Chapter 9

Torrance

9 Torrance

This chapter presents Torrance's portion of the South Bay Bicycle Master Plan. It begins with a discussion of how Torrance complies with Bicycle Transportation Account requirements. The chapter is then organized into the following sections:

- Existing conditions
- City-specific goals, policies, and implementation actions
- Needs analysis
- Proposed bicycle network
- Project prioritization
- Project costs

9.1 Bicycle Transportation Account (BTA) Compliance

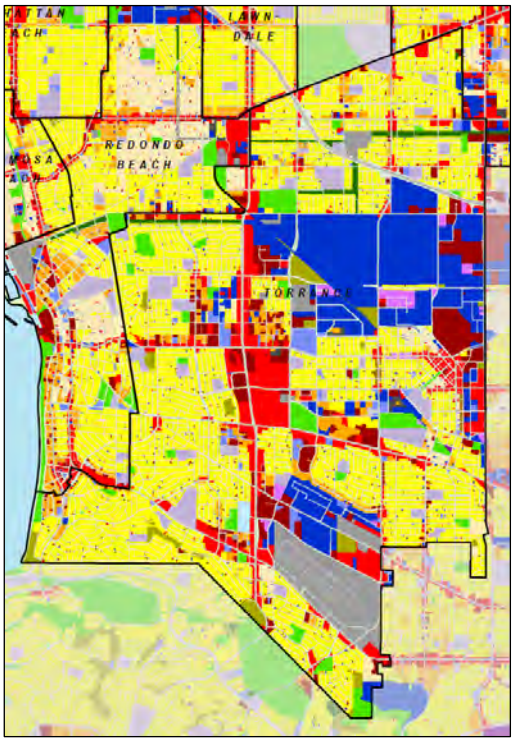
The Bicycle Transportation Account (BTA) is an annual statewide discretionary program that funds bicycle projects through the Caltrans Bicycle Facility Unit. Available as grants to local jurisdictions, the program emphasizes projects that benefit bicycling for commuting purposes. In order for Torrance to qualify for BTA funds, the South Bay Bicycle Master Plan must contain specific elements. **Appendix E** displays the requisite BTA components and their location within this plan in tabular form. The table includes "Approved" and "Notes/Comments" columns for the convenience of the Metro official responsible for reviewing compliance.

9.2 Existing Conditions

Torrance is located in the southern, central portion of the South Bay region. It is bordered to the north by the City of Lawndale, the County of Los Angeles, and the City of Gardena; to the east by the City of Los Angeles; to the south by the Cities of Lomita, Rolling Hills Estates, and Palos Verdes Estates; and to the west by the City of Redondo Beach. According to the 2000 Census, Torrance has a population of 137,933. The City was incorporated in 1921.

9.2.1 Land Use

Appendix A-3 displays a map of the existing land use in the South Bay Region. Land use in Torrance is shown at right. The City is comprised of approximately 45 percent residential land uses, most of which is single family residential. Torrance also consists of



Existing Land Uses in Torrance
(See Appendix A-3 for larger map)

- City Boundary
- Single Family Residential
- Multi-Family Residential
- Other Residential
- General Office
- Commercial and Services
- Public Facilities
- Education
- Military Installations
- Industrial
- Transportation, Communications, and Utilities
- Mixed Commercial and Industrial
- Mixed Urban
- Open Space and Recreation
- Agriculture
- Vacant
- Water
- Under Construction
- Undevelopable
- Unknown

almost 20 percent industrial land, making it a key employment center in the South Bay.

Figure 9-1 displays the proposed land uses for the City of Torrance. There are no significant proposed changes in the City's land uses.

9.2.2 Bicycle Trip Generators

Bicycle trip generators refer to population characteristics that are correlated with higher bicycling activity levels, such as high population or employment densities.

Bicycle trip generators refer to population characteristics that are correlated with higher bicycling activity levels, such as high population or employment densities or high concentrations of certain sub-populations, such as transit commuters or zero-vehicle households.

Appendix A-4 shows population density in Torrance. There are areas of high population density along the northern boundary of the city. There is also a pocket of high density in the interior of the city. Population density, measured as the number of persons per acre, is a strong indicator of potential bicycle activity, because more people living in an area implies more trips to and from that area. The high population densities of urbanized environments also tend to support bicycle travel through mixed land uses, interconnected street networks, and shorter trip lengths.

Appendix A-5 displays employment density in Torrance. Employment density in Torrance is highest along Hawthorne Boulevard, Lomita Boulevard, Western Avenue, and Pacific Coast Highway. Hawthorne Boulevard consists primarily of commercial and service, and general office land uses. Between Lomita Boulevard and Pacific Coast Highway there are mostly industrial uses. Western Avenue is concentrated with commercial and service, industrial, and general office uses. These sites have the potential to generate bicycle activity, as they are located in environments with a variety of land uses where trips between uses can be shorter.

Appendix A-6, Appendix A-7 and **Appendix A-8** display the percent of zero-vehicle households, median annual income, and percent transit commuters by census tract. The highest median annual household incomes are $75,001-$95,000 (in 1999 dollars) and are located in the western portion of Torrance along the border with Redondo Beach. Vehicle ownership is mixed throughout the city, as is percentage of transit commuters. These parts of the city have greater potential for increased bicycling activity because residents who do not have vehicles must use alternative modes and are likely to combine bicycle and transit trips.

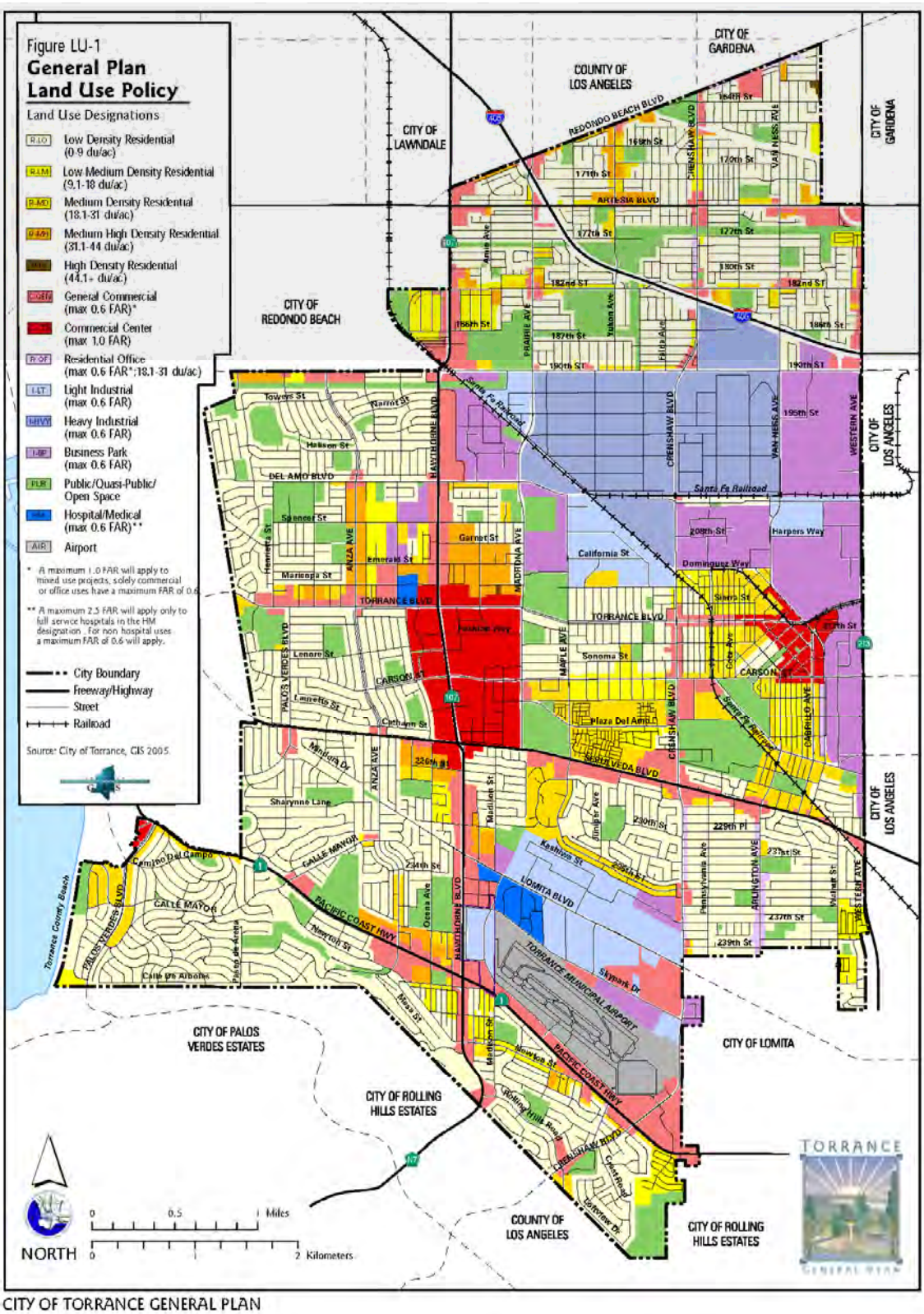


Figure 9-1: City of Torrance General Plan Land Use Policy

South Bay Bicycle Master Plan

Source: City of Torrance (2009)

In addition to the reasons discussed above, Torrance has the potential for increased bicycle activity from bicyclists passing through on their way to destinations outside of the city. A bicycle network that is connected within Torrance, as well as linked to bicycle facilities in adjacent communities, further generates bicycle traffic as it provides a viable transportation option to driving a motorized vehicle.

9.2.3 Relevant Plans and Policies

Table 9-1 outlines information regarding bicycles from the City of Torrance's Circulation and Infrastructure Element, Bicycle Master Plan, and Municipal Code.

Table 9-1: Torrance Bicycle-Related Plans and Policies

Document	Description
General Plan Circulation and Infrastructure Element (2009)	The following goals and policies related to bicycling are included in the Circulation and Infrastructure Element: • Maintain a comprehensive system of bicycle routes that provide viable options to travel by automobile • Provide and maintain a comprehensive system of bicycle lanes to meet the needs of cyclists traveling to all destinations within the City consistent with the Bicycle Master Plan • Promote the provision of secure bicycle storage and shower and locker facilities at major commercial developments and employment centers • Encourage cyclists to use routes that allow for safe cycling • Promote bicycle safety through educational programs designed for bicyclists and drivers • Seek county, state, federal, and private sector assistance to help finance development of bicycle facilities
Bicycle Master Plan (2009)	This document consists of a map (**Appendix F-7**) that displays existing Class II and Class III bicycle facilities, proposed facilities, and existing bike parking locations. There are proposed facilities at 17 locations.
Municipal Code	Bicycle parking requirements in Torrance's Municipal Code are based on square footage as part of Transportation Demand Management ordinance. Developments of a certain size are required to provide bicycle facility information on a bulletin board or in a display case or kiosk. Detailed bicycle parking information is presented in **Appendix G**. The City of Torrance requires bicyclists to obtain a bicycle license and to place a license plate on the bicycle. The City has a Bicycle Transportation Fund that is used for bicycle routes and other projects to the benefit of the bicyclist. The City also prohibits riding bicycles on sidewalks in business districts and adjacent to public school buildings, churches, recreation centers, and playgrounds.

9.2.4 Existing Bicycle Network

Figure 9-2 shows the existing bicycle facilities in Torrance. Appendix A-2 displays a map of the existing bicycle facilities in

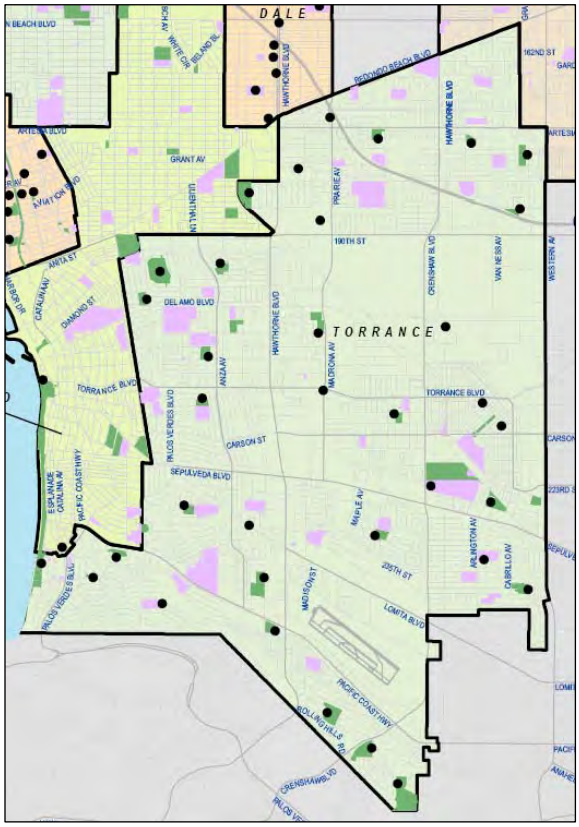
the South Bay Region. Bicycle facility types are discussed in **Section 1.3**. The City of Torrance has a bicycle network of approximately 30 miles of bicycle facilities. Approximately 50 percent of the network consists of Class II bike lanes and the remaining miles are Class III bike paths. **Table 9-2** summarizes the classification and mileage of the existing network.

Table 9-2: Torrance Bicycle Network

Facility Type	Mileage
Class I (Bike Path)	0.0
Class II (Bike Lanes)	14.3
Class III (Bike Route)	15.0
Total Mileage	**29.7**

9.2.5 Existing End-of-trip Parking Facilities

The BTA requires that this plan inventory publicly-accessible short-term and long-term end-of-trip bicycle facilities for the members of the bicycling public to park their bicycles, as well as change and store clothes and equipment. Short-term facilities consist of bicycle racks. Long-term facilities include, but are not limited to, locker, restroom, and shower facilities near bicycle parking facilities. **Appendix A-9** displays existing end-of-trip bicycle facilities in the South Bay. Existing bicycle racks in Torrance are shown at right. These locations include public parks and libraries. Torrance does not currently have any existing long-term end-of-trip bicycle facilities.



Existing End-of-trip Facilities in Torrance
(See Appendix A-9 for larger map)

9.2.6 Multi-Modal Connections

Transit is often best for longer trips, while bicycling is better for shorter trips. Combining transit use and bicycling can offer a high level of mobility that is comparable to travel by automobile. **Appendix A-10** shows the existing Los Angeles Metropolitan Transit Authority (Metro) transit routes that serve the City of Torrance. Metro operates bus lines with routes several east-west routes through the north and south portions of the City and one north-south route through the center. The middle of Torrance is relatively underserved by Metro. Buses are equipped with bicycle racks, which are available on a first-come, first-served basis.

LADOT operates the Commuter Express bus service. Line 438 connects the cities of El Segundo, Manhattan Beach, Hermosa Beach, Redondo Beach, and Torrance to Downtown Los Angeles.

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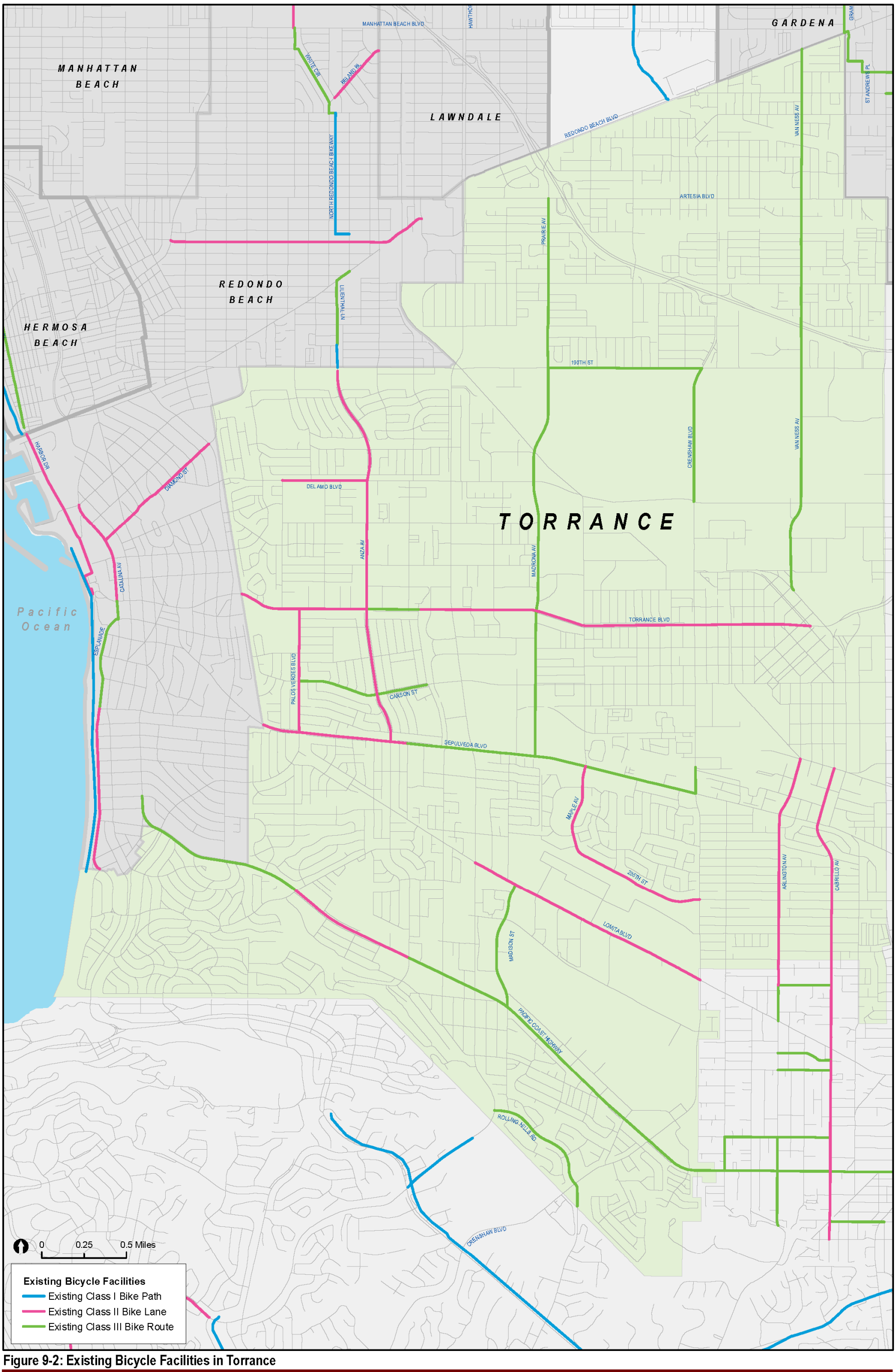

Figure 9-2: Existing Bicycle Facilities in Torrance

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Line 448 connects Torrance east to Wilmington and north to Downtown Los Angeles. Most Commuter Express buses are equipped with bicycle racks, which are available on a first-come, first-served basis. The Commuter Express line 438 and 448 bus routes are shown in **Appendix A-11** and **Appendix A-21**.

Beach Cities Transit (BCT) Line 104, operated by the City of Redondo Beach, also serves the City of Torrance. **Appendix A-13** shows the BCT System Map. BCT buses are equipped with bike racks, which are available on a first-come, first-served basis.

The City of Torrance operates Torrance Transit, which consists of eight bus lines that also serve the cities of El Segundo, Gardena, Hermosa Beach, Manhattan Beach, and Redondo Beach. **Appendix A-14** shows the Torrance Transit system map. All Torrance Transit buses are equipped with bike racks, which are available on a first-come, first-served basis.

The BTA requires that this plan inventory existing bicycle transport and parking facilities for connecting to public transit services. These facilities include, but are not limited to, bicycle parking at transit stops, rail and transit terminals, and park and ride lots; and provisions for transporting bicycles on public transit vehicles. Torrance does not currently provide any intermodal facilities within its jurisdiction, however a new transit station is proposed on Crenshaw Blvd at approximately 208th Street. Proposed end-of-trip bicycle facilities at this location are presented in section 9.4.2.

Torrance does not currently provide any intermodal facilities within its jurisdiction, however a new transit station is proposed on Crenshaw Blvd at approximately 208th Street (see Appendix A10 for larger map).

9.2.7 Education and Enforcement Strategies

Bicycle education programs and enforcement of bicycle-related policies help to make riding safer for all bicyclists. To promote safe bicycling, the City of Torrance celebrates national "Bike to Work Day" and "Bike to Work Week" to encourage its employees and residents to ride their bicycles. The Torrance Police Department has conducted bicycle rodeos in the past and offers bicycle patrol for special events. Also, the Torrance Police Department enforces all bicycle-related regulations from the California Vehicle Code and the City's Municipal Code.

9.2.8 Past Bicycle-Related Expenditures

Between 2000 and 2010, the City of Torrance incurred the following bicycle-related expenditures:

- Approximately $50,000 for miscellaneous bicycle-related items

9.3 Needs Analysis

This section describes the needs of bicyclists in Torrance. It first summarizes feedback collected from the online survey and public workshops. The section also provides estimates and forecasts of bicycle commuting to determine the estimated bicycling demand in the city. It finally analyzes bicycle collision data between 2007 and 2009 to identify areas that would benefit from bicycle facility improvements.

9.3.1 Public Outreach

As mentioned in Chapter 1, the public had the opportunity to provide input in the planning process through an online survey and the first round of public workshops. This section summarizes locations in Torrance that the community identified as desirable for bikeways and bicycle parking facilities.

Generally, the public noted that it would like to see bicycle facilities on major arterials, such as Hawthorne Boulevard and Prairie Avenue. The community also said that it would like to connect existing bicycle facilities, such as by closing the gap on Torrance Boulevard and installing bicycle facilities on Van Ness Avenue to connect with Cabrillo Avenue.

The public identified locations that would benefit from additional bicycle parking. These include around El Camino College, on Del Amo Circle near the Fashion Center, and at the Farmer's Market.

The highest percentage of bicycle commuters is located in the southeastern portion of Torrance.

9.3.2 Bicycle Commuter Estimates and Forecasts

United States Census "Commuting to Work" data provides an indication of current bicycle system usage. **Appendix A-15** shows the percent bicycle commuters in Torrance by census tract. The highest percentage of bicycle commuters is located in the southeastern portion of the city.

Table 9-3 presents commute to work data estimates reported by the 2000 US Census for Torrance. For comparative purposes, the table includes commute to work data for the United States, California, and County of Los Angeles. According to the estimates,

0.44 percent of residents in Torrance commute predominantly by bicycle. This is lower than the percentage of bicycle commuters in California and in Los Angeles County, and it is higher than the U.S. as a whole. It is important to note that this figure likely underestimates the true amount of bicycling that occurs in Torrance for several reasons. First, data reflects respondents' dominant commute mode and therefore does not capture trips to school, for errands, or other bike trips that would supplant vehicular trips. Also, US Census data collection methods only enable a respondent to select one mode of travel, thus excluding bicycle trips if they constitute part of a longer multimodal trip. The percentage of commuters in Torrance that commute by transit is much lower than that of those that drive alone. Torrance also has a low percentage of carpooling and walking.

In addition to bicycle commuters in Torrance, bicyclists from neighboring communities use the city's bicycle network to reach their destinations and are not reflected in this data. This Plan addresses the need for regional connectivity to accommodate bicyclists passing through Torrance's bicycle network in **Section 9.4**.

Table 9-3: Means of Transportation to Work

Mode	United States	California	Los Angeles County	Torrance
Bicycle	0.38%	0.83%	0.62%	0.44%
Drove Alone – car, truck, or van	75.70%	71.82%	70.36%	82.92%
Carpool – car, truck, or van	12.19%	14.55%	15.08%	9.80%
Transit	4.73%	5.07%	6.58%	1.25%
Walked	2.93%	2.85%	2.93%	1.33%
Other Means	0.70%	0.79%	0.76%	0.44%
Worked at Home	3.26%	3.83%	3.49%	3.48%

Source: US Census 2000

Table 9-4 presents an estimate of current bicycling within Torrance using US Census data along with several adjustments for likely bicycle commuter underestimations, as discussed above. **Table 9-5** presents the associated air quality benefits from bicycling.

Table 9-4: Existing Bicycling Demand

Variable	Figure	Source
Existing study area population	137,933	2000 US Census, P1
Existing employed population	66,569	2000 US Census, P30
Existing bike-to-work mode share	0.4%	2000 US Census, P30
Existing number of bike-to-work commuters	293	Employed persons multiplied by bike-to-work mode share
Existing work-at-home mode share	3.5%	2000 US Census, P30
Existing number of work-at-home bike commuters	232	Assumes 10% of population working at home makes at least one daily bicycle trip
Existing transit-to-work mode share	1.3%	2000 US Census, P30
Existing transit bicycle commuters	208	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
Existing school children, ages 6-14 (grades K-8)	12,480	2000 US Census, P8
Existing school children bicycling mode share	2.0%	National Safe Routes to School surveys, 2003.
Existing school children bike commuters	250	School children population multiplied by school children bike mode share
Existing number of college students in study area	11,314	2000 US Census, PCT24
Existing estimated college bicycling mode share	5.0%	Review of bicycle commute share in seven university communities (source: National Bicycling & Walking Study, FHWA, Case Study No. 1, 1995), review of bicycle commute mode share at the University of California, Los Angeles
Existing college bike commuters	566	College student population multiplied by college student bicycling mode share
Existing total number of bike commuters	1,548	Total bike-to-work, school, college and utilitarian bike trips. Does not include recreation.
Total daily bicycling trips	3,096	Total bicycle commuters x 2 (for round trips)

Table 9-5: Existing Bicycling Air Quality Impact

Variable	Figure	Source
Current Estimated VMT Reductions		
Reduced Vehicle Trips per Weekday	928	Assumes 73% of bicycle trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	242,255	Reduced weekday vehicle trips x 261 (weekdays / year)
Reduced Vehicle Miles per Weekday	6,499	Assumes average round trip travel length of 5 miles for adults/college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	1,696,351	Reduced weekday vehicle miles x 261 (weekdays / year)
Current Air Quality Benefits		
Reduced Hydrocarbons (lbs/wkday)	19	Daily mileage reduction x 1.36 grams / mi
Reduced PM10 (lbs/wkday)	0	Daily mileage reduction x 0.0052 grams / mi
Reduced PM2.5 (lbs/wkday)	0	Daily mileage reduction x 0.0049 grams / mi
Reduced NOX (lbs/wkday)	14	Daily mileage reduction x 0.95 grams / mi
Reduced CO (lbs/wkday)	178	Daily mileage reduction x 12.4 grams / mi
Reduced C02 (lbs/wkday)	5,287	Daily mileage reduction x 369 grams / mi
Reduced Hydrocarbons (lbs/yr)	5,086	Yearly mileage reduction x 1.36 grams / mi
Reduced PM10 (lbs/yr)	19	Yearly mileage reduction x 0.0052 grams / mi
Reduced PM2.5 (lbs/yr)	18	Yearly mileage reduction x 0.0049 grams / mi
Reduced NOX (lbs/yr)	3,553	Yearly mileage reduction x 0.95 grams / mi
Reduced CO (lbs/yr)	46,374	Yearly mileage reduction x 12.4 grams / mi
Reduced $C0_2$ (lbs/yr)	1,379,991	Yearly mileage reduction x 369 grams / mi

Source:

Emissions rates from **EPA report 420-F-05-022** *Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks.* 2005.

Table 9-6 presents projected year 2030 bicycling activity within Torrance using California Department of Finance population and school enrollment projections. The projection contains the assumption that bicycle mode share will double by 2030, due in part to bicycle network implementation. Actual bicycle mode share in 2030 will depend on many factors, including the extent of network implementation. Table 9-7 presents the associated year

2030 air quality benefit forecasts. The calculations follow in a straightforward manner from the Projected Year 2030 Bicycling Demand.

Table 9-6: Projected Year 2030 Bicycling Demand

Variable	Figure	Source
Future study area population	171,647	Calculated based on CA Dept. of Finance, *Population Projections for California and Its Counties 2000-2050.*
Future employed population	82,840	Calculated based on CA Dept. of Finance, *Population Projections for California and Its Counties 2000-2050*,
Future bike-to-work mode share	0.9%	Double the rate from 2000 US Census, P30
Future number of bike-to-work commuters	729	Employed persons multiplied by bike-to-work mode share
Future work-at-home mode share	5.41%	Calculated based on change in mode share from 1990 US Census, P49, to 2000 US Census, P30
Future number of work-at-home bike commuters	448	Assumes 10% of population working at home makes at least one daily bicycle trip
Future transit-to-work mode share	2.5%	Double the rate from 2000 US Census, P30
Future transit bicycle commuters	518	Employed persons multiplied by transit mode share. Assumes 25% of transit riders access transit by bicycle
Future school children, ages 6-14 (grades K-8)	9,917	Calculated from CA Dept. of Finance, *California Public K–12 Graded Enrollment and High School Graduate Projections by County, 2010 Series.*
Future school children bicycling mode share	4.0%	Double the rate of national school commute trends. National Safe Routes to School surveys, 2003.
Future school children bike commuters	397	School children population multiplied by school children bicycling mode share
Future number of college students in study area	14,079	Calculated based on CA Dept. of Finance, Population Projections for California and Its Counties 2000-2050, Sacramento, California, July 2007.
Future estimated college bicycling mode share	7.0%	A slight increase over the existing college bicycle mode share assumption, commensurate with projected increases in bicycling for other populations
Future college bike commuters	986	College student population x college student bicycling mode share
Future total number of bike commuters	3,077	Total bike-to-work, school, college and utilitarian biking trips. Does not include recreation.
Total daily bicycling trips	6,154	Total bike commuters x 2 (for round trips)

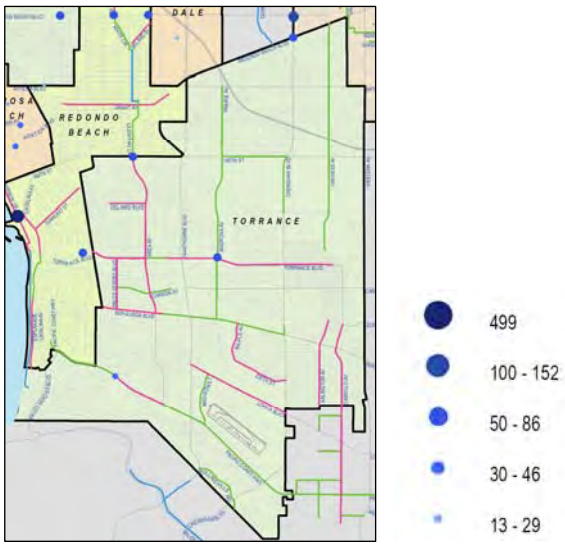
Table 9-7: Projected Year 2030 Bicycling Air Quality Impact

Variable	Figure	Source
Forecasted VMT Reductions		
Reduced Vehicle Trips per Weekday	1,789	Assumes 73% of biking trips replace vehicle trips for adults/college students and 53% for school children
Reduced Vehicle Trips per Year	466,911	Reduced number of weekday vehicle trips x 261 (weekdays / year)
Reduced Vehicle Miles per Weekday	12,840	Assumes average round trip travel length of 8 miles for adults / college students and 1 mile for schoolchildren
Reduced Vehicle Miles per Year	3,351,184	Reduced number of weekday vehicle miles x 261 (weekdays / year)
Forecasted Air Quality Benefits		
Reduced Hydrocarbons (lbs/wkday)	38	Daily mileage reduction x by 1.36 grams / mi
Reduced PM10 (lbs/wkday)	0	Daily mileage reduction x by 0.0052 grams / mi
Reduced PM2.5 (lbs/wkday)	0	Daily mileage reduction x by 0.0049 grams / mi
Reduced NOX (lbs/wkday)	27	Daily mileage reduction x by 0.95 grams / mi
Reduced CO (lbs/wkday)	351	Daily mileage reduction x by 12.4 grams / mi
Reduced $C0_2$ (lbs/wkday)	10,445	Daily mileage reduction x by 369 grams / mi
Reduced Hydrocarbons (lbs/yr)	10,048	Yearly mileage reduction x by 1.36 grams / mi
Reduced PM10 (lbs/yr)	38	Yearly mileage reduction x by 0.0052 grams / mi
Reduced PM2.5 (lbs/yr)	36	Yearly mileage reduction x by 0.0049 grams / mi
Reduced NOX (lbs/yr)	7,019	Yearly mileage reduction x by 0.95 grams / mi
Reduced CO (lbs/yr)	91,612	Yearly mileage reduction x by 12.4 grams / mi
Reduced CO_2 (lbs/yr)	2,726,208	Yearly mileage reduction x by 369 grams / mi

Source:

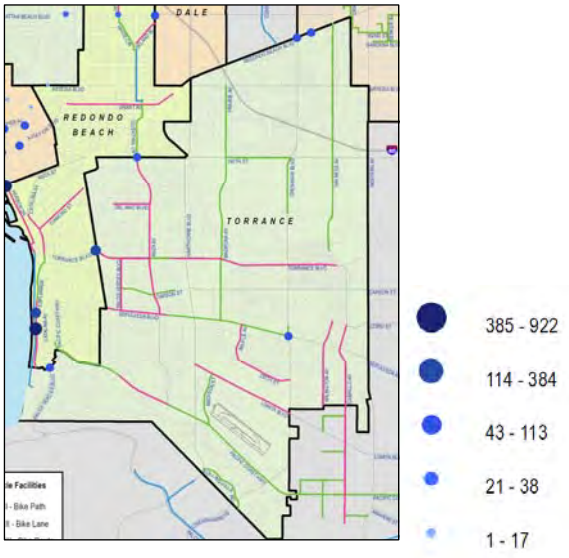
Emissions rates from **EPA report 420-F-05-022** *Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks. 2005*.

This model uses the latest state projections for population growth and reasonable assumptions about future bicycle ridership. The benefits model predicts that the total number of bicycle commute trips could increase from the current daily estimate of about 3,000 to over 6,000, resulting in a substantial reduction of both Vehicle Miles Traveled (VMT) and associated emissions. This includes a yearly emissions reduction by 2030 of approximately 7,000 pounds



Weekday Bicycle Count Results in Torrance

(See Appendix A-16 for a larger map and Appendix H for a list of count locations.)



Weekend Bicycle Count Results in Torrance

(See Appendix A-17 for a larger map and Appendix H for a list of count locations.)

of smog forming N0X and roughly 2.7 million pounds of $C0_2$, the principal gas associated with global climate change. Providing bicycle facilities will encourage new bicyclists to begin to ride, thus positively impacting air quality by reducing harmful pollutants from driving motorized vehicles. Because this plan recommends local connections throughout and regional links between the participating cities, it has the potential to have even greater air quality benefits. Bicyclists may not need to rely as heavily on vehicles for transportation because bicycling will be a viable transportation alternative upon implementation of this Plan.

9.3.3 Bicycle Counts

To assess bicycling levels at different sites throughout Torrance, volunteers conducted bicycle counts, in which they manually recorded the number of bicyclists that rode by.

9.3.3.1 Methodology

The methodology for the bicycle counts derives from the National Bicycle and Pedestrian Documentation Project (NBPD), a collaborative effort of Alta Planning + Design and the Institute of Transportation Engineers. The NBPD methodology aims to capture both utilitarian bicycling and recreational bicycling. The NBPD also provides guidance on how to select count locations.

Volunteers conducted bicycle counts in each of the seven participating cities in the South Bay on Thursday, November 4, 2010 from 3:00 p.m. to 6:00 p.m. and Saturday, November 6, 2010 from 10:30 a.m. to 1:30 p.m. These dates are meant to capture volumes of bicyclists on a typical weekday and weekend day. Fall is an appropriate time to conduct bicycle counts in California because school is back in session and vacations are typically over. In Torrance, volunteers were stationed at three stations on Thursday and three stations on Saturday. There were 36 total locations in the South Bay region on each day.

The count locations were selected in partnership by city staff, Alta Planning + Design, Los Angeles County Bicycle Coalition staff, and South Bay Bicycle Coalition board members. This snapshot of locations is meant to capture a diverse bicycling population using the roads and streets that span the spectrum of bike-friendliness.

9.3.3.2 Results

The count results for the South Bay are displayed in **Appendix A-16** and **Appendix A-17**. Count results for Torrance are shown at

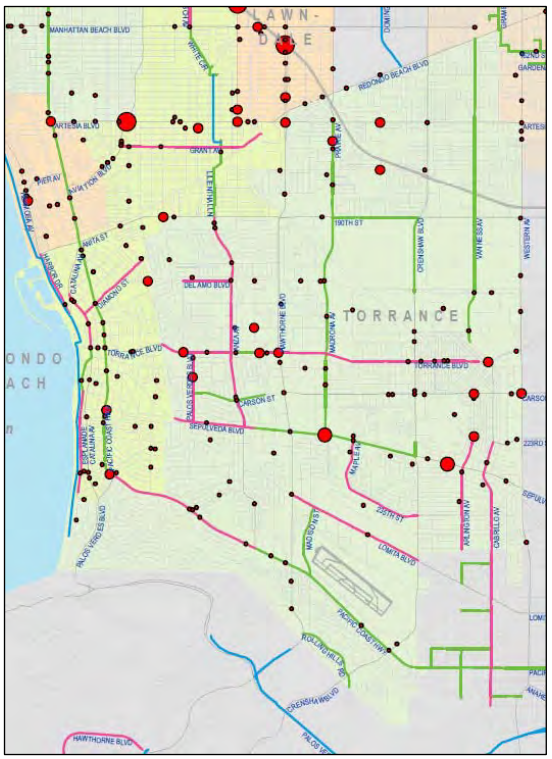
left. Detailed count data, including a list of count locations, is presented in **Appendix H**. On Thursday, the Torrance station that experienced the highest volume was 190th Street and Anza Avenue with 60 bicyclists during the three hour count period. The station with the most bicyclists on Saturday was Palos Verdes Boulevard and Catalina Avenue with 82 bicyclists during the three hour count period.

On both days, the locations with the highest numbers of bicyclists in the South Bay region as a whole were those along the Strand on the County-maintained Marvin Braude Bikeway. Apart from the Strand stations, the inland count locations in Lawndale and Gardena experienced the most riders during the week. On the weekend, there were overall fewer riders in the inland count stations and more riders along the coast. This suggests that more bicyclists ride a bicycle for commuting during the week and for recreation on the weekend.

In the region as a whole, about 83 percent of bicyclists were male. Approximately 70 percent of those observed did not wear helmets and 41 percent rode on the sidewalks. On Thursday, there were 18 locations at which over half of the observed bicyclists rode on the sidewalk and on Saturday there were nine. Riding on the sidewalk can be an indicator of a lack of bicycle facilities, as bicyclists that are uncomfortable riding with traffic may choose to ride on the sidewalk instead.

9.3.4 Bicycle Collision Data

Safety is a major concern for both existing and potential bicyclists. Concern about safety is the most common reason given for not riding a bicycle (or riding more often), according to national surveys. Identifying bicycle collision sites can draw attention to areas that warrant improvement, particularly if multiple collisions occur at the same location. This analysis employs the most reliable data source available, the California Highway Patrol's Statewide Integrated Traffic Records System. The data set only includes reported collisions, and so represents a subset of all the bicycle collisions in Torrance. This data does not include any assessment of conditions present at the time of the collision. There are numerous factors that may contribute to a given incident including but not limited to time of day, visibility, distractions, obstacles or traffic law obedience. This data simply reflects reported incidents, resulting injuries and the party at fault. This data does not infer faulty infrastructure, but rather provides a baseline of collisions



Bicycle Collisions in Torrance 2007-2009

(See Appendix A-18 for larger map)

that often decreases in correlation with bike plan implementation and the improvements to facilities and road user behavior and awareness that accompanies it. Fault as determined by law enforcement is discussed below.

Table 9-8 presents the number of reported collisions involving bicyclists, number of bicyclists involved, and severity of the bicycle collisions for three consecutive years: 2007, 2008, and 2009. **Appendix A-18** shows locations of bicycle collisions in the South Bay region in the same time period. Bicycle collisions in Torrance are shown on the preceding page. There were 131 total reported collisions involving bicyclists from 2007-2009 in the City of Torrance. Collisions in Torrance occurred throughout the city, many of which were concentrated on major arterials: 16 collisions occurred on Torrance Boulevard, 11 occurred on Sepulveda Boulevard, eight occurred on Pacific Coast Highway, and 11 occurred on Hawthorne Boulevard.

Table 9-8: Bicycle Collision Data 2007-2009

Total Crashes Involving Bicyclists	Number of Bicyclists Involved	Persons Injured	Persons Severely Injured	Persons Killed
131	133	132	4	1

Source: California Highway Patrol, Statewide Integrated Traffic Records System (SWITRS)

As reported by police officers in traffic reports, bicyclists were at fault in 66 percent of collisions involving bicycles (64 crashes) in this time period.

Providing bicycle facilities encourages more people to ride. When motorists begin to look for and expect to see bicyclists, collisions between vehicles and bicyclists are reduced. The City of New York, for example, reported that as ridership increased between 1998 and 2008, the number of annual casualties from bicycle collisions decreased (see **Appendix B**).

Appendix A-1 displays estimated weekday traffic volumes in Torrance. There are major arterials that carry high volumes of automobiles throughout the entire city. Torrance Boulevard, Sepulveda Boulevard, and Pacific Coast Highway, the locations with the highest numbers of collisions, all have heavy vehicular traffic, which can create potential conflicts between bicycles and vehicles. Pacific Coast Highway has high employment densities, and Hawthorne Boulevard has both high employment and population densities, both of which generate high numbers of trips.

This contributes to the vehicle-bicycle conflicts, as well. Installing bicycle facilities, especially on major arterials, could reduce the number and severity of collisions involving bicyclists.

9.4 Proposed Bicycle Network

This section presents the proposed bicycle network for the City of Torrance, which includes bicycle parking facilities. Upon implementation of the proposed network, the City should coordinate and collaborate with adjacent participating South Bay cities to emphasize a regional bicycle network. Bicycle facilities discussed in this Plan are described in **Section 1.3** and are shown in **Figure 1-3** and **Figure 1-4**. **Appendix C** outlines the recommended standards for each facility classification as compared to minimum standards. In addition to creating a comprehensive network of bikeways in Torrance, the recommended system ties into the proposed bicycle facilities for the other South Bay participating cities to create a connected regional network. This will give bicyclists from adjacent communities the opportunity to pass through Torrance to reach their destinations without losing bicycle facilities at city boundaries.

9.4.1 Proposed Bikeway Facilities

The proposed bicycle network in the City of Torrance consists of Class I Bike Paths, Class II Bike Lanes, Class III Bike Routes, and Bike Friendly Streets, and is shown in **Figure 9-3.** The proposed bicycle network in Torrance connects with the recommended networks in Redondo Beach, Lawndale, and Gardena. **Figure 9-3** shows a blue asterisk on the proposed bicycle path along the Metro Green Line extension as it is outside the jurisdiction of the Plan, but is a supported improvement. The proposed South Bay bicycle network as a whole is presented in **Appendix A-19**.

Four tables identify the streets on which facilities are proposed, the extents of each proposed facility, and the length in miles of each proposed facility. **Table 9-9** lists the proposed bicycle paths, **Table 9-10** lists the proposed bicycle lanes, **Table 9-11** lists the proposed bicycle routes, and **Table 9-12** lists the proposed bicycle-friendly streets.

The proposed bicycle network in the City of Torrance consists of Class I Bike Paths, Class II Bike Lanes, Class III Bike Routes, and Bike Friendly Streets.

Table 9-9: Proposed Class I Bicycle Paths in Torrance

Street	From	To	Miles
Madrona Ave Extension	Sepulveda Blvd	229th Pl	0.5
Total Bicycle Path Mileage			**0.5**

Table 9-10: Proposed Class II Bicycle Lanes in Torrance

Street	From	To	Miles
220th St	Cabrillo Ave	Western Ave	0.2
Prairie Ave - Madrona Ave	Redondo Beach Blvd	Sepulveda Blvd	3.6
Torrance Blvd	Anza Ave	Earl St	0.3
Sepulveda Blvd	Existing Bike Lanes (east of Anza Ave)	Western Ave	3.0
Lomita Blvd	Anza Ave	Hawthorne Blvd	0.6
Van Ness Ave - Cabrillo Ave	190th St	Ferrocarril Ave	2.5
Ferrocarril Ave	Arlington Ave	Western Ave	0.5
190th St	Blossom Ln	Western Ave	3.8
Del Amo Blvd	West City Limits	Henrietta St	0.2
Del Amo Blvd	Anza Ave	Maple Ave	1.3
Skypark Dr	Madison St	Crenshaw Blvd	1.3
Western Ave	Artesia Blvd	South City Limits	4.4
Redondo Beach Blvd	Hawthorne Blvd	East City Limits	2.4
Artesia Blvd	Hawthorne Blvd	Western Ave	2.5
Calle Mayor	Riviera Way	Anza Ave	1.0
Beryl St	Flagler Ln	190th St	0.4
Total Bicycle Lane Mileage			**28.0**

Table 9-11: Proposed Class III Bicycle Routes in Torrance

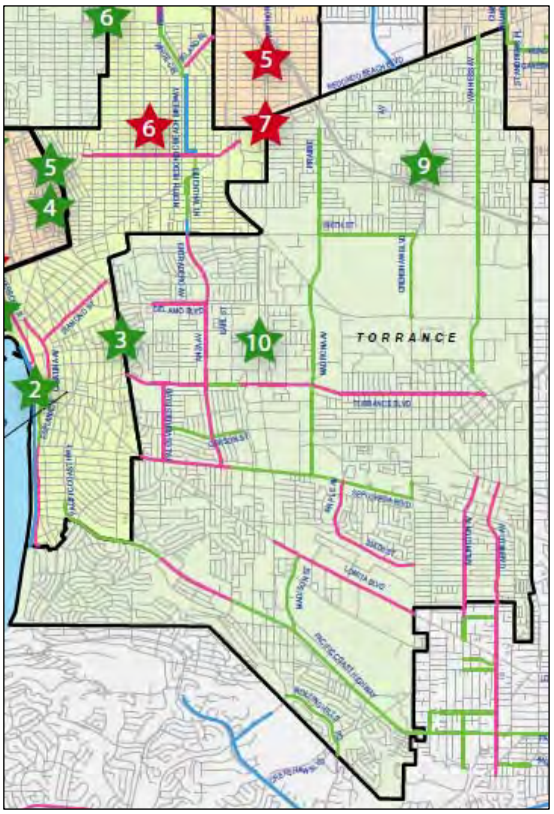
Street	From	To	Miles
Columbia St - Alaska Ave - Maricopa St	Maple Ave	Elm Ave	0.7
Sartori Ave	Torrance Blvd	Cabrillo Ave	0.2
Henrietta St	Del Amo Blvd	Torrance Blvd	0.8
Maple Ave	Del Amo Blvd	Sepulveda Blvd	1.6
Plaza del Amo (west)	Madrona Ave	Crenshaw Blvd	1.0
Del Amo Blvd	Crenshaw Blvd	Western Ave	1.1
Plaza del Amo (east)	Madrid Ave	Arlington Ave	0.6
Anza Ave	Sepulveda Blvd	Newton St	1.5
Cravens Ave	Arlington Ave	Cabrillo Ave	0.5

Street	From	To	Miles
Palos Verdes Blvd	Sepulveda Blvd	West City Limits	0.5
235th St	Crenshaw Blvd	Western Ave	1.1
238th St	Arlington Ave	East City Limits	0.7
Palos Verdes Blvd	South City Limits	Pacific Coast Highway	1.1
W 164th St	Redondo Beach Blvd	East City Limits	1.0
182nd St	West City Limits	Western Ave	2.9
Calle Mayor	Palos Verdes Blvd	Riviera Way	0.9
Torrance Blvd	Sartori Ave	Van Ness Ave	0.1
Total Bicycle Route Mileage			**16.2**

Table 9-12: Proposed Bicycle-Friendly Streets in Torrance

Street	From	To	Miles
Elm Ave	Maricopa St	Torrance Blvd	0.2
Dominguez St	Madrid Ave	Torrance Blvd	0.8
Falda Ave - 182nd Pl	182nd St	190th St	0.6
220th St	Martina Ave	Cabrillo Ave	0.3
Earl St - Torrance Blvd	Del Amo Blvd	Ocean Ave	0.8
239th St	Crenshaw Blvd	Arlington Ave	0.5
Ocean Ave	Torrance Blvd	Newton St	2.5
Arlington Ave	Dominguez St	Plaza Del Amo East	1.0
Newton St	Calle Mayor	Pacific Coast Highway	2.3
162nd St	Van Ness Ave	East City Limits	0.3
Entradero Ave	190th St	Del Amo Blvd	0.7
Madrid Ave	Dominguez St	Plaza Del Amo East	0.7
Yukon Ave	Redondo Beach Blvd	190th St	1.5
Firmona Ave - Tallisman	190th St	Del Amo Blvd	0.7
Camino del Campo	Palos Verdes Blvd	Vista del Parque	0.4
Pennsylvania Ave	Sepulveda Blvd	South City Limits	0.9
Via Pasqual - Cll de Arboles - Pso de las Tortugas - Vista Montana	Via Monte D Oro	Newton St	1.6
Via Monte D Oro	Camino del Campo	South City Limits	0.9
171st St	Prairie Ave	Gramercy Pl	1.8
Total Bicycle-Friendly Streets			**18.3**

There are opportunities and constraints to recommending new bicycle facilities in Torrance. These are shown on the following page and are referenced by the numbers in Appendix I. Appendix I



Opportunities and Constraints in Torrance

(See Appendix I for larger map)

Opportunity

Constraint

also presents opportunities and constraints in the South Bay region as a whole. While it is not feasible to propose bicycle lanes on Crenshaw Boulevard and Hawthorne Boulevard at the time of this Plan, there may be opportunity in the future if the streets undergo reconstruction or other changes that would provide adequate space. There may also be opportunity to propose parallel facilities as Crenshaw Boulevard and Hawthorne Boulevard are important regional connections.

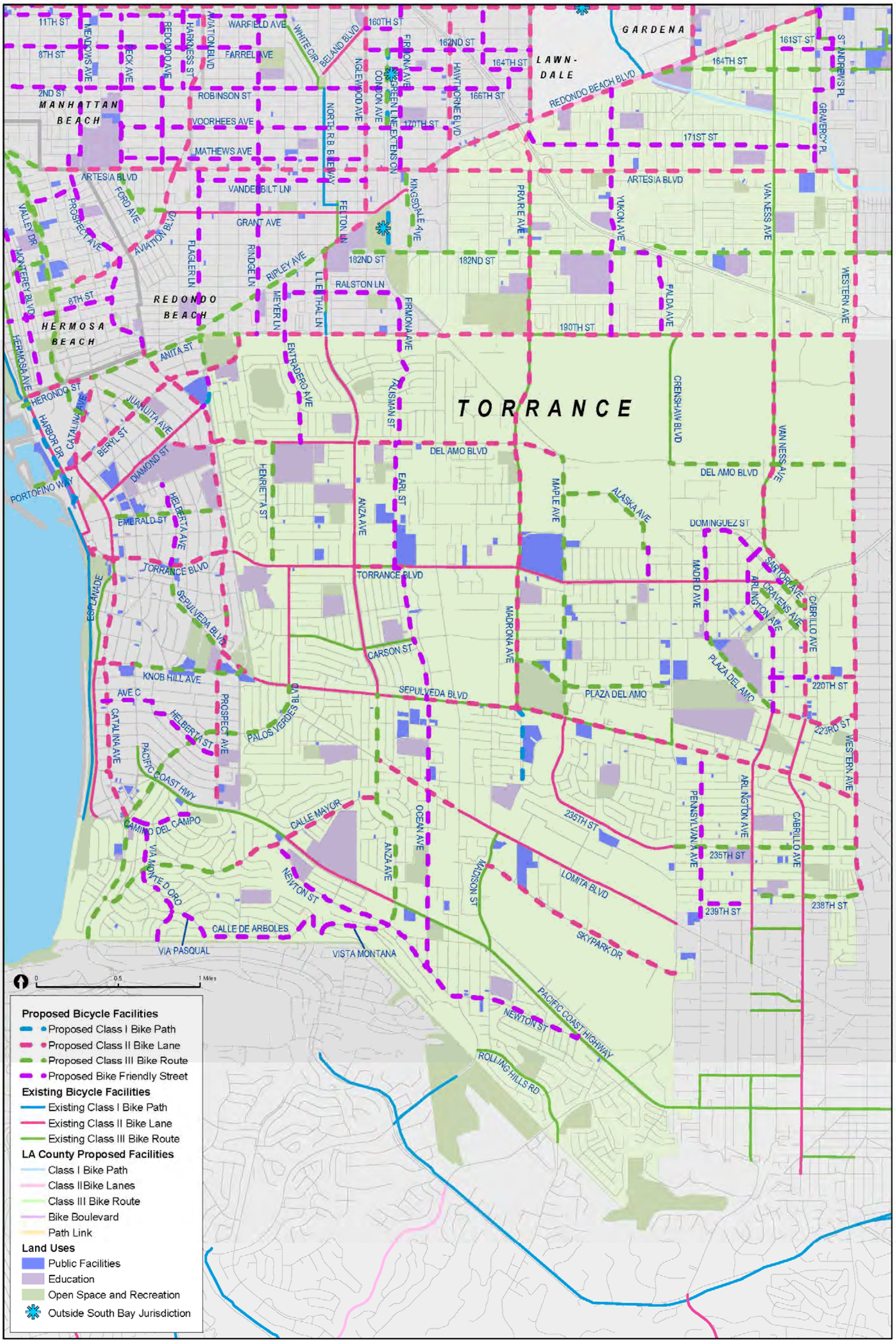


Figure 9-3: Proposed Bicycle Facilities in Torrance

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9.4.2 Proposed End-of-Trip Bicycle Facilities

Support facilities and connections to other modes of transportation are essential components of a bicycle system because they enhance safety and convenience for bicyclists at the end of every trip. With nearly all utilitarian and many recreational bike trips, bicyclists need secure and well-located bicycle parking. A comprehensive bicycle parking strategy is one of the most important things that a jurisdiction can apply to immediately enhance the bicycling environment. Moreover, a bicycle parking strategy with connections to public transit will further the geographical range of residents traveling without using an automobile.

The Torrance Municipal Code currently provides bicycle parking requirements for non-residential developments. The City should amend its Municipal Code to include bicycle parking requirements at new and retrofitted multi-family residential, commercial, office, and mixed-use developments of all sizes. The Municipal Code should also require bicycle parking quantities based on square footage of developments or by number of employees/residents to adequately address the bicycle demand at each development.

Though the City complies with its existing Transportation Demand Management ordinance, Torrance may consider amending its Municipal Code to include requirements on types of both short- and long-term bicycle parking facility designs, which are shown in **Appendix J**. Bicycle rack designs should include racks that provide two points of contact with the bicycle so that it can be locked from both the front wheel/frame and the rear wheel. This will provide a high degree of security and support for the bicycle. Long-term bicycle parking should be in the form of:

- Covered, lockable enclosures with permanently anchored racks for bicycles
- Lockable bicycle rooms with permanently anchored racks or
- Lockable, permanently anchored bicycle lockers

When people commute by bicycle they often sweat or become dirty from weather or road conditions. Providing changing and storing facilities encourages commuters to travel by bicycle because they have a place to clean up before work or school. Torrance should require all new mid-to-large employers, offices, and businesses to supply changing and storing facilities, such as by providing showers and clothes lockers within the buildings or arranging

Bicycle rack designs should include racks that provide two two points of contact with the bicycle so that it can be locked from both the front wheel/frame and the rear wheel.

agreements with nearby recreation centers to allow commuters to use their facilities.

Proposed end-of-trip bicycle facilities in Torrance are shown in **Figure 9-4**. The City should continue to provide short-term bicycle parking in the form of bicycle racks at all major trip attractors, including commercial and civic activity centers and transit hubs, and ensure that an adequate supply is available. The following locations are examples of sites at which the City could install additional bicycle parking as appropriate:

- Parks
- Schools
- Commercial/office areas
- Civic/government buildings
- Public transit stations

High-activity locations such as transit stations and major commercial districts should provide more secure, long-term bicycle parking options, such as bicycle lockers. The proposed transit station on Crenshaw Blvd at approximately 208th Street, as well as any future transit hubs and intermodal facilities, should include secure bicycle parking areas as part of their design. Secure bicycle parking areas that provide services, such as bicycle rentals and repair, should be considered at major transit stations and commuter destinations.

The proposed transit station on Crenshaw Blvd at approximately 208th Street, as well as any future transit hubs and intermodal facilities, should include secure bicycle parking areas as part of their design, like a BikeStation.

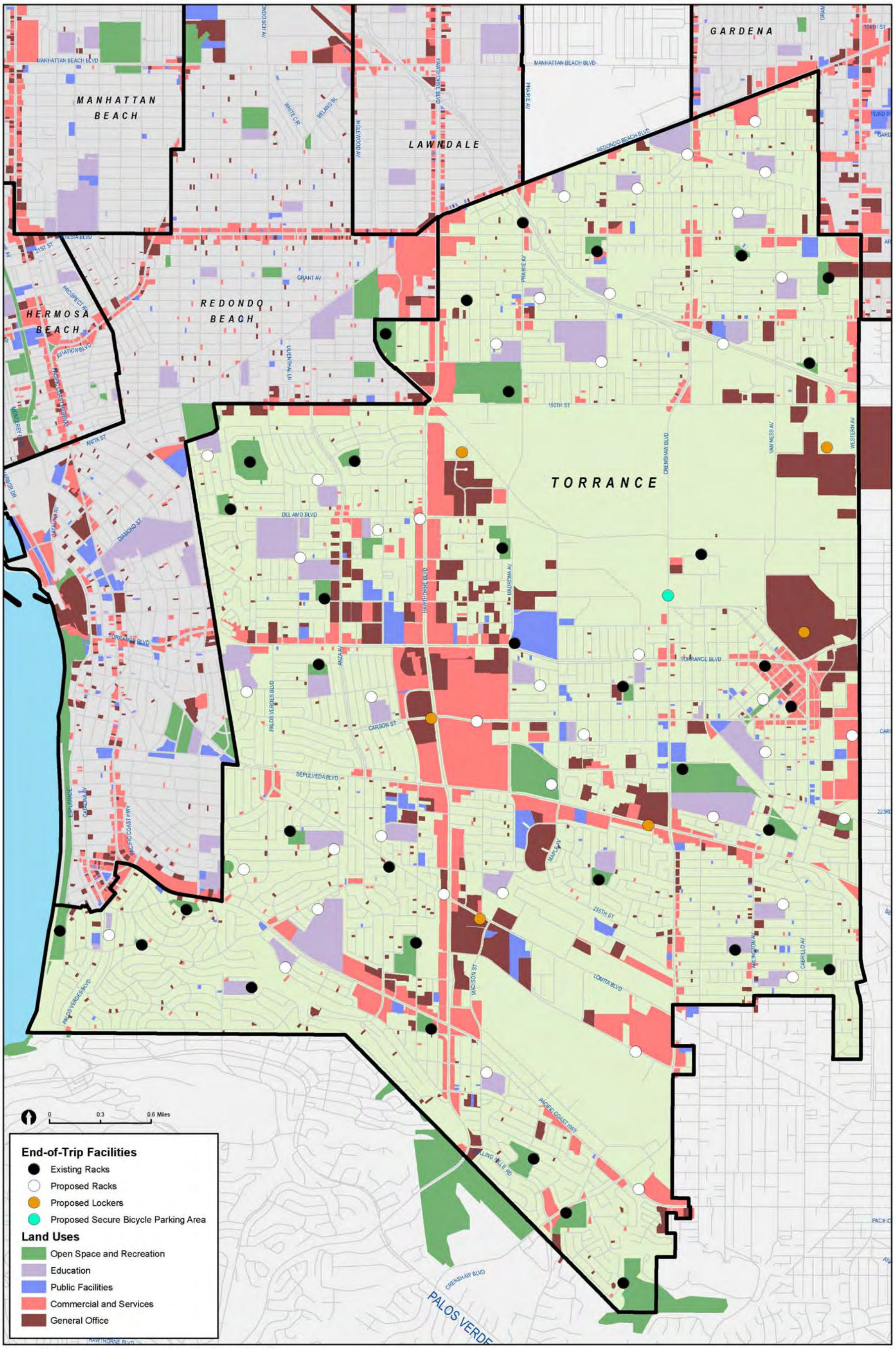

Figure 9-4: Torrance Proposed End-of-Trip Facilities

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9.5 Project Costs

This section presents the cost to implement the proposed bicycle network in Torrance.

9.5.1 Cost Estimates

Table 9-13 displays the planning-level capital cost assumptions for each facility type proposed in this plan, and **Table 9-14** displays the cost to implement the proposed network in the City of Manhattan Beach from the cost assumptions.[25] Cost assumptions are based on LA County averages and may vary depending on environmental conditions of a given facility, unforeseen construction cost variations, and similar considerations. Cost assumptions exclude specific treatments that may vary by location and must be determined by field review, such as traffic calming measures, restriping of existing travel lanes, and sign removal. Cost assumptions do not include traffic signal improvements, such as changes to phasing, recalibration of loop detectors, or installation of push buttons. For detailed cost estimations, refer to the project sheets presented in **Section 6.7**.

Table 9-13: Unit Cost Estimates for Proposed Bicycle Facility Types

Facility Type	Description	Estimated Cost[26]
Class I Bicycle Path	Paving, striping and signage	$800,000 / mile
Class II Bicycle Lanes (two sides)	Striping, signage, and travel lane restriping	$40,000 / mile
Class III Bicycle Routes (two sides)	Signage	$15,000 / mile
Class III Bicycle Routes (two sides) with sharrows	Pavement markings and signage	$25,000 / mile
Bicycle Friendly Street	Pavement markings, signage, and limited traffic calming	$30,000 / mile

[25] **Table 9-14** assumes the cost of implementing Class III Bicycle Routes with Sharrows based on the policies presented in **Chapter 2**

[26] Cost estimates include physical removals and installations (e.g. of signs and striping), contract contingency costs, preliminary engineering, and construction engineering. The source for the unit costs is the LA County Bicycle Master Plan, which are based upon a peer review of Southern California bikeway construction unit costs.

Table 9-14: Estimated Cost of Proposed Bicycle Network

Facility Type	Unit Cost per mile	Length of Proposed Network (miles)	Cost
Bicycle Path	$800,000	0.5	$ 376,000
Bicycle Lane	$40,000	28.0	$ 1,118,000
Bicycle Route with sharrows	$25,000	16.2	$ 406,000
Bicycle-Friendly Street	$30,000	18.3	$ 549,000
Total		**63.0**	**$ 2,449,000**

9.6 Project Prioritization

A prioritized list of bicycle projects will help guide the City of Torrance in implementing the proposed bicycle facilities presented in this Plan. Each proposed facility discussed in **Section 9.4.1** is grouped into projects based on feasibility of implementation. **Table 9-15** presents the prioritized projects based on the prioritization methodology displayed in **Appendix K**. Each criterion contains information about a facility and its ability to address an existing or future need in Torrance. The projects ranked the highest should be implemented first.

Table 9-15: Torrance Prioritized Bicycle Projects

Facility Type*	Facility Name	From	To	Gap Closure	Connectivity: Existing	Connectivity: Proposed Regional	Connectivity: Activity Centers	Connectivity: Multi-Modal	Safety	Public Input	Underserved Communities	Project Cost	Parking Displacement	Total
BL	Prairie Ave - Madrona Ave	Redondo Beach Blvd	Sepulveda Blvd	3	6	1	4	0	2	2	2	0	2	**22**
BL	Van Ness Ave - Cabrillo Ave	190th St	Ferrocarril Ave	3	6	2	4	0	2	2	2	0	1	**22**
BR	Torrance Blvd	Sartori Ave	Van Ness Ave	3	6		4	0	2	2	2	2	0	**21**
BL	Torrance Blvd	Anza Ave	Earl St	6	6	0	0	0	2	2	1	2	0	**19**
BL	Sepulveda Blvd	Existing Bike Lanes (east of Anza Ave)	Western Ave	3	6	0	2	0	2	2	2	0	2	**19**
BL	Lomita Blvd	Anza Ave	Hawthorne Blvd	3	6	0	4	0	1	0	2	2	1	**19**
BR	Henrietta St	Del Amo Blvd	Torrance Blvd	6	6	0	0	0	1	0	1	2	2	**18**
BR	Maple Ave	Del Amo Blvd	Sepulveda Blvd	3	6	0	2	0	2	1	1	1	2	**18**
BR	Plaza del Amo (west)	Madrona Ave	Crenshaw Blvd	3	6	0	2	0	0	1	2	2	2	**18**
BL	190th St	Blossom Ln	Western Ave	3	6	0	4	0	2	1	2	0	0	**18**
BR	Del Amo Blvd	Crenshaw Blvd	Western Ave	3	6	0	0	0	1	2	2	1	2	**17**
BR	Plaza del Amo (east)	Madrid Ave	Arlington Ave	3	6	0	0	0	2	1	1	2	2	**17**
BR	Anza Ave	Sepulveda Blvd	Newton St	3	6	0	0	0	1	2	2	1	2	**17**
BL	Ferrocarril Ave	Arlington Ave	Western Ave	3	6	0	0	0	2	0	2	2	2	**17**
BL	Beryl St	Flagler Ln	190th St	3	6	0	0	0	1	1	1	2	2	**16**
BFS	Earl St - Torrance Blvd	Del Amo Blvd	Ocean Ave	3	6	0	0	0	2	0	1	2	2	**16**
BFS	Arlington Ave	Dominguez St	Plaza Del Amo East	3	6	1	0	0	1	0	2	1	2	**16**
BL	Del Amo Blvd	West City Limits	Henrietta St	3	6	0	0	0	0	2	1	2	1	**15**
BL	Del Amo Blvd	Anza Ave	Maple Ave	3	6	0	0	0	2	2	1	0	1	**15**
BL	Artesia Blvd	Hawthorne Blvd	Western Ave	0	3	0	4	0	2	2	2	0	2	**15**
BR	Palos Verdes Blvd	Sepulveda Blvd	West City Limits	3	6	0	0	0	0	1	0	2	2	**14**

Facility Type*	Facility Name	From	To	Gap Closure	Connectivity: Existing	Connectivity: Proposed Regional	Connectivity: Activity Centers	Connectivity: Multi-Modal	Safety	Public Input	Underserved Communities	Project Cost	Parking Displacement	Total
BR	235th St	Crenshaw Blvd	Western Ave	3	6	0	0	0	0	1	1	1	2	**14**
BR	238th St	Arlington Ave	East City Limits	3	6	0	0	0	0	0	1	2	2	**14**
BL	Skypark Dr	Madison St	Crenshaw Blvd	0	6	0	4	0	0	0	1	1	2	**14**
BFS	239th St	Crenshaw Blvd	Arlington Ave	3	6	0	0	0	0	0	1	2	2	**14**
BFS	162nd St	Van Ness Ave	East City Limits	3	6	0	0	0	0	0	1	2	2	**14**
BFS	Entradero Ave	190th St	Del Amo Blvd	3	6	0	0	0	0	0	1	2	2	**14**
BL	Western Ave	Artesia Blvd	South City Limits	0	3	2	0	0	2	2	2	0	2	**13**
BR - BFS	Columbia St - Alaska Ave - Maricopa St - Elm Ave	Maple Ave	Torrance Blvd	3	6	0	0	0	1	0	0	2	0	**12**
BR	Palos Verdes Blvd	South City Limits	Pacific Coast Highway	0	6	0	0	0	1	1	1	1	2	**12**
BL	Redondo Beach Blvd	Hawthorne Blvd	East City Limits	0	3	0	2	0	2	2	2	0	1	**12**
BL	Calle Mayor	Riviera Way	Anza Ave	0	6	0	0	0	2	0	1	1	2	**12**
BFS	Ocean Ave	Torrance Blvd	Newton St	3	3	0	0	0	2	0	2	0	2	**12**
BFS	Yukon Ave	Redondo Beach Blvd	190th St	0	3	2	0	0	2	0	1	1	2	**11**
BR	Cravens Ave	Arlington Ave	Cabrillo Ave	0	3	0	0	0	0	0	2	2	2	**9**
BR	Plaza del Amo (east)	West City Limits	Western Ave	0	3	1	0	0	0	0	1	2	2	**9**
BFS	Firmona Ave - Tallisman	190th St	Del Amo Blvd	0	3	0	0	0	0	1	1	2	2	**9**
BFS - BR	Dominguez St - Sartori Ave	Madrid Ave	Cabrillo Ave	0	3	0	2	0	1	0	1	1	0	**8**
BFS	Falda Ave - 182nd Pl	182nd St	190th St	0	3	0	0	0	0	0	1	2	2	**8**
BR	182nd St	West City Limits	Western Ave	0	0	0	2	0	1	0	2	1	2	**8**
BR	Calle Mayor	Palos Verdes Blvd	Riviera Way	0	3	0	0	0	0	0	1	2	2	**8**
BFS	Camino del Campo	Palos Verdes Blvd	Vista del Parque	0	3	0	0	0	0	0	1	2	2	**8**

Facility Type*	Facility Name	From	To	Gap Closure	Connectivity: Existing	Connectivity: Proposed Regional	Connectivity: Activity Centers	Connectivity: Multi-Modal	Safety	Public Input	Underserved Communities	Project Cost	Parking Displacement	Total
BP	Madrona Ave Extension	Sepulveda Blvd	229th Pl	0	3		4	0	0	0	1	0	0	**8**
BFS	Newton St	Calle Mayor	Pacific Coast Highway	0	3	0	0	0	0	0	1	1	2	**7**
BFS	Madrid Ave	Dominguez St	Plaza Del Amo East	0	0	0	0	0	1	0	2	2	2	**7**
BFS	Pennsylvania Ave	Sepulveda Blvd	South City Limits	0	3	0	0	0	0	0	1	1	2	**7**
BFS	Via Pasqual - Cll de Arboles - Pso de las Tortugas - Vista Montana	Via Monte D Oro	Newton St	0	3	0	0	0	0	0	0	1	2	**6**
BFS - BL	220th St	Martina Ave	Western Ave	0	0	0	2	0	0	0	1	2	0	**5**
BFS	Via Monte D Oro	Camino del Campo	South City Limits	0	0	0	0	0	0	0	1	1	2	**4**
BFS	171st St	Prairie Ave	Gramercy Pl	0	0		0	0	0	0	2	1	0	**3**

*BP=Bike Path, BL=Bike Lane, BR=Bike Route, BFS=Bike Friendly Street

9.7 Project Sheets

The City of Torrance selected two of its top priority projects from the previous table for more detailed concept designs. Project sheets are shown on the following pages and include:

- A review of the existing site conditions
- Site challenges
- Recommended improvements
- Estimated cost
- Photos
- Aerial images
- Concept graphics

Torrance Project #1: Van Ness Avenue – Cabrillo Avenue (Redondo Beach Boulevard to Plaza del Amo)

Project Site

Van Ness Avenue – Cabrillo Avenue is a north-south corridor located in the eastern portion of the City of Torrance. It connects to Gardena to the north and to existing bike lanes on Cabrillo Avenue to the south. Van Ness Avenue – Cabrillo Avenue provides access to Lincoln Elementary School, the YMCA, Downtown Torrance, and major employers, including ProLogis and Toyota. There is existing on-street parking along the northern and southern segments of Van Ness Avenue – Cabrillo Avenue that is highly utilized in certain segments, including Downtown Torrance.

From Redondo Beach Boulevard to 186th Street, Van Ness Avenue – Cabrillo Avenue has four travel lanes, on-street parallel parking on both sides of the street, and a posted speed limit of 35 mph. The roadway width from Redondo Beach Boulevard to 190th Street is approximately 55 to 57 feet. Between 190th Street and Torrance Boulevard, Van Ness Avenue has four travel lanes and a center turn lane, and the posted speed limit increases to 45 mph. The roadway width is approximately 61 to 63 feet, except for a half-mile stretch between Toyota Way and Del Amo Boulevard where the width drops to approximately 55 feet. There is only on-street parking between Arlington Avenue and Torrance Boulevard on the west side of the street. South of Torrance Boulevard, the posted speed limit drops to 30 mph. Between Torrance Boulevard and 213th Street, the roadway width ranges from 67 feet to 82 feet. From 213th Street to Plaza Del Amo, there are center medians with parallel parking, as well as curbside parallel parking. The roadway width is approximately 36 to 37 feet on each side of the median.

Project Challenges

Van Ness Avenue is an existing Class III Bike Route, but is a challenging bicycling environment due to high vehicle speeds. There are few treatments making a safe bicycling environment for children riding to school and the YMCA. Existing on-street parking reduces the space available for bicycle facilities.

Proposed Improvements

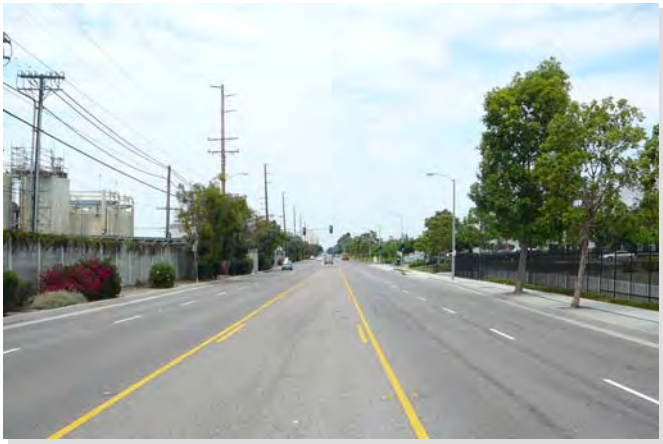
- Stripe 2.5 miles of Class II Bike Lanes and install signs
- Install 1.9 miles of Class III Bike Route signs and stripe sharrows
- Add bicycle loop detectors and pavement markings at all signalized intersections
- Conduct a road diet to convert cross-section to one travel lane in each direction from Torrance Boulevard to Plaza Del Amo (0.9 miles)
- Construct bulbouts with high visibility crosswalks

Estimated Cost

$2,000,000

Photos

Sharrows and traffic calming north of 190th Street will create a safer bicycling environment on Van Ness Avenue.

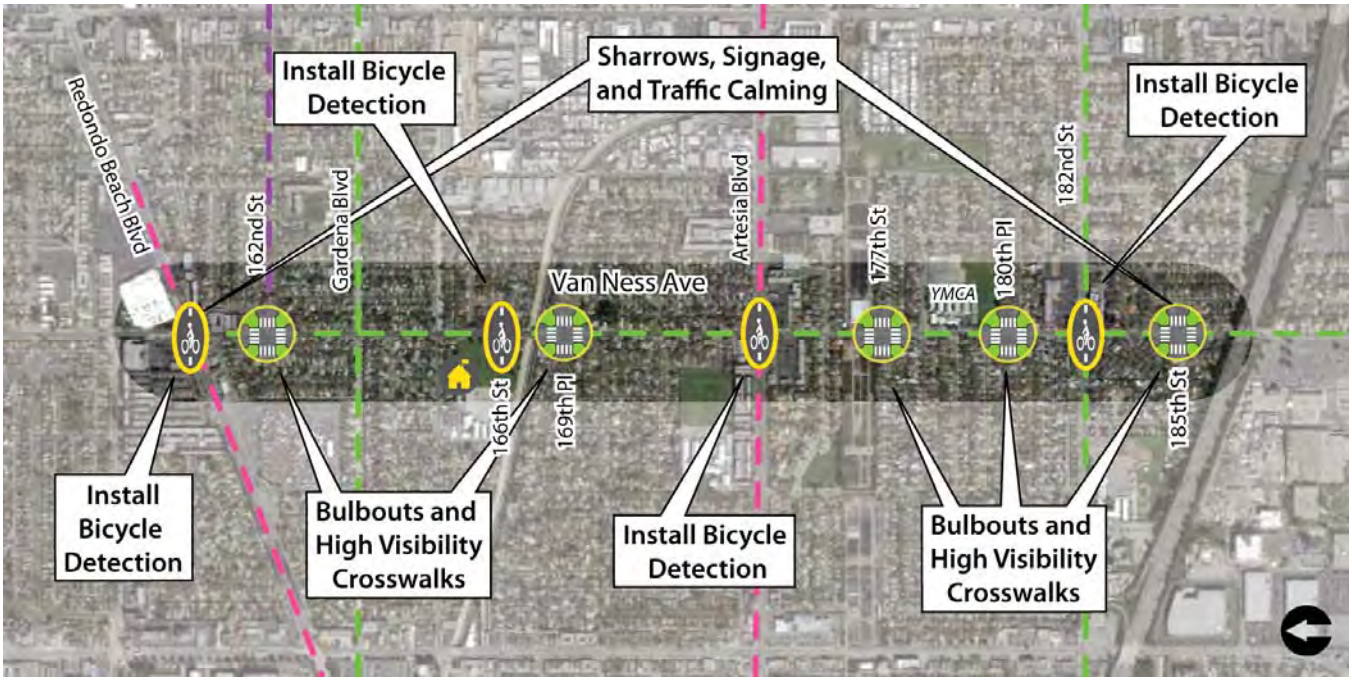


Bike lanes on Van Ness, which has a posted speed limit of 45 mph, will provide a designated space for bicyclists to ride.

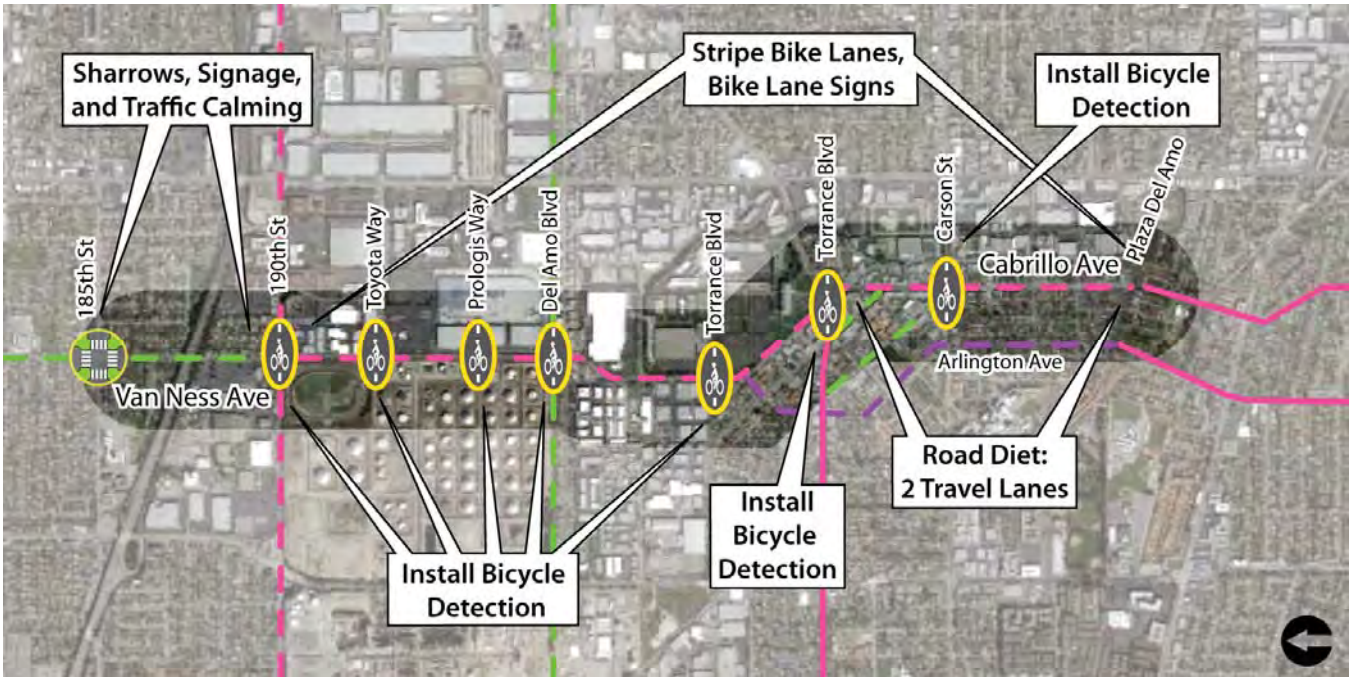
Removing a travel lane will calm traffic and retain on-street parking in Downtown Torrance.

Aerial Map and Concept Graphics: Van Ness Avenue – Cabrillo Avenue

Van Ness Avenue – Cabrillo Avenue (Redondo Beach Boulevard to 185th Street)

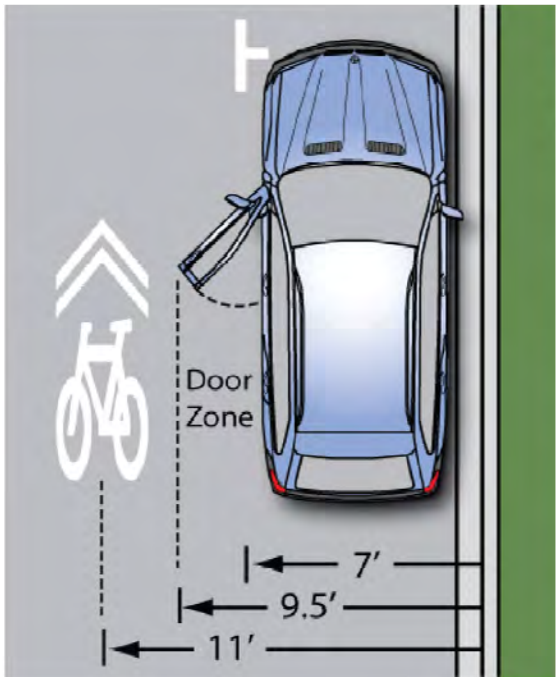


Van Ness Avenue – Cabrillo Avenue (185th Street to Plaza Del Amo)



Aerial Map and Concept Graphics: Van Ness Avenue – Cabrillo Avenue

Sharrows



Bulbouts and High Visibility Crosswalks

Torrance Project #2: 190th Street (Blossom Lane to Prairie Avenue)

Project Site

190th Street is an east-west corridor located in the northern portion of the City of Torrance. The eastern segment of 190th Street shares a border with Redondo Beach. 190th Street continues west into Redondo Beach and east into the City of Los Angeles. It provides access to Dominguez Park, Columbia Park, and residential and commercial uses. There is existing on-street parking along much of 190th Street west of Prairie that is moderately utilized. East of Crenshaw there is only on-street parking in front of residences. From Blossom Lane to Inglewood Avenue the posted speed limit is 35 mph. East of Inglewood Avenue the speed limit increases to 40 mph until Prairie Avenue where it again increases to 45 mph.

Between Blossom Lane and Rindge Lane, 190th Street has a roadway width of approximately 77 to 78 feet. There are four travel lanes, a center turn lane, occasional additional turn pockets at intersections, and on-street parallel parking. The roadway width drops to approximately 73 to 74 feet between Rindge Lane and Inglewood Avenue and there is scattered on-street parallel parking. From Inglewood Avenue to 191st Street, the roadway width of 190th Street increases to approximately 75 to 77 feet. The width increases to between 83 and 100 feet from 191st Street to Hawthorne Boulevard to accommodate turn lanes at the intersection. From Hawthorne Boulevard to Prairie Avenue, the roadway width drops back to approximately 77 to 83 feet and there is no existing on-street parking on either side of the street.

Project Challenges

There are no existing bicycle facilities on this segment of 190th Street. Bicyclists must share the road with high volumes of vehicles traveling at high speeds, creating a challenging bicycling environment.

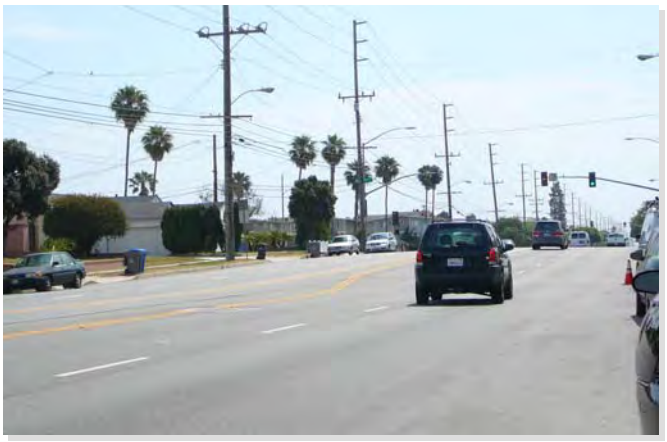
Proposed Improvements

- Stripe 1.8 miles of Class II Bike Lanes and signs
- Add bicycle loop detectors and pavement markings at all signalized intersections

Estimated Cost

$150,000

Photos



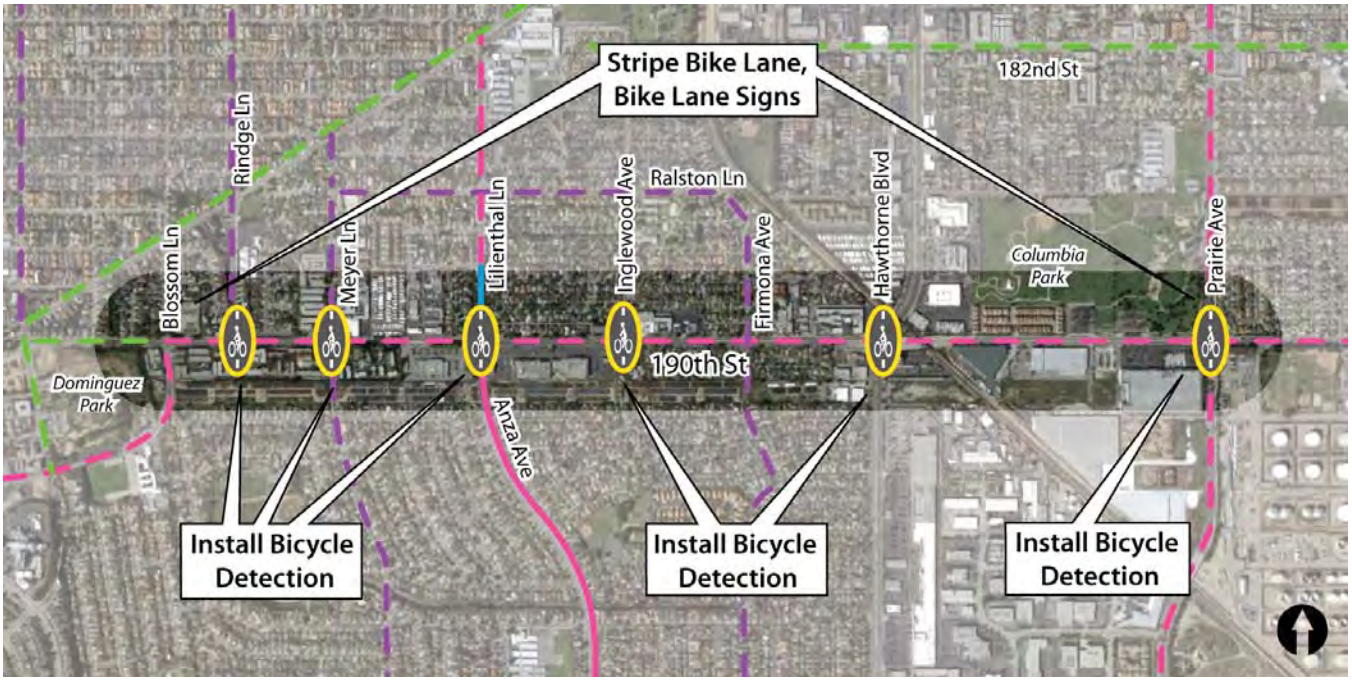
Wide parking lanes provide adequate space for bicycle lanes on some segments of 190th Street.

Bicycle detectors at intersections will allow bicyclists to trigger the signal when no vehicles are present.

Striping bicycle lanes will provide separation between bicyclists and motorists.

Aerial Map and Concept Graphics: 190th Street

190th Street (Blossom Lane to Prairie Avenue)



Bike Lane and Bicycle Loop Detector

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