

# REDONDO BEACH CIRCULATION ELEMENT

Redondo Beach, Cal.



Submitted by:

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## 1.0 BACKGROUND & CONTEXT

Section 65302(b) of the State of California Government Code mandates that a circulation element be included in all general plans, as follows:

*A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.*

This portion of the Redondo Beach General Plan documents and analyzes existing circulation conditions in the City of Redondo Beach and the South Bay region, as well as projected conditions that can be expected as a result of the full buildout of the land use element of the proposed General Plan in 2030. This portion of the plan also describes and analyzes a range of capital and operational improvements that should be considered to reduce the transportation- and circulation-related impacts of the full buildout of the General Plan.

The scope and focus for this circulation element was developed in conjunction with the City of Redondo Beach Engineering and Building Services and Planning Departments. In addition, the City's Growth Management & Traffic Committee held a series of meetings that provided invaluable input into the element's content and structure.

The majority of this analysis focuses on travel conditions within the City limits. However, the nature of traffic and circulation

in the Los Angeles metropolitan region, as well as in the South Bay area, requires that traffic analyses consider the impact of external influences (including regional development and improvements to regional arterials and freeways) on traffic and circulation conditions in the City of Redondo Beach. The travel demand forecasting model developed as part of the General Plan Update will permit an ongoing systematic assessment of the effect these external forces are likely to have on future local traffic and circulation conditions.

### Regional Transportation Planning

Metro's Draft Long Range Transportation Plan (LRTP) was released in March 2008, and it will be finalized by August 2009. The Metro Draft LRTP articulates prioritized transportation improvements to Los Angeles County through 2030, including freeway, transit, bikeway, and grade crossing improvements that affect Redondo Beach.

The freeway improvements most relevant to Redondo Beach involve the San Diego Freeway (I-405). These improvements include widening the northbound (NB) on-ramp at Inglewood Avenue, adding a NB lane from Hawthorne to I-105, widening Inglewood Avenue from Manhattan Beach Boulevard to I-405, and adding NB and SB right-turn lanes at this location.

For transit, Metro has outlined improvements for both rail and bus service in Redondo Beach. Metro is currently studying the extension of the Green Line south to a planned multi-modal transit center adjacent to the South Bay Galleria and to a planned transit center in Torrance. Metro is also considering the feasibility of further extending this line along an existing right-of-way known as the Harbor Subdivision. For buses, Metro has proposed increasing service along I-405 between Long Beach and the South Bay Galleria and between Los Angeles International Airport (LAX) and the South Bay.

LRTP bikeway improvements in Redondo Beach are planned on Torrance Boulevard from Catalina Avenue to the edge of the City, on Western Avenue from 223<sup>rd</sup> Street

to 190<sup>th</sup> Street, on 190<sup>th</sup> Street/Herondo Street/Anita Street from the South Bay Bike Trail to Western Avenue, and on Manhattan Beach Boulevard from the South Bay Bike Trail to Dominguez Channel.

The LRTP lists plans to make railroad-related grade crossing improvements at two streets in Redondo Beach. On Inglewood Avenue, the installation of a raised median and adjustments to signal timing are proposed. On Marine Avenue, Metro has suggested adding signage and improved striping.

### **Regulatory Issues**

#### *Measure DD*

Redondo Beach's Measure DD, approved by voters in November 2008, requires voter consent for certain "major changes" to the City's General Plan or the City's zoning ordinances. When an election for changes to the General Plan or zoning ordinances is held, voters must be informed of anticipated traffic impacts resulting from the proposed change. In addition, a written City review must include a traffic study specific to the change.

#### *AB 1358 – Complete Streets Act*

The California Complete Streets Act of 2008 was signed into law on September 30, 2008. Beginning January 1, 2011, AB 1358 requires circulation elements to address the transportation system from a multi-modal perspective. The bill states that streets, roads, and highways must "meet the needs of all users...in a manner suitable to the rural, suburban, or urban context of the general plan." Essentially, this bill requires a circulation element to plan for all modes of transportation where appropriate—including walking, biking, car travel, and transit.

The Complete Streets Act also requires circulation elements to consider the multiple users of the transportation system, including children, adults, seniors, and the disabled. For further clarity, AB 1358 tasks the Governor's Office of Planning and Research to release guidelines for compliance with this legislation by January 1, 2014.

#### *AB 32 – Global Warming Solutions Act*

With the passage of the Global Warming Solutions Act of 2006, the State of California committed itself to reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. The California Air Resources Board (ARB), which is coordinating the response to comply with AB 32, is currently on schedule to meet this deadline.

In 2007, ARB adopted a list of early action programs that could be put in place by January 1, 2010. In 2008, ARB defined its 1990 baseline level of emissions, and by 2011 it will complete its major rule making for reducing GHG emissions. Rules on emissions, as well as market-based mechanisms like the proposed cap and trade program, will take effect January 1, 2012.

#### *SB 375*

On December 11, 2008, the ARB adopted its Proposed Scoping Plan for AB 32. This scoping plan included the approval of SB 375 as the means for achieving regional transportation-related GHG targets. SB 375 provides guidance on how curbing emissions from cars and light trucks can help the state comply with AB 32.

There are five major components to SB 375. First, SB 375 will address regional GHG emissions targets. ARB's Regional Targets Advisory Committee will guide the adoption of targets to be met by 2020 and 2035 for each Metropolitan Planning Organization (MPO) in the State. These targets, which MPOs may propose themselves, will be updated every eight years in conjunction with the revision schedule of housing and transportation elements.

Second, MPOs will be required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent with each other, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an Alternative Planning Strategy that details an alternative plan to meet the target.

Third, SB 375 requires that regional housing elements and transportation plans be synchronized on eight-year schedules. In addition, Regional Housing Needs Assessment (RHNA) allocation numbers must conform to the SCS. If local jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within three years.

Fourth, SB 375 provides CEQA streamlining incentives for preferred development types. Residential or mixed-use projects qualify if they conform to the SCS. Transit oriented developments (TODs) also qualify if they 1) are at least 50% residential, 2) meet density requirements, and 3) are within one-half mile of a transit stop. The degree of CEQA streamlining is based on the degree of compliance with these development preferences.

Finally, MPOs must use transportation and air emissions modeling techniques consistent with guidelines prepared by the California Transportation Commission (CTC). Regional Transportation Planning Agencies, cities, and counties are encouraged, but not required, to use travel demand models consistent with the CTC guidelines.

#### *SB 97*

While AB 32 places a limit on GHG emissions, it does not specify how climate change regulations affect requirements of the California Environmental Quality Act (CEQA). SB 97, passed in 2007, requires the Governor's Office of Planning and Research to develop CEQA guidelines by July 1, 2009 with the provision that these guidelines are certified by the California Resources Agency by January 1, 2010.

#### **Public Health**

The health of Redondo Beach community members is impacted by travel modes available in the City. Providing opportunities for residents to walk, bike, and take public transportation to destinations such as schools, shopping, entertainment and grocery stores can help to increase routine physical activity among residents. This is important because obesity is on the rise and

is strongly associated with chronic conditions such as Type 2 diabetes, high blood pressure, and heart disease – conditions that are in many cases preventable with proper exercise and diet. People that live in walkable, bikeable communities are more likely to get recommended levels of physical activity and have lower rates of obesity, so this is an effective way to promote community health.

## 1.1 TRAVEL CHARACTERISTICS & PLANNED IMPROVEMENTS

### Redondo Beach Travel Characteristics

The Decennial Census provides statistics on a variety of characteristics about the general population, including how people use the transportation system. Census journey-to-work data show that the dominant mode of transportation for residents of Redondo Beach is the personal automobile. According to the 2000 Census, there are approximately 1.7 cars per household in Redondo Beach, which is only slightly higher than the countywide average of 1.6 cars. However, 95% of Redondo Beach households have at least one car, compared with the countywide average of 87%. Approximately 91% of work trips are made in a personal automobile, with 83% of residents driving alone. These numbers are slightly higher than in Los Angeles County as a whole, which averages 86% of work trips by car and 70% of people driving alone.

Only 1.5% of Redondo Beach residents use public transit to get to work, compared with 6.6% of commuters Countywide. About 1.4% of Redondo Beach residents walk to work, which is nearly double the 0.8% who bike. Residents of Redondo Beach reported an average commute of 28 minutes, with 83% traveling outside of the City for work.

### Planned Improvements

#### *Measure R*

With the passage of Measure R in Los Angeles County, Metro secured funding for both regional transportation projects outlined in the LRTP as well as local transportation improvements in individual cities. Measure R became law on January 2, 2009, and its half-cent sales tax will take effect in July 2009.

The Measure R regional projects most relevant to Redondo Beach are improvements to I-405 and the extension of the Green Line. According to Metro's project summary released in January 2009, the Green Line extension will be completed by

2035 and the improvements to the I-405 will take place as funds become available.

In addition to regional projects, fifteen percent of sales tax revenue generated by Measure R will be divided among the 88 cities in Los Angeles County on a per capita basis. This local return can be used at a City's discretion for transportation improvements, such as street resurfacing, pothole repair, signal synchronization, bikeways, pedestrian improvements, transit service improvements, and streetscapes.

Redondo Beach may also benefit from increased subsidies to Metro's bus system. Twenty percent of Measure R funds will be devoted to Countywide bus operations.



*South Bay Galleria is a possible future destination of Metro's Green Line.*

#### *Redondo Beach Capital Improvement Program 2008-2013*

The proposed Capital Improvement Plan (CIP) 2008-2013 for Redondo Beach was released May 2008, and it lists future improvements to surface transportation. Thirty-six of these CIP projects fall under the heading of Street Improvements. Seven of these projects are previously funded carryovers:

- Bus Shelters and Benches
- Calle Miramar/Paseo de la Playa Roundabout (completed)
- Catalina Avenue Street Improvements — Beryl Street to Pacific Coast Highway
- Inglewood Avenue Resurfacing—Grant Avenue to Artesia Boulevard (completed)
- Pacific Coast Highway/Catalina Avenue Intersection Improvements (completed)

- Sapphire Street/Francisca Avenue Curb Line Extension (completed)
- Target Community Improvements

Other currently scheduled Street Improvements:

- Bicycle Transportation Plan Implementation
- Catalina Avenue/Harbor Drive Advanced Signal Management
- Citywide Curb Ramp Improvements
- Citywide Pavement Management Survey
- Esplanade Street Streetscape Improvements
- Grant Avenue Traffic Signal Improvements
- Harbor Drive—Beryl Street to Herondo Street
- Marine Avenue-Western Portion
- North Redondo Beach Bikeway Lighting and Amenities
- Preventive Maintenance Alleys, Sidewalks, Curbs and Gutters
- Redondo Beach Avenue—Marine Avenue to Manhattan Beach Boulevard
- Residential Street Rehabilitation
- Riviera Village Improvements
- School Safety Zone Program
- Torrance Streetscape Improvements (under construction)
- Traffic Calming Project

In addition, the Street Improvement section lists 18 projects, including five from the above list of scheduled improvements that are unfunded or underfunded:

- 190<sup>th</sup> Street Resurfacing—Pacific Coast Highway to Prospect Avenue
- Aviation Boulevard Right Turn to Artesia Boulevard
- Beryl Street/Pacific Coast Highway NB Left-turn lane Improvements
- Beryl Street Restriping at Pacific Coast Highway
- California Coastal Trail/Strand Bike Path Improvements
- Catalina Avenue Corridor Beautification
- Esplanade Streetscape Improvements
- Grant Avenue Traffic Signal Improvements

- I-405 Freeway On-/Off-Ramp Landscaping
- I-405 Freeway On-/Off-Ramp Street Improvements
- Inglewood Avenue Street Resurfacing—Artesia Boulevard to Manhattan Beach Boulevard
- Inglewood Avenue Widening I-405 to Manhattan Beach Boulevard
- Preventive Maintenance—Alleys, Sidewalks
- Prospect Avenue Slurry Seal-Palos Verdes Boulevard to Anita Street
- Residential Street Resurfacing
- Riviera Village Improvements
- Torrance Boulevard/Pacific Coast Highway NB Right-turn lane
- Torrance Boulevard Streetscape Master Plan

The two remaining surface transportation improvements listed in the CIP fall under the heading of Public Facility Improvements:

- Transit Center (scheduled)
- City Parking Lots (underfunded)

**Future Goals**

Community meetings in Redondo Beach have identified nearly 50 goals and policies for the City’s transportation system. Broad goals appear here, while more specific goals are grouped by topic, appearing throughout the remainder of this document.

**GOAL: REDUCE TRIP GENERATION**

- G1. Address the “root causes” of trip generation rather than simply reacting to the consequences.
- G2. Reduce Year 2030 trip generation by 25 percent compared to 2007 levels.
- G3. Develop a method to measure trip generation over time.

**GOAL: PROMOTE ALTERNATIVE MODES**

- G4. Residents and visitors should be able to safely and conveniently walk, bike, or take transit in Redondo Beach, as they prefer.

**GOAL: EXPAND TRANSPORTATION DEMAND MANAGEMENT**

G5. Expand transportation demand management (TDM) programs that decrease the number of single-occupant vehicles on the road.

**GOAL: COORDINATE LAND USE & TRANSPORTATION**

G6. Redondo Beach favors development that purposefully integrates itself with surrounding transportation facilities.

**POLICIES AND IMPLEMENTATION MEASURES**

P1. Support transit-oriented development that reduces current automobile trips.

P2. Develop City business license requirements that encourage home-based businesses.

P3. Investigate financial incentives to promote home offices.

P4. Encourage mixed-use development that incentivizes residents to support nearby land uses by minimizing travel distance.

P5. Minimize restrictions on home-based offices, and provide supporting infrastructure for home-based businesses. Home-based businesses should be compatible with surrounding uses.

**GOAL: PLAN REGIONALLY**

G8. Redondo Beach will actively participate in subregional transportation planning efforts in order to protect the City's quality of life and maximize its voice in cooperative sub-regional solutions.

**POLICIES AND IMPLEMENTATION MEASURES**

P6. Coordinate with Caltrans and neighboring jurisdictions regarding multi-modal solutions (signal synchronization, enhanced bus facilities, etc.) for through traffic on Pacific Coast Highway.

P7. Coordinate with SCAG to produce RHNA numbers that address regional disparities in the jobs/housing balance in accordance with population density.

P8. Give incentives to businesses to provide satellite locations within Redondo Beach.

**GOAL: TAKE ACTION ON CLIMATE CHANGE**

G7. To comply with State legislation, Redondo Beach will implement plans and programs to reduce greenhouse gas emissions.



## 1.2 MOBILITY FRAMEWORK

### Street System Classifications

The Master Plan of Streets in Figure 1 depicts the municipal boundary and primary existing streets in the City of Redondo Beach. While the Master Plan only specifies three street types (primary arterials, secondary arterials, and collector streets), urban street systems are typically divided into four or more functional classifications. The following discussion provides some background on these classifications.

From a transportation perspective, urban street systems are intended to serve two separate functions: mobility and access. The concept of mobility expresses ease of movement, while the concept of access describes the ability to arrive at a particular destination. For example, freeways offer fast travel without any opportunities to stop along the way (high mobility and low access), while downtown offers a high density of street-level amenities but lower travel speeds (high access and low mobility). In order to achieve a balance between these competing needs, streets are arranged in the following hierarchy:

- Freeways – With a controlled number of entry points and grade-separated from city streets, freeways are intended to provide high speed regional movement. Limited access is provided to abutting properties.
- Arterial Streets – Designed to carry up to 50,000 vehicles per day, arterial streets are primarily intended to provide movement. Access to abutting property can be provided, but is minimized.

Arterials are frequently further divided into major and secondary arterials.

- Collector Streets – Typically carrying up to 15,000 vehicles per day, collector streets allow moderate volumes of through traffic to move between local streets and arterials while also providing access to abutting properties.
- Local Streets – Local streets are generally intended to carry less than 2,000 vehicles per day with the highest priority to the function of providing access to abutting properties. Given this intended function, through traffic is discouraged.

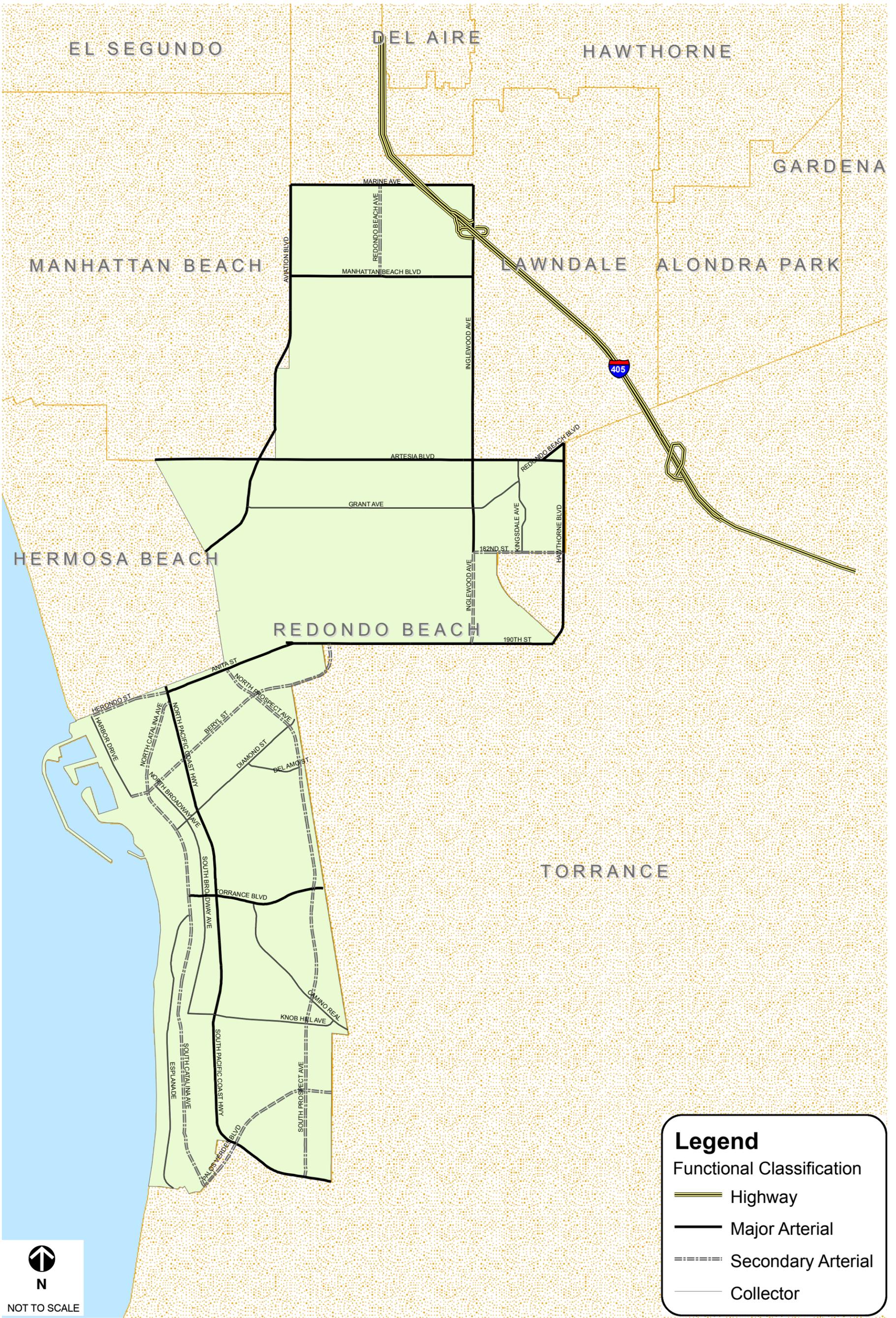
This hierarchical relationship is maintained by the geographic layout of streets. Freeways distribute traffic onto arterials, which in turn distribute traffic onto collectors, which in turn distribute traffic onto local streets. Efficiently designed urban transportation systems provide each of the street types listed above at locations appropriate to adjacent land uses and in proportions adequate to maintain the functionality of the network.

### Local Circulation System Inventory

This section presents a description of the existing circulation system serving the City, including travel lanes, channelization, traffic control devices, and on-street parking capacity.

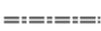
North Redondo Beach, situated north of 190<sup>th</sup> Street, is served by a north/south/east/west grid system of streets. The southern portion of the City, south of Herondo Street/Anita Street, is primarily served by a linear/grid street system with a few streets traveling diagonally.

Pacific Coast Highway (SR 1), Aviation Boulevard, Inglewood Avenue, and Hawthorne Boulevard (SR 107) are the major north/south arterials serving the City. Major east/west arterials include Marine Avenue, Manhattan Beach Boulevard, Artesia Boulevard, 190<sup>th</sup> street, and Torrance Boulevard. Primary regional access to the community is provided by the



**Legend**

Functional Classification

-  Highway
-  Major Arterial
-  Secondary Arterial
-  Collector

  
N  
NOT TO SCALE

I-405, which runs through the northeast corner of the City.

Brief descriptions of the principal roadways serving the City are provided below. The classifications used to describe the streets (i.e., arterial, collector, etc.) are based on their observed functions, irrespective of the intended or officially designated classifications.



*I-405 ramps at Inglewood Avenue*

#### San Diego Freeway (Interstate 405)

The San Diego Freeway is a major regional freeway that runs in the northwest-southeast orientation through the northeast corner of the City. The freeway connects with other freeways to provide access to the entire Los Angeles basin. It is a grade-separated facility with eight lanes for mixed flow traffic and two lanes designated for High Occupancy Vehicles (HOV). Key interchanges serving the study area are located at Rosecrans Avenue, Inglewood Avenue, Hawthorne Boulevard, Redondo Beach Boulevard, Artesia Boulevard, and Crenshaw Boulevard.

#### Harbor Freeway (Interstate 110)

The Harbor Freeway is a major regional freeway that runs in a north/south orientation approximately four miles east of the City limits. The freeway provides access from the study area to downtown Los Angeles to the north. It is a grade separated facility with eight lanes for mixed flow traffic and between two and four lanes for HOV traffic. Key interchanges serving the study area are located at Redondo Beach Boulevard, Artesia Boulevard, Torrance Boulevard, Carson Street, Sepulveda Boulevard, and Pacific Coast Highway.

#### Anita Street/Herondo Street/190<sup>th</sup> Street

The combination of these three streets forms an east/west arterial that runs through the center of the City. Herondo Street, a secondary arterial, runs between Harbor Drive and Pacific Coast Highway; Anita Street, a major arterial, runs between Pacific Coast Highway and Flagler Lane; and 190<sup>th</sup> Street, a major arterial, continues easterly from Flagler Lane. A raised median exists on Herondo Street, and a continuous left-turn lane is present on Anita Street. West of Hawthorne Boulevard, on-street parking is generally permitted along the north curb. On the south curb, parking is prohibited east of Meyer Lane and Between Flagler Lane and Prospect Avenue. Metered parking is provided west of Francisca Avenue.

#### Artesia Boulevard

Artesia Boulevard is a four-lane east/west major arterial with a raised median present throughout the study area. On-street parking is permitted west of Kingsdale Avenue within the City limits.

#### Aviation Boulevard

Aviation Boulevard is a four-lane north/south major arterial that curves in southwest direction south of Artesia Boulevard ending at Pacific Coast Highway. Parking is prohibited on both sides of the street between Marine Avenue and Manhattan Beach Boulevard. On the east side, no parking is allowed from Manhattan Beach Boulevard to Ruhland Avenue.

#### Beryl Street

Beryl Street is a southeast-northwest secondary arterial that runs from Harbor Drive to 190<sup>th</sup> Street. Between Prospect Street and Catalina Avenue, Beryl Street is one lane in each direction with a center turning lane. Beryl Street narrows to two-lanes east of Flagler Lane. On-street parking is permitted between Catalina Avenue and Flagler Lane.

#### Broadway

Broadway is a two-lane north/south collector that runs from Catalina Avenue to Knob Hill Avenue with on-street parking permitted.



*Pacific Coast Highway and 190th Street/Anita Street/Herondo Street*

**Camino Real**

Camino Real is a four-lane northwest-southeast collector that runs from Torrance Boulevard past Prospect Avenue. East of the City limits, this facility continues east as Sepulveda Boulevard. On-street parking is provided along this facility.

**Catalina Avenue**

Catalina Avenue is a four-lane north/south secondary arterial that runs from Pacific Coast Highway near the northern City boundary to Palos Verdes Boulevard at the southern City boundary. On-street parking is metered on the west side from Carnelian Street to Torrance Boulevard and on the east side from Emerald Street to Pearl Street. A raised median exists between Beryl Street and Torrance Boulevard.

**Del Amo Street**

Del Amo Street is a two-lane east/west collector that runs from Diamond Street to Prospect Avenue. On-street parking is permitted on the north side.

**Diamond Street**

Diamond Street is a two-lane northeast/southwest collector. Diamond Street runs from Catalina Avenue to Prospect Avenue. This street has one lane in each direction with a center turn lane, bicycle lanes and parking on both sides.

**Esplanade**

Esplanade is a two-lane north/south collector that runs from Catalina Avenue to Vista Del Mar. On-street parking is permitted, with meter control on the west side between Avenue A and Avenue I as

well as the entire east side of Esplanade. From Knob Hill Avenue south, Esplanade runs two lanes with a center turn lane and bike lanes on both sides of the street.

**Grant Avenue**

Grant Avenue is a two-lane collector. Grant Avenue travels east/west and runs from Aviation Boulevard to Kingsdale Avenue. This street has one lane in each direction with a center turn lane, bicycle lanes and parking on both sides.

**Harbor Drive**

Harbor Drive is a two-lane north/south collector between Herondo Street and Beryl Street. North of Herondo Street, this facility continues north as Hermosa Avenue. Metered on-street parking and bike lanes are provided.

**Hawthorne Boulevard (State Route 107)**

Hawthorne Boulevard provides eight through lanes with a raised median in the vicinity of the City, and is designated as a north/south major arterial. On-street parking is prohibited in the study area.



*Inglewood Avenue and 190<sup>th</sup> Street*

**Inglewood Avenue**

Inglewood Avenue is a north/south major arterial providing four through lanes north of 190<sup>th</sup> Street. A raised median exists north of Grant Avenue. Parking is prohibited on the east side of the street between Marine Avenue and Manhattan Beach Boulevard, from Artesia Boulevard to Vanderbilt Lane, and from Rockefeller Lane to 190<sup>th</sup> Street. On the west side, parking is prohibited between Marine Avenue and Faber Street and from Grant Avenue to 190<sup>th</sup> Street.

**Kingsdale Avenue**

Kingsdale Avenue is a north/south collector providing two lanes between Artesia Boulevard and 182<sup>nd</sup> Street. On-street parking is permitted along the west side of Kingsdale Avenue between Grant Avenue and 177<sup>th</sup> Street.

**Knob Hill Avenue**

Knob Hill Avenue is a two-lane east/west collector that runs from Esplanade to Camino Real. A continuous left-turn lane exists west of Pacific Coast Highway, and on-street parking is permitted.

**Manhattan Beach Boulevard**

Manhattan Beach Boulevard is an east/west major arterial providing five through lanes (three westbound except just east of Redondo Beach Avenue and two eastbound) with a raised median. On-street parking is permitted on the south side between Aviation Boulevard and Vail Avenue.

**Marine Avenue**

Marine Avenue is a four lane east/west major arterial, the southern half of which lies in the City of Redondo Beach between Aviation Boulevard and Inglewood Avenue. A painted median is provided, and parking is prohibited west of the I-405 underpass; east of the underpass, parking is permitted.

**Pacific Coast Highway (State Route 1)**

Pacific Coast Highway (PCH) is a four-lane north/south major arterial. Left-turn lanes are provided at major intersections and travel speeds are relatively low, as characteristic of commercial corridors. A raised median is located south of Avenue H. On-street parking is prohibited along short sections of PCH at Torrance Boulevard, Catalina

Avenue and Diamond Street, and generally permitted elsewhere.

**Palos Verdes Boulevard**

Palos Verdes Boulevard is a four-lane northeast-southwest secondary arterial with a raised median present in the study area. On-street parking is prohibited on the east side between PCH and Avenue G.

**Prospect Avenue**

Prospect Avenue is a four-lane north/south secondary arterial that runs from Anita Street to Pacific Coast Highway. On-street parking is prohibited on the east side between Anita Street and Del Amo Street, between Barbara Street and Camino Real, and between Irena Avenue and Avenue E. On the west side of Prospect Avenue, parking is mostly prohibited between Anita Street and Diamond Street, as well as between Helberta Avenue and Avenue F.

**Redondo Beach Avenue**

Redondo Beach Avenue is a four-lane north/south secondary arterial that runs from Marine Avenue to Manhattan Beach Boulevard. On-street parking is prohibited on the west side between Santa Fe Avenue and Manhattan Beach Boulevard. A raised median is also provided.

**Redondo Beach Boulevard**

Redondo Beach Boulevard is a four-lane northeast-southwest major arterial that ends at Artesia Boulevard. On-street parking is permitted in the study area.



*Pacific Coast Highway and Torrance Boulevard*

**Torrance Boulevard**

Torrance Boulevard is a four-lane east/west major arterial that ends in a cul-de-sac west of Catalina Avenue. On-street parking is permitted along most of its length in the area.



*Torrance Boulevard and Prospect Boulevard*

**182<sup>nd</sup> Street**

182<sup>nd</sup> Street is a two-lane east/west secondary arterial running eastward from Inglewood Avenue. On-street parking is generally prohibited in the study area.

**Local Designated Truck Routes**

Streets that have been designated by the City of Redondo Beach to carry truck traffic in the City are shown in Figure 2. Designated routes are generally limited to major arterials, including the following—north/south: Sepulveda/PCH, Aviation Boulevard, Inglewood Avenue (north of Artesia Boulevard), and Hawthorne Boulevard; east/west: Marine Avenue, Manhattan Beach Boulevard, Artesia Boulevard, Redondo Beach Boulevard, Anita/190<sup>th</sup> Street (west of Anza Avenue has a reduced weight limitation), and Torrance Boulevard (east of Pacific Coast Highway).

Since commercial uses in the City are concentrated along these major arterial corridors, the truck route designations shown appear to meet current needs. These truck routes are also sufficiently separated from residential areas to prevent excessive conflicts.

**Daily Roadway Segment Traffic Volumes**

Existing daily traffic volumes for key streets in the City were obtained in 2007. Daily

traffic volumes along Pacific Coast Highway were obtained from the State of California Department of Transportation (Caltrans). To the extent that recent data was available, the daily traffic volumes along these key streets have been summarized in Figure 3. Figure 3 shows that traffic volumes on major and secondary arterial streets generally range between 20,000 and 40,000 vehicles per day (vpd). Collector streets in the City of Redondo Beach generally carry on the order of 5,000 vpd.

**Level of Service**

Level of Service (LOS) is a qualitative measure used across the traffic engineering and transportation industry to describe the condition of traffic flow within a specified segment of roadway or at an intersection, ranging from excellent conditions (LOS A) to overloaded conditions (LOS F). LOS definitions for signalized intersections are provided in Table 1, and definitions for unsignalized intersections are provided in Table 2. LOS D is generally accepted as a realistic design objective in urban areas, although in certain circumstances other goals and objectives (such as pedestrian safety, or landscaping) may outweigh the decision to accommodate more vehicle traffic.

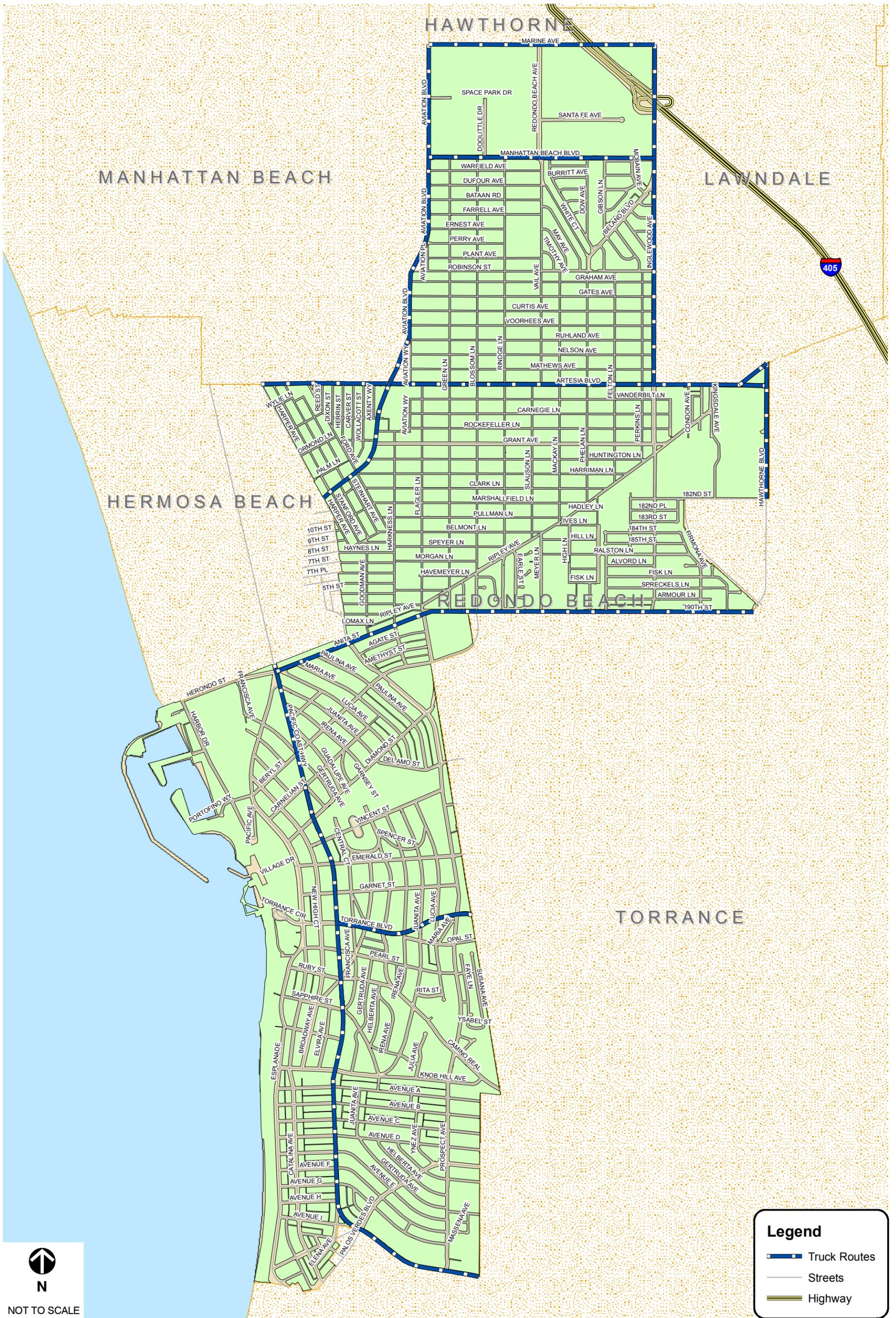
**POLICY: LEVEL OF SERVICE**

**P9.** Where feasible, maintain or achieve LOS D at City intersections.

Redondo Beach has expressed a goal for City intersections not to degrade beyond LOS D. Where intersections currently exceed LOS D, the City will pursue mitigation measures to achieve LOS D. If LOS D is not achievable at an intersection under existing baseline conditions with feasible mitigation, the LOS standard for the intersection will be equal to the 2007/08 intersection LOS.

*Public Comments*

Several major transportation corridors were identified by community meeting participants as having notable traffic congestion. The following street segments and their intersections were identified as congested:



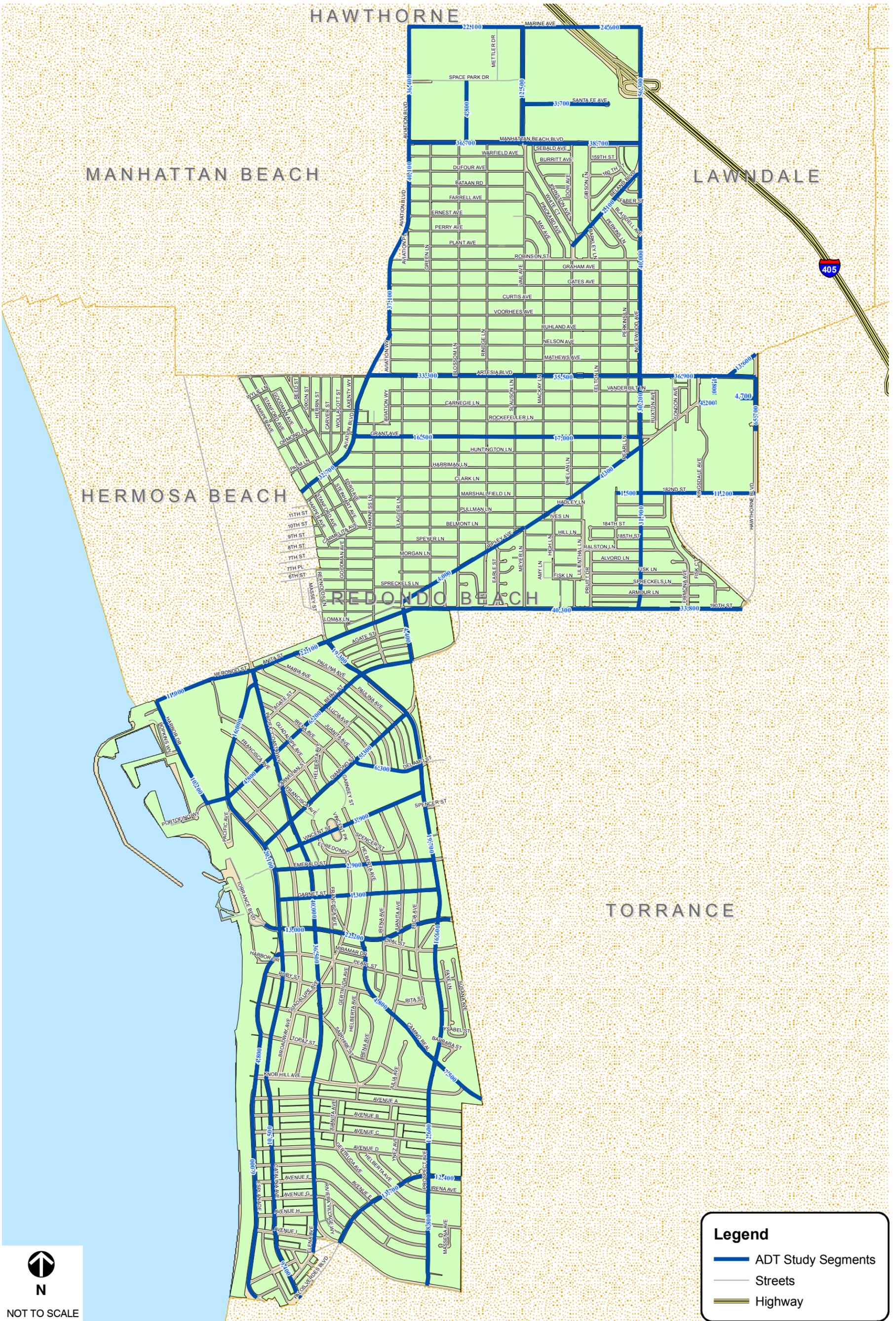


TABLE 1 LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTION:		
Level of Service	Intersection Capacity Utilization	Definition
A	0.000-0.600	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.
B	0.601-0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701-0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801-0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901-1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*  
 Transportation Research Board, 1980.

**TABLE 2**  
**LEVEL OF SERVICE DEFINITIONS FOR UNSIGNALIZED INTERSECTIONS**  
**(2000 HIGHWAY CAPACITY MANUAL UNSIGNALIZED METHOD)**

Level of Service	Average Control Delay per Vehicle (seconds)
A	$\leq 10.0$
B	$> 10.0$ and $\leq 15.0$
C	$> 15.0$ and $\leq 25.0$
D	$> 25.0$ and $\leq 35.0$
E	$> 35.0$ and $\leq 50.0$
F	$> 50.0$

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

- Aviation Boulevard
- Inglewood Avenue
- Pacific Coast Highway
- Torrance Boulevard
- Manhattan Beach Boulevard
- 190<sup>th</sup> Street
- Catalina Avenue from Torrance Avenue to Anita Street
- Rindge Lane from 190<sup>th</sup> Street to Artesia Boulevard
- 182<sup>nd</sup> Street at Hawthorne
- Anita Street at Prospect Avenue

Public comments about intersections were often consistent with LOS analysis. 190<sup>th</sup> Street & Inglewood Avenue was the most commonly mentioned intersection and LOS analysis shows it to be operating at LOS F during both the AM and PM peak hours. After Inglewood Avenue & 190<sup>th</sup> Street, the most commonly mentioned intersections were Inglewood Avenue & Manhattan Beach Boulevard (LOS E-AM, LOS F-PM), Torrance Boulevard & Prospect Boulevard (LOS D-AM, LOS C-PM), Torrance Boulevard & Pacific Coast Highway (LOS D-AM, LOS E-PM), and Herondo Street & Pacific Coast Highway (LOS E-AM, LOS E-PM).

Suggestions from community members to address congested traffic intersections included:

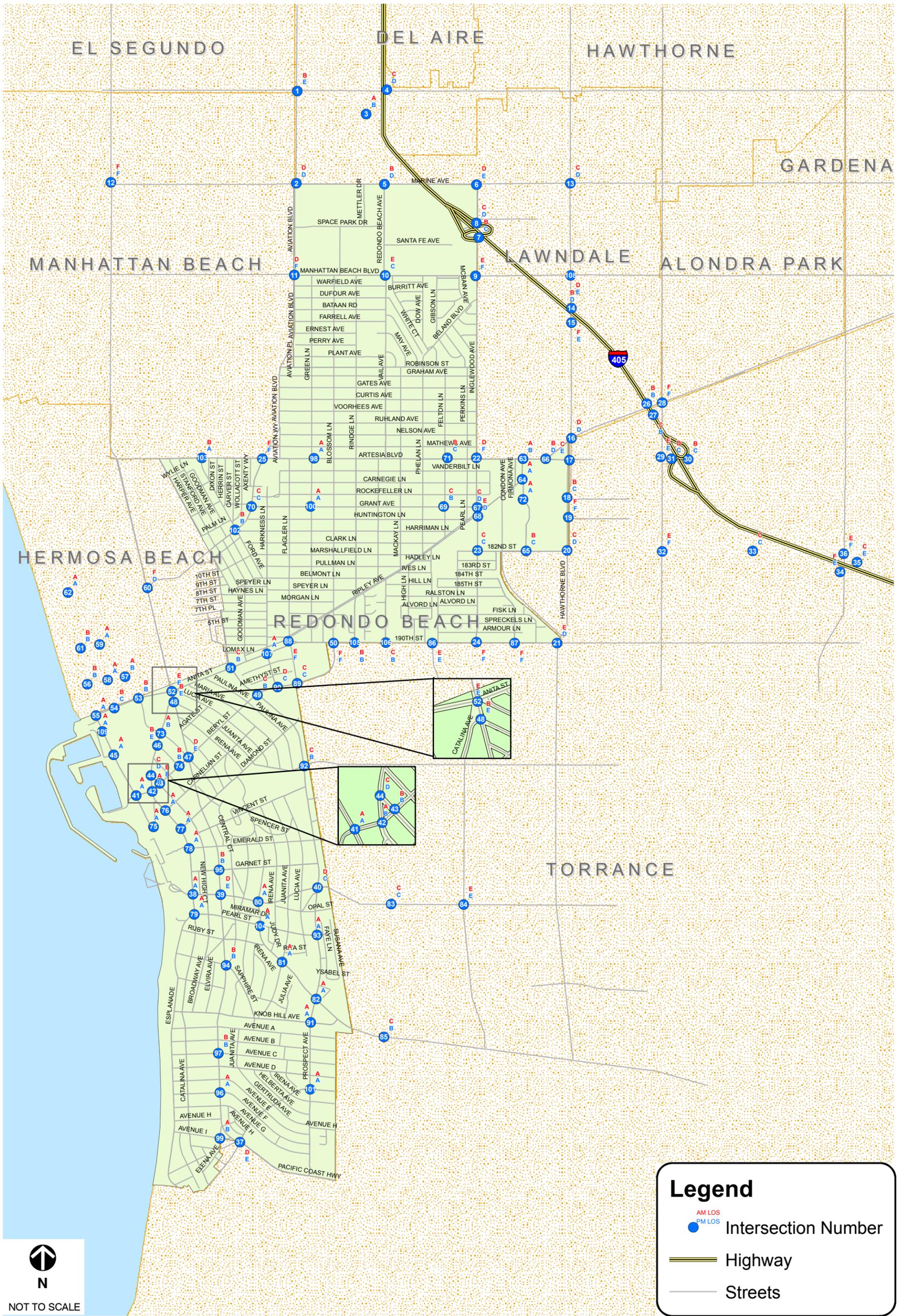
- additional lanes
- roundabouts
- one-way couplets
- reversible lanes
- additional turn lanes
- extended turn lanes
- signal synchronization
- signal timing
- smart lights
- left-turn signals
- left-turn prohibitions

Additional community recommendations for improving vehicular circulation included grade separation for the railroad line at Inglewood Avenue and Manhattan Beach Boulevard, adding more public parking near Artesia Boulevard, fixing potholes, and improving enforcement of speed limits.

#### *Existing Intersection Analysis*

Peak hour turning movement counts were collected between March and September 2007 at 109 intersections in the study area. These counts were used to calculate intersection LOS. During the AM peak hour, as illustrated in Figure 4 and Table 3, 88 intersections operate at LOS D or better, 11 intersections operate at LOS E, and 10 intersections operate at LOS F. During the PM peak hour, 80 intersections operate at LOS D or better, 16 intersections operate at LOS E, and 13 intersections operate at LOS F.

Figure 4 shows that the greatest levels of peak hour congestion are generally experienced at intersections along 190<sup>th</sup> Street. In addition, Artesia Boulevard, Aviation Boulevard, Inglewood Avenue, and Pacific Coast Highway have at least one intersection operating at LOS E or F in the AM or PM peak hour. Traffic along the coast, by contrast, is less congested, with most intersections on Harbor Drive, Catalina Avenue, and Broadway Avenue operating at LOS A or B.



**Legend**

- AM LOS
 ● PM LOS
 ● Intersection Number
- Highway
- Streets

N
   
 NOT TO SCALE

**TABLE 3  
EXISTING (YEAR 2007) AND FUTURE (YEAR 2030) INTERSECTION LEVELS OF SERVICE**

Intersection		2007				2030				
		AM		PM		AM		PM		
Number	Street	Cross Street	LOS	V/C or Delay						
1	Aviation Blvd	Rosecrans Av	B	0.683	E	0.918	D	0.889	E	0.986
2	Aviation Blvd	Marine Av	D	0.879	D	0.891	F	1.064	F	1.107
3	Hindry Av	405 SB on-ramp/SB off-ramp	A	0.489	B	0.601	D	0.853	F	1.016
4	405 NB on-ramps	Rosecrans Av	C	0.723	D	0.806	D	0.891	E	0.959
5	Redondo Beach Av	Marine Av	B	0.612	D	0.892	D	0.844	F	1.350
6	Inglewood Av	Marine Av	D	0.872	E	0.953	F	1.153	F	1.131
7	Inglewood Av	405 NB on-ramp/NB off-ramp	B	0.668	C	0.729	D	0.850	D	0.882
8	Inglewood Av	405 SB off-ramp/on-ramp	C	0.749	D	0.850	C	0.798	E	0.916
9	Inglewood Av	Manhattan Beach Blvd	E	0.927	F	1.153	F	1.131	F	1.247
10	Redondo Beach Av	Manhattan Beach Blvd	E	0.919	C	0.798	F	1.147	E	0.978
11	Aviation Blvd	Manhattan Beach Blvd	D	0.858	F	1.033	E	0.957	F	1.128
12	Sepulveda Blvd	Marine Av	F	1.087	F	1.027	F	1.254	F	1.154
13	Hawthorne Blvd	Marine Av	C	0.782	D	0.825	E	0.939	F	1.067
14	Hawthorne Blvd	405 NB on-ramp/off-ramp	B	0.609	D	0.852	C	0.703	E	0.922
15	Hawthorne Blvd	405 SB on-ramp/off-ramp	F	1.142	E	0.922	F	1.203	F	1.019
16	Hawthorne Blvd	Redondo Beach Blvd	D	0.805	D	0.818	F	1.017	F	1.092
17	Hawthorne Blvd	Artesia Blvd	C	0.791	E	0.913	D	0.888	F	1.066
18	Hawthorne Blvd	177th St	B	0.649	C	0.764	B	0.688	E	0.935
19	Hawthorne Blvd	179th St	F	OVRFL *						
20	Hawthorne Blvd	182nd St	C	0.711	D	0.830	F	1.011	F	1.020
21	Hawthorne Blvd	190th St	E	0.911	D	0.893	F	1.047	F	1.069
22	Inglewood Av	Artesia Blvd	D	0.896	F	1.023	F	1.150	F	1.253
23	Inglewood Av	182nd St	C	0.714	C	0.742	D	0.828	E	0.903
24	Inglewood Av	190th St	F	1.227	F	1.294	F	1.488	F	1.613
25	Aviation Blvd	Artesia Blvd	F	1.098	F	1.085	F	1.212	F	1.325
26	405 SB off-ramp	Redondo Beach Blvd	B	0.610	B	0.621	C	0.744	D	0.869
27	405 NB on-ramp	Redondo Beach Blvd	C	15.3	B	14.0	C	24.8	D	27.6
28	Prairie Av	Redondo Beach Blvd	F	1.011	F	1.002	F	1.281	F	1.225
29	Prairie Av	Artesia Blvd	E	0.922	E	0.914	E	0.988	E	0.978
30	405 SB on-ramp/off-ramp	Artesia Blvd	B	10.4	C	24.3	B	10.8	D	34.6
31	405 NB on-ramp/off-ramp	Artesia Blvd	D	0.825	C	0.722	D	0.856	D	0.806
32	Prairie Av	182nd St	E	0.906	F	1.005	E	0.947	F	1.084
33	Yukon Av	182nd St	C	0.757	C	0.724	D	0.816	D	0.863
34	Crenshaw Blvd	405 SB off-ramp/on-ramp	F	1.029	E	0.912	F	1.216	F	1.150
35	405 NB on-ramp/off-ramp	182nd St	C	0.761	E	0.955	D	0.872	F	1.109
36	Crenshaw Blvd	182nd St	E	0.930	F	1.016	F	1.044	F	1.153
37	Pacific Coast Hwy	Palos Verdes Blvd	D	0.863	E	0.963	F	1.009	F	1.137
38	Catalina Av	Torrance Blvd	A	0.529	A	0.532	B	0.653	B	0.687
39	Pacific Coast Hwy	Torrance Blvd	D	0.893	E	0.907	F	1.047	F	1.097
40	Prospect Av	Torrance Blvd	D	0.827	C	0.787	E	0.981	F	1.022
41	Harbor Dr	Beryl St/Portofino Wy	A	0.353	A	0.411	A	0.400	B	0.625
42	Catalina Av	Beryl St	A	0.390	B	0.636	A	0.541	E	0.997
43	Broadway	Beryl St	B	11.2	B	12.9	C	18.3	F	184.5
44	Broadway	Catalina Av	C	16.4	D	27.2	C	24.0	F	50.7
45	Harbor Dr	Marina Wy	A	0.361	A	0.516	A	0.563	E	0.913
46	N Catalina Av	N Francisca Av	B	12.7	E	41.7	C	15.8	F	100.5
47	N Pacific Coast Hwy	Beryl St	D	0.856	E	0.953	E	0.903	F	1.100
48	N Pacific Coast Hwy	N Catalina Av	B	0.673	E	0.931	C	0.705	E	0.997
49	Beryl St	Prospect Av	C	0.796	B	0.670	D	0.844	C	0.787
50	Blossom Ln	190th St	F	195.9	F	367.3	F	OVRFL *	F	OVRFL *
51	Prospect Av	Anita St	C	0.713	B	0.611	D	0.850	D	0.844
52	Pacific Coast Hwy	Herondo St	E	0.924	E	0.917	F	1.110	F	1.091
53	Valley Dr	Herondo St	B	12.1	B	14.9	D	26.1	F	65.6
54	Monterey Blvd	Herondo St	B	13.7	C	16.8	C	21.3	F	275.2
55	Harbor Dr	Herondo St	A	0.593	A	0.465	B	0.669	C	0.788
56	Hermosa Av	2nd St	B	11.1	B	10.8	B	11.9	B	13.5
57	Valley Dr	2nd St	A	9.0	B	11.3	C	19.3	D	29.3
58	Monterey Blvd	2nd St	A	8.2	A	8.9	A	8.5	B	13.8
59	Monterey Blvd	8th St	A	8.3	A	8.7	A	8.5	B	10.1

**TABLE 3  
EXISTING (YEAR 2007) AND FUTURE (YEAR 2030) INTERSECTION LEVELS OF SERVICE**

Intersection		2007				2030				
		AM		PM		AM		PM		
Number	Street	Cross Street	LOS	V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay
60	Pacific Coast Hwy	Aviation Blvd	F	1.026	D	0.892	<b>F</b>	1.109	<b>F</b>	1.163
61	Hermosa Av	8th St	B	10.8	B	11.0	B	11.5	B	13.0
62	Hermosa Av	Pier Av	A	0.413	A	0.419	A	0.434	A	0.469
63	Kingsdale Av	Artesia Blvd	A	0.577	B	0.645	C	0.709	D	0.806
64	Kingsdale Av	Grant Av	A	0.479	A	0.587	A	0.569	B	0.694
65	Kingsdale Av	182nd St	B	12.1	C	17.5	C	21.9	<b>F</b>	69.1
66	Redondo Beach Blvd	Artesia Blvd	B	0.623	D	0.854	D	0.884	<b>E</b>	0.958
67	Inglewood Av	Grant Av	C	0.799	D	0.849	<b>E</b>	0.906	<b>F</b>	1.053
68	Inglewood Av	Ripley Av	E	45.3	D	30.1	<b>F</b>	103.8	<b>F</b>	668.7
69	Felton Ln	Grant Av	C	0.715	B	0.639	C	0.763	C	0.725
70	Aviation Blvd	Grant Av	C	0.765	C	0.706	D	0.834	D	0.894
71	Felton Av	Artesia Blvd	B	0.697	C	0.754	C	0.781	D	0.859
72	Kingsdale Av	Target Driveway	A	0.243	A	0.501	A	0.259	A	0.581
73	N Gertruda Av	Catalina Av	A	0.413	B	0.601	A	0.544	C	0.763
74	N Francisca Av	Beryl St	B	11.3	B	14.5	B	11.9	D	26.9
75	N Harbor Dr	Pacific Av	A	8.0	A	8.9	A	8.7	B	10.6
76	Camelina St	Catalina Av	A	0.420	A	0.429	A	0.503	A	0.512
77	Diamond St	Catalina Av	A	0.408	A	0.463	A	0.494	A	0.525
78	Emerald St	Catalina Av	A	0.440	A	0.445	A	0.541	A	0.550
79	Pearl St	Catalina Av	A	0.408	A	0.353	A	0.472	A	0.563
80	Camino Real	Torrance Blvd	A	0.494	A	0.523	B	0.600	C	0.703
81	Camino Real	S Juanita Av	A	9.7	A	9.2	B	10.2	B	10.4
82	Camino Real	S Prospect Av	A	0.551	A	0.522	B	0.669	A	0.581
83	Palos Verdes Blvd	Torrance Blvd	C	0.728	C	0.707	C	0.776	D	0.846
84	Anza Av	Torrance Blvd	E	0.926	E	0.999	<b>F</b>	1.044	<b>F</b>	1.225
85	Sepulveda Blvd	Palos Verdes Blvd	C	0.730	B	0.620	<b>E</b>	0.916	C	0.738
86	Anza Av	190th St	E	0.952	E	0.947	<b>F</b>	1.055	<b>F</b>	1.082
87	Firmona Av	190th St	F	198.8	F	231.9	<b>F</b>	OVRFL *	<b>F</b>	939.5
88	Flagler Ln	190th St	E	42.9	F	57.5	<b>F</b>	136.8	<b>F</b>	124.3
89	Flagler Ln	Beryl St	C	16.3	C	17.9	C	22.0	<b>F</b>	58.0
90	Harkness Ln	Beryl St	D	33.2	C	21.2	<b>E</b>	39.4	<b>E</b>	44.0
91	Prospect Av	Knob Hill Av	A	0.403	A	0.419	A	0.484	A	0.481
92	Prospect Av	Del Amo Blvd	C	0.785	B	0.685	<b>F</b>	1.147	<b>F</b>	1.144
93	Prospect Av	Pearl St	A	0.456	A	0.377	A	0.475	A	0.444
94	Pacific Coast Hwy	Sapphire St	B	0.629	B	0.688	B	0.681	C	0.766
95	Pacific Coast Hwy	Garnet St	B	0.670	B	0.696	C	0.722	C	0.766
96	Pacific Coast Hwy	Avenue F	A	0.565	A	0.598	B	0.612	B	0.656
97	Pacific Coast Hwy	Avenue C	B	0.626	B	0.638	C	0.709	C	0.728
98	Green Ln	Artesia Blvd	A	0.534	A	0.548	A	0.575	B	0.612
99	Elena Av	Avenue I	A	9.4	B	11.6	B	10.5	B	13.6
100	Green Ln	Grant Av	A	0.573	A	0.562	B	0.637	B	0.637
101	Prospect Av	Palos Verdes Blvd	A	0.453	A	0.455	A	0.531	A	0.519
102	Ford Av	Aviation Blvd	B	0.665	B	0.682	B	0.700	C	0.747
103	Ford Av	Artesia Blvd	B	0.657	A	0.562	B	0.669	B	0.634
104	Camino Real	Pearl St	A	8.6	A	8.4	A	9.0	A	9.0
105	190th St	Rindge Ln	B	0.640	B	0.690	C	0.775	C	0.775
106	190th St	Meyer Ln	C	0.793	B	0.688	<b>E</b>	0.972	D	0.828
107	Anita St	Harkness Ln	A	0.526	A	0.462	B	0.662	A	0.538
108	Manhattan Beach	Hawthorne	D	0.808	E	0.955	<b>F</b>	1.026	<b>F</b>	1.073
109	Harbor Dr	Yacht Club Wy	A	0.402	A	0.506	B	0.669	<b>E</b>	0.925

notes:

Future year Intersection LOS in **bold** indicates that the intersection is forecast to exceed the target LOS of D or better in the future

Future year Intersection LOS in **bold italics** indicates that the intersection is forecast to exceed the target LOS of D or better in the future and was meeting that target in 2007 or the intersection was not meeting the target in 2007 and is forecast to operate at a worse LOS in the future

\* Overflow conditions - Delay cannot be accurately calculated.

*Future Growth*

The 2030 analysis of traffic congestion in Redondo Beach assumes that all land uses have been developed for maximum trip generation. While this full buildout is highly unlikely, it provides an instructive scenario for understanding the transportation implications of future land use.

The 2030 travel demand model for Redondo Beach predicts a 37% increase in average daily traffic (ADT) (Figure 5). Of this increase in traffic, approximately 54% is generated by commercial, office, retail, or restaurant land uses. The remainder is divided among other land uses such as industrial (22%), residential (11%), mixed-use (7%), and public or semi-public use (6%).

During the AM peak hour, for trips that start or end in Redondo Beach, 15% stay inside the City and 85% leave the City. Thirty percent of traffic on the network at this time is “cut-through” traffic—it neither begins nor ends in the City. During the PM peak hour, 20% of trips begin in the City and end in the City, 80% of trips begin in the City and end outside the City, and 29% of all City traffic has neither trip end within City limits.

*Future Intersection Analysis*

In 2030, increased traffic is expected to degrade LOS throughout the City, as seen in Figure 6 and Table 3. During the AM peak hour, 10 intersections are predicted to operate at LOS E, and 28 are predicted to operate at LOS F, leaving 71 intersections operating at LOS D or better. During the PM peak hour, 14 intersections are expected to operate at LOS E and 44 intersections are expected to operate at LOS F. Of 109 intersections, 51 are predicted to operate at LOS D or better. Traffic continues to operate poorly on 190<sup>th</sup> Street. In addition, LOS on the following streets is significantly worse than in 2007: Marine Boulevard, Manhattan Beach Boulevard, Artesia Boulevard, Inglewood Avenue, Hawthorne Boulevard, and Torrance Boulevard. Intersections on Harbor Drive, Catalina Avenue, and Broadway Avenue, continues to operate at a comfortable LOS in 2030.

**POLICY: LEVEL OF SERVICE SIGNIFICANCE THRESHOLD**

**P10.** A significant traffic impact will result if one of the following three conditions is met:

- 1) 4% increase in the volume to capacity ratio at an intersection when the baseline intersection condition is LOS C
- 2) 2% increase in the volume to capacity ratio at an intersection when the baseline intersection condition is LOS D
- 3) 1% increase in the volume to capacity ratio at an intersection when the baseline intersection condition is LOS E or worse

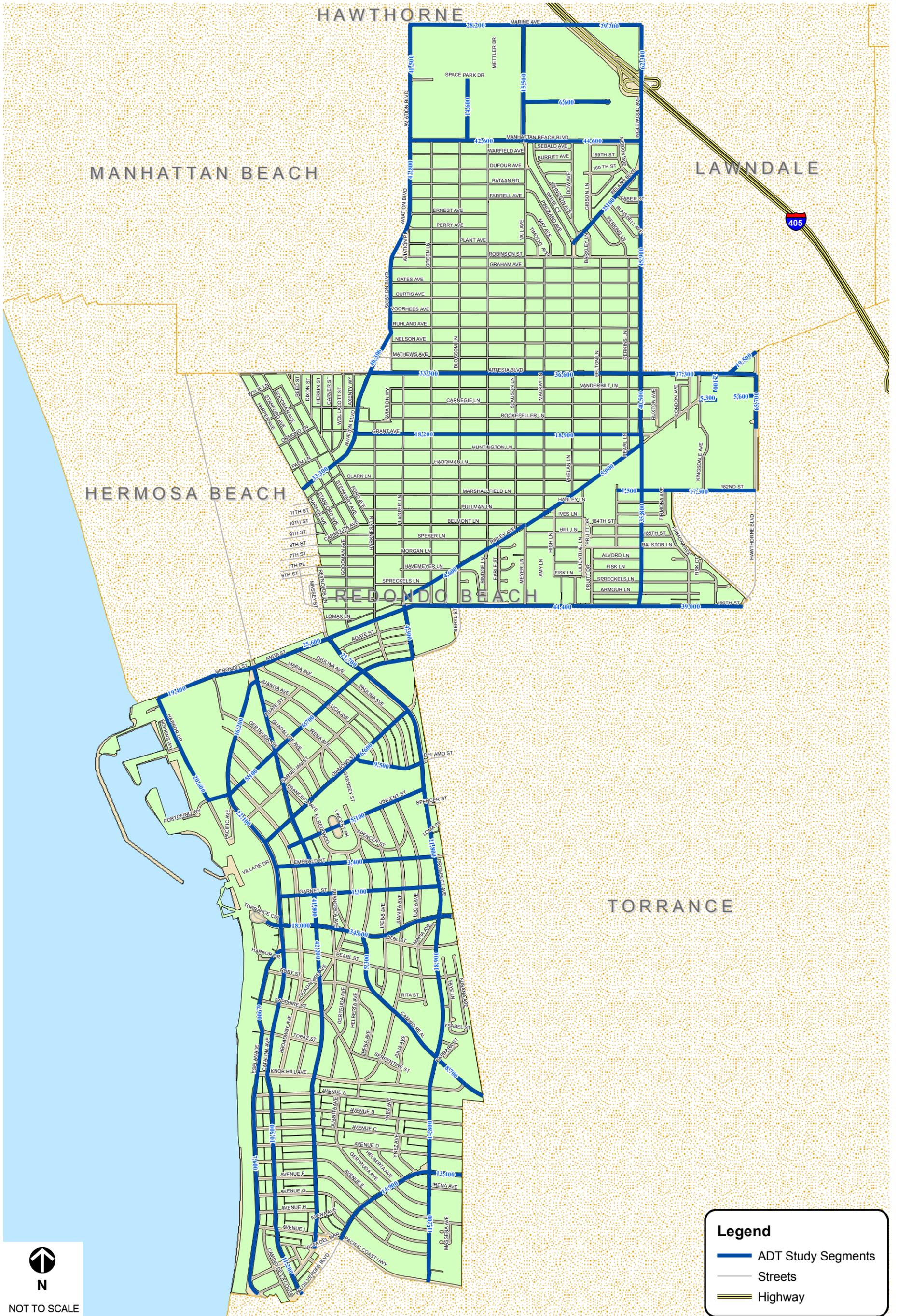
*Traffic Congestion Mitigation*

**GOAL: SYNCHRONIZE TRAFFIC SIGNALS**

**G9.** To improve vehicular travel, the City supports the implementation of additional traffic signal synchronization to increase throughput capacity.

**GOAL: EXPLORE A CITYWIDE TRAFFIC IMPACT MITIGATION FEE**

**G10.** The City should consider establishing a traffic impact fee for new development consistent with State legislation.



  
 N  
 NOT TO SCALE

**Legend**

-  ADT Study Segments
-  Streets
-  Highway



**POLICY: TRAFFIC IMPACT MITIGATION**

**P11.** The Public Works Commission should annually review the status of intersections requiring improvement, and report back on progress to date and plans for the upcoming year. Redondo Beach has expressed the following traffic mitigation preferences, in order of priority:

1. Design the project to minimize or avoid the impact
2. Demonstrate project has maximized utilization of all travel modes
3. Modify traffic signal timing
4. Modify existing turn storage
5. Add travel lanes within existing right-of-way
6. Make improvements requiring additional right-of-way

When a project is desirable, but it will not meet LOS standards and the above mitigations are infeasible, additional TDM and transit enhancements will be required.

In addition to the priorities articulated above, two additional mitigation strategies should be investigated as appropriate: (1) stop-controlled locations that are performing poorly should be evaluated for potential minor street left-turn restrictions; and (2) private driveways that are contributing to poor intersection LOS should be investigated.

As a built-out city, Redondo Beach has few opportunities to expand roadway capacity. Most intersections have already been reconfigured to use available capacity. Of the 109 study intersections, 12 have been identified for mitigation in the existing right-of-way.

Some of these intersections are located partially within Redondo Beach and partially within neighboring communities; others are located outside the City limits. In such

cases, they have been included to provide (1) a basis for future inter-governmental coordination; and (2) inclusion on future funding plans that are prepared on a sub-regional basis.

Table 4 lists these intersections and the affect of mitigation on volume to capacity ratios and LOS. Figure 7 depicts a map of intersection LOS that includes these mitigations. Table 5 summarizes existing and future LOS for study intersections, with and without mitigations. Potential mitigation measures are described in detail below:

**Aviation Boulevard & Rosecrans Avenue (Intersection #1)**

Reconfigure the southbound approach from two left-turn lanes, four through lanes and one right-turn lane to two left-turn lanes, three through lanes, one shared through/right lane, and one right-turn lane.

**Inglewood Avenue & Marine Avenue (#6)**

Add an eastbound right-turn overlap phase during the northbound protected left-turn phase.

**Inglewood Avenue & Manhattan Beach Boulevard (#9)**

Add an eastbound right-turn overlap phase during the northbound protected left-turn phase.

**Hawthorne Boulevard & I-405 Southbound On-ramp/Off-ramp (#15)**

Add an eastbound right-turn overlap phase during the northbound protected left-turn phase, and a southbound right-turn overlap phase during the eastbound phase.

**Hawthorne Boulevard & 177<sup>th</sup> Street (#18)**

Reconfigure the eastbound approach from one left-turn lane, one through lane, and one right-turn lane to one left-turn lane, one shared through/left lane, and one right-turn lane.

**Inglewood Avenue & Artesia Boulevard (#22)**

Reconfigure the eastbound approach from two left-turn lanes, one through lane, and one shared through/right lane to two left-turn lanes, two through lanes, and one right-turn lane.

**TABLE 4  
INTERSECTION LEVELS OF SERVICE WITH AND WITHOUT MITIGATIONS  
EXISTING (YEAR 2007) AND FUTURE (YEAR 2030) CONDITIONS**

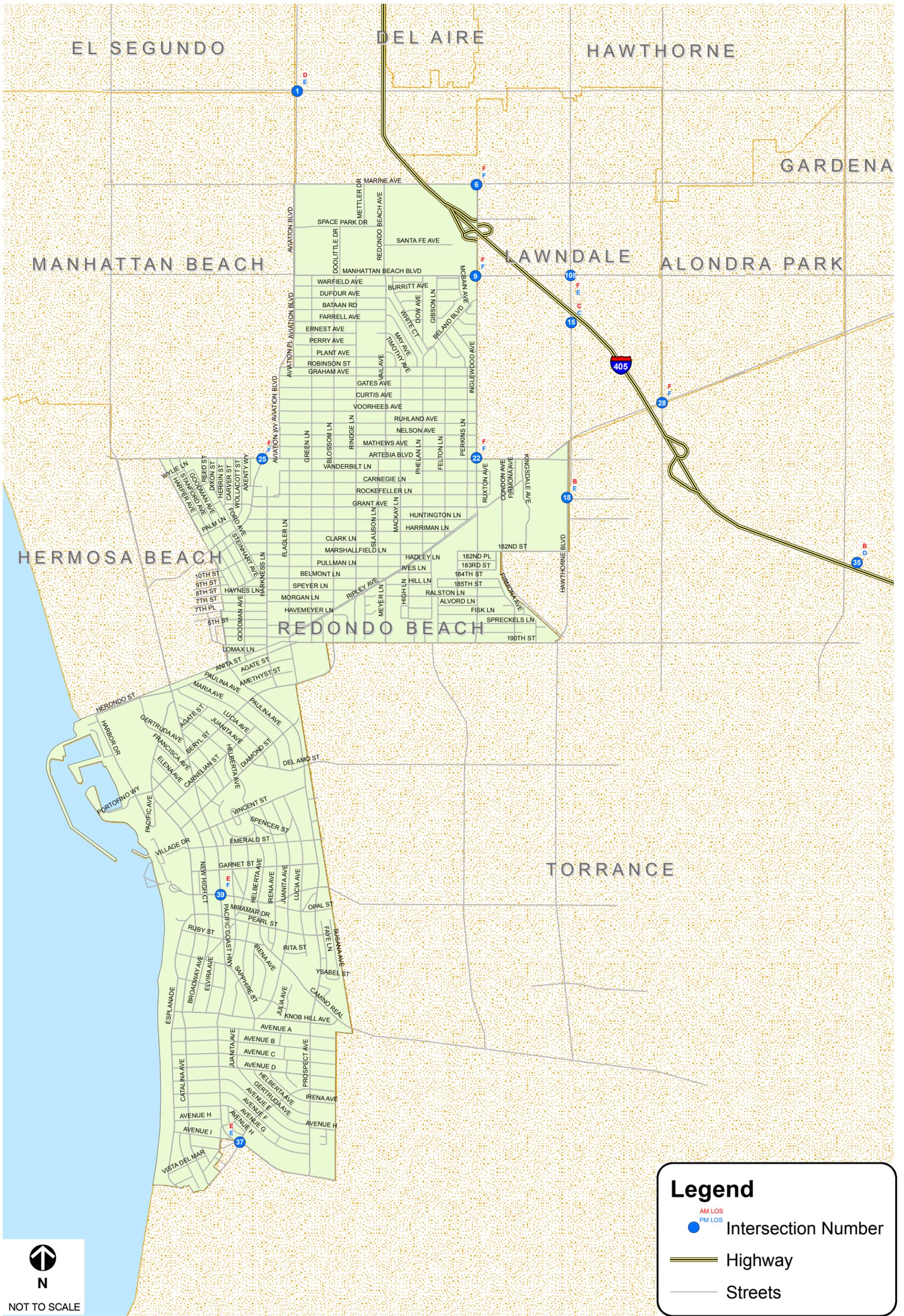
Intersection			2007				2007 - With Mitigations					
			AM		PM		AM			PM		
Number	Street	Cross Street	LOS	V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	Change in V/C	LOS	V/C or Delay	Change in V/C
1	Aviation Blvd	Rosecrans Av [a]	B	0.683	E	0.918	B	0.683	0.000	D	0.871	-0.047
6	Inglewood Av	Marine Av	D	0.872	E	0.953	D	0.872	0.000	D	0.831	-0.122
9	Inglewood Av	Manhattan Beach Blvd [a]	E	0.927	F	1.153	E	0.927	0.000	F	1.096	-0.057
15	Hawthorne Blvd	405 SB on-ramp/off-ramp	F	1.142	E	0.922	C	0.725	-0.417	B	0.658	-0.264
18	Hawthorne Blvd	177th St	B	0.649	C	0.764	B	0.645	-0.004	C	0.756	-0.008
22	Inglewood Av	Artesia Blvd	D	0.896	F	1.023	D	0.877	-0.019	E	1.000	-0.023
25	Aviation Blvd	Artesia Blvd	F	1.098	F	1.085	F	1.060	-0.038	E	0.996	-0.089
28	Prairie Av	Redondo Beach Blvd	F	1.011	F	1.002	E	0.931	-0.080	E	0.945	-0.057
35	405 NB on-ramp/off-ramp	182nd St	C	0.761	E	0.955	A	0.574	-0.187	B	0.700	-0.255
37	Pacific Coast Hwy	Palos Verdes Blvd	D	0.863	E	0.963	C	0.789	-0.074	D	0.839	-0.124
39	Pacific Coast Hwy	Torrance Blvd	D	0.893	E	0.907	D	0.865	-0.028	D	0.873	-0.034
108	Manhattan Beach	Hawthorne	D	0.808	E	0.955	D	0.808	0.000	D	0.834	-0.121

Intersection			2030				2030 - With Mitigations					
			AM		PM		AM			PM		
Number	Street	Cross Street	LOS	V/C or Delay	LOS	V/C or Delay	LOS	V/C or Delay	Change in V/C	LOS	V/C or Delay	Change in V/C
1	Aviation Blvd	Rosecrans Av [a]	D	0.889	E	0.986	D	0.889	0.000	E	1.017	0.031
6	Inglewood Av	Marine Av	F	1.153	F	1.131	F	1.153	0.000	F	1.047	-0.084
9	Inglewood Av	Manhattan Beach Blvd [a]	F	1.131	F	1.247	F	1.131	0.000	F	1.232	-0.015
15	Hawthorne Blvd	405 SB on-ramp/off-ramp	F	1.203	F	1.019	C	0.756	-0.447	C	0.720	-0.299
18	Hawthorne Blvd	177th St	B	0.688	E	0.935	B	0.684	-0.004	E	0.950	0.015
22	Inglewood Av	Artesia Blvd	F	1.150	F	1.253	F	1.122	-0.028	F	1.172	-0.081
25	Aviation Blvd	Artesia Blvd	F	1.212	F	1.325	F	1.150	-0.062	F	1.175	-0.150
28	Prairie Av	Redondo Beach Blvd	F	1.281	F	1.225	F	1.184	-0.097	F	1.181	-0.044
35	405 NB on-ramp/off-ramp	182nd St	D	0.872	F	1.109	B	0.694	-0.178	D	0.866	-0.243
37	Pacific Coast Hwy	Palos Verdes Blvd	F	1.009	F	1.137	E	0.925	-0.084	E	0.997	-0.140
39	Pacific Coast Hwy	Torrance Blvd	F	1.047	F	1.097	E	1.000	-0.047	F	1.025	-0.072
108	Manhattan Beach	Hawthorne	F	1.026	F	1.073	F	1.026	0.000	E	0.940	-0.133

notes:

[a] Proposed improvement would mitigate 2007 conditions. Over time, development under the existing General Plan scenario is projected to alter traffic patterns and increase traffic volumes to the point that the mitigation measures would be overwhelmed by the 2030 buildout year





Aviation Boulevard & Artesia Boulevard  
(#25)

Reconfigure both the southbound and eastbound approaches from one left-turn lane, one through lane, and one shared through/right lane to one left-turn lane, two through lanes, and one right-turn lane.

Prairie Avenue & Redondo Beach Boulevard  
(#28)

Reconfigure the southbound approach from one left-turn lane, one through lane, and one shared through/right lane to one left-turn lane, two through lanes, and one right-turn lane.

405 Northbound On-ramp/Off-ramp & 182<sup>nd</sup>  
Street (#35)

Reconfigure eastbound approach from one through lane and one shared through/right lane to two through lanes and one right-turn lane.

Pacific Coast Highway & Palos Verdes  
Boulevard (#37)

Reconfigure both the southbound and eastbound approaches from one left-turn lane, one through lane, and one shared through/right lane to one left-turn lane, two through lanes, and one right-turn lane.

Pacific Coast Highway & Torrance  
Boulevard (#39)

Reconfigure the northbound approach from one left-turn lane, one through lane, and one shared through/right lane to one left-turn lane, two through lanes, and one right-turn lane.

Manhattan Beach Boulevard & Hawthorne  
Boulevard (#108)

Add a protected left-turn phase for the eastbound approach. Also, reconfigure the northbound approach from two left-turn lanes, two through lanes, and one shared through/right lane to two left-turn lanes, three through lanes, and one right-turn lane.

*Macro Effects Test*

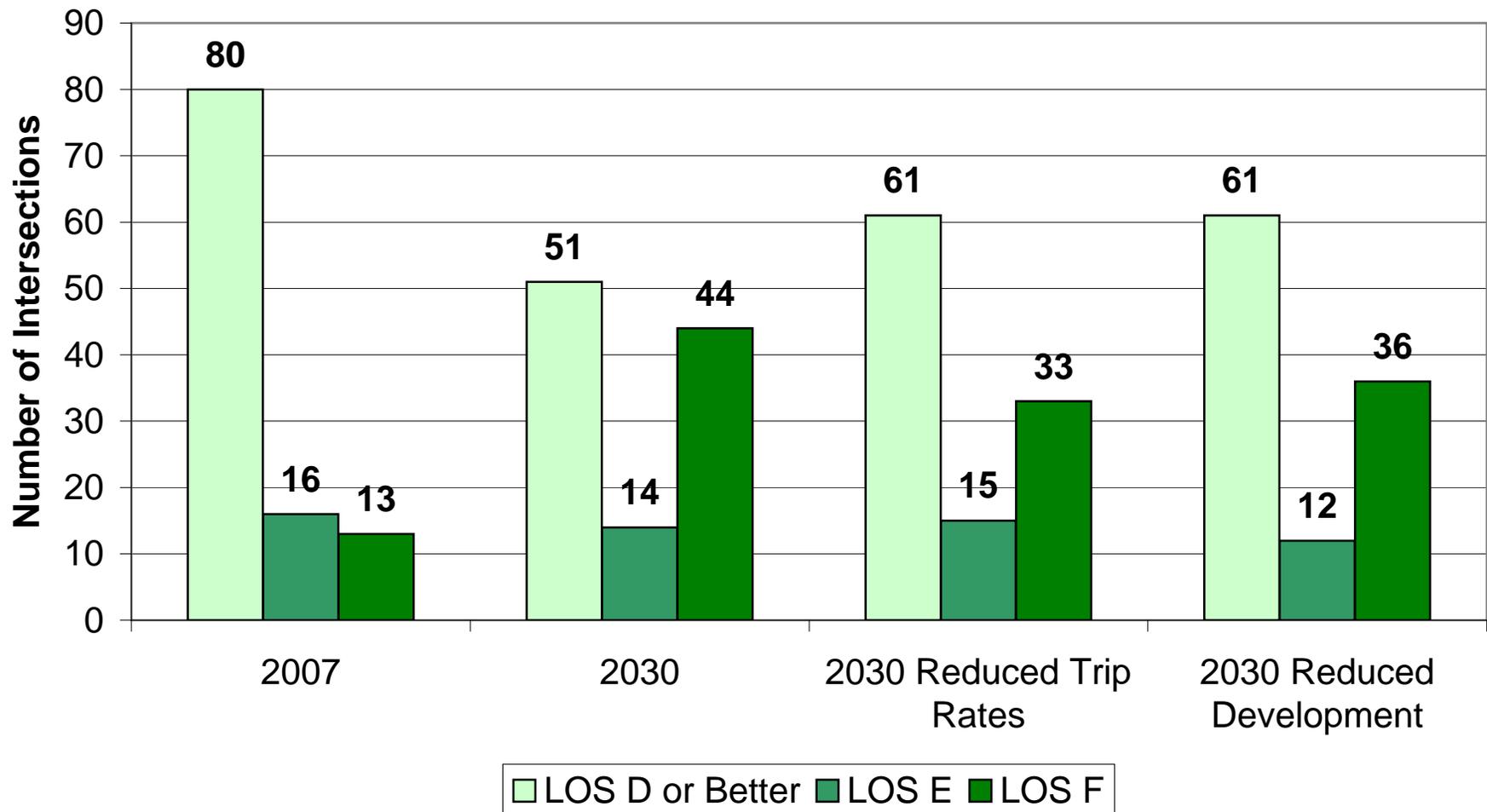
A hypothetical future model run scenario was conducted to estimate the impact of two large changes in land use and transportation:

1) What would occur if 25% of all 2030 traffic generated in Redondo Beach used alternative modes?

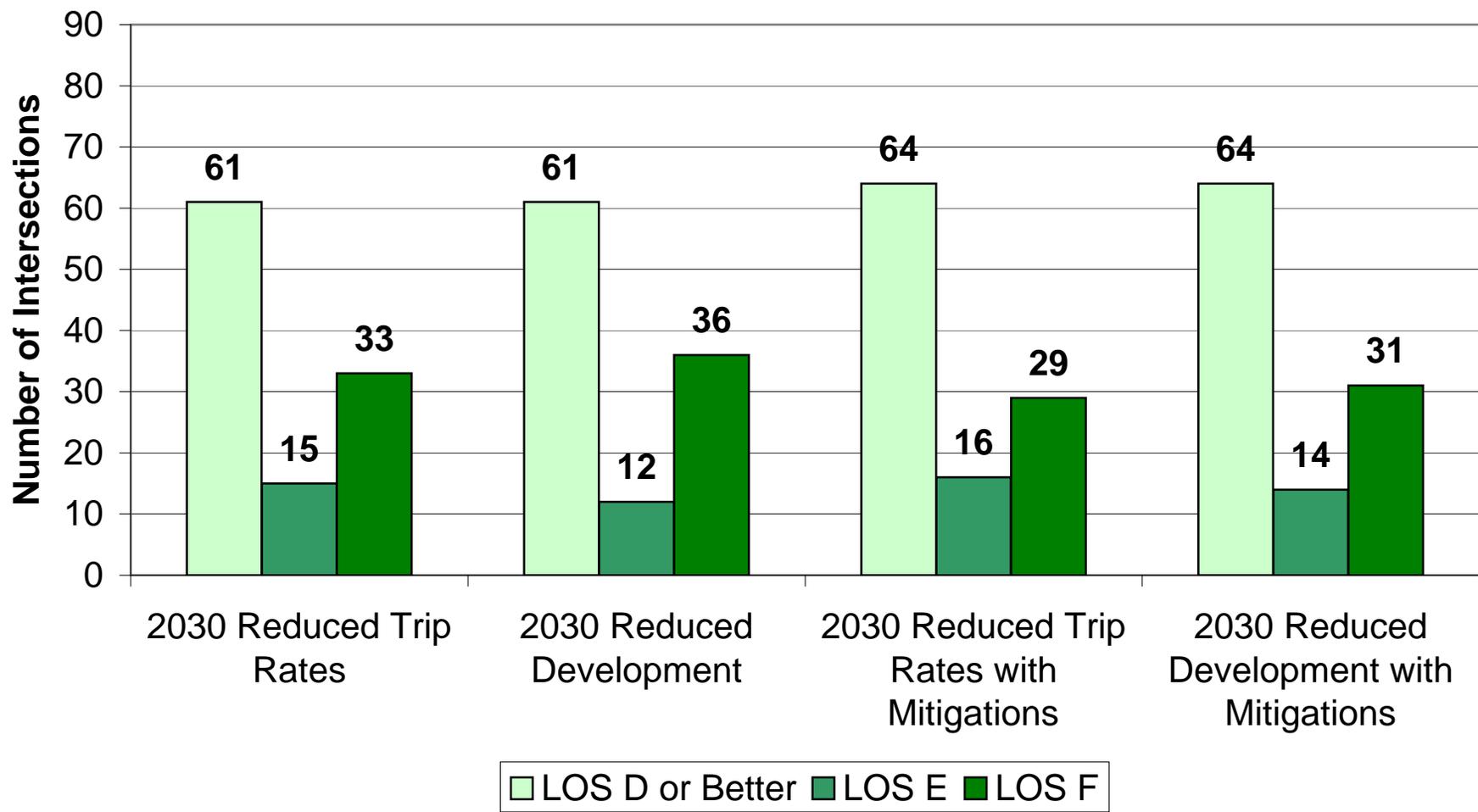
2) What would occur if 50% of all new development in Redondo Beach did not take place?

Figures 8 and 9 show the effect of these scenarios on LOS at unmitigated and mitigated study intersections. This exercise illustrates the fact that no single policy action has the power to resolve the issue of traffic congestion in Redondo Beach. Ultimately, increasing mobility will rely on a combination of smart growth development, the utilization of non-auto modes, and the mitigation of traffic impacts.

**FIGURE 8**  
**MACRO EFFECTS TEST: EXISTING AND FUTURE**  
**(PM PEAK HOUR COMPARISON)**



**FIGURE 9**  
**MACRO EFFECTS TEST: FUTURE SCENARIOS**  
**(PM PEAK HOUR COMPARISON)**



### 1.3 TRAFFIC CALMING

Many communities, including Redondo Beach, frequently complain about traffic and noise on neighborhood streets. Neighbors are concerned with cut-through traffic, overall traffic volumes, and the speed of traffic. Traffic calming addresses these concerns by making permanent physical changes that slow cars and reduce traffic volumes.

The City has described traffic calming according to definitions provided by the Institute of Transportation Engineers (ITE) and the University of California, Berkeley. In "Traffic Calming, State of the Practice," (1999), ITE refers to traffic calming as "the combination of mainly physical measures that reduce the negative effects of motor vehicles use, alter driving behavior and improve conditions for non-motorized street users." Similarly, U.C. Berkeley describes traffic calming as "physical retrofitting or changes in operations of management strategies on existing streets, designed to reduce adverse impacts such as speeding and excessive volumes and to improve safety and amenity."

Requests made by Redondo Beach residents to the Department of Engineering initiate the traffic calming process. The Engineering and Building Services Department of the City of Redondo Beach produced a guidebook in 2005 entitled "Traffic Calming Tools & Devices Report for Residential Streets." This guidebook outlines a three-phase process for the implementation of traffic calming measures:

#### Phase 1

Signs and striping will be reviewed and refurbished as necessary. Police may respond to problems with enforcement; Volunteers in Policing may be enlisted to measure speeds. The traffic engineer may use machines to verify traffic volumes and speeds. These measures do not require commission or council action.

#### Phase 2

Phase 2 requires the City to concede that Phase 1 measures have been ineffective at addressing the problem of traffic calming. Phase 2 also requires a petition from the

neighborhood and public meetings at the Public Works Commission and City Council level. Physical changes in roadway design or signage will be used to affect travel behavior. A minor traffic study may be required to measure the impact of these changes on adjacent streets. An extensive EIR should not be required.

#### Phase 3

If Phases 1 and 2 are judged to be inadequate for addressing the issue of traffic calming, Phase 3 measures are considered. Phase 3 measures also require a petition from the neighborhood and public meetings before the Public Works Commission and the City Council. These measures are significant enough to affect other neighborhoods and City streets and thus may warrant an enhanced traffic study in order to satisfy CEQA requirements.



A solar-powered speed indicator near Parras Middle School encourages slower driving speeds.



Signage near Redondo Union High School alerts drivers to increased pedestrian activity.

“Traffic Calming Tools & Devices Report for Residential Streets” lists several types of traffic calming to be potentially implemented in Redondo Beach; some options are not recommended. Education and enforcement methods include:

- Traffic Signs: Stop, Speed Limit, No Left Turn, No Right Turn, Do Not Enter, One-Way
- Traffic Safety Public Awareness: “Do Stop, Don’t Speed” signs for placement in yards; trinkets with traffic safety messages; television commercials on local cable station
- Visible enforcement of speed limits, stop signs, and parking
- Automated enforcement by camera of speed, red lights
- Traffic Reminders: Flashing lights to emphasize hazardous or unusual conditions, larger stop signs, light actuated crosswalks, stop sign post reflectors
- School-related methods: yellow crosswalks, adult crossing guards, pedestrian warning signs, flashing lights, in-roadway crossing guard signs, distribution of maps to students of pedestrian paths, school safe zone signs
- Electronic speed reminders: radar trailers, fixed electronic radar signs

- Raised crosswalks
- Traffic circles
- Roundabouts
- Chokers (mid-block extensions of the curb)
- Curb extensions
- Entrance barriers
- Chicanes
- Median islands
- Restricted movement barriers
- Diagonal diverters
- Street closures
- Speed humps
- Speed tables
- Speed cushions
- Speed bumps – this option is not recommended



*Speed cushions have been installed on Avenue E in Redondo Beach.*

Engineering options for traffic calming include:

- Intersection signalization
- One-way streets
- Narrow lanes
- Raised intersections

**1.4 PARKING**

**GOAL: MANAGE PUBLIC PARKING EFFECTIVELY**

**G11.** Maintain the existing supply of public parking.

**POLICIES AND IMPLEMENTATION**

**P12.** Require new developments to provide sufficient parking to meet demand.

**P13.** Encourage shared parking between land uses when consistent with industry standards.

**P14.** Explore parking maximums around fixed guideway transit investment to maximize transit ridership.

**P15.** Price parking and set time limits to balance turnover and economic vitality for all types of uses.

Existing on-street parking on major streets in Redondo Beach was described in the Local Circulation System Inventory section above. As indicated, on-street parking is permitted along most arterials in the City.

The presence of on-street parking plays two conflicting roles. First, on-street parking serves as an overflow for shortfalls in the off-street parking supply. This availability is particularly important for older commercial developments where off-street patron parking may be very limited or may not exist at all. Second, the provision of on-street parking limits traffic capacity by occupying pavement area that could be used for travel lanes. Pulling into and out of parking spaces also reduces speeds on the street, thereby reducing carrying capacity.

On-street parking can also serve as an overflow supply in residential areas. An issue with this supply arises when on-street parking conflicts with access to driveways and intersections, either by inhibiting movements or limiting visibility.

Complicating the issue of parking versus street capacity is the fact that a number of

the major streets in the area fall under two or more jurisdictions. Such streets (and their additional cities) include:

- Artesia Boulevard (Lawndale and Manhattan Beach)
- Aviation Boulevard (Manhattan Beach and Hermosa Beach)
- Inglewood Avenue (Lawndale)
- Marine Avenue (Hawthorne and Lawndale)
- 190<sup>th</sup> Street (Torrance)

Shared jurisdiction is often accompanied by inconsistent or conflicting priorities that can impede agreements on street improvements and parking policies.

**Shared Parking**

The City of Redondo Beach presently permits consideration of shared parking. Encouraging shared supplies of parking helps to eliminate the high cost and wasted space of excessive off-street parking.

The concept of shared parking recognizes that parking spaces can be used to serve two or more individual land uses without conflict or encroachment. This phenomenon has long been observed in central business districts, suburban commercial districts, and other areas where land uses are combined. Shared parking is essentially the result of two conditions:

- The peak accumulation of parked vehicles varies because the activity patterns of nearby land uses differ by hour, by day, and by season.
- Relationships among land use activities in a mixed-use development result in people being attracted to two or more land uses on a single automobile trip.

The industry standard for shared parking comes from the Urban Land Institute (ULI) and the International Council of Shopping Centers (ICSC). The peak parking demand ratios in the ULI/ICSC shared parking model come from the analysis of hundreds of locations across the United States.

### Parking Near Transit

Establishing parking maximums around transit investments is an indispensable strategy for maximizing transit ridership. When a destination's parking supply is scarce, visitors are discouraged from arriving by car. Alternately, if drivers are accommodated, transit ridership will be compromised. By setting a lower maximum number of parking spaces for land uses within a half mile of transit stops, the City helps to ensure a proper return on their transit investments.



*This off-street parking lot near Harbor Drive in Redondo Beach is priced 24 hours a day.*

### Pricing and Duration of Parking

To ensure the economic vitality of businesses in Redondo Beach, public parking must be priced to balance adequate turnover and availability for all types of uses in the area. If turnover is inadequate, customers will be unable to find parking. Maintaining a parking occupancy rate of 85% or less guarantees that there will be sufficient vacant spaces for arriving drivers.

Dynamically adjusting the price of parking based on observed demand is the most effective and efficient means of arriving at 85% occupancy or less. When the price of parking is too low or the duration too long, parking spaces are monopolized by drivers who park for extended periods. When parking is priced for turnover at 85% occupancy, people will park only as long as necessary and the maximum number of customers will be able to utilize available parking.

**1.5 TRANSPORTATION DEMAND MANAGEMENT & CLIMATE CHANGE**

**GOAL: PURSUE TRANSPORTATION DEMAND MANAGEMENT**

**G12.** Encourage all employers to pursue successful TDM measures already demonstrated in South California.

**POLICIES AND IMPLEMENTATION MEASURES**

**P16.** Encourage flex hours in work environments.

**P17.** Provide incentives for employer-based vanpools.

**P18.** Investigate and consider effective TDM programs from other municipalities.

**P19.** Implement strategies to reduce vehicular school trips.

**P20.** Investigate the use of shared transportation vehicles.

**P21.** Work with adjacent cities to coordinate incentives for carpools, vanpools, and other measures for Redondo Beach residents.

The intent of Transportation Demand Management (TDM) programs is to reduce the amount of peak period motor vehicle traffic on City roadways and highways. TDM strategies encourage the use of travel modes other than single-occupant vehicles. Establishing a TDM program in Redondo Beach would help to reduce peak period traffic.

In addition to easing traffic congestion, strategies that discourage single-occupant vehicles are an effective means of reducing greenhouse gases. Automobiles are responsible for roughly half of the greenhouse gases that a city produces, and eliminating car trips facilitates the reduction of a city's carbon footprint.

TDM programs could be managed by a citywide coordinator or a Transportation Management Association (TMA). Potential TDM strategies include:

- Transit subsidies or fare reimbursement for employees through Commuter Check or Eco Pass programs.
- Car-Share programs and neighborhood electric vehicle programs that reduce primary and secondary auto ownership.
- Provision of bicycle parking and support facilities.
- Guaranteed ride home programs for employees in the event of an emergency.
- Education about California's Parking Cash Out legislation that requires employers who provide employees with free parking to offer the option of a cash allowance in lieu of a free parking benefit.
- Strategies to make the cost of residential and commercial parking visible to households and commercial tenants, such as separating the cost of parking in lease agreements.

**Redondo Beach Sustainability Plan**

The Sustainable City Plan prepared by the City's Green Task Force included six transportation recommendations that are supported by the City's Growth Management & Traffic Committee:

1. Shop & Dine Redondo Program: a proposed collaboration with the Redondo Beach Chamber of Commerce & Visitors Bureau to encourage patronage of locally owned businesses
2. Strategic School Traffic Reduction Plan: a recommendation to work with the Redondo Beach Unified School District to reduce peak hour traffic congestion created by schools. Suggestions include raising environmental awareness to discourage students who drive to school, using Beach Cities Transit to deliver high school students, and implementing traffic calming in school neighborhoods.
3. Residential Development Rights Transfer System: proposes land use policies that would allow residential land owners to sell

their development rights to property owners in specified transit zones.

4. Beach Cities Transit & Visitor Information Kiosks: create one or more kiosks with information for using Beach Cities Transit

5. Beach Cities Transit Wi-Fi Service Pilot Program: initiate a pilot program on Beach Cities Transit Line 109 to provide Wi-Fi to riders

6. Integrated Bicycle Master Plan: develop a bicycle master plan and invest in bicycle infrastructure and marketing

The Sustainable City Plan includes several indicators to evaluate the success of its transportation goals:

- traffic congestion
- alternative mode usage
- public transit ridership
- abundance of bicycle lanes, paths, and storage
- accessibility of public transit

Together, these six transportation goals and their performance indicators work towards a more sustainable transportation system for Redondo Beach.

Realization of these transportation and land use goals will be dependent on a number of implementable steps, including:

- Funding within the City's annual operating budget
- Funding within the City's five-year Capital Improvement Program
- Availability of sub-regional, state, and federal funding
- Cooperative efforts with neighboring jurisdictions



**1.6 BICYCLE & PEDESTRIAN CIRCULATION**

**GOAL: PURSUE BICYCLE AND PEDESTRIAN PRIORITIES**

G13. Link existing and proposed facilities.

**POLICIES AND IMPLEMENTATION MEASURES**

P22. Connect North Redondo Beach and South Redondo Beach with bike facilities.

P23. Focus on access at transit stations, the waterfront, South Bay Galleria, Artesia Boulevard, Riviera Village, Pacific Coast Highway retail zones, and school zones.

The priority for bicycle and pedestrian planning in Redondo Beach will be to create linkages that fill gaps in the system. Some areas are currently amenable to biking and walking, and various additional improvements have been proposed. The City will focus on improving connections for bicycles and pedestrians in this system so that existing and planned facilities will operate effectively together as a network.

**Bicycle Circulation**

Figure 10 shows the existing and proposed bicycle facilities in the City and surrounding area. The following are standard definitions of facility types, as set forth by Caltrans:

*Class I Bike Paths*

Bike paths are facilities with exclusive rights-of-way (separated from automobile traffic), with minimal points of conflict with motorists.

Bike paths provide the highest level of safety for bicyclists, and may be used for either recreational purposes or as higher-speed commute routes.

*Class II Bike Lanes*

Bike lanes provide painted striping within the paved area of highways. Bike lane stripes are intended to promote an orderly flow of traffic by establishing specific lines of demarcation between areas reserved for bicycles and lanes for motor vehicles.

*Class III Bike Routes*

Bike routes are shared facilities, either with motorists on the street or with pedestrians on the sidewalk; in either case bicycle use is secondary. To be of benefit to bicyclists, bike routes must offer a higher level of service than alternative streets. Favorable traffic controls, removed or restricted parking, and smooth riding surfaces are primary beneficial features.

The Redondo Beach City Council adopted the Bicycle Transportation Plan Implementation Project in December 2005 with funding from the Capital Improvement Project (CIP) Program. Based on potential bikeway routes in Redondo Beach and state and federal standards for vehicle and bicycle travel lanes, City engineering staff developed guidelines for bicycle lane implementation in May 2007.

**POLICY: BICYCLE FACILITY IMPLEMENTATION**

P24. Bicycle Facility Standards:

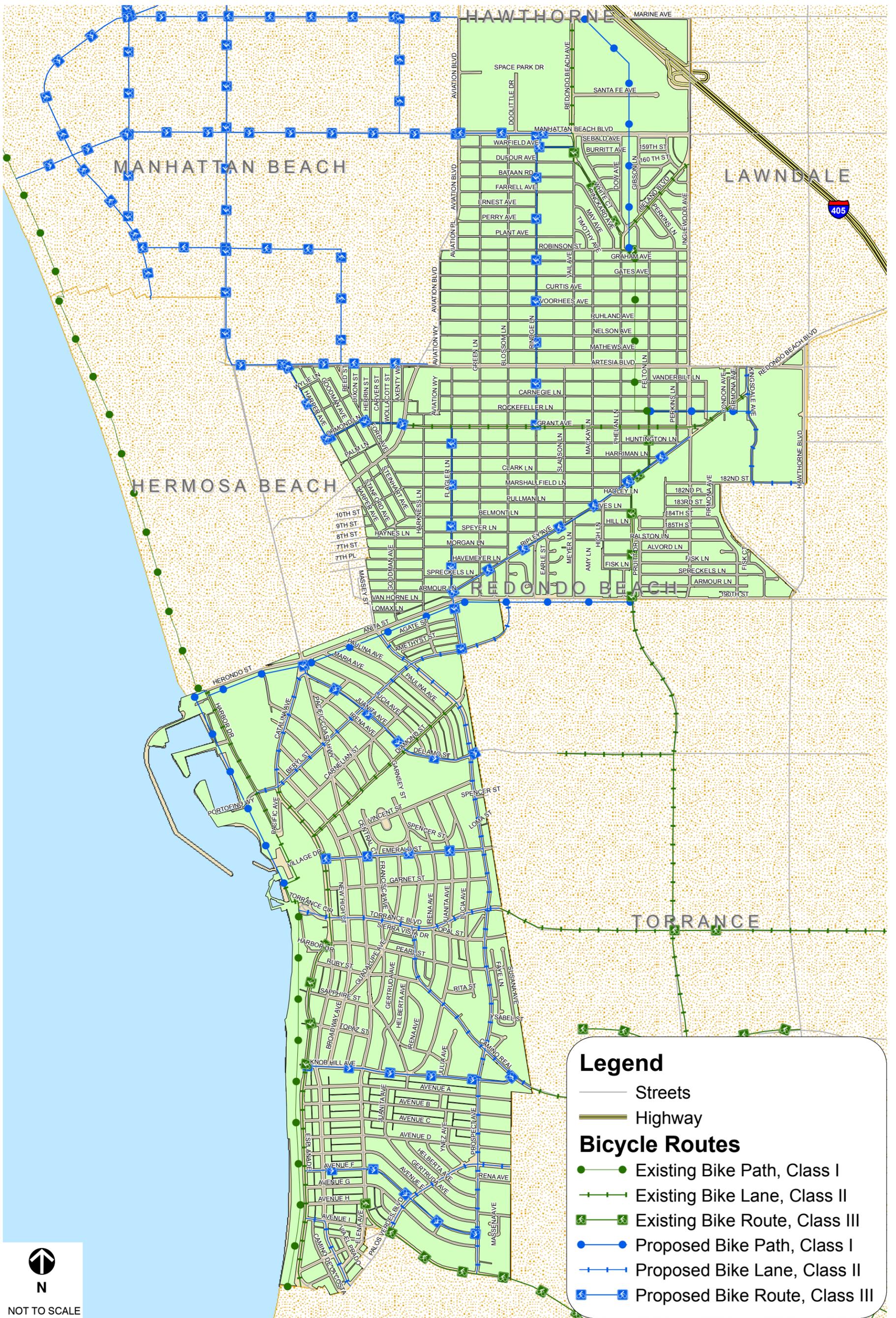
Residential streets: reduce vehicle travel lanes to 10 feet to accommodate bicycles

Truck routes/bus routes: minimum 12 feet for vehicle travel lanes

Two-way left-turn lane: minimum 14 feet, edge to edge

Combination parking lane/bike lane: minimum 13 feet

Bike lane: minimum 5 feet



  
 N  
 NOT TO SCALE

**GOAL: ENHANCE BICYCLE INFRASTRUCTURE**

**G14.** Increase the provision of bike lockers, bike racks, and lighting for bike facilities.

*Existing Bikeways*

**Bike Paths (Class I)**

- Coastal trail from Redondo Beach's southern City limit to Torrance Boulevard
- Trail within Southern California Edison (SCE) right-of-way between Felton Lane and Phelan Lane from Rockefeller Lane to Robinson Street



*Bicyclists enjoy bike lanes and bike paths near the Redondo Beach waterfront.*

**Bike Lanes (Class II)**

- Esplanade from Redondo Beach's southern City limit to Knob Hill Avenue
- Harbor Drive from Pacific Avenue to Herondo Street
- Diamond Street from Catalina Avenue to Prospect Avenue
- Grant Avenue from Aviation Boulevard to Kingsdale Avenue
- Beland Boulevard from Johnston Avenue to Inglewood Avenue
- Redondo Beach Boulevard from Manhattan Beach Boulevard to Marine Avenue
- Catalina Avenue from Torrance Boulevard to Pacific Avenue

**Bike Routes (Class III)**

- Pacific Coast Highway from Redondo Beach's eastern border to Avenue H
- Lilienthal Lane from 190<sup>th</sup> Street to Ripley Avenue; Ripley Avenue to Felton Lane; Felton Lane to Grant Avenue
- White Circle from Robinson Street to Vail Avenue; Vail Avenue to Manhattan Beach Boulevard
- Esplanade Avenue from Knob Hill to California Avenue

*Proposed Bikeways*

The following list of proposed bikeways was submitted as part of the Bicycle Transportation Implementation Plan update in May 2007. This list reflects changes in bikeway classifications made since 2005 based on a feasibility analysis of proposed routes:

**Bike Paths (Class I)**

- Anita Street-190<sup>th</sup> Street SCE Right-of-Way
- Rockefeller Lane SCE Right-of-Way
- North Redondo Bikeway Alternate Route
- Harbor Area (still to be fully defined)

**Bike Lanes (Class II)**

- South Catalina Avenue – Avenue I
- Knob Hill Avenue (possible Class III)

**Bike Routes (Class III)**

- Camino Real
- Torrance Boulevard
- Emerald Street

- Beryl Street
- North Juanita Avenue-Del Amo Street (segment from Pacific Coast Highway to Beryl Street not recommended)
- North Catalina Avenue (Pacific Coast Highway to Beryl Street)
- Prospect Avenue
- Ripley Avenue
- Kingsdale Avenue
- 182<sup>nd</sup> Street
- Ormond Lane
- Ford Avenue
- Artesia Boulevard
- Flagler Lane
- Rindge Lane
- Warfield Avenue
- Manhattan Beach Boulevard

**Pedestrian Circulation**

Pedestrian activity in the City is generally concentrated to the west of Pacific Coast Highway, primarily along the Harbor area and in Riviera Village. Portions of Artesia Boulevard also have modest existing and potential future increased pedestrian activity. Observations indicate that, in general, there is a relatively low level of pedestrian activity in other areas of the City. Pedestrian activity in residential areas is primarily related to children playing and walking to and from school.

The current level of pedestrian activity does not appear to significantly affect vehicular circulation outside the specific areas identified, as major pedestrian areas and vehicular routes are generally sufficiently separated.

The pedestrian mode share is often dependent on the proximity of homes to neighborhood-serving commercial land uses. Locating retail, restaurants, and other commercial services within walking distance of residences allows pedestrian trips to replace car trips with greater frequency. Building mixed-use projects that combine residential and commercial land uses in a single development are another strategy for increasing the viability of pedestrian travel.

**GOAL: CREATE OPPORTUNITIES FOR PHYSICAL ACTIVITY**

**G15.** Ensure that residents will be able to walk or bicycle to destinations such as the beach, the Civic Center, Redondo Beach Pier, Riviera Village, and other activity centers.

**POLICIES AND IMPLEMENTATION MEASURES**

**P25.** Conduct walkability and bikeability audits to identify inconvenient or potentially unsafe routes, prioritize infrastructure improvements, and generate community support for active modes of transportation.

**P26.** Work with the Redondo Beach Unified School District to create safe, walkable environments around schools and apply for Safe Routes to Schools grants to support infrastructure development.

**P27.** Time traffic signals to allow adequate crossing time for all people to cross, and install pedestrian islands or bulb-outs on wide streets to shorten the crossing distance where appropriate.

**P28.** Close existing gaps in sidewalk infrastructure where necessary, maintain existing sidewalks in good repair, and require sidewalks with all new development.

**P29.** Provide climate-appropriate landscaping, adequate lighting, and street amenities to make walking safe, interesting, and enjoyable.

**P30.** Promote use of alternative transportation for short trips and conduct periodic bicycle and pedestrian counts to assess whether alternative mode use is increasing.

Providing a balanced transportation system that includes safe and enjoyable routes for pedestrians and bicyclists is important for promoting health as well as addressing climate change, congestion, and air pollution. Residents of walkable neighborhoods are more likely to achieve recommended levels of physical activity and have lower rates of obesity. Well maintained sidewalks and bicycle routes should connect every part of the City and residents should be encouraged to use active modes of travel whenever possible, especially for short trips.

**1.7 PUBLIC TRANSIT**

**GOAL: PURSUE TRANSIT PRIORITIES**

**G16.** Provide reliable, safe fixed-route transit.

**POLICIES AND IMPLEMENTATION MEASURES**

- P31.** Extend Metro’s Green Line.
- P32.** Create multi-modal transit hubs.
- P33.** Enhance transit wayfinding and signage at transit stops.
- P34.** Provide transit information to Redondo Beach residents directly (through mail, local magazine, etc.).
- P35.** Provide bus turnouts whenever possible so that buses do not interrupt the regular flow of vehicle traffic, particularly on Pacific Coast Highway.
- P36.** Require strict performance standards for fixed-route bus service providers.
- P37.** Provide shuttle service to activity areas.
- P38.** Investigate expansion of existing bus service.
- P39.** Investigate beach cities trolley.
- P40.** Investigate bus-only lanes during peak hours to prioritize transit patrons over single-occupant vehicles.

**Transit Priorities**

Redondo Beach favors expansion of its existing transit network. Proposed additions include fixed-route bus service, inter- and intra-city shuttle service to connect business districts and activity areas, and a trolley or streetcar that would circulate among beach cities.

The City welcomes the extension of Metro’s Green Line and other fixed-guideway facilities. For this new station and other locations as appropriate, Redondo Beach will pursue a policy of making public transportation centers into multimodal transit hubs.

*Public Comments*

Consistent with local and regional planning, community members expressed an interest in seeing the Green Line extended to the South Bay Galleria and to Los Angeles International Airport. Multiple community members also said they would like to see an improved transit center at the end of the Green Line in Redondo Beach.

Several north/south and east/west light rail lines were suggested, most of which are currently served by local and regional bus services. This preference for light rail likely reflects the primary benefit that many train lines have over bus lines. When light rail lines operate on an exclusive right-of-way, they represent the possibility of moving faster than existing car traffic. Buses that travel in traffic with automobiles are subject to roadway congestion.

Other suggestions from community members included circulator shuttles and routes with specific destinations—such as Moonstone Public Park, the Performing Arts Center, and the Redondo Beach Pier. Some community members suggested ocean-based transportation options including a ferry service and water taxis. Finally, a few community members stressed the need for more publicity about transit options as well as better coordination between housing opportunities and the transit system.



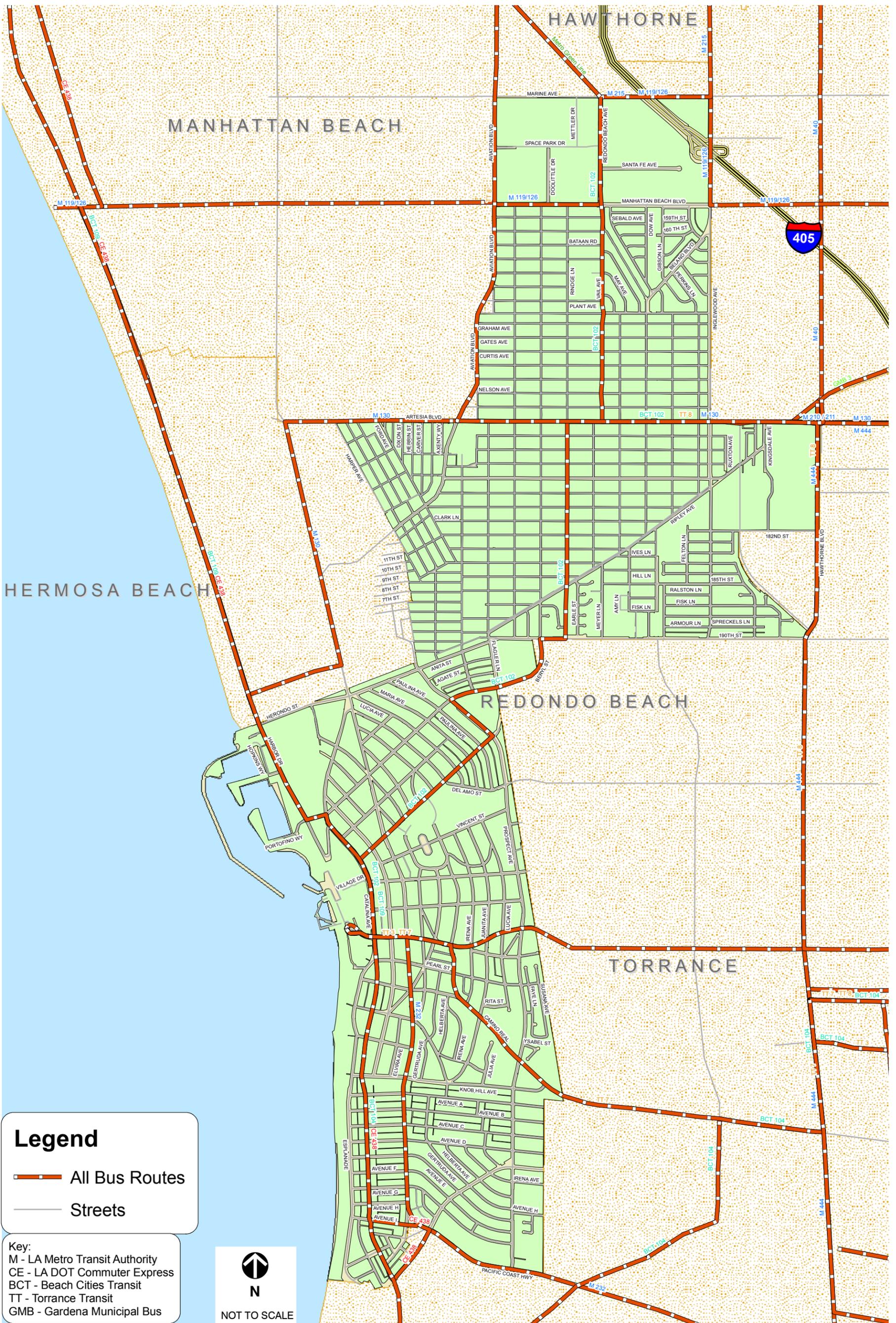
Bus riders wait at one of Redondo Beach's custom bus stops along the Pacific Coast Highway.

**Existing Transit**

The City of Redondo Beach is directly served by several bus lines. Countywide operators include the Los Angeles Metropolitan Transit Authority (Metro), which operates eight bus routes, one rail line, and one paratransit system through a contractor, and the Los Angeles Department of Transportation (LADOT), which operates one Commuter Express bus route.

Municipal operators in Redondo Beach include Beach Cities Transit, which operates three bus routes and one paratransit bus system, Torrance Transit, which operates three bus routes, and Gardena Municipal Bus, which operates one bus route. Bus routes serving the City are shown in Figure 11. Ridership and farebox revenues between August and October 2007 for Beach Cities Transit lines are shown in Table 6.

TABLE 6 BEACH CITIES TRANSIT RIDERSHIP AND FAREBOX REVENUES AUGUST 2007 THROUGH OCTOBER 2007					
Ridership	Route 102	Route 104	Route 109	Wave	Totals
Aug-07	8,825	932	14,577	1,224	25,558
Sep-07	12,435	893	13,272	1,199	27,799
Oct-07	15,826	1,048	14,610	1,337	32,821
<b>Totals</b>	<b>37,086</b>	<b>2,873</b>	<b>42,459</b>	<b>3,760</b>	<b>86,178</b>
Farebox Revenue	Route 102	Route 104	Route 109	Wave	Totals
Aug-07	\$6,713.39	\$692.05	\$10,574.86	\$1,201.00	\$19,181.30
Sep-07	\$10,278.89	\$1,006.26	\$11,600.49	\$1,125.00	\$24,010.64
Oct-07	\$11,235.01	\$1,094.55	\$12,207.07	\$1,274.00	\$25,810.63
<b>Totals</b>	<b>\$28,227.29</b>	<b>\$2,792.86</b>	<b>\$34,382.42</b>	<b>\$3,600.00</b>	<b>\$69,002.57</b>



### **Los Angeles Metropolitan Transit Authority**

Metro 40/740 – South Bay Galleria – Downtown L.A. via Hawthorne BI, Crenshaw BI & M. L. King BI

Line 40 provides local service between the Galleria at South Bay and Downtown Los Angeles. Local service is provided from the Galleria at South Bay to the City of Inglewood along Hawthorne Boulevard. Line 40 headways range from 5 minutes during peak-hour to 1 hour during late-night (after 10:00 PM) service during weekdays. Weekend headways range from 10 to 30 minutes. Rapid 740 provides express service along the same route as Line 40, operating Monday through Saturday on 10 to 20-minute headways from 5:00 AM to 8:00 PM.

Metro 126 – Manhattan Beach – Willowbrook via Manhattan Beach BI, Yukon Av, 120<sup>th</sup> St, Hawthorne BI, 103<sup>rd</sup> St

Line 126 provides local service between Manhattan Beach and the Hawthorne/I-105 Station. The City is serviced by this line at the Redondo Beach Green Line Station as it travels down Manhattan Beach Boulevard. Weekday headways range from 55 to 75 minutes during AM and PM hours, with no midday service. Line 126 does not offer weekend service.

Metro 130 – Redondo Beach – Cerritos via Artesia BI

Line 130 provides local service between the Redondo Beach Pier and the Los Cerritos Center in Artesia. The City is serviced by this line northbound along Catalina, Harbor, and westbound along Artesia. Weekday headways range between 25 and 50 minutes with no service after 8:20 PM from Redondo Beach Pier eastbound. Weekend headways are approximately one hour.

Metro 210 – South Bay Galleria – Hollywood via Crenshaw BI

Line 210 provides local service between the Galleria at South Bay and the Hollywood/Vine Red Line Station via Crenshaw Boulevard. The City is serviced by this line from the Galleria only; as the line does not go through the City. Weekday headways range from 15 to 60 minutes with

service as late as 11:00 PM. Weekend headways range from 30 to 60 minutes.

Metro 211 – South Bay Galleria & Inglewood Av. – Redondo Station

Line 211 provides local service between the Galleria at South Bay and the Inglewood Transit Center, traveling primarily along Prairie Avenue. The City is served by this line from the Galleria only; the line does not travel through the City. Line 211 has weekday headways of 30 minutes with no midday or late night service. There is no weekend service

Metro 215 – South Bay Galleria & Inglewood Av. – Redondo Station

Line 215 is an extension of Line 211 and provides local service between the Redondo Beach Green Line Station and the Inglewood Transit Center, traveling primarily along Inglewood Avenue. Line 215 has weekday headways of 30 minutes with no midday or late night service. There is no weekend service.

Metro 232 – Long Beach – LAX via Sepulveda BI

Line 232 provides local service between the LAX Transit Center and the Long Beach Transit Mall. Line 232 serves the City as it travels along Pacific Coast Highway from Avenue I to Anita Street. Weekday headways range from eight minutes during the peak hour to 60 minutes during evening service. Weekend headways range from 30 to 60 minutes.

Metro 444 – Rancho Palos Verdes – Downtown LA via Hawthorne BI-Harbor/I-110 Fwy

Line 444 provides express service between Rancho Palos Verdes and Downtown Los Angeles. In the City, line 444 travels along Hawthorne Boulevard. Weekday and weekend headways range from 20 to 60 minutes.



*The current southern terminus of the Green Line is the Redondo Beach station near Marine Avenue and Redondo Beach Avenue.*

#### Metro Rail Green Line – Redondo Beach – Norwalk

The Green Line provides local rail service between Redondo Beach and Norwalk. This line provides service to LAX en route and services the City at the Redondo Beach Station. Weekday headways range from 3 to 20 minutes, and weekend headways range from 15 to 20 minutes.

#### Access Paratransit

Metro provides demand-responsive paratransit services for the entire Metro system through a contractor (Access Services). Access Paratransit provides service within  $\frac{3}{4}$  mile from any fixed bus line or Metro Rail station. The City is served by Access Paratransit along all Metro bus routes and at the Redondo Beach Station.

#### **Los Angeles Department of Transportation – Commuter Express**

#### CE 438 – Redondo Beach – Financial District

Commuter Express 444 provides express commuter service between Redondo Beach and Downtown Los Angeles via Catalina, Hermosa, Manhattan, Highland, Vista del Mar, and Century and Harbor Transit Ways. In the City, CE 438 has a terminus on Catalina Avenue and South Elena, as the route travels north along Catalina. This line only provides directional peak-hour service: there are five northbound AM buses from Redondo Beach with approximately 30-minute headways, 10 southbound PM buses to Redondo Beach with 15-minute headways.

#### **Beach Cities Transit**

#### BCT 102 – Redondo Beach Pier – Marine/Redondo Beach Station

Line 102 provides local service between the Redondo Beach pier and the Marine/Redondo Beach Green Line Station, serving the Galleria at South Bay en route. The City is served as the line travels along Catalina, Diamond, Beryl, Ridge, Vail, RT-91 and Redondo Beach Ave. Line 102 operates between 6:00 AM and 8:00 PM weekday service, and limited weekend service. Headways range from 20 to 45 minutes.

#### BCT 104 – Redondo Beach Pier – Del Amo Fashion Center

Line 104 provides local service between the Redondo Beach pier and the Del Amo Fashion Center in Torrance. The City is served as the line travels along Catalina Ave. Weekday service operates between 7:00 AM and 6:00 PM. There is limited Saturday service and no Sunday service. Line 104 has 70-minute headways.

#### BCT 109 – Redondo Beach Riviera Village – LAX City Bus Center

Line 109 provides local service between the Redondo Beach Riviera Village and LAX, with service to the Aviation Green Line Station en route. The City is served as the line travels along Catalina Avenue and Harbor Drive. Weekday service operates between 6:00 AM and 10:00 PM. There is limited weekend service. Line 104 has 20- to 40-minute headways.

#### The Wave Paratransit

The City is served by “The Wave,” a demand-responsive service for use by residents of the cities of Redondo Beach and Hermosa Beach for travel within the two cities and to select satellite locations. Service is demand responsive and operates all days, with limited service times on holidays. Riders must start or end their trips in the cities of Redondo Beach or Hermosa Beach and must apply to be eligible for service.



*Beach Cities Transit operates three fixed-route bus lines in Redondo Beach.*

### **City of Torrance Transit**

TT 3 – Redondo Beach Pier – Downtown Long Beach

Line 3 provides local service between the Redondo Beach pier and Downtown Long Beach, serving the Carson Civic Center en route. The City is served as the line travels along Torrance Boulevard. Line 3 has 15- to 20-minute weekday headways and 25- to 60-minute weekend headways.

TT 7 – Redondo Beach Pier – PCH/Wilmington

Line 7 provides local service between the Redondo Beach pier and Wilmington, serving the Del Amo Fashion Center en route. The City is served as the line travels along Torrance Boulevard. Line 7 has 30-minute weekday and Saturday headways and no Sunday service.

TT 8 – Madison/PCH – LAX Transit Center

Line 8 provides local service between Madison/Pacific Coast Highway in Torrance and the LAX Transit Center, serving the Galleria at South Bay en route. The City is served at the Galleria and as the line travels along Artesia Boulevard. Line 8 has 20- to 30-minute weekday headways, 30-minute Saturday headways, and 30- to 60-minute Sunday headways.

Municipal Area Express (MAX) Line 2 Palos Verdes Peninsula

MAX Line 2 is a commuter bus operated by Torrance Transit between Palos Verdes and the El Segundo Employment Center. Through the study area, the line makes stops along 190<sup>th</sup> Street, Inglewood Avenue,

Manhattan Beach Boulevard, Space Park Drive, and Aviation Boulevard. There are four northbound buses in the AM and four southbound buses in the PM peak hours.

### **City of Gardena Municipal Bus Lines**

GMB 3 – Galleria at South Bay – Compton Station

Line 3 provides local service between the Galleria at South Bay and the Compton Blue Line Station. The City is served only as the line terminates at the Galleria. Headways on Line 3 are 30 minutes seven days a week.