CITYWIDE BIKEWAY
The "Lessons from the Green Lanes" study shows that bicyclists feel *safer*, and are thus more likely to use the facility, when there is increased space between them and motor vehicles.

Source: Portland State University, TREC research paper
LEVEL OF TRAFFIC STRESS

City of Pasadena
Level of Traffic Stress on
Existing and Proposed On-Street Bike Routes

Bicycle Comfort Level
- HIGH COMFORT
- MEDIUM COMFORT
- LOW COMFORT
- EXTREMELY LOW COMFORT
- NON-BIKE ROUTE
## CYCLE TRACK vs. BUFFERED

- **Peak hour and daily capacity**
- **# of travel lanes**
- **Parking loss**
- **Cost estimation**

### Washington Blvd from Forest Ave to El Molino Ave (1.5 Miles)

<table>
<thead>
<tr>
<th></th>
<th>Peak Hour Volume (Veh)</th>
<th>Vehicular Capacity (Veh/Hr)</th>
<th>Traffic Lanes</th>
<th>Daily Hours Over Capacity</th>
<th>Parking</th>
<th>Total Parking Spaces</th>
<th>Total Parking Loss</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing</strong></td>
<td>1,455</td>
<td>3,200</td>
<td>4</td>
<td>0</td>
<td>Both Sides</td>
<td>565</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Cycle Track</strong></td>
<td>1,455</td>
<td>1,600</td>
<td>2</td>
<td>0*</td>
<td>Both Sides</td>
<td>270</td>
<td>295</td>
<td>$1,108,000</td>
</tr>
<tr>
<td><strong>Buffered Bike Lane</strong></td>
<td>1,455</td>
<td>3,200</td>
<td>4</td>
<td>0</td>
<td>None</td>
<td>207</td>
<td>358</td>
<td>$285,000</td>
</tr>
</tbody>
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CYCLE TRACK vs. BUFFERED

Washington Blvd from Forest Ave to El Molino Ave (1.5 Miles)

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<td>0</td>
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<td>$285,000</td>
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</table>
Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers (e.g. planters, parking, median).

Long Beach Downtown 3rd and Broadway

Rosemead Blvd Cycle Track in Temple City
CONTRAFLOW & TWO-WAY CYCLE TRACK

Rendering for Contraflow Cycle Track for Long Beach

Two-way Cycle Track in Redondo Beach
Table of Contents

FOREWORD

1.0 INTRODUCTION
   Planning Considerations

2.0 CLASS IV BIKEWAY (SEPARATED BIKEWAY)
   2.1 Community Context
   2.2 Crossing Points: Intersections, Alleys and Driveways
       Intersections
       Alleys and Driveways
   2.3 Loading and Unloading Zones and Valet Parking

3.0 CLASS IV BIKEWAY (SEPARATED BIKEWAY) DESIGN CRITERIA
   3.1 Separations
   3.2 Separation Width
   3.3 Separated Bikeway Width
   3.4 Separated Bikeway Approach Tapers
   3.5 Raised Separated Bikeways

4.0 CLASS IV BIKEWAY (SEPARATED BIKEWAY) MAINTENANCE

5.0 CLASS IV BIKEWAY (SEPARATED BIKEWAY) TEMPORARY WORK ZONES
CONCEPT DESIGN OF TWO-WAY CYCLE TRACK

Previous Design by City of Pasadena - Union Street

Rending is credited to Urban Advantage
PASADENA TWO-WAY CYCLE

UNION STREET - Two-way Cycle Track (Arroyo Parkway to Hill Street)
HOLLISTON AVENUE - Bike Boulevard (Union Street to Cordova Street)
Metro Call for Project (CEMAQ)

ATP Grant Cycle 3

Federal Funds Total for Union Street Two-way Cycle Track: $5,799,170
TRAFFIC ENGINEERING

1. SIGNAL MODIFICATIONS

2. NEW SIGNALS ON UNION STREET

3. NEW SIGNALS ON HOLLISTON
BUFFERED BIKE LAINES

Buffered Bike Lane in New York

Buffered Bike Lane in Pasadena

Buffered Bike Lane in Australia

Buffered Bike Lane along South Morongo, Pasadena
GREENWAYS – BIKE BOULEVARD

- Shared roads with some preferential treatment for bicycles
- Traffic calming
- Quieter and more attractive
1. Atchison St: Remove N-S stop signs, install median island chokers.

2. Elizabeth St.: Remove N-S stop signs, install median island chokers.

3. Washington Blvd.: Insert a southbound bike lane, similar to the Marengo Bike Boulevard.

4. Claremont St.: Remove N-S stop signs.

5. Orange Grove Blvd.: Install choker 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: Install Class II bike lanes on bridge. Provide for bike detection at signals at Maple St and Corson St.

Source: Google Maps

GREENWAYS – BIKE

El Molino Avenue
## EastWest Corridor Cost Estimation

<table>
<thead>
<tr>
<th>Corridor</th>
<th>From</th>
<th>To</th>
<th>Cycle Track</th>
<th>Buffered Bike Lane</th>
<th>Two-Way Cycle Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Blvd.</td>
<td>Forest Ave.</td>
<td>El Molino Ave.</td>
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<td>Wilson Ave.</td>
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<td>Villa St.</td>
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<td>Union St.</td>
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<td>Garfield Ave.</td>
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<td>$1,989,000</td>
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<td>Lake Ave.</td>
<td>Hill Ave.</td>
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<td>Colorado Blvd.</td>
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<td>Northup Ave.</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$3,124,000</strong></td>
<td><strong>$1,563,000</strong></td>
<td><strong>$4,665,000</strong></td>
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NORTH-SOUTH CORRIDOR

<table>
<thead>
<tr>
<th>CORRIDOR</th>
<th>CONSTRUCTION COSTS</th>
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</thead>
<tbody>
<tr>
<td>El Molino Avenue</td>
<td>$400,000</td>
</tr>
<tr>
<td>Wilson Avenue</td>
<td>$377,000</td>
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<tr>
<td>Sierra Bonita Avenue</td>
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<td>Craig Avenue</td>
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<tr>
<td>Holliston Avenue</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$2,865,725</strong></td>
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CITY OF PASADENA BICYCLE ACTION PLAN

HIGHEST PRIORITY

- Green St - Two-way Cycle Track
- Colorado Blvd - Buffered Bike Lane
- Hill Ave - Implement bicycle improvements
- Orange Grove Blvd - Cycle Track or Buffered Lane
- Bike Boulevards
  - El Molino Avenue
  - Wilson Avenue
  - Sierra Bonita Avenue
  - Craig Avenue
- Villa St (Cycle Track not feasible)
CITY OF PASADENA BICYCLE ACTION PLAN

MEDIUM PRIORITY

- Union St - Cycle Track
- Colorado Blvd - Buffered Bike Lane

LOWEST PRIORITY

- Washington Blvd - Cycle Track
- Del Mar Ave - Cycle Track
➢ A network of low-speed, low-traffic-volume neighborhood streets
➢ For people of all ages and abilities
➢ Install pavement markings and wayfinding signage
BICYCLE ACTON PLAN

OBJECTIVES

➢ Increase proportion of commute trips in Pasadena to 5%
➢ Reduce by 25% the bicycle-involved crash rate (fewer crashes per mile ridden)
➢ Make bicycle parking available, secure, and convenient throughout Pasadena
➢ 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.
➢ Implement measures throughout Pasadena to improve recreational opportunities
➢ Complete this Bicycle Transportation Plan within 15 years
The success of the bike share program in China:

- Convenience (no docking)
- Web App
- Traffic Congestion and Parking Price