN

CITY OF PASADENA

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PREPARED BY:
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PLANING & ENGINEERING
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Chapter 1.0 – Introduction

The City of Pasadena’s Bicycle Transportation Action Plan provides specific goals, objectives, actions, and timelines for creating an environment (1) where people circulate without a car, (2) that significantly increases the number of people who commute by bike, (3) that increases the number of people who use a bike for utilitarian trips, fitness and recreation, and (4) that provides business and economic benefits for the City. The plan provides details for a network of bikeways so that every neighborhood is within 1/4 mile of an effective bicycling route in the north-south and east-west directions. The plan outlines educational, engagement, enforcement, and evaluation strategies designed to increase bicyclist safety by educating both bicyclists and motorists. Finally, the plan outlines strategies for funding the program.

To assist the City with the plan, a Bikeways Analysis and Feasibility Study was conducted to evaluate the possibility of constructing buffered bike lanes, cycle tracks, or bicycle boulevards on specific roadways throughout the City. The objectives of the study were to:

- Determine the feasibility of installing cycle tracks or buffered bike lanes on east-west corridors and bicycle boulevards on north-south corridors.
- Identify any significant obstacles or issues associated with each proposed bicycle facility alternative.
- Develop conceptual cross-sections for each study corridor.
- Calculate the capacity, parking, and estimated cost impacts of each proposed bicycle facility.

This document builds on the feasibility study and lays out an action plan for the installation of the buffered lanes, cycle tracks, and bike boulevards along 10 corridors. In addition, it outlines educational, public outreach, and funding strategies.

**Bike Facilities**

**Corridors**

A network of 10 corridors was identified across the City: five east-west corridors and five north-south corridors.

**East-West Corridors – Buffered Bike Lane or Cycle Track Implementation**

1. Washington Boulevard from Forest Avenue to El Molino Avenue
2. Orange Grove Boulevard from south city limit to Sierra Madre Villa Avenue
3. Villa Street from Champlain Avenue to Hill Avenue
4. Union Street from Arroyo Parkway to Hill Avenue
5. Colorado Boulevard from Holliston Avenue to east city limit (buffered bike lane implementation only)

**North-South Corridors – Bicycle Boulevard Implementation**

1. El Molino Avenue from north city limit to south city limit
2. Wilson Avenue from Washington Boulevard to Arden Road
3. Sierra Bonita Avenue from Washington Boulevard to Colorado Boulevard
4. Craig Avenue from Casa Grande Street to Del Mar Boulevard
5. Holliston Avenue from Union Street to Cordova Street
Bike Parking

An important element of a bike program is available bike parking. Bike parking falls into two categories: short-term (usually less than two hours) and long-term, which can be hours or days. The City has over 1,000 racks for short-term bike parking along with bike lockers at a number of the Metro Gold Line stations. As part of the Bike Action Plan, the City will look at additional short-term parking as well as meet the needs for long-term parking at areas beyond the Gold Line locations. These will include new residential and commercial developments as well as bus stops, schools, libraries, and other civic buildings.

Programmatic Recommendations

Of the League of American Bicyclists' five E's of bicycle planning, the first is related to engineering (designing and building bike facilities) and four are related to programs/encouragement, education, enforcement, and evaluation. Programs should complement engineering improvements such as bike paths, lanes, and routes by providing the education and encouragement to ensure that the facilities get maximum utilization.

The City of Pasadena has a number of programs in place and planned for the near future that are designed to encourage bike riding in the City and to make it safe for everyone. The City has an active Bike Month program that encourages residents and visitors to bike during the month of May. A City-sponsored, employer-based program encourages employers to provide incentives and facilities to make...
Introduction

it easy for employees to ride their bikes to and from work. The City has worked with organizations such as the Amgen Tour of California to highlight Pasadena as a great place to bike. In the near future the City will be hosting open street events similar to LA’s CicLAvia to promote biking and walking in the City. The City works with CICLE, a community-based organization that promotes the bicycle as a viable, healthy, and sustainable transportation choice, to provide bike education programs in Pasadena.

Other programs to be explored by the City included safe-routes-to-schools programs for providing elementary and middle school children the skills and knowledge necessary to safely navigate Pasadena’s streets as well as to bike to school on a regular basis.

As new facilities are added, the City is exploring ways to celebrate and create awareness of not only their opening, but of their benefits to the community. This will also create opportunities to educate motorists and bicyclists on how to safely interact on our city streets.

Information regarding the City’s bike program is available on the City’s website. It is envisioned that this site will be expanded to include more information on bicycling in the City, provide more safety information, publish safety times, and provide a means for bicyclists to report hazardous conditions.

Targeted enforcement programs where both bicyclists and motorists are warned and ticketed for behaviors that endanger bicyclists are being considered for the City.

Key to understanding the effectiveness of the bike programs is measurement. As new facilities are installed, both before and after counts will be taken to show the impact of the facility. In addition, permanent bike counters will be installed on some facilities to track changes in usage over time.

See Chapter 7 for details on these programs and recommendations.
Chapter 2.0 – Goals and Objectives

Goals set the context for planning objectives and actions to carry out the Bicycle Transportation Action Plan. They provide long-term vision and serve as the foundation of the plan. Goals are broad statements of purpose. Objectives are more specific statements of purpose. Actions describe actions the City can take to meet the goals and objectives.

Goals

1. Create an environment where people can circulate without a car.
2. Increase the number of bicyclists in Pasadena by encouraging people to use their bicycles instead of driving.
3. Increase the safety of bicycling in Pasadena.
4. Increase opportunities for traffic safety education for all travel modes and age groups in Pasadena.
5. Promote the health of Pasadena residents by providing opportunities to bicycle for commuting, recreating, shopping, and visiting.
6. Facilitate the economic viability of Pasadena by making Pasadena an attractive place to live, shop, and operate a business.

Objectives and Actions

1. Objective: Increase proportion of commute trips in Pasadena to five percent

Actions

- Implement planned citywide network of bikeways.
- Recognize that bicyclists ride on all streets and that all streets need to accommodate bicyclists.
- Improve technology to ensure that bicyclists can activate traffic signals at vehicle-activated intersections.
- Maintain bikeway and roadway system.
- Conduct periodic bicycle counts at various locations and upgrade the bikeway network.
- Assist employers with promotional campaigns to encourage bicycle commuting.
- Coordinate with the Pasadena Trip Reduction Ordinance enforcement and monitoring to ensure that employers and land owners of commercial property carry out bicycle commuter incentive programs.

2. Objective: Increase the proportions of utilitarian trips to schools, stores, parks, and other destinations to 5 percent of the total

Actions

- Implement planned citywide network of bikeways. Ensure that these bikeways serve children, intermediate cyclists, experienced cyclists, and various recreational cyclists.
- Carry out promotional efforts to encourage bicycle use.
- Work with the schools to implement Safe Routes to Schools programs.
• Maintain bike racks on ARTS buses.

3. **Objective: Reduce by 25 percent the bicycle-involved crash rate (fewer crashes per mile ridden)**

**Actions**
- Implement planned citywide network of bikeways.
- Calm motor vehicle traffic on Pasadena streets.
- Provide bicycle safety education in schools, at worksites, and at public venues for local cyclists. These programs should include comprehensive safety training.
- Provide safety education for motorists to learn to interact with bicyclists.
- Publish safe bicycle-riding tips.
- Provide information on the City website regarding safe bicycle riding.
- Work with the Police Department to ensure that traffic laws are enforced and that people are educated as to traffic laws related to bicycling.
- Work with outside organizations and agencies to provide free helmets and lights to students and low-income cyclists.
- Keep streets free of debris and potholes.

4. **Objective: Make bicycle parking available, secure, and convenient throughout Pasadena**

**Actions**
- Create uniform design standards for bicycle parking regarding the devices, spacing, and other appropriate criteria.
- Add safe, convenient, standardized bicycle parking to parks, schools, libraries, and other civic buildings where needed.
- Require bicycle parking in new commercial and residential developments.
- Assist commercial property owners willing to install bike racks and/or bike lockers on their property to obtain them.
- Provide bicycle parking at local bus stops.
- Conduct periodic surveys to determine where bicycle parking is needed.

5. **Objective: Create a network of bikeways so that every neighborhood is within 1/4 mile of an effective bicycling route in the north-south and east-west directions.**

**Actions**
- Implement a complete network of bikeways.
- Add destination and way finding signage to bikeways.
- Implement traffic calming techniques to create suitable bikeways.
- Restripe appropriate multi-lane streets with road diets to create space for bike lanes.
6. **Objective**: Implement measures throughout Pasadena to improve recreational opportunities

**Actions**
- Install bike paths along the waterways, utility corridors, and other available rights-of-way.
- Promote recreational bicycling with events such as rides and races.
- Establish historic bicycle routes throughout Pasadena.
- Coordinate with organizations that volunteer to create public bicycle repair stations.

7. **Objective**: Complete this Bicycle Transportation Plan within 15 years

**Actions**
- Create a tiered priority project list based on immediate needs and available funds.
- Aggressively pursue all federal, state, and local funding options; leverage funds to maximize matching opportunities.
- Seek opportunities to piggyback bikeway projects onto new development, road resurfacing, restriping, etc.
Chapter 3.0 – Bicycle Facility Types

Throughout this report reference is made to four classes or categories of bikeways referred to as Class I, II, III and IV. Until recently the California Department of Transportation (Caltrans) used three categories for bikeways. However, a fourth category, separated bikeways or cycle tracks, has recently been added to the classification. Refer to the California Streets and Highways Code (SHC) Section 890.4 for definitions of the four bikeway classifications defined in California.

Class I: Off-Street Bike Path
Off-Street Paved Bike Paths: Facilities on a separate right-of-way from roadways. These are typically multi-use facilities designed to accommodate bicyclists, walkers, and runners. When space is available, it is desirable to create separate facilities for bicyclists and those on foot.

Class II: On-Street Bike Lane
On-Road Striped and Signed Bicycle Lanes: On-street facilities that use painted stripes and stencils to delineate the right-of-way assigned to bicyclists and motorists, and to provide for more predictable movements by each. Conventional bike lanes typically provide a 5 to 6 foot wide space between the curb and travel lane.
Contraflow Bike Lanes

On-street bike lanes can be either conventional flow (in the direction of traffic) or contra-flow (opposite the direction of traffic flow).

Contraflow bike lanes have been used in several cities throughout the US for more than 10 years. The City of Pasadena has installed them on Marengo at Washington in 2013.

Contraflow lanes are used on one-way streets to allow bicyclists to travel in the opposite direction from traffic on the roadway. According to recently issued guidance from the National Committee on Uniform Traffic Control Devices (NCUTCD), where used, a contraflow bicycle lane shall be separated from opposite-direction travel by use of a solid double yellow center line marking, or a painted or raised median island. At speeds of 40 mph and above, a buffer or island should be used to separate the contraflow lane from adjacent travel lanes.

Buffered Bike Lanes

Most common bike lanes are striped immediately adjacent to the motor vehicle travel lane. This means that bicyclists are only separated from motor vehicles by a 6-inch-wide painted line.

Recently, buffered bike lanes have become increasingly popular. These are bike lanes that provide additional space between the bicyclists and motor vehicles. The buffer can be as little as 12 to 18 inches and up to several feet in width.

Buffered Bike Lanes, as defined in the Urban Bikeway Design Guide, are "conventional bike lanes paired with a buffered space separating the bike lane from the adjacent motor vehicle travel lane and/or parking lane." Buffered bike lanes are allowed as per California 2014 MUTCD guidelines for buffered preferential lanes (section 3D-01).

Conventional bike lanes typically provide a 5 to 6-foot-wide space between the curb (or parked cars) and the travel lane. However, many bicyclists are uncomfortable riding this close to moving traffic, particularly on higher speed and/or higher volume roadways. A recent study from Portland State University entitled "Evaluation of Innovative Bicycle Facilities", shows that bicyclists feel a lower risk of being "doored" in a buffered bike lane. Nearly nine in 10 bicyclists prefer buffered lanes to standard lanes. Seven in 10 bicyclists indicated they would go out of their way to ride on a buffered bike lane over a standard lane.
The NACTO Urban Bikeway Design guides list several advantages of buffered lanes including:

- Providing a "shy" distance between motor vehicles and bicyclists.
- Providing space for bicyclists to pass another bicyclist without encroaching into the adjacent motor vehicle travel lane.
- Encouraging bicyclists to ride outside of the door zone when buffer is between parked cars and the bike lane.
- Providing a greater space for bicycling without making the bike lane appear so wide that it might be mistaken for a travel lane or a parking lane.
- Appealing to a wider cross-section of bicycle users.
- And encouraging bicycling by contributing to the perception of safety among users of the bicycle network.

There are three types of buffers:
1. Parking side or curb buffer
2. Travel lane side buffer
3. Combined side or double buffer

**Parking Side or Curb Buffer**

Parking or curb side buffers provide space between the bicyclist and parked cars or the gutter pan. This (1) reduces the potential for a bicyclist to strike a car door being opened by a driver and (2) eliminates use of the gutter pan as part of the bike lane.

Parking or curb side buffers are designed to eliminate these problems by guiding the bicyclist out of the door zone (parking side buffer) or out of the gutter pan where debris accumulates.

The limitation to the parking side or curb side buffer is that they do not provide the "shy space" that makes bicyclists feel more comfortable, but they do reduce the risk of dooring and the use of the gutter pan as part of the bike lane.
Travel Side Buffer

Travel side buffers provide space between the bicyclist and motor vehicles in the travel lane.

High speed, high volume roadways make many bicyclists uncomfortable. Recent studies from Portland State University have shown that a simple buffer substantially increases the level of comfort for most bicyclists.

Combined Side or Double-Sided Buffer

The combined side or double sided buffer offers advantage of guiding the bicyclists away from the door zone while providing a perceived safer distance between the bicyclist and motor vehicles.

Class III: On-Street Bike Route

On-Road Shared-Lane Signed Bicycle Routes: Signed on-street facilities that accommodate vehicles and bicycles in the same travel lane. Bicycles are permitted on most roadways; however, for safety purposes, signed bicycle routes are often found on streets with lower speeds and traffic volumes.

Bicycle Boulevard

Bicycle Boulevards represent a special type of on-street Class III bike routes where the streets are designed to accommodate bicyclists with a wide variety of skill levels. Bike boulevards are typically low-volume, low-speed streets where bicyclists and motorists share the travel lane.

Treatments for bicycle boulevards are selected to create appropriate automobile volumes and speeds and to provide safe crossing opportunities of busy streets.
Typical treatments include (1) traffic circles, roundabouts, curb extensions and bulb-outs to slow traffic; (2) traffic diversion techniques that allow bicyclists to proceed straight through an intersection, but force motor vehicles to turn; and on-street markings and signage reminding motorists and bicyclists.

Like separated facilities, bike boulevards have been shown to increase the number of bicyclists and pedestrians using the street, as well as increase safety for all users. The Vista Street Bike Boulevard in Long Beach has resulted in a doubling of the number of bicyclists and pedestrians using the street and a 75% reduction in vehicle-related accidents. The increase in bike and pedestrian traffic as well as the reduction in accidents is largely due to the reduced traffic speeds associated with the installation of roundabouts at two major intersections and the installation of a traffic light and associated traffic diverter at an arterial.

**Class IV: Separated Bikeways (Cycle Tracks)**

Cycle tracks, which were recently designated as Class IV facilities in California, are an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk. These differ from buffered lanes in that the bicyclist is separated from the travel lanes by a physical barrier.

According to the NACTO Urban Bicycle Design Guide, cycle tracks have different forms, but all share common elements that provide space intended to be exclusively or primarily used by bicycles, and are separated from motor vehicle travel lanes, parking lanes, and sidewalks. Raised cycle tracks may be at the level of the adjacent sidewalk or set at an intermediate level between the roadway and sidewalk to separate the cycle track from the pedestrian area.
Over the past five years more than 100 new separated bike facilities have been added in the US. This relatively new type of facility has been shown to be effective in increasing the number of bicyclists using the street; increasing safety for bicyclists, pedestrians and motorists; and increasing access to local businesses (Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the US, National Institute for Transportation and Communities, 2014).

Separated bikeways can increase safety and promote proper riding by:

- Defining road space for bicyclists and motorists, reducing the possibility that motorists will stray into the bicyclists’ path.
- Discouraging bicyclists from riding on the sidewalk.
- Reducing the incidence of wrong-way riding.
- Reminding motorists that bicyclists have a right to the road.

**Bicyclists’ Perceptions of Separated Lanes**

This diagram from the “Lessons from the Green Lanes” report show that any type of buffer provides a considerable increase in self-reported comfort levels over a striped bike lane but that designs with more physical separation had the highest scores. Buffers with objects (e.g., planters, curbs, or parked cars) had higher comfort levels than buffers created only with paint (i.e., cycle tracks versus buffered lanes).

According to the study, nearly nine out of 10 (89%) bicyclists agreed that protected facilities are "safer" than other facilities in their city. Data from 144 hours of video analysis support this finding. The study looked at nearly 12,900 bicycles traveling through the intersections. No collisions or near-collisions were observed. This included both intersections with turn lanes and intersections with signals for bicycles.

Importantly, from a business and neighborhood perspective, nearly three times as many residents felt that the protected bike lanes led to an increase in the desirability of living in their neighborhood. Approximately 19% of intercepted bicyclists and 20% of residents who bicycled on the street stated that how often they stop at shops and businesses increased after the installation of the protected bike lanes.
One-Way Cycle Tracks

- NACTO Guidelines suggest a minimum width for a cycle track of 5 feet. In areas with heavy bike traffic or uphill sections, a 7-foot minimum is recommended. Note: In compliance with California AB 1193, the local agency must pass a resolution accepting "alternate design criteria" established pursuant to Section 890.6 if the one-way cycle track width is less than 9 feet.
- A minimum of three feet is recommended for the buffer, allowing for room to unload passengers and prevent door collisions.
- One-way cycle tracks can be either conventional flow (i.e., go the same direction as the adjacent traffic) or contra-flow (opposite direction of adjacent traffic flow). Contra-flow cycle tracks have been used almost exclusively on one-way streets.

Two-Way Cycle Tracks

- Two-way cycle tracks located on one-way streets reduces wrong-way riding, one of the dangerous behaviors for bicyclists.
- Intersection traffic control shall be installed and oriented facing bicyclists traveling in the contra-flow direction.
- 12-foot recommended minimum width for a two-way facility with an 8-foot minimum in constrained locations. Note: In accordance with California AB 1193, the local agency must pass a resolution accepting "alternate design criteria" established pursuant to Section 890.6 if the one-way cycle track width is less than 12 feet.
Consideration should be given at transit stops to manage bicycle and pedestrian interactions. In Long Beach, bus transit stops were intentionally put on the opposite side of the street to minimize interactions. Driveways and minor street crossings provide challenges to the cycle track design. Parking should be prohibited within 30 feet of the intersection to improve visibility. Green paint and/or on street markings can be used to increase motorists’ awareness of bicyclists.

**Separated Bikeways at Intersections**
As stated in NACTO’s Urban Bicycle Design Guide, designs for intersections with bicycle facilities should reduce conflict between bicyclists (and other vulnerable road users) and vehicles by heightening the level of visibility, denoting clear right-of-way, and facilitating eye contact and awareness with other modes.

Several relatively new intersection treatments are now being deployed in cities throughout the country, many associated with separated bikeways.

1. Markings through intersections with and without green paint increase motorists’ awareness of bicyclists and guide the bicyclist through the intersection. Diagram from the NACTO Urban Bikeway design guide.
2. Combined right turn and bike lanes can be used to facilitate interaction of motor vehicles and bicyclists at intersections requiring a right turn lane. Diagram from the NACTO Urban Bikeway design guide.

3. Bike Boxes are designated areas at the head of a traffic lane at a signalized intersection that provides a safe and visible way for bicyclists to get ahead of queuing traffic during the red signal phase (NACTO Urban Bicycle Design Guide). The benefits are increased visibility for the bicyclists and protection for them when making a left turn (this only applies to bike boxes that extend across the entire intersection). Stop lines shall be used to indicate the point at which motor vehicles are required to stop. In cities that permit right turns on red signal indications, a "No Turn on Red" sign shall be installed to prevent vehicles from entering the bike box. Colored pavement should be used as a background color within the bike box to encourage compliance with motorists. An egress lane should be used to clearly define the potential area of conflict between motorists and bicyclists when the intersection is operating on green signal indication (see marking through intersections above).
Chapter 4.0 – Existing Conditions

Overview

The 2004 Pasadena mobility element sets out a vision for "a community where people can circulate without cars." Key to that vision is creating a citywide networked bike system where people of all bicycling abilities feel comfortable transiting the city streets.

City of Pasadena: General Plan Mobility Element Policies
(Bicycle Related Policies)

1.2 Promote greater linkages between land uses and transit, as well as non-vehicular modes of transportation to reduce vehicular trip related emissions.

1.7 Design streets to achieve safe interaction for all modes of travel particularly for pedestrians and bicycle users.

1.8 Improve safety for all modes by developing and coordinating between the Police Department and the Transportation Department the implementation of traffic management, education and enforcement initiatives. Increase options for walking and bicycling to recreate, shop and services while improving safety for all modes.

1.11 Design Streets to reflect the mobility needs of the adjacent land use context to support healthy activities such as walking and bicycling.

1.17 Design streets to improve access to destinations by transit, bicycle and walking.

1.18 Increase walking and bicycling to local destinations and regional transportation services by developing wayfinding signage for pedestrians and bicyclists.

1.19 Develop measures to reduce conflict areas for bicyclists such as driveways and right turn lanes.

1.20 Develop measures that would reduce conflicts between bicyclists and pedestrians on sidewalks especially in commercial areas.

1.21 Inform and involve neighborhood residents in transportation programs such as the Suggested Safe Routes to School Program to help ensure that students can safely walk or bicycle to and from school.

1.23 Improve public health by supporting walking and bicycling throughout the city.

1.29 Coordinate transportation options for major community and commercial events to increase transit access, ridesharing and bicycle access and parking options.

2.8 Maintain existing and identify new opportunities for bicycle infrastructure.

2.9 Ensure that secure and convenient bicycle parking is available at destinations.

2.10 Explore bicycle share programs or any other bicycle programs that will provide greater access to bicycles for visitors and those that may not own a bicycle.

2.11 Consider bicycle education safety programs for all skill levels to reduce bicycle crashes and conflicts.

2.12 Continue to develop specialized educational campaigns and informational materials to improve safety for pedestrians and bicyclists.
2.13 Amend the existing transportation impact fee to include pedestrian and bicycle improvements in addition to street and transit improvements.

### Existing bikeways

As of early 2014, the City of Pasadena has approximately 82 miles of bike facilities. These include:

1. **21 miles of bike lanes (Class II facilities).**
2. **61 miles of bike routes**, including 34 miles of bike enhanced bike lanes. The enhanced routes include a 4" white edge line, bike route and "Share the Road" signage.

As part of the analysis for the Action Plan, the City of Pasadena conducted a stress analysis for the existing and proposed on-street bike routes. The methodology for developing the street stress assessment was based on the Mineta Transportation Institute's Low-Stress Bicycling and Network Connectivity report (http://transweb.sjsu.edu/PDFs/research/1005-low-stress-bicycling-network-connectivity.pdf).

Pasadena’s streets with existing and proposed bikeways were coded by Level of Traffic Stress (LTS) using the scale shown in the following table.

#### Table 4.1: Level of Traffic Stress Classifications

<table>
<thead>
<tr>
<th>Level of Comfort</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTS 1</td>
<td>High Comfort</td>
</tr>
<tr>
<td>LTS 2</td>
<td>Medium Comfort</td>
</tr>
<tr>
<td>LTS 3</td>
<td>Low Comfort</td>
</tr>
<tr>
<td>LTS 4</td>
<td>Extremely Low Comfort</td>
</tr>
</tbody>
</table>

The most significant predictor of LTS is speed limit. LTS 1 or 2 can be achieved only on streets 30 MPH or lower, regardless of bike lanes, unless a physical separation is provided. A table addressing LTS by street characteristics is provided on the following page.
### Table 4.2: LTS 1 & 2 Street Characteristics

<table>
<thead>
<tr>
<th>Street Characteristics</th>
<th>LTS 1</th>
<th>LTS 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>25 MPH streets with 2 or 3 lanes and no bike lanes:</strong></td>
<td>✓ No marked centerline (residential or commercial); OR ✓ Marked centerline and residential-only with 2 or fewer lanes</td>
<td>✓ Marked centerline and curb-cuts leading to non-residential land uses; OR ✓ Marked centerline and residential-only with 3 lanes (including intersection approaches)</td>
</tr>
<tr>
<td><strong>30 MPH streets with 2 or 3 lanes and no bike lanes:</strong></td>
<td>Not applicable</td>
<td>✓ No marked centerline (residential or commercial); OR ✓ Marked centerline and residential-only with 2 or fewer lanes</td>
</tr>
<tr>
<td><strong>25 MPH streets with 2 lanes and bike lanes:</strong></td>
<td>✓ If parking adjacent to bike lane, sum of bike lane and parking lane = 15 ft. wide or more; OR ✓ If no parking adjacent to bike lane, bike lane width = 6 ft. or more;</td>
<td>✓ If parking adjacent to bike lane, sum of bike lane and parking lane = 14 – 14.5 ft. wide; OR ✓ No parking adjacent to bike lane; AND ✓ Bike lanes are rarely blocked</td>
</tr>
<tr>
<td><strong>30 MPH streets with bike lanes adjacent to parking lane:</strong></td>
<td>Not applicable</td>
<td>✓ 1 travel lane per direction; AND ✓ Sum of bike lane and parking lane = 14 ft. wide or more; AND ✓ Bike lanes are rarely blocked</td>
</tr>
<tr>
<td><strong>30 MPH streets with bike lanes not adjacent to parking lane:</strong></td>
<td>✓ 1 travel lane per direction; AND ✓ Bike lane width = 6 ft. or more; AND ✓ Bike lanes are rarely blocked</td>
<td>✓ 1 travel lane per direction; OR ✓ 2 travel lanes per direction if separated by a raised median; AND ✓ Bike lanes are rarely blocked</td>
</tr>
</tbody>
</table>
As is apparent from the stress level map, many of the existing and proposed routes including Washington Boulevard, Orange Grove Boulevard, Del Mar Boulevard, much of California Boulevard, Los Robles Avenue, and Altadena Drive are very high stress. To reduce the stress levels, many of the east-west routes have been chosen to add separated bike facilities. In the north-south direction, alternate routes with less traffic have been chosen for bike boulevard treatments.

**Bicycle Parking**

There are two types of generally recognized bike parking: Long-term bike parking where bicycles will be left for hours at a time requiring a high degree of security and weather protection, and short-term bike parking for convenience and visibility.

The City offers parking for over 1,000 short-term racks at bus stops, city-owned parking lots, churches, private office garages, local businesses, and apartment buildings. Recently, over 400 new bike racks were added citywide to further promote bicycling. Most Metro Gold Line stations have bike racks. Many provide long-term secure storage in the form of bike lockers or bike rooms.
The City is served by Pasadena ARTS (Rapid Transit System) and by the Los Angeles County Metropolitan Transportation Authority (Metro) bus system. Both transit services have easy-to-use bicycle racks on most buses in their fleet.

The City of Pasadena is also served by the Metro Gold Line light rail system, which provides access to locations along the 210 Freeway. Bike parking is available at many of the Gold Line stops in Pasadena, including 12 rack spaces at the Fillmore Station, 26 spaces (bike room) at Del Mar, 8 racks and 16 lockers at Memorial Park, 18 spaces at Lake, 28 spaces at Allen, and 10 racks and 16 lockers at the Sierra Madre Villa Station. In addition, bikes are permitted on Metro Rail trains at all times.

**Bike Safety Education and Enforcement**

**Safety Education**

Pasadena is undertaking a bicycle outreach program, targeting commuter bicyclists and service employees who ride bicycles as their primary mode of transportation. The safety campaign will be developed and implemented in 2015. To complement the safety campaign, the City has procured, distributed, and installed over 450 bicycle headlights and tail lights to bicyclists riding their bikes at night without lights. In addition, the City will distribute bicycle helmets and additional lights throughout the year. Funding for this program was provided by a grant from the California Office of Traffic Safety (OTS), through the National Highway Safety Administration.

**Enforcement**

The Pasadena Police Department will support the City’s direction of encouraging a safe, bicycle friendly atmosphere in both residential and business districts. Urban environments with natural settings in Pasadena, such as Arroyo Seco, offer unique opportunities for riders and attract recreational bicyclists. To protect bicyclists, motorists and pedestrians, targeted enforcement programs are implemented to discourage the most dangerous violations by motorists and bicyclists. However, it is vitally important that bicyclists, motorists and pedestrians all take responsibility for their own safety as well as the safety of others on the roadway because targeted enforcement programs are temporary. The Pasadena Police Department is committed to continued enforcement and education promoting bicycle safety.

**Bike Crashes**

Over the past six years (2009 - 2014), there have been 543 reported bike-related injuries and five fatalities in the City of Pasadena (based on SWITRS data). Of the reported fatalities, just over half were the fault of the bicyclist and under half the fault of the motorist.

As in most cities in California, the primary cause of crashes when the rider was at fault was due to wrong-way riding. The primary cause when the motorist was at fault was due to failure to yield when making a left or U-turn.

**Table 4.3: Bike Crashes over the Last Six Years**

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<tbody>
<tr>
<td>Injuries</td>
<td>73</td>
<td>88</td>
<td>99</td>
<td>96</td>
<td>95</td>
<td>92</td>
</tr>
<tr>
<td>Fatalities</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 5.0 – Bikeway Analysis and Feasibility Study

A network of 10 corridors was identified across the City: Five east-west corridors and five north-south corridors. The study showed that buffered bike lanes and cycle tracks are feasible on the east-west corridors. Bike boulevards are more suited for the north-south corridors.

East-West Corridors – Buffered Bike Lane or Cycle Track Implementation
1. Washington Boulevard from Forest Avenue to El Molino Avenue
2. Orange Grove Boulevard from south city limit to Sierra Madre Villa Avenue
3. Villa Street from Champlain Avenue to Hill Avenue
4. Union Street from Arroyo Parkway to Hill Avenue
5. Colorado Boulevard from Holliston Avenue to east city limit (buffered bike lane implementation only)

North-South Corridors – Bicycle Boulevard Implementation
1. El Molino Avenue from north city limit to south city limit
2. Wilson Avenue from Washington Boulevard to Arden Road
3. Sierra Bonita Avenue from Washington Boulevard to Colorado Boulevard
4. Craig Avenue from Casa Grande Street to Del Mar Boulevard
5. Holliston Avenue from Union Street to Cordova Street
East-West Corridor Objectives

A combination of the following bicycle treatments were proposed along each east-west corridor, depending on the land use and traffic characteristics of the roadway.

Bicycle Boulevard

Bicycle boulevards are roadways shared between bicyclists and motorists, although some preferential treatment is provided to the cyclist. Bicycle boulevards are located on streets with low traffic volumes and speeds. These treatments can create a traffic calming effect when implemented, add to the attractiveness of the street, and help to reduce noise levels along a roadway.

Cycle Track

Cycle tracks are bikeways located in roadway right-of-way but separated from vehicular traffic by physical barriers such as raised islands and on-street parking.

Contraflow Cycle Track

Contraflow cycle tracks are bike lanes flowing in the opposite direction of traffic, often implemented on one-way streets. They are separated from traffic by either a raised or non-raised buffer such as raised islands or striped buffers.

Two-way Cycle Track

Two-way cycle tracks are bike lanes flowing in opposing directions, positioned adjacent to one another on one side of the street. They are separated from vehicular traffic by physical barriers such as raised islands and on-street parking.

Buffered Bike Lane

Buffered bike lanes are striped bike lanes paired with a buffer space separating them from vehicular traffic.
Washington Boulevard Corridor

Overview
Washington Boulevard is an east-west roadway located in the northern portion of Pasadena. The roadway extends from Parkview Avenue to the west and Sierra Madre Boulevard to the east. East of Altadena Drive, Washington Boulevard curves south and turns into a north-south roadway. Between Bellford Avenue and Altadena Drive, Washington Boulevard is outside of Pasadena’s jurisdiction. According to the City of Pasadena 2004 Mobility Element, Washington Boulevard is classified as a Collector between Parkview Avenue and Lincoln Avenue and a Minor Arterial between Lincoln Avenue and Sierra Madre Boulevard. Portions of Washington Boulevard are also designated as an Area Rapid Transit System Corridor, Enhanced Bike Route, and De-Emphasized Street. Between Arroyo Boulevard and Glen Avenue, there currently exists Class III Bike Routes on Washington Boulevard. Between Glen Avenue and Altadena Drive, there currently exists Class III Enhanced Bike Routes on Washington Boulevard.

The designated corridor included for this Study extends from Forest Avenue to El Molino Avenue. Land use along the Washington Boulevard Corridor is primarily comprised of multi-family residential, commercial, and open space land uses. The roadway curb-to-curb widths along the corridor fluctuate between 28 and 60 feet.
**Existing Conditions**

Washington Boulevard, between Forest Avenue and El Molino Avenue, is approximately 1.5 miles long with a typical 56’ wide curb-to-curb cross-section, except for in between Forest Avenue and Lincoln Avenue where it is 28’ wide. The segment is primarily comprised of curb parking and two traffic lanes in each direction of travel. Parking is available on both sides of Washington Boulevard, providing approximately 225 parking spaces. Vehicular capacity along the corridor is 3,200 vehicles per hour (800 vehicles per lane per City’s guideline). The highest peak hour volume along the segment is 1,455 vehicles per hour.

**Alternatives**

- **Cycle Track** – Comprised of 9’ one-way cycle track adjacent to the curb next to 8’ on-street parking or raised island and one 11’ traffic lane in each direction of travel.
- **Buffered Bike Lane** – Comprised of 6’ bike lane adjacent to the curb next to a 2’ striped buffer and two 10’ traffic lanes in each direction of travel.

**Impacts**

- **Cycle Track** – Estimated construction cost is $457,000 with loss of 192 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions; however, through traffic will be blocked by left turning vehicles.
- **Buffered Bike Lane** – Estimated construction cost is $106,000 with loss of 249 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions; however, through traffic will be blocked by left turning vehicles.

**Washington Boulevard Corridor Impacts Summary**

The following table represents the impacts of the project alternatives for the Washington Boulevard Corridor. Cycle track implementation will cause no capacity issues, result in a parking loss of 192 spaces, and cost an estimated $457,000 to construct. Buffered bike lane implementation will cause no capacity issues, result in a parking loss of 249 spaces, and cost an estimated $106,000 to construct.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Impacts</th>
<th>Buffered Bike Lane</th>
<th>Cycle Track</th>
</tr>
</thead>
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<td>Washington Boulevard</td>
<td>Daily Hours Over Capacity</td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td>Parking Spaces Lost</td>
<td>249</td>
<td>192</td>
</tr>
<tr>
<td></td>
<td>Estimated Construction Cost</td>
<td>$106,000</td>
<td>$457,000</td>
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</table>
Orange Grove Boulevard Corridor

Overview

Orange Grove Boulevard runs through western and central Pasadena, extending from South Pasadena to East Pasadena. West of Lincoln Avenue, Orange Grove Boulevard runs north-south to Columbia Street. East of Lincoln Avenue, Orange Grove runs east-west to Sierra Madre Villa Avenue where it turns into Rosemead Boulevard. According to the City of Pasadena 2004 Mobility Element, Orange Grove Boulevard is classified as a Minor Arterial. Portions of Orange Grove Boulevard are also designated as an Area Rapid Transit System Corridor, Enhanced Bike Route, De-Emphasized Street, and Multimodal Corridor. Between Corson Street and Sierra Madre Villa Avenue, there currently exists Class III Enhanced Bike Routes on Orange Grove Boulevard.

The designated corridor included for this Study extends from Columbia Street to Sierra Madre Villa Avenue. Land use along the Orange Grove Boulevard Corridor is primarily comprised of single-family residential, multi-family residential and commercial land uses. The roadway curb-to-curb widths along the corridor fluctuate between 44 and 80 feet.

Due to varying characteristics of the Orange Grove Boulevard Corridor, it is separated into the following segments for analysis:

- Columbia Street to Green Street
- Green Street to Wilson Avenue
- Wilson Avenue to Sierra Madre Boulevard
- Sierra Madre Boulevard to Sierra Madre Villa Avenue

![Image of Orange Grove Boulevard Corridor Overview]
**Existing Conditions**

Orange Grove Boulevard, between Columbia Street and Green Street, is approximately 1.4 miles long with a typical 44’ wide curb-to-curb cross-section. The segment is primarily comprised of two traffic lanes in each direction of travel. Parking is available on both sides of Orange Grove Boulevard during non-peak hours, providing approximately 390 parking spaces. Vehicular capacity along the corridor is 3,200 vehicles per hour (800 vehicles per lane per City’s guideline). The highest peak hour volume on Orange Grove Boulevard, between Altadena Drive and Sierra Madre Boulevard, is 1,310 vehicles per hour.

**Alternatives**

- **Buffered Bike Lane** – Comprised of 6’ bike lane adjacent to the curb next to a 5’ striped buffer and one 11’ traffic lane in each direction of travel.

**Impacts**

- **Buffered Bike Lane** – Estimated construction cost is $90,000 with loss of 390 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions; however through traffic will be blocked by left-turning vehicles.

---

**Orange Grove Blvd from Green St to Wilson Ave (2.5 Mile)**

<table>
<thead>
<tr>
<th></th>
<th>Peak Hour Volume (Veh)</th>
<th>Vehicular Capacity (Veh/Lane)</th>
<th>Traffic Lanes</th>
<th>Daily Hours Over Capacity</th>
<th>Parking</th>
<th>Parking Spaces</th>
<th>Parking Loss</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td><strong>Existing</strong></td>
<td>1,310</td>
<td>3,200</td>
<td>4</td>
<td>0</td>
<td>248</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Cycle Track</strong></td>
<td>1,310</td>
<td>1,600</td>
<td>2</td>
<td>0*</td>
<td>62</td>
<td>186</td>
<td>$1,779,000</td>
<td></td>
</tr>
<tr>
<td><strong>Buffered Bike Lane</strong></td>
<td>1,310</td>
<td>1,600</td>
<td>2</td>
<td>0*</td>
<td>248</td>
<td>0</td>
<td>$217,000</td>
<td></td>
</tr>
</tbody>
</table>

* Thru traffic will be blocked by left turns. (No two-way left turn lane)
Existing Conditions
Orange Grove Boulevard, between Green Street and Wilson Avenue, is approximately 2.5 miles long with a typical 56’ wide curb-to-curb cross-section. The segment is primarily comprised of curb parking and two traffic lanes in each direction of travel. Parking is available on both sides of Orange Grove Boulevard, providing approximately 248 parking spaces. Vehicular capacity along the corridor is 3,200 vehicles per hour (800 vehicles per lane per City’s guideline). The highest peak hour volume on Orange Grove Boulevard, between Altadena Drive and Sierra Madre Boulevard, is 1,310 vehicles per hour.

Alternatives
- **Cycle Track** – Comprised of 9’ one-way cycle track adjacent to the curb next to 8’ on-street parking or raised island and one 11’ traffic lane in each direction of travel.
- **Buffered Bike Lane** – Comprised of 8’ curb parking next to a 6’ bike lane with 2’ striped buffers on each side and one 10’ traffic lane in each direction of travel.

Impacts
- **Cycle Track** – Estimated construction cost is $1,779,000 with loss of 186 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions; however through traffic will be blocked by left turning vehicles.
- **Buffered Bike Lane** – Estimated construction cost is $217,000 and no parking loss along the segment. The alternative will cause no over-saturated traffic conditions; however through traffic will be blocked by left turning vehicles.
Existing Conditions

Orange Grove Boulevard, between Wilson Avenue and Sierra Madre Boulevard, is approximately 2.0 miles long with a typical 64’ wide curb-to-curb cross-section. The segment has curb parking and two traffic lanes in each direction plus a center two-way left turn lane. Parking is available on both sides of the street, providing approximately 515 parking spaces. Vehicular capacity along the corridor is 3,200 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume on Orange Grove Boulevard, between Altadena Drive and Sierra Madre Boulevard, is 1,310 vehicles per hour.

Alternatives

- **Cycle Track** – Comprised of 9’ one-way cycle track adjacent to the curb next to 8’ on-street parking or raised island, one 10’ traffic lane in each direction of travel, and a 10’ center two-way left turn lane.
- **Buffered Bike Lane** – Comprised of 8’ curb parking next to a 5’ bike lane with 2’ striped buffers on each side and one 11’ traffic lane in each direction of travel, and a 10’ center two-way left turn lane.

Impacts

- **Cycle Track** – Estimated construction cost is $888,000 with loss of 247 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions.
Buffered Bike Lane – Estimated construction cost is $200,000 and no loss of parking spaces along the segment. The alternative will cause no over-saturated traffic conditions.

Existing Conditions
Orange Grove Boulevard, between Sierra Madre Boulevard and Sierra Madre Villa Avenue, is approximately 0.7 miles long with a typical 52’ wide curb-to-curb cross-section. The segment is primarily comprised of curb parking and two traffic lanes in each direction of travel. Parking is available on both sides of Orange Grove Boulevard, providing approximately 159 parking spaces. Vehicular capacity along the corridor is 3,200 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume on Orange Grove Boulevard, between Altadena Drive and Sierra Madre Boulevard, is 1,310 vehicles per hour.

Alternatives
- Buffered Bike Lane – Comprised of 6’ bike lane adjacent to the curb and 4’ striped buffer, one 11’ traffic lane in each direction of travel, and a 10’ center two-way left turn lane.
Impacts
- **Buffered Bike Lane** – Estimated construction cost is $70,000 with loss of 159 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions.

**Orange Grove Boulevard Corridor Impacts Summary**
The following table represents the combined impacts of the project alternatives for the Orange Grove Boulevard Corridor. Buffered Bike Lane implementation will cause no capacity issues, result in a parking loss of 549 spaces, and cost an estimated $577,000 to construct. Cycle track implementation will cause no capacity issues, result in a parking loss of 433 spaces, and cost an estimated $2,667,000 to construct.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Impacts</th>
<th>Buffered Bike Lane</th>
<th>Cycle Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange Grove Boulevard</td>
<td>Daily Hours Over Capacity</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Parking Spaces Lost</td>
<td>549</td>
<td>433</td>
</tr>
<tr>
<td></td>
<td>Estimated Construction Cost</td>
<td>$577,000</td>
<td>$2,667,000</td>
</tr>
</tbody>
</table>
Villa Street Corridor

Overview

Villa Street is an east-west corridor that runs through central Pasadena, north of I-210 Foothill Freeway, extending from Cypress Avenue to the west and Eaton Drive to the east. According to the City of Pasadena 2004 Mobility Element, Villa Street is classified as a Collector. Portions of Villa Street are also designated as an Area Rapid Transit System Corridor and Enhanced Bike Route. Between Los Robles Avenue and Hill Avenue, there currently exists Class III Enhanced Bike Routes on Villa Street. Between Hamilton Avenue and Altadena Drive, there currently exists Class II Bike Lanes on Villa Street.

The designated corridor included for this Study extends from Champlain Avenue to Hill Avenue. Land use along the Villa Street Corridor is primarily comprised of single-family residential, multi-family residential and commercial land uses. The roadway curb-to-curb widths along the corridor fluctuate between 30 and 60 feet.

Due to varying characteristics of the Villa Street Corridor, it is separated into the following segments for analysis:
- Champlain Avenue to Los Robles Avenue
- Los Robles Avenue to Hill Avenue
Existing Conditions
Villa Street, between Champlain Avenue and Los Robles Avenue, is approximately 0.6 miles long with a typical 32’ wide curb-to-curb cross-section. The segment is primarily comprised of curb parking only on the north side of Villa Street and one traffic lane in each direction of travel. Approximately 85 parking spaces are provided. Vehicular capacity along the corridor is 1,600 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume along the segment is 550 vehicles per hour.

Alternatives
Due to limited right-of-way along this segment of Villa Street, neither buffered bike lanes nor cycle tracks can be implemented.

Existing Conditions
Villa Street, between Los Robles Avenue and Hill Avenue, is approximately 1.1 miles long with a typical 48’ wide curb-to-curb cross-section. The segment is primarily comprised of curb parking, bike lane, and one traffic lane in each direction of travel. Parking is available on both sides of Villa Street, providing approximately 258 parking spaces. Vehicular capacity along the corridor is 1,600 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume along the segment is 730 vehicles per hour.
Alternatives

- **Buffered Bike Lane** – Comprised of 6’ bike lane adjacent to the curb next to a 5’ striped buffer and one 13’ traffic lane in each direction of travel.

Impacts

- **Buffered Bike Lane** – Estimated construction cost is $143,000 with loss of 258 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions; however through traffic will be blocked by left-turning vehicles.

Villa Street Corridor Impacts Summary

The following table represents the combined impacts of the project alternatives for the Villa Street Corridor. Buffered bike lane implementation will cause no capacity issues, result in a parking loss of 258 spaces, and cost an estimated $143,000 to construct.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Impacts</th>
<th>Buffered Bike Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Villa Street</td>
<td>Daily Hours Over Capacity</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Parking Spaces Lost</td>
<td>258</td>
</tr>
<tr>
<td></td>
<td>Estimated Construction Cost</td>
<td>$143,000</td>
</tr>
</tbody>
</table>
Union Street Corridor

Overview
Union Street runs east-west through central Pasadena, south of I-210 Foothill Freeway, extending from St. John Avenue to the west and Hill Avenue to the east. The entire roadway is one-way of travel in the westbound direction. According to the City of Pasadena 2004 Mobility Element, Union Street is classified as a Collector. Portions of Union Street are also designated as a Foothill Transit Route and Multimodal Corridor. There are currently no bicycle facilities on Union Street.

The designated corridor included for this study extends from Garfield Avenue to Hill Avenue. Land use along the Union Street Corridor is primarily comprised of multi-family residential, office, and commercial land uses. The roadway curb-to-curb widths along the corridor fluctuate between 30 and 62 feet.

Due to varying characteristics of the Union Street Corridor, it is separated into the following segments for analysis:
- Arroyo Parkway to Garfield Avenue
- Garfield Avenue to Lake Avenue
- Lake Avenue to Hill Avenue

*Thru traffic will be blocked by left turns. (No two-way left turn lane)
**Existing Conditions**

Union Street, between Arroyo Parkway and Garfield Avenue, is approximately 0.2 miles long with a curb-to-curb cross-section that varies between 32’ and 46’ wide. The segment is primarily comprised of curb parking on the north side of Union Street (where available) and two traffic lanes in the westbound direction. Parking availability varies along the Union Street segment, providing approximately 10 parking spaces. Vehicular capacity along the corridor is 1,600 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume along the segment is 750 vehicles per hour.

**Alternatives**

- **Buffered Bike Lane** – Comprised of 6’ bike lane adjacent to the north side curb next to a 2’ striped buffer, 12’ traffic lane in the westbound direction, 6’ striped buffer and 6’ contraflow bike lane adjacent to the south side curb of Union Street.

**Impacts**

- **Buffered Bike Lane** – Estimated construction cost is $457,000 with loss of 10 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions; however through traffic will be blocked by left-turning vehicles.
**Existing Conditions**

Union Street, between Garfield Avenue and Lake Avenue, is approximately 0.7 miles long with a typical 52' wide curb-to-curb cross-section. The segment is primarily comprised of curb parking on both sides of Union Street and three traffic lanes in the westbound direction. Approximately 101 parking spaces are provided. Vehicular capacity along the corridor is 2,400 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume along the segment is 710 vehicles per hour.

**Alternatives**

- **Two-way Cycle Track** – Comprised of 8' parking on the north side curb next to two 12' westbound traffic lanes, 8' on-street parking or raised island, and 12' two-way cycle track adjacent to the south side curb of Union Street.

**Impacts**

- **Two-way Cycle Track** – Estimated construction cost is $1,989,000 with loss of 48 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions.
Existing Conditions

Union Street, between Lake Avenue and Hill Avenue, is approximately 0.6 miles long with a typical 58' wide curb-to-curb cross-section. The segment is primarily comprised of curb parking on both sides of Union Street and three traffic lanes in the westbound direction. Approximately 143 parking spaces are provided. Vehicular capacity along the corridor is 2,400 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume along the segment is 750 vehicles per hour.

Alternatives

- **Two-way Cycle Track** – Comprised of 8’ parking adjacent to the north side curb next to two 12’ westbound traffic lanes, 8’ on-street parking or raised island, and an 18’ two-way cycle track adjacent to the south side curb of Union Street.

Impacts

- **Two-way Cycle Track** – Estimated construction cost is $2,676,000 with loss of 34 parking spaces along the segment. The alternative will cause no over-saturated traffic conditions.

Union Street Corridor Impacts Summary

The following table represents the combined impacts of the project alternatives for the Union Street Corridor. Buffered bike lane implementation will cause no capacity issues, result in a parking loss of 10 spaces, and cost an estimated $457,000 to construct. Two-way cycle track implementation will cause no capacity issues, result in a parking loss of 82 spaces, and cost an estimated $4,665,000 to construct.

<table>
<thead>
<tr>
<th>Corridor</th>
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<th>Two-way Cycle Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Union Street</td>
<td>Daily Hours Over Capacity</td>
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<td>0</td>
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<tr>
<td></td>
<td>Parking Spaces Lost</td>
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</tr>
<tr>
<td></td>
<td>Estimated Construction Cost</td>
<td>$457,000</td>
<td>$4,665,000</td>
</tr>
</tbody>
</table>
Colorado Boulevard Corridor

Overview
Colorado Boulevard is an east-west corridor that runs through central Pasadena, south of the I-210 Foothill Freeway, extending from the City’s western to eastern boundary (Patrician Way to west of Sycamore Avenue). According to the City of Pasadena 2004 Mobility Element, Colorado Boulevard is classified as a Principal Arterial. Portions of Colorado Boulevard are also designated as an Area Rapid Transit System Corridor, Foothill Transit Corridor, MTA Route, and Multimodal Corridor. There are currently no bicycle facilities on Colorado Boulevard.

The designated corridor included for this study extends from Holliston Avenue to Northup Avenue. Land use along the Colorado Boulevard Corridor is primarily comprised of single-family residential, multi-family residential, office, and commercial land uses. The roadway curb-to-curb widths along the corridor fluctuate between 19 and 86 feet.
Existing Conditions

Colorado Boulevard, between Holliston Avenue and Northup Avenue, is approximately 2.2 miles long with a typical 68’ wide curb-to-curb cross-section. The segment is primarily comprised of curb parking, two traffic lanes in each direction of travel, and a center two-way left turn lane. Parking is available on both sides of Colorado Boulevard, providing approximately 365 parking spaces. Vehicular capacity along the corridor is 3,200 vehicles per hour (800 vehicles per lane, per City’s guidelines). The highest peak hour volume along the segment is 2,050 vehicles per hour.

Alternatives

- **Buffered Bike Lane** – Comprised of 8’ curb parking next to a 5’ bike lane with 2’ striped buffers on each side, one 11’ traffic lane in each direction of travel, and a 12’ center two-way left turn lane.

Impacts

- **Buffered Bike Lane** – Estimated construction cost is $280,000 and no loss of parking along the segment. The alternative will cause traffic congestion for an estimated six-hour period during the afternoon and evening hours.

**Colorado Boulevard Corridor**

**Impacts Summary**

The following table represents the combined impacts of the project alternatives for the Colorado Boulevard Corridor. Buffered bike lane implementation will cause traffic congestion for an estimated 6-hour period during the afternoon and evening hours, result in no parking loss, and cost an estimated $280,000 to construct.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Impacts</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Colorado Boulevard</td>
<td>Daily Hours Over Capacity</td>
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<tr>
<td></td>
<td>Parking Spaces Lost</td>
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</tr>
<tr>
<td></td>
<td>Estimated Construction Cost</td>
<td>$280,000</td>
</tr>
</tbody>
</table>
## East-West Corridor Construction Cost Estimates

Preliminary construction cost estimates for bicycle elements along east-west corridors are shown below.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>From</th>
<th>To</th>
<th>Cycle Track</th>
<th>Buffered Bike Lane</th>
<th>2-Way Cycle Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Blvd.</td>
<td>Forest Ave.</td>
<td>El Molino Ave.</td>
<td>$457,000</td>
<td>$106,000</td>
<td>N/A</td>
</tr>
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<td>Orange Grove Blvd.</td>
<td>Columbia St.</td>
<td>Green St.</td>
<td>N/A</td>
<td>$90,000</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Green St.</td>
<td>Wilson Ave.</td>
<td>$1,779,000</td>
<td>$217,000</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Wilson Ave.</td>
<td>Sierra Madre Blvd.</td>
<td>$888,000</td>
<td>$200,000</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Sierra Madre Blvd.</td>
<td>Sierra Madre Villa Ave.</td>
<td>N/A</td>
<td>$70,000</td>
<td>N/A</td>
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<tr>
<td>Villa St.</td>
<td>Champlain Ave.</td>
<td>Los Robles Ave.</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Los Robles Ave.</td>
<td>Hill Ave.</td>
<td>N/A</td>
<td>$143,000</td>
<td>N/A</td>
</tr>
<tr>
<td>Union St.</td>
<td>Arroyo Pkwy.</td>
<td>Garfield Ave.</td>
<td>N/A</td>
<td>$457,000</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Garfield Ave.</td>
<td>Lake Ave.</td>
<td>N/A</td>
<td>N/A</td>
<td>$1,989,000</td>
</tr>
<tr>
<td></td>
<td>Lake Ave.</td>
<td>Hill Ave.</td>
<td>N/A</td>
<td>N/A</td>
<td>$2,676,000</td>
</tr>
<tr>
<td>Colorado Blvd.</td>
<td>Holliston Ave.</td>
<td>Northup Ave.</td>
<td>N/A</td>
<td>$280,000</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>$3,124,000</td>
<td>$1,563,000</td>
<td>$4,665,000</td>
</tr>
</tbody>
</table>
North-South Corridors

Bicycle Boulevard Objectives
The potential treatments for the five north-south corridors -- El Molino Avenue, Wilson Avenue, Holliston Avenue, Sierra Bonita Avenue, and Craig Avenue -- will differ from those for the east-west corridors. The north-south corridors have narrow roadways, in most cases less than 40 feet wide, which cannot accommodate buffered bike lanes or cycle tracks. As a result, they are candidates for variations of Class III Bike Route treatments that cumulatively result in a “bicycle boulevard”.

The roadway treatments associated with a bicycle boulevard will accomplish the following:
- Provide preferential treatment for cyclists.
- Minimize the number of stop signs facing bicyclists.
- Slow the speeds or reduce the volume of motor vehicles.
- Ease the passage of cyclists through barriers such as busy streets or physical obstructions.

The result is a more complete street.

Unlike the east-west corridors’ buffered bike lanes and cycle tracks that would be installed on linear segments, bicycle boulevard features tend to be spot treatments. Bicycle boulevard features are described in the next table. Their recommended locations are depicted on the corridor maps that follow.
## Table 5.1: Recommended Features

| Feature | Source: Google Streetview
|---|---
| Median traffic-calming island |  |
| Recommended for |  |
| El Molino Avenue at Atchison Street, Elizabeth Street, and Cornell Road |  
| Example Shown |  |
| Fletcher Avenue in South Pasadena, CA |  |

| Feature | Source: KOA
|---|---
| Contra-flow bike lane on a one-way street. Where feasible, allow on-street parking on both sides of the street. |  |
| Recommended For |  |
| El Molino Avenue at Washington Boulevard, at Orange Grove Boulevard, and at Woodland Road; Sierra Bonita Avenue at Washington Boulevard. |  
| Example Shown |  |
| North Marengo Avenue at Washington Boulevard. |  |

| Feature | Source: KOA
|---|---
| Bike box. |  |
| Recommended For |  |
| El Molino Avenue at Orange Grove Boulevard. |  
| Example Shown |  |
| Marina Drive in Long Beach, CA. |  |
## North-South Corridors

**Feature**

Traffic diverter – only cyclists can proceed through.

**Recommended For**

El Molino Avenue at Cordova Street and at California Boulevard; Wilson Avenue at Orange Grove Boulevard.

**Example Shown**

Vista Street bicycle boulevard in Long Beach, CA.

### Traffic Diverter

![Traffic Diverter](image1)

**Source:** KOA

---

**Feature**

Roundabout with yield signs on all approaches.

**Recommended For**

El Molino Avenue at Alpine Street; Wilson Avenue at San Pasqual Street; Sierra Bonita Avenue at Mountain Street and at Paloma Street; Craig Avenue at Villa Street and at Walnut Street.

**Example Shown**

Vista Street bicycle boulevard in Long Beach, CA.

### Roundabout with Yield Signs

![Roundabout with Yield Signs](image2)

**Source:** KOA

---

**Feature**

Traffic circle with stop signs facing cross street

**Recommended For**

El Molino Avenue at Pinehurst Street and at Bonita Drive; Sierra Bonita Avenue at Las Lunas Street.

**Example Shown**

Vista Street bicycle boulevard in Long Beach, CA.

### Traffic Circle with Stop Signs

![Traffic Circle with Stop Signs](image3)

**Source:** KOA
### North-South Corridors

<table>
<thead>
<tr>
<th>Feature</th>
<th>Recommended For</th>
<th>Example Shown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffered bike lane.</td>
<td>All four north-south corridors at I-210 Foothill Freeway overcrossing or under-crossings; El Molino Avenue between Locust Street and Green Street.</td>
<td>South Marengo Avenue in Pasadena, CA.</td>
</tr>
<tr>
<td>Median refuge island allowing bicyclist and pedestrian access along the bicycle boulevard; only right-in/right-out movements for motor vehicles</td>
<td>Wilson Avenue at Washington Boulevard and at Orange Grove Boulevard; Craig Avenue at Orange Grove Boulevard.</td>
<td>Santa Monica Boulevard in West Hollywood, CA.</td>
</tr>
<tr>
<td>Removable barrier to block motorist traffic.</td>
<td>Sierra Bonita Avenue north of Colorado Boulevard; Craig Avenue south of Colorado Boulevard.</td>
<td>Isla Vista, CA.</td>
</tr>
</tbody>
</table>

**Feature**

- Buffered bike lane.

**Recommended For**

- All four north-south corridors at I-210 Foothill Freeway overcrossing or under-crossings; El Molino Avenue between Locust Street and Green Street.

**Example Shown**

- South Marengo Avenue in Pasadena, CA.

**Feature**

- Median refuge island allowing bicyclist and pedestrian access along the bicycle boulevard; only right-in/right-out movements for motor vehicles

**Recommended For**

- Wilson Avenue at Washington Boulevard and at Orange Grove Boulevard; Craig Avenue at Orange Grove Boulevard.

**Example Shown**

- Santa Monica Boulevard in West Hollywood, CA.

**Feature**

- Removable barrier to block motorist traffic. Barriers are removable for events such as the Rose Parade.

**Recommended For**

- Sierra Bonita Avenue north of Colorado Boulevard; Craig Avenue south of Colorado Boulevard.

**Example Shown**

- Isla Vista, CA.
1. **Atchison St.** - Remove north-south stop signs, install median traffic-calming island.

2. **Elizabeth St.** - Remove north-south stop signs, install median traffic-calming island.

3. **Washington Blvd.** - Insert a bike lane through existing intersection diverter, running contra-flow against existing northbound traffic flow, similar to Marengo Bicycle Blvd.

4. **Claremont St.** - Remove north-south stop signs.

5. **Orange Grove Blvd.** - Install bulbout curb extension and allow only bicycles northbound in a contra-flow bike lane, similar to Marengo treatment. Install northbound bike box (requires FHWA and CTCDC approval).

6. **I-210 Foothill Fwy.** - Install Class II buffered bike lanes on bridge. Provide bike detection at traffic signals at Maple St. and Corson St.
El Molino Avenue
Bicycle Boulevard
South of I-210 Foothill Fwy.

1. **Locust St. to Green St.** - Prohibit parking on west side. Install Class II buffered bike lanes. Install bike detection at signals.
2. **Cordova St.** - Right-turn only except for bikes, southbound.
3. **Del Mar Blvd.** - Install bike detection.
4. **California Blvd.** - Right-turn only except for bikes, northbound.
5. **Cornell Rd.** - Remove north-south stop signs, install median traffic calming island.
6. **Alpine St.** - Install roundabout.
7. **Pinehurst Dr.** - Install traffic circle, remove north-south stop signs.
8. **Woodland Rd.** - Convert the two roadways of El Molino Ave. into one-way roads. Install a contraflow southbound bike lane on the northbound roadway. Install stop signs for southbound motorists.
9. **Bonita Dr.** - Install traffic circle, remove north-south stop signs.
Wilson Avenue
Bicycle Boulevard

2. Orange Grove Blvd. - Install traffic diverters at traffic signal to allow only bicyclists and pedestrians to proceed on the bicycle boulevard. Wilson Ave. would have only right-in/right-out access.
3. 210 Foothill Fwy. - Install Class II buffered bike lanes on bridge. Install bike detection at Maple St. and Corson St.
4. Locust St. to Colorado Blvd. - Prohibit parking on west side; install Class II bike lanes.
5. Colorado Blvd., Cordova St., and Del Mar Blvd. - Install bike detection at traffic signals.
6. San Pasqual St. - Install roundabout.
7. California Blvd. - Remove pedestrian push buttons on all corners.

Map source: Google Maps
Sierra Bonita Avenue Bicycle Boulevard

1. Washington Blvd. - Convert El Molino Avenue to one-way northbound with southbound Class II bike lane, similar to Marengo Bicycle Blvd.
2. Mountain St. - Install roundabout.
3. Paloma St. - Install roundabout.
4. Orange Grove Blvd. - Install median refuge island for pedestrians and cyclists to proceed on the bicycle boulevard. Sierra Bonita Avenue would have only right-in/right-out access.
5. Las Lunas St. - Install traffic circle and move north-south stop signs to face cross-street.
6. I-210 Foothill Fwy. - Install Class II buffered bike lanes beneath bridge. Install bike detection at Maple St. and Corson St.
7. Walnut St - Install bike detection for traffic signals.
8. North of Colorado Blvd. - Install median island with removable bollards that allow only northbound bicyclists.
Craig Avenue Bicycle Boulevard

1. **Orange Grove Blvd.** - Install median island on Orange Grove Blvd. to serve as median refuge for pedestrians and cyclists. Craig Ave. would have only right-in/right-out access.
2. **Villa St.** - Install roundabout.
3. Install Class II bike lanes beneath I-210 Foothill Fwy. bridge. Install bike detection at Maple St. and Corson St.
4. **Foothill Blvd.** - Install bike detection for traffic signals.
5. **Walnut St.** - Install roundabout.
6. **South of Colorado Blvd.** - Install median island with removable bollards that allow only southbound bicyclists.
7. **Del Mar Blvd.** - Install bike detection for traffic signals.

Map source: Google Maps
Holliston Avenue Bicycle Boulevard

1. Union St. - Install new traffic signal.
2. Colorado Blvd. - Install new traffic signal.
3. Prohibit parking on south side of Colorado Blvd. between Holliston Ave. and Hill Ave.
4. Green St. - Install new traffic signal.
5. Cordova St. - Install a roundabout.

Map source: Google Maps
North-South Corridor Construction Cost Estimates

Preliminary construction cost estimates for bicycle boulevard elements along north-south corridors are shown below.

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Construction Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Molino Avenue</td>
<td>$400,000</td>
</tr>
<tr>
<td>Wilson Avenue</td>
<td>$377,000</td>
</tr>
<tr>
<td>Sierra Bonita Avenue</td>
<td>$392,000</td>
</tr>
<tr>
<td>Craig Avenue</td>
<td>$354,000</td>
</tr>
<tr>
<td>Holliston Avenue</td>
<td>$1,342,725</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2,865,725</strong></td>
</tr>
</tbody>
</table>
**Roseways**

The City of Pasadena’s Bike Action Plan includes a Roseway network of low-speed, low-traffic-volume, neighborhood streets where people of all ages/abilities can comfortably bicycle and use other forms of active transportation.

The Roseway program will incorporate sharrows and wayfinding signage to make route-finding easy. Used in tandem, sharrows and wayfinding signage allow bicyclists to easily navigate along a bike-friendly route, connect with other bicycle routes, and more comfortably arrive at destinations of interest such as local parks, museums, business districts, schools, and transportation hubs (e.g., Gold Line Stations).

Some of the proposed Roseways are currently designated as Class III bikeways. Others have no existing bike designation. Bike Boulevard features, as outlined earlier in Chapter 5, will be used on these streets for traffic calming and traffic reduction.

**Stormwater Capture and Greenspace**

These streets will incorporate storm water capture elements such as the bioswale pictured to the left. Utilizing native plants, a bioswale is essentially a man-made wetland designed to divert rainwater from sewer and water treatment plants.

**East-West Cross-town Roseways**

1. Howard Route - North Arroyo to Oxford
2. Mountain-Paloma Route - Allen to Altadena Dr.
3. Villa-Sunnyslope Route - Altadena to Sunnyslope. Extends existing Villa Street bike lanes into residential neighborhood to N. Sunnyslope Ave.
4. San Pasqual Route - S San Gabriel Blvd to Madre St
North-South Cross-town Roseways

1. Arroyo Seco Route - California to S. Grand
2. Raymond Route - Class II Bike Lane connecting Art Center, Filmore/Del Mar Gold Line Stations, Old Pasadena, proposed Green St. protected bike lane.
3. Wilson-Catalina Route - Catalina from Howard to Claremont, jog east on Claremont then south on Wilson to East Orange Grove
4. Sierra Bonita-S. Bonnie Route - Existing Class III from E Washington Blvd to Orlando Rd.
5. Craig Route - Existing Class III from Mountain to San Pasqual

The following short linking routes are proposed to be used to connect the Roseways

- Claremont-Catalina Route (connecting Howard and Wilson Roseway)
- Wesley-Howard Route  (connecting Howard and Sierra Bonita Roseway)
- Hammond-Glen Route (connecting Marengo bike boulevard to NW Pasadena, John Muir HS)
- East Villa-Sunnyslope Route (facilitating east-west connection to the City of Sierra Madre and points eastward)

A map of the proposed Roseway Network is shown on the following page.
Chapter 6.0 – Project Prioritization

In July 2013, the DOT staff was given direction by the Municipal Services Committee with input from the bicycling community to take a bolder approach to the proposed bikeway installations within the City’s Bicycle Transportation Plan.

In order to better understand and communicate conditions for bicycling on the streets of Pasadena the staff conducted an analysis of Bicycle Stress Level and created a stress level map.

The map was shared with the community via a workshop convened to discuss how the draft plan could be modified to meet MSC direction and community concerns. During this process the stress Level Mapping used as visual means of defining plan goals and for focusing discussion on corridors

Integration of stress level map and bike plan illustrated limited efficiency of bike routes that do not provide space for cyclists on the street.

As a result of the process corridors identified for new protected routes were:

North/South: El Molino, Wilson, Sierra Bonita, and Craig

East/West: Washington, Orange Grove, Villa, Union, Green, Colorado and Del Mar

In addition, the community workshops identified the following key recommendations for moving forward with the enhanced plan:

- Refine network connectivity goals being to incorporate bike stress level in criteria
- Evaluate alternative designs
- Bicycle Boulevards (similar to Marengo) are effective for north/south routes
- Buffered or Protected Bike Lanes (Cycle Tracks) are more applicable for east/west routes
- Corridors being analyzed for feasibility
  - What is necessary to fit protected lanes on street?
  - What are the costs to construct/maintain?

In June, 2014 the results of the feasibility study were presented to the Bicycle Transportation Plan Working group for their review and input. In August City staff held an open house for the general public to present the overall plan and obtain feedback. And an open house was held for the Business Community in October.
### Table 6.1: Project Prioritization Summary

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Treatment</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cordova Street</td>
<td>Road Diet and Class II Bike Lanes (Arroyo Parkway to Hill Street).</td>
<td>Metro grant funding secured. To be completed by 2017</td>
</tr>
<tr>
<td>Union Street</td>
<td>Two-way Cycle Track (Arroyo Parkway to Hill Street)</td>
<td></td>
</tr>
<tr>
<td>Colorado Boulevard (East)</td>
<td>Road Diet and Class II Buffered Bike Lane (Holliston Avenue to East City Limit)</td>
<td></td>
</tr>
<tr>
<td>Bike Blvd</td>
<td>Wilson Avenue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Villa Street (Hill Avenue to Champlain Avenue)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Craig Avenue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sierra Bonita Avenue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>El Molino Avenue</td>
<td></td>
</tr>
<tr>
<td>Orange Grove Boulevard</td>
<td>Buffered Bike Lane</td>
<td></td>
</tr>
<tr>
<td>Washington Boulevard</td>
<td>Buffered Bike Lane (Forest Avenue to El Molino Avenue)</td>
<td></td>
</tr>
</tbody>
</table>

Adopted by City Council on August 17, 2015
Approved Bicycle Action Plan

Legend
Approved Priority Bicycle Infrastructure

- 2 Way Cycle Track
- Buffered Bike Lane
- Existing Bike Lane
- Existing Greenway
- Greenways
- Proposed Bike Lane

Metro Funds Awarded for Completion in 2019

Adopted by City Council on August 17, 2015

Adopted by City Council on August 17, 2015

Approved on August 17, 2015 per the General Plan Land Use and Mobility Element
Chapter 7.0 – Programmatic Recommendations

Of the League of American Bicyclists’ five E’s of bicycle planning, four are related to programs: encouragement, education, enforcement and evaluation. Programs should complement engineering improvements such as bike paths, lanes, and routes by providing the education and encouragement to ensure that the facilities get maximum utilization. Enforcement is vital for the safety of bicyclists and pedestrians. Evaluation is to ensure that the City learns and adapts to issues, based on observed results.

Encouragement

Safe Routes to School Program

The Safe Routes to School (SRTS) Program (www.saferoutesinfo.org) focuses on both education and infrastructure development with the goal of increasing the number of children who walk and bike to school on a regular basis. The program offers promotional and educational materials to help communities develop effective safe routes to school programs. The statewide Active Transportation Program (ATP) for funding bike and pedestrian programs includes a specific category for SRTS programs. These grants can be used for either infrastructure or educational programs that promote children walking and biking to school. One of the advantages of SRTS grants is that they require no local match. For more on funding opportunities, see Chapter 8.

Bike Month/Bike to Work - School Day/Bike Rallies

Bike month is a nationwide event held in May of each year. The intent of the month-long campaign is to increase awareness of bicycling, its benefits and impact, as well as encourage bicycling across all segments of the population. The City of Pasadena has an active campaign each May that includes not only a bike-to-work day, but a number of events held throughout the month. For more information on National Bike Month, go to the League of American Bicyclists website,
www.bikeleague.org/bikemonth. For a list of events in Pasadena, see www.cityofpasadena.net.

**Employer-Based Encouragement Programs**

Working in conjunction with the City of Pasadena through the voluntary non-profit Pasadena Transportation Management Association, many companies, the City of Pasadena, and local universities work together to share ideas and strategies for developing and implementing rideshare programs that may include transit, bicycling, walking, strategies, and incentives. For more information on the program, go to http://cityofpasadena.net/Transportation/Transportation_Management_Association/.

A useful resource is an article published in Inc Magazine in 2010 entitled "How to Encourage Your Employees to Bike to Work". It has a checklist showing what companies (and government agencies) can do to encourage their employees to bike to work.

**Launch Party for New Bikeways**

When a new bikeway is built, some residents will become aware of it and use it, while others may not realize that they have improved bikeway options available.

Conducting opening events where you invite local dignitaries, school groups, bike clubs, and local businesses to participate is a great way to help raise early awareness and the use of new facilities.

Elected and school officials are often eager to be involved in these types of events, as they can be used to highlight programs they have encouraged and championed in the community.
Open Streets Events

Open streets events have many names: Sunday Parkways, Ciclovias, Summer Streets, and Sunday Streets. These events have become increasingly popular across the County. In Southern California, these events have been hosted from Los Angeles to Santa Ana, Garden Grove, and San Diego. Los Angeles’s events routinely attract over 100,000 participants and have encouraged large numbers of people who do not regularly ride a bike to come out and enjoy car-free city streets.

The City of Pasadena received an Open Streets Metro grant in 2014 and the event is planned for 2015.

One of the many benefits of these events is highlighting the businesses along the route and showing people how easy it is to dine and shop by bike. A recent study from UCLA, entitled "Economic Impacts of CicLAvia: Study Finds Gain to Local Businesses" discusses the significant economic impact of these events.

For a guide to conducting an open streets event, go to the Alliance for Biking and Walking website: www.bikewalkalliance.org/resources/reports/open-streets-guide.

Bicycle Friendly Community

The League of American Bicyclists recognizes communities that are good, friendly, safe places to ride your bike and cities that welcome and encourage bicyclists and bicycling. According to the league’s website, "A BFC welcomes bicyclists by providing safe accommodations for bicycling and encouraging people to bike for transportation and recreation. Making bicycling safe and convenient are keys to improving public health, reducing traffic congestion, improving air quality and improving quality of life."

Being recognized as a bike friendly community is becoming more and more important in attracting and retaining new residents and businesses. People of all ages, ranging from school age, to newly working adults, to aging baby boomers, are looking for cities that offer an active lifestyle and provide an opportunity to choose to get out of their vehicle and use alternative forms of transportation, including bicycling. Businesses are looking to locate and grow in cities that offer a lifestyle that will attract new employees and customers; one of their important criteria has become having a bike- (and pedestrian-) friendly culture.
In LA County, the cities of Claremont, Long Beach, and Los Angeles have achieved recognition as Bike Friendly Communities. The California Institute of Technology has received recognition as a Bike Friendly University. Nationwide, over 300 communities are recognized as being bike friendly.

For information on the advantages of being recognized as a bike friendly community and on obtaining bike friendly status, see the League of American Bicyclists website, www.bikeleague.org/bfa.

**Education**

**Bicycle Resource Website**

Educating both bicycles and motorists is an important aspect of being bike friendly. Bicyclists need to understand safe bicycling behavior and the basics of bicycle maintenance. They need to understand how to deal with traffic as well as pedestrians and other bicyclists. Motorists need to understand that bicyclists have the same rights that vehicle drivers have. Today, they need to understand safety rules, such as the 3-foot law.

The City of Pasadena has a webpage dedicated to bicycling in the city that includes maps, a rules of the road brochure, and a video entitled Pasadena: Geared for Bikes (http://cityofpasadena.net/transportation/Bicycling/).

Recommended improvements to the resource website include:

- Bike events calendar including promoting all new bike-related projects.
- Interactive bike map including bike racks, bike storage, and links to mass transit.
- Bicycling tips including information on how to:
  - Use Pasadena’s bike infrastructure, including bike boulevards, cycle tracks, and contraflow lanes.
  - Conduct bike maintenance.
  - Carry items using baskets and panniers.
  - Properly lock a bike.
  - Ride in the rain with help from fenders and rain gear.
- Tips on the importance of bicycle lights and reflectors.
- Bikeway maintenance and repair phone number.
- Bicycle traffic skills classes information.
- Spanish version.
Marketing Concurrent with New Facilities
Education about new facilities can help notify and educate both cyclists and motorists about newly installed facilities.

The City of Pasadena has a history of marketing using local and regional events to promote bicycling in the City of Pasadena. Over the past few years, the Amgen Tour of California has had a finish of the race stages in the City, which has greatly helped promote the City as an active living destination and as a great place to live, work, and bike. These events could be used to help promote new bike facilities in Pasadena.

Social media and the web are also important tools for marketing new facilities. Pasadena was an earlier adopter of web technologies to share what the city is doing in terms of developing bike infrastructure including producing a video entitled Pasadena: geared for bikes in 2006. It is a video that is still worth watching.

Bicycle Safety and Share the Road Campaigns
A marketing campaign that highlights bicyclists and pedestrian safety is an important part of creating public awareness.

Many cities and county agencies have instituted bike safety and awareness campaigns. The City of Long Beach, through a Metro grant, conducted a three-year-long Share our Streets campaign that was aimed at both bicyclists and motorists.
Metro's recent Every Lane is a Bike Lane campaign placed billboards, bus ads, and PSA's across the county.

The City of Pasadena's yearly Bike Month Campaign has been effective at conveying a safety message for both motorists and bicyclists.

Funding sources for similar campaigns that can be conducted at the city level are discussed in Chapter 8.

**Adult Bicycling Traffic Skills Classes**

Most adult bicyclists have not received any formal training on safe bicycling practices, the rules of the road, and bicycle handling skills. If they received any bike education at all, it was most likely as a child. Many adults who have attempted to return to bicycling feel uncomfortable, even while riding in their own neighborhoods.

Adult classes offered by League of American Bicyclists certified instructors are available by contacting www.bikeleague.org. These courses combine some short lectures about riding skills and simple bike maintenance. More importantly, they offer the bicyclist the opportunity to learn new skills or refresh old skills in a safe environment, accompanied by a certified instructor.

CICLE, an LA-based non-profit advocacy group, routinely offers Learn-to-Ride courses in the Pasadena area. A list of these courses can be found at http://www.cicle.org/events.

**Route 004 : Silver Lake to Downtown**

Meet Thursdays at 8:00am at Caffe Vite on Sunset near Hillhurst and the Vista Theater. This route uses bike lanes on Sunset Boulevard, Rampart Boulevard and 7th Street to take us from Los Feliz/Silverlake past beautiful MacArthur Park to Downtown Los Angeles, ending at 7th and Grand where you can refuel at Bottega Louie if the ride leaves you with a sweet tooth. Majority of the route is on bike lanes, but we will share the road with automobiles for brief sections. We’ll keep it low-stress and low-sweat; this is more of a trolley than high-speed rail. Even still, we’ll make the trip in about 30 minutes!

Bike Trains for adults can help new bike commuters feel safe as they explore bike commuting.

A recent innovation in LA has been the creation of "bike trains" for adults. Similar to a physical train, a bike train runs on a given schedule over a given route. Bike trains have been used for several years to aid children going to and from school. More recently, a similar concept has been implemented for adults in LA. There are currently eight routes in LA. For each of these routes, a group will meet one or two days per week. Each ride has a conductor who guides the group along the route as well as provides any assistance that is necessary. For more information on bike trains for adults, see http://labiketrains.com/.
Youth Bicycle Skills Classes

School-based bicycle education programs educate students about the rules of the road and safe bicycling skills. Safe routes to school (SRTS) educational grants are available for these programs, which are typically offered for upper elementary and middle school-age children. Funding strategies for these programs is discussed in Chapter 8.

Bike trains and walking school buses, where parents or staff members guide students to and from school over a set route at a set time, are being added in more and more schools across Southern California. In some cases, these are formal programs that are sponsored by the school. In other cases, the programs are organized and coordinated informally by parents who want the children to have the opportunity to walk and/or bike to school. These programs allow children with different skill levels to interact and provide an alternative to the classroom or school yard-based training.

Enforcement

Bicycle Patrol

Police bicycle patrols not only increase the mobility of officers in dense areas but also offer the opportunity for officers to interact with bicyclists in a non-confrontational, low key manner. Bicycle patrol officers know both the law as well as the challenges faced by bicyclists on a day-to-day basis. These officers can demonstrate and explain safe riding techniques as well as provide enforcement, if appropriate.
Speed Feedback Signs and Rest in Red Signals

Vehicle speeds greatly affect the severity of the crash for the bicyclist or pedestrian. The adjacent figure, from the SRTS guide to slowing down traffic, shows that at a speed of 20 MPH, the percentage of pedestrians being killed in a crash is under 5%, but at a speed of 40 MPH, the percentage is 85%. Speed feedback signs have been shown to be an effective means of making drivers more aware of their speeds and encouraging them to reduce their speeds.

A relatively new traffic engineering tool involves setting traffic lights for when vehicles approach a signal over the legal speed limit, the light turns red. Once the vehicle slows to below the limit, it will turn green, allowing the vehicle to proceed. The City of Long Beach has recently installed these with success at two locations. A video showing how this works can be seen at www.youtube.com/watch?v=x5zhziy7TIA.

Targeted Enforcement

Targeted enforcement uses the focused efforts of police officers at known locations where compliance is low. According to the Federal Highway Traffic Administration (FHWA) these programs are most effective when crash, citations, or other sources of information suggest that the site is unusually hazardous due to illegal driving practices.

According to the FHWA, "The advantage of targeted enforcement is that it can be implemented in a very short period of time and identified problems can be addressed almost immediately. The disadvantage is that the effectiveness is usually measured in terms of days and perhaps weeks, rather than months or years.” For more information on targeted enforcement see: safety.fhwa.dot.gov/intersection/resources/int safestratbro/ugl.cfm.

Adult Bicycle Education Diversion Program

A few cities in the State of California have adopted adult bicycle diversion programs. In these programs, when bicyclists are given a traffic ticket, they are provided the opportunity to take a bike education program rather than pay the full price of the ticket. At the present time, Huntington Beach has a program for teens; Marin County has an adult program. Due to potential conflicts with state regulations, these programs have not been widely adopted across the state.
Evaluation
Evaluation programs measure and evaluate the impact of projects, policies, and programs.

Surveys
Surveys are useful for eliciting infrastructural deficiency and attitudinal information. These may be intercept surveys conducted in the field during events or in locations such as bike shops. They may also be conducted online. For this report, both online and face-to-face surveys were used to collect behavioral information and indications of preferred routes and to determine corridor rankings.

Counts
Bike counts are an important part of any bike program. As the National Bicycle and Pedestrian Documentation Project says, "One of the greatest challenges facing the bicycle and pedestrian field is the lack of documentation on usage and demand. Without accurate and consistent demand figures, it is difficult to measure the impacts of investments in these modes." Standard forms and instructions for bike counts can be downloaded from the National Bicycle and Pedestrian Documentation Project website (www.bikepeddocumentation.org).

In addition to yearly counts, counts can be done on a before-and-after basis to show the impact of a specific project. Most projects that are funded by government grants routinely incorporate these counts into the project plans. As of the 2015 Metro Call for Projects, before-and-after counts are required for each Metro grant-funded project.

Recently, several cities have started to use automated counters that are useful in collecting long-term counts, establishing daily, weekly, or monthly variations, and almost always requiring fewer person hours (National Bicycle And Pedestrian Documentation Project: Automatic Count Technologies).
Several other cities, including Portland, OR, Minneapolis, MN, and Arlington, VA, are installing counters such as the one shown on the right. These counters not only keep track of the number of bicyclists, but visibly display the results on a real-time basis.

Automated counters are an important element in helping determine the effectiveness of bike programs. With their effectiveness and efficiency in data collection and their reasonable costs ($2,000-$3,000 or less per installation), we recommend incorporating these devices in most future projects.

A recent project sponsored jointly by SCAG and the Los Angeles County MTA is designed to help compile, organize, make accessible, and create a standard for bike count data in Southern California. As a result of the project, a clearinghouse for bike count data has been created and is being maintained by UCLA. The project includes information on best practices and forms for bike counts, a literature review, and a white paper on bike counts, travel demand modeling, and benefits estimation. For more information on the Bike Count Clearinghouse, see www.bikecounts.luskin.ucla.edu.

Pasadena Regional Bike Share Implementation

The City of Pasadena has been identified by the Los Angeles County Metropolitan Transportation Authority (Metro) to participate in the development and implementation of a Regional Bike Share Program for Los Angeles County. Pasadena was selected because of the previous planning efforts to identify how best to implement a Bike Share program in the city’s core.

The first phase of the Pasadena Bike Share Program envisions providing approximately 400 bicycles at 30 bike share stations located throughout the center of Pasadena and at four Metro Gold Line stations. The attached map shows the approximate location of the planned bike share stations. The program will be implemented in stages, a pilot with 12 proposed locations centered in the downtown area, Phase I, which expands the system to the east and Phase II, which expands the system to the north and west. Future phases would expand the network of bike share stations to other commercial, high activity areas and Metro Stations throughout the City.
Bike share is a program designed for point-to-point short trips using a shared use fleet of bicycles strategically located at docking stations throughout a well-defined project area and within easy access to each other. Bike share programs foster increased environmental responsibility by providing a convenient non-motorized option for making short trips, normalize bicycling as a form of urban mobility, and provide a means to encourage more active life styles. As the countywide transportation agency responsible for transportation policies, programs and projects, Metro considers bike share to be a key first-last mile solution. Furthermore, when connected by Metro’s transit system, bike share can also increase the station catchment area and encourage transit ridership.

Metro’s role has been to facilitate Bike Share implementation, including providing funding to local jurisdictions through the Call for Projects and coordinating regional compatibility efforts such as addressing technology and software issues. Metro’s 2012 Bike Share Concept Report used a number of key criteria to identify where within Los Angeles County Bike Share would be most successful. Each of these cities has also acknowledged the importance of a seamless regional system.

Map showing proposed locations of the Pilot, Phase I and Phase II Bike Share kiosks
Chapter 8.0 - Funding

The federal and state government, along with regional and local governmental agencies, spend billions of dollars each year to fund transportation programs. These programs range from major highway and bridge projects to local street repair. Only a small percentage of these dollars is used for planning, developing, and constructing bike-related projects and programs. However, even though the percentage is small, tens of millions of dollars are made available on a yearly basis for funding active transportation projects for both biking and walking. While the competition for these funds is fierce, a well-crafted application to fund needed infrastructure and educational programs stands a good chance of being funded.

A major source of funding for bike and pedestrian projects is the federally funded Moving Ahead for Progress in the 21st Century (MAP-21) Program. The Act was signed into law on July 6, 2012. The bill, which was reauthorized for FY 2014-2015, provides $25.2 billion dollars nationwide of which just under $2.4 billion is allocated to California.

Many federal and state grants require some level of matching funds. As a result, most programs rely on more than one source of money. Developing a strategy to put together all of the required funds is important, as grants will not be awarded without specifying the sources of matching funds. The strategy may include matching a state grant with a federal grant, or the use of local or regional funds.

Many cities have hired a bike coordinator to not only help develop and oversee an effective bike program, but also to coordinate their funding efforts. These positions, which now often use the term, “active transportation”, to include both bike and walking, can help cities leverage their existing investments in street repair and maintenance as well as local returns from gas tax and developer fees. Cities such as Long Beach have brought in over $20 million dollars in bike and pedestrian-related funds over the past 10 years. Recently, Orange County cities were awarded over $14 million dollars to fund bike and pedestrian projects during FY 2015-2016. An active transportation coordinator can help your city obtain a portion of these active transportation funds.

For additional information, SCAG, OCTA, and Safe Routes to School all have resources that can be used to help determine the most effective strategy to obtain federal, state, and regional funds for active transportation projects.

To help agencies determine funding sources for projects along the proposed corridors, a summary by source type is provided with details regarding types of eligible projects, match requirements, and use.

Regional & Local Programs

Metro Call for Projects

Every other year, Metro accepts Call for Projects applications in eight modal categories, including bicycling and pedestrian improvements. Local jurisdictions, transit operators, and other public agencies are encouraged to submit applications proposing projects for funding.
The funding has a complete streets focus. As defined by Metro, a Complete Streets focus entails "comprehensive, integrated transportation networks with infrastructure and design that provides safe and convenient travel for all users including public transit users and operations, pedestrians, bicyclists, children, persons with disabilities, seniors, motorists, and movers of commercial goods (Metro Call for Projects 2014 presentation). Metro staff ranks eligible projects and presents preliminary scores to Metro’s Technical Advisory Committee (TAC) and the Metro Board of Directors for review. Upon approval, the TIP is developed and formally transmitted to the regional and state transportation planning agencies. The TIP then becomes part of the five-year program of projects scheduled for implementation in Los Angeles County.

A condition for funding is the collection of before- and after-bicycle and pedestrian counts. Project sponsors must comply with the California Complete Streets Act of 2008 or adopt a resolution supporting Complete Streets by the first programming year. A new evaluation criteria worth up to five points gives priority to projects providing first/last mile access to regional transit systems.

**Developer Impact Fees**

Under California law, developers can be charged a one-time fee to offset impacts of their project. Traffic mitigation fees, infrastructure improvement fees, and fees for improving sewer and water systems to accommodate new development are common examples of development impact fees. "Exaction" is a broader term for impact fees, dedications of land, and in-lieu fees that are imposed to fund public improvements necessitated by the proposed development. School facility fees, park land dedication requirements, and road dedications and improvements are all examples of exactions.

In order for these impact fees to be imposed, the responsible agency must:

1. Identify the purpose to which the fee is put.
2. Demonstrate a reasonable relationship between the fee and purpose for which it is charged.
3. Identify all sources and amounts of funding anticipated to be used to finance the incomplete improvements.
4. Designate the approximate dates on which the above funding is expected to be deposited into the appropriate account or fund.

For more on the Developer Impact Fee program, see the California Natural Resources Agency website, www.ceres.ca.gov/planning/financing/chap4.html.
San Francisco has used this fee to fund transportation projects ranging from buses and street cars to bike facilities. As of 2012, the development fee had generated over $100 million dollars to support transit-related projects. To find out more about the San Francisco program, see http://www.metroplanning.org/news/newsletters/173.

**Transportation Impact Fee Funding for Bicycle Infrastructure**

Through the development of the General Plan Mobility Element Update, Department of Transportation staff introduced the concept of adopting a new set of transportation performance measures that better align with the goals and objectives and policies being developed for transportation and mobility. With the expanded emphasis on sustainability and a continued focus on livability, the new performance measures would have the ability to assist in determining how to balance trade-offs among travel modes and among the mobility needs of different members of the community.

After several months of community outreach and review by the City’s Planning Commission and Transportation Advisory Commission the Pasadena City Council adopted a robust set of transportation performance measures which add depth and balance to the existing measures of vehicle capacity and delay while adding measures to evaluate impact on the non-motorized modes as well as transit. The new measures also align with the sustainability goals of the General Plan by evaluating the “efficiency” of projects by analyzing the per capita length and number of trips associated with changes in land use. The five transportation performance measures with CEQA thresholds are:

- Vehicle Miles Traveled Per Capita
- Proximity and Quality of the Transit Network
- Pedestrian Accessibility
- Vehicle Trips Per Capita
- Proximity and Quality of the Bicycle Network

Pasadena’s new metrics and thresholds will guide system-wide bike and local transit improvements in the General Plan and guide pedestrian improvements in Specific Plan Updates. The bike and transit improvements identified will be included in a nexus study for the update of the Traffic Reduction and Transportation Improvement Fee (TRTIF) following the adoption of the Land Use and Mobility Element updates.

**Federal Programs**

**Moving Ahead for Progress in the Twenty-First Century (MAP-21)**

Under MAP-21, bike programs are primarily funded under the category, Transportation Alternatives (TA). This program is funded at a level equal to two percent of the total of all MAP-21 authorized federal-aid highway and highway research funds. Eligible activities include:

- Transportation alternatives.
- Recreational trails program.
- Safe Routes to School program.
- Planning, designing, or constructing roadways with the right-of-way of former interstate routes for other divided highways.
The MAP-21 funds are distributed to the individual states for allocation. In California, these funds are administered through the Active Transportation Program (ATP). Federal guidelines stipulate that 50 percent of TA funds be distributed to areas, based on population. States and metropolitan planning organizations (MPOs) for urbanized areas with more than 200,000 people will conduct a competitive application process for use of the funds; eligible applicants include local governments, transit agencies, and school districts. Options are included to allow states flexibility in the use of these funds. The California ATP process is outlined below under State Programs.

**Partnership for Sustainable Communities**
Partnership for Sustainable Communities is an interagency partnership between HUD, DOT, and the EPA.

- HUD offers funding opportunities to help communities realize their own visions for building more livable, walkable, and environmentally sustainable regions.
- DOT offers funding opportunities to support more livable, walkable communities.
- EPA offers grants to support activities that improve the quality of development and protect human health and the environment.

Grants are offered periodically and can be found at www.sustainablecommunities.gov/partnership-resources.

**Department of the Interior – Land and Water Conservation Fund (LWCF)**
The LWCF state assistance program provides matching grants to help states and local communities protect parks and recreation resources. This 50:50 matching program is the primary federal investment tool to ensure that families have easy access to parks and open space, hiking and riding trails, and neighborhood recreation facilities. The program is administered through the National Park Service. Grants are allocated on an as-requested basis. The state prioritizes and selects eligible projects for LWCF assistance. More information can be obtained from http://www.nps.gov/ncrc/programs/lwcf/manual/lwcf.pdf.

**Rivers, Trails, and Conservation Assistance Program (RTCA)**
This program, funded through the National Park Service, provides technical assistance in the form of visioning, program planning, goal setting, and community outreach. In the past, these grants have been used to establish high-level plans for the Santa River Trail and the LA River. Project proposals are due August 1st of each year. For more information on these grants, see www.nps.gov/orgs/rtca/apply.htm.

**Community Transformation Grants**
The Center for Disease Control (CDC), through their Community Transformation Grant (CTG) program, offers grants designed to "create healthier communities by making healthy living easier and more affordable where people work, live, learn and play." Active living is one focus of the grant.
program. An example project is promoting improvements in sidewalks and street lighting to make it safe and easy for people to walk and ride bikes. Class I and Class IV bike facilities are types of bike infrastructure that may be supported by the CTG program. For more information on these grants, see www.cdc.gov/nccdphp/dch/programs/communitytransformation/funds/index.htm

**State Programs**

**Active Transportation Program (ATP)**

California’s Active Transportation Program was created in 2013 to encourage the increased use of active modes of transportation, such as biking and walking.

According to the California Transportation Commission (www.catc.ca.gov/programs/ATP.htm):

The ATP consolidates various transportation programs, including the federal Transportation Alternatives Program, state Bicycle Transportation Account, and federal and state Safe Routes to School programs into a single program to:

- Increase the proportion of biking and walking trips.
- Increase safety for non-motorized users.
- Increase mobility for non-motorized users.
- Advance the efforts of regional agencies to achieve greenhouse gas reduction goals.
- Enhance public health, including the reduction of childhood obesity through the use of projects eligible for Safe Routes to School program funding.
- Ensure disadvantaged communities fully share in program benefits (25% of program).
- Provide a broad spectrum of projects to benefit many types of active transportation users.

Program funding is segregated into three components and is distributed as follows:

- 50% to the state for a statewide competitive program.
- 10% to small urban and rural regions with populations of 200,000 or less for the small urban and rural area competitive program.
- 40% to Metropolitan Planning Organizations (MPO) in urban areas with populations greater than 200,000 for the large urbanized area competitive program.

For the Orange County area, the ATP is overseen by the Southern California Association of Governments (SCAG). For Fiscal Years 2014-15 and 2015-16, the area of Southern California governed by SCAG received a total of $74.3 million for funding bike and pedestrian projects of which about 25% ($18 million) was allocated to disadvantaged communities. Of the total funding available in the SCAG

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1 ATP guidelines prescribe that no less than 25% of overall program funds benefit disadvantaged communities, which are defined as having a median household income less than 80% of the statewide median, or among the most disadvantaged 10% in the state (according to the latest version of the CA Communities Environmental Health Screening Tool), or at least 75% of the public school students in the project area are eligible to receive free or reduced meals under the National School Lunch Program.
region, 17 projects were funded in Orange County for a total of $13 million. The grants ranged from a low of $126,000 to a maximum of $2.6 million with a median of $475,000. Fifteen of the grants in Orange County were for infrastructure development and two were for planning.

For ATP Cycle I, matching funds of at least 11.47% were required for all projects except for projects predominantly benefiting a disadvantaged community, stand-alone non-infrastructure projects (for example, community safety and bike education programs), and Safe Routes to School projects. The source of the matching funds was any combination of local, private, state or federal funds. Matching funds were required to be expended in the same project phase (permits and environmental studies; plans, specifications, and estimates; right-of-way capital outlay; support for right-of-way acquisition; construction capital outlay; and construction engineering) as the Active Transportation Program funding. The matching requirements for ATP Cycle II are subject to change pending finalization of the program's guidelines.

For fiscal year 2016-17 and 2017-18, the funding available for the SCAG region should be similar. The next round of grant submittals will be due in March 2015.

The most current information on the ATP program can be found at www.catc.ca.gov/programs/ATP.htm

**AB 2766**

Since 1991, local governments have received AB 2766 funds to implement programs that reduce air pollution from motor vehicles. AB 2766 specifies that a Motor Vehicle Registration fee surcharge of $6 per vehicle be collected by the Department of Motor Vehicles and given to the South Coast Air Quality Management District (SCAQMD) for disbursement. Of this fee, 40% goes to local governments. The local funds are designed to help cities meet requirements of the federal and state Clean Air Act.

The AB 2766 guidelines indicate that the design, development, and installation of bicycle routes, bikeways/bike paths, and bike trail improvements are eligible for AB 2766 funding. The guidelines go on to specify:

*Bike lanes, paths or routes are most effective when they reduce commute and non-recreational auto travel by encouraging and increasing the use of bicycles. A bike path must eliminate and/or decrease single commuter vehicle trips and miles traveled, while improving safety and accessibility. Bike paths strictly used for recreational activities will not qualify as an eligible project because there are no motor vehicle emission reductions or vehicular commuter trips reduced or eliminated.*

Other bike facilities that promote and facilitate the increased use of non-motorized transit are also eligible. This would include bike racks, lockers, signals, and bus racks; and the installation of bike storage units with park and ride facilities or at the end of bicycle trails. In addition, the purchase of electric or standard bicycles in lieu of gas powered vehicles for police officers, community service personnel, and community residents is eligible.
For more on AB 2766 funding, see www.aqmd.gov/docs/default-source/transportation/ab2766-motor-vehicle-subvention-fund-program/ab2766-resource-guide.pdf?sfvrsn=2.

**Climate Ready Grant Program – California State Coastal Conservancy**

The purpose of the Climate Ready grant program is to help advance the planning and implementation of on-the-ground actions that will lessen the impacts of climate change on California’s coastal resources. The Coastal Conservancy fund may include trails and other public access to and along the coast.

The stages of a project generally funded by the Coastal Conservancy include pre-project feasibility studies, property acquisition, planning (for large areas or specific sites) and design, environmental review, construction, monitoring, and, in limited circumstances, maintenance. For more information, see www.scc.ca.gov/category/grants/.

**Greenhouse Gas Reduction Fund: Affordable Housing and Sustainable Communities program**

The auction proceeds from the State’s Cap and Trade Program are appropriated in the Greenhouse Gas Reduction Fund. A minimum of 50% of the funds must be used for affordable housing. A portion of these funds will be made available for bicycle-related projects on a competitive basis through the Strategic Growth Council’s Affordable Housing and Sustainable Communities program (AHSC). Eligible projects will include those that result in a reduction of greenhouse gas emissions by increasing accessibility of housing, employment centers, and key destinations via low-carbon transportation options (walking, biking, and transit), resulting in fewer vehicle miles traveled (commonly known as transit-oriented development). At least 50% of these funds will be targeted at disadvantaged communities. For updates on the program, see http://sgc.ca.gov/index.php.

**Private Programs**

There are a variety of private sources that may be tapped for funding bike-related programs. Some of the more prominent sources are discussed below.

**People-for-Bikes Grant Program**

Formerly known as the Bikes Belong Program, People-for-Bikes (www.peopleforbikes.org) is a bike industry-sponsored non-profit that provides community grants as well as support for advocacy. The People-for-Bikes Community Grant Program provides funding for important and influential projects that leverage federal funding and build momentum for bicycling in communities across the U.S. These projects include bike paths and rail trails, as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle advocacy initiatives.

Since 1999, the program has awarded 272 grants to non-profit organizations and local governments in 49 states and the District of Columbia. Their investments total nearly $2.5 million and have leveraged $650 million in public and private funding. For more information on the grant program, see www.peopleforbikes.org/pages/community-grants.
Of particular note for Pasadena, given the focus on projects with Cycle Tracks, People-for-Bikes also sponsor the Green Lane Project, which is aimed at helping cities build better bike lanes to create low-stress streets. The program focuses on protected bike lanes, which are on-street lanes separated from traffic by curbs, planters, parked cars, or posts. The Green Lane Project hosts hands-on workshops and study tours for city leaders, provides technical and strategic assistance, and delivers targeted grants designed to get protected bike lanes on the ground. For more information on the Green Lane Project, including an excellent video on protected bike lanes, see http://www.peopleforbikes.org/green-lane-project.

**Kaiser Permanente Healthy Eating Active Living (HEAL) Program**

For over 60 years, Kaiser Permanente has offered grants to charitable and community-based organizations. According to the Kaiser Permanente website:

> Our Community Health Initiatives take a prevention-driven approach to health, supporting policies and environmental changes that promote healthy eating and active living (often referred to as HEAL) in neighborhoods, schools and workplaces. Our work also addresses community economic development, environmental sustainability and neighborhood safety—key factors in promoting healthy communities. We work with community-based organizations and residents to translate their vision for healthy communities into visible, concrete changes—and ultimately healthier neighborhoods.

Cities such as Long Beach have used HEAL grants as part of their bike program neighborhood outreach and education effort. The Long Beach grants were obtained through their Public Health Department.

For more on Kaiser Permanente grants, see http://share.kaiserpermanente.org/article/grants-overview.
Chapter 9.0 – Next Steps

The City of Pasadena, working with residents and businesses, will aggressively pursue the goals and actions outlined in this document. The City will build on the policies and the program recommendations to make Pasadena a city where people circulate without a car, where an increasing number commute by bike, where more people use bikes for utilitarian trips, fitness and recreation, and where significant business and economic benefits are provided.

To accomplish this, the City will obtain funding for building and maintaining the planned city wide network of bikeways. The network as implemented will be designed so that every neighborhood is within 1/4 mile of effective N-S and E-W bicycling routes. The network will be designed to meet the needs of all bicyclists, ranging from children and the elderly to the most experienced.

We will recognize that all streets need to accommodate bicyclists. We will calm traffic on Pasadena Streets to make them safer for all users. We will work with the schools to implement safe routes to schools programs. The City will provide safety education for both motorists and bicyclists and provide information on the City’s website regarding safe bicycle riding. The City’s Police Department will ensure that traffic laws are enforced and that people are educated as to traffic laws related to bicycling.

This action plan will be completed by 2030. A tiered priority project list will be created, maintained and tracked to ensure that the City is on target to meet this 2030 deadline. The City will meet regularly with the stakeholders to share progress and outline near term actions. The City will aggressively pursue all federal, state and local funding options and leverage funds to maximize matching opportunities. The city will piggyback bikeway projects onto new development, road resurfacing and restriping projects.