City of Dana Point

Connectivity Enhancement Study

Prepared for:

Prepared by:

In association with:

June 2013

The preparation of this report was financed in part through grants from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

Acknowledgements

This was a project for the City of Dana Point with funding provided by the Southern California Association of Governments' (SCAG) Compass Blueprint Program. Compass Blueprint assists Southern California cities and other organizations in evaluating planning options and stimulating development consistent with the region's goals. Compass Blueprint tools support visioning efforts, infill analyses, economic and policy analyses, and marketing and communication programs.

The preparation of this report has been financed in part through grant(s) from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) through the U.S. Department of Transportation (DOT) in accordance with the provisions under the Metropolitan Planning Program as set forth in Section 104(f) of Title 23 of the U.S. Code.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of SCAG, DOT or the State of California. This report does not constitute a standard, specification or regulation. SCAG shall not be responsible for the City's future use or adaptation of the report.

Contributors:

City of Dana Point

Brad Fowler, PE - *Director of Public Works and Engineering Services*
John Tilton, AIA - *Acting Director of Community Development*
Christy Teague, AICP - *Economic Development Manager*
Matthew Sinacori, PE - *City Engineer*

KTU+A Planning + Landscape Architecture *(Prime consultant)*
Mike Singleton, AICP CTP, ASLA, LEED AP - *Project Principal*
John Holloway, ASLA, LEED Green Associate, LCI - *Project Manager*
Joe Punsalan, GISP, LCI - *GIS Analyst/Mobility Planner*
Catrine Machi, AICP, LCI - *Mobility Planner*
Tim Henderson, ASLA - *Landscape Architect*
Michael Johnston - *3D Visualizations*

KOA Corporation *(Transportation engineering subconsultant)*
Ronn S. Knox, AICP - *Senior Transportation Planner*
Min Zhou - *Vice President of Orange County Operations*

Introduction 1

Existing Conditions 2

Analysis 3

Recommendations 4

Funding 5

Appendices

1

Introduction

Document Organization

This document is composed primarily of graphics and maps addressing the study's analyses and recommendations. Text is generally limited to introductory pages at the beginning of each section and intended to help define the graphic content that follows. Figures and tables are referenced in the text at the beginning of each section.

Project Scope

The City of Dana Point has focused extensive attention on three major commercial areas: Doheny Village, Dana Point Town Center and Dana Point Harbor. Lying within about one mile of each other, each of these three areas has its own community identity and focused plans for revitalization. The Doheny Village, Town Center and Dana Point Harbor plans are very different, with varied revitalization strategies and future goals. However, all three plans identify the need for connection to one another. Also, Doheny State Beach and Campground lies at the intersection of these three areas.

All three of these areas are expected to experience dramatic changes, improvements and increased popularity over the next decade. Highway on- and off-ramp conflicts, high speed roadways and lack of pedestrian and bicycle facilities have been a deterrent to increased non-motorized use within the study area. This Dana Point Connectivity Enhancement Study makes recommendations to tie these areas together with circulation strategies to overcome impediments to pedestrian, bicycle and vehicular movement. The study's primary goal is to improve access for all non-motorized users, reduce pedestrian and bicycle conflicts with vehicle traffic and to provide safe and viable connections between Dana Point Town Center, Dana Point Harbor, Doheny Village and Doheny State Beach and Campground.

As the City, County and State move forward with plans for these areas, the focus of this study is improving bicycle and pedestrian connections between them, especially via existing facilities that do not now provide it, like Doheny Park Road at the Pacific Coast Highway (PCH) Connector (SR-1) and the PCH on-ramp just south of Las Vegas Avenue. Field work and user counts revealed that pedestrians and cyclists currently use these connections, and cyclists are often seen riding on the sidewalk against the flow of traffic.

Figure 1: Regional Location

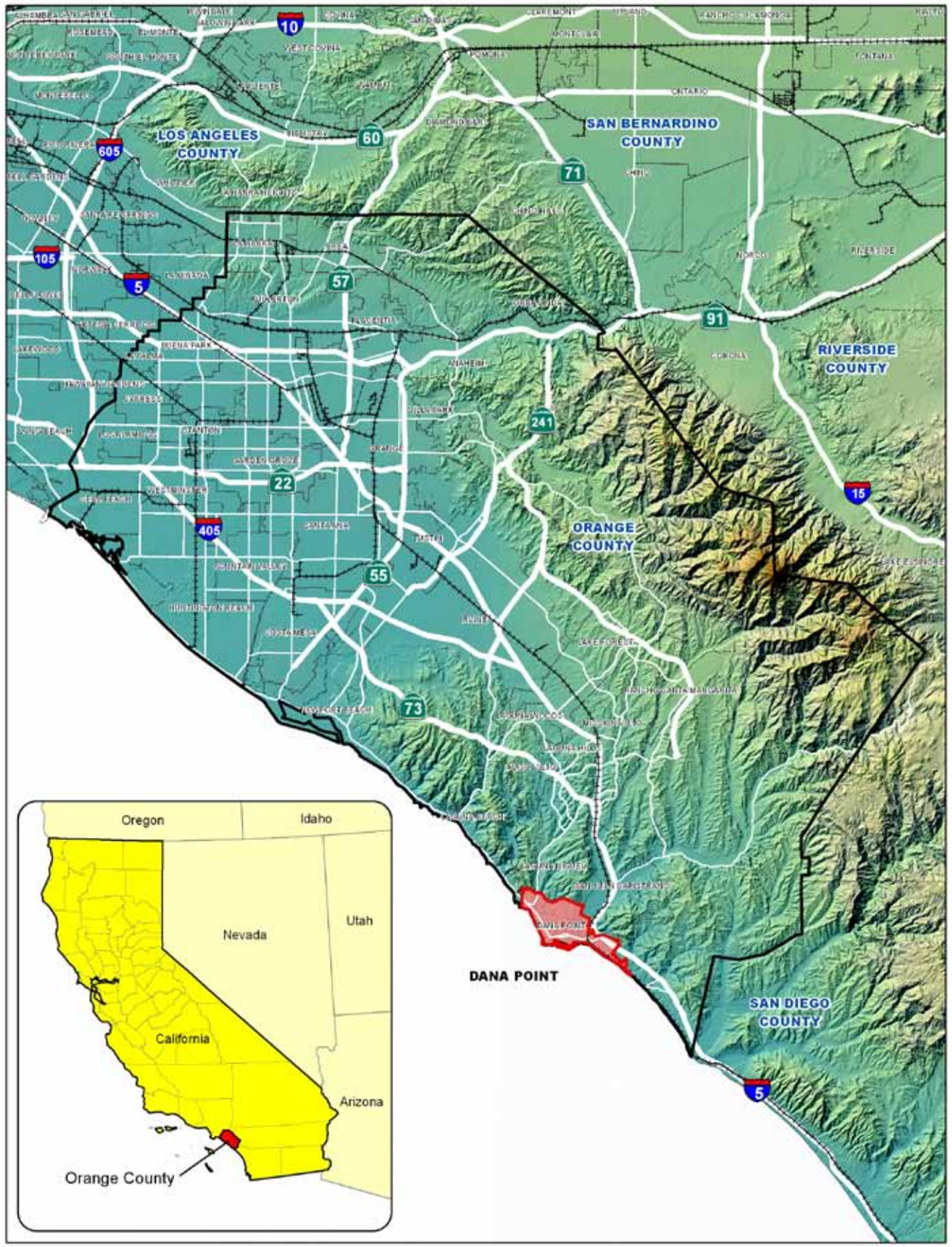


Figure 2: Study Area

Previous Planning Efforts

Reviewing existing plans assist in achieving the goals of other efforts and addressing the policies and actions that have already taken place. The following are summaries and excerpts of existing plans relevant to this connectivity study.

Dana Point Town Center Plan *(2008)*

The purpose of the plan is to establish a framework of policies and development standards that will help guide the transformation of the Town Center into a pedestrian-oriented, mixed-use district that serves the community more effectively and creates a more meaningful and memorable place that adds to the identity and quality of life in Dana Point.

Pacific Coast Highway and Del Prado Traffic

Both PCH and Del Prado provide more roadway capacity than needed, which encourages traffic to move quickly through the Town Center, giving drivers few clues that they have arrived at the community's core. The flow of traffic does not tempt the driver to stop and explore, nor does it allow the Town Center to reveal itself as a unique and memorable place.

Lack of a Strong Pedestrian Environment

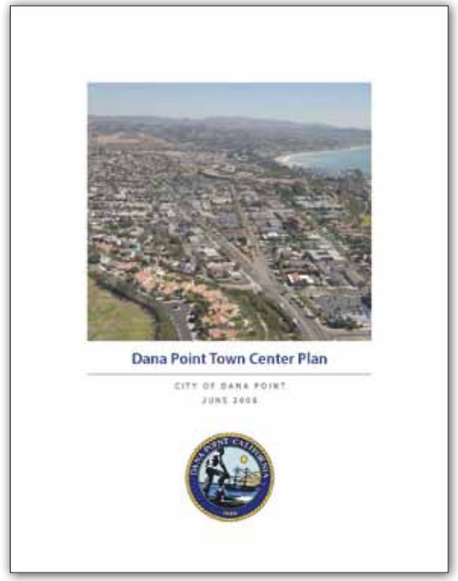
There are few places in Dana Point's Town Center where the pedestrian is given priority over the automobile. Narrow sidewalks combined with traffic noise and emissions make pedestrians feel exposed and unwelcome. Frequent driveway curb cuts interrupt the continuity of the sidewalk environment, and the predominance of surface parking lots makes it clear that the automobile is the primary mode of transport.

Guiding Principles *(As it relates to connectivity analysis)*

1. Keep the family-oriented, beach community character of Dana Point.
2. Slow down the speed of traffic through the Town Center, maintaining efficient and safe vehicular, pedestrian and bicycle travel.
3. Create a distinct character and identity in the Town Center, while preserving public views and vistas.
4. Consider and mitigate the effects of traffic, noise and lights on residential areas.
7. Link the Town Center with the harbor businesses and activities.

GOAL: Slow down the speed of traffic through Town Center while maintaining efficient and safe vehicular, pedestrian and bicycle travel. *(As it relates to the connectivity analysis)*

- Policy 3.1: Reduce the disruptive and negative impact of traffic movements and reduce traffic speeds in the Town Center.
- Policy 3.2: Establish patterns of land use and circulation that promote the desired pedestrian character of the area.
- Policy 3.3: Improve pedestrian circulation in the Town Center, including pedestrian linkages with the bluff top lookouts, Heritage Park and Dana Point Harbor.
- Policy 3.4: Encourage the use of alleys as pedestrian pathways through alleyway beautification and through upgrades to the rear facades of buildings with alley frontage, when appropriate.
- Policy 3.5: Create a convenient shuttle service to link the Town Center with the Harbor and hotels.
- Policy 3.7: Investigate other options for linking businesses and events in the Town Center and the Harbor, such as gondolas and escalators.



Dana Point Harbor Revitalization Plan *(Ongoing)*

This plan establishes new land use policies and development standards that will allow for much needed upgrades to the visitor serving and marina services areas of Dana Point Harbor. The revitalization plan has been developed with the specific intent of promoting *Coastal Act* compliance by enhancing public access opportunities, providing updated visitor-serving commercial and marine recreational amenities, providing water quality improvements and promoting coastal resource preservation throughout the Harbor.

Public Access and Recreation

This chapter of the document sets forth the Land Use Plan goals and policies for Dana Point Harbor implementing several sections of the California Coastal Act that pertain to providing public access in the Coastal Zone. They include:

Coastal Act §30252 provides *(in part)*:

The location and amount of new development should maintain and enhance public access to the coast by

(1) Facilitating the provision or extension of transit service

(3) Providing non-automobile circulation within the development

4) Providing adequate parking facilities or providing substitute means of serving the development with public transportation

(5) Assuring the potential for public transit for high intensity uses

Coastal Act § 30253(d) provides *(in part)*:

New development shall do all of the following:

(d) Minimize energy consumption and vehicle miles traveled

Bikeways and Trails

All Harbor facilities are linked by a series of pedestrian pathways that meander through the landscape areas of the Harbor and along the local collector streets. Most of the walkways are of adequate width (between five and 10 feet) to allow opposing paths of travel for pedestrians as well as occasional bicycle access to all areas of the Harbor. The design of the future Commercial Core area emphasizes a pedestrian-oriented environment designed to take full advantage of the Harbor's unique setting and promote better access to parking, retail businesses, restaurants and boater facilities.

Dana Point Harbor Drive is identified on both the *Orange County and City of Dana Point Master Plan of Bikeways* as a Class II Bikeway (on-street bicycle lane). The Class II Bikeway provides a restricted right-of-way in the established paved area of highways designated for the exclusive or semi-exclusive use of bicycles. Dana Point Harbor Drive is configured to have designated bicycle lanes on both sides of the street, continuing generally from Pacific Coast Highway to the traffic circle, adjacent to Orange County Sailing and Events Center. On-street vehicle parking is presently allowed only on the harbor side of Dana Point Harbor Drive, extending from the traffic circle to Casitas Place.

As previously stated, pedestrian walkways located throughout the Harbor also typically serve as informal bicycle paths, particularly during periods of low pedestrian usage or during special events. The *County of Orange Master Plan of Bikeways* identifies Dana Point Harbor Drive as a Class II Bikeway (bicycle lanes), which provide a restricted right-of-way in the established paved area of highways designated for the exclusive or semi-exclusive use of bicycles, with through travel by motor vehicles or pedestrians prohibited, but permit cross-flows by pedestrians and motorists.*

- 6.2.4-1 Coordinate with appropriate City and County Park, Recreation and Harbor agencies to enhance Open Space trails and bicycle paths. (*Coastal Act Sections 30210-212.5*)
- 6.2.4-2 Promote the safety of pedestrians and cyclists by adhering to national standards and uniform practices.
- 6.2.4-3 Maintain existing pedestrian facilities and require new development to provide pedestrian walkways between facilities.
- 6.2.4-4 Encourage safe and convenient bicycle and pedestrian access throughout the community. *(Coastal Act Sections 30210-212.5, 30250, 30252)*
- 6.2.4-5 Develop stronger pedestrian, bicycle and visual linkages between public spaces and along the shoreline and bluffs. *(Coastal Act Sections 30210, 30212*)
- 6.2.4-6 Support and coordinate the development and maintenance of bikeways in conjunction with the County of *Orange Master Plan of Countywide Bikeways* to assure that local bicycle routes will be compatible with routes of neighboring jurisdictions.
- 6.2.4-11 Pedestrian walkways and trails shall provide connection points to off-site, existing or proposed walkways/trails, including integration with the California Coastal Trail.

In August of 2012, a *Dana Point Harbor Drive Traffic Analysis* was conducted to develop recommendations for lane configurations for Dana Point Harbor Drive when it is renovated or improved. In addition, two new signals were proposed at Casitas Place and at Puerto Place.

Exhibit A

Dana Point Harbor
Revitalization Plan
& District Regulations

LAND USE PLAN COMPONENT

City of Dana Point
Community Development Department
33282 Golden Lantern
Dana Point, CA 92629

Contact: Kyle Butterwick, Director of Community Development

OC Dana Point Harbor
24650 Dana Point Harbor Drive
Dana Point, CA 92629

Contact: Brad Gross, Director

California Coastal Commission
Suggested Modifications (Entire Document)

Exhibit #2
Page 6 of 149

Dana Point Bicycle and Pedestrian Trails Plan *(2006)*

The Plan addresses important issues related to the City's bikeways and pedestrian trails, such as planning, community involvement, utilization of existing resources, facility design, multi-modal integration, safety and education, support facilities as well as specific programs, implementation, maintenance and funding.

Goals and Objectives

Goal 1: Promote bicycle transportation and walking

Goal 2: Increase bicycle transportation usage

Goal 3: Improve the local and regional bikeway and pedestrian trail network

Goal 4: Improve pedestrian mobility and enhance recreational opportunities

Goal 5: Increase opportunities to benefit from bicycling and walking

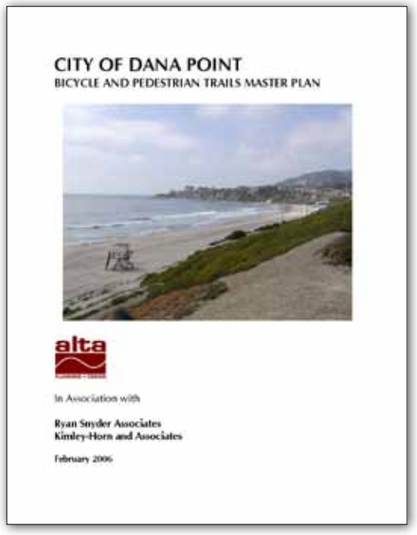
Top Priority Projects

#10 Doheny Park Road, between San Juan Capistrano city limit and Coast Highway and Coast Highway, between San Juan Creek and Palisades Drive *(Partially completed)*

#11 Dana Point Harbor-Doheny Village-Capistrano Beach Connection Study

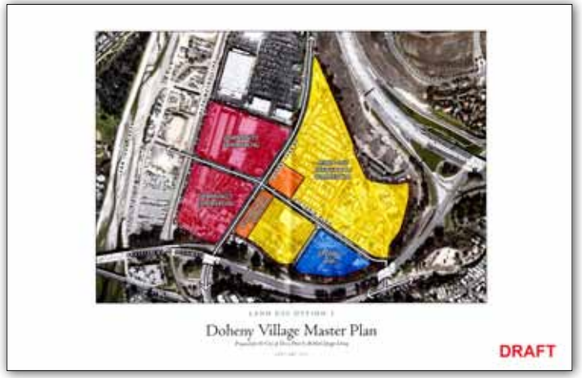
Third Priority Projects

#1 San Juan Creek Trail (east bank), between San Juan Capistrano city limit and Pacific Coast Highway



Doheny Village Master Plan *(In Progress)*

The Doheny Village Plan is under development to serve as a guide to revitalize the area, improve its appearance and encourage a more vibrant business climate and community. It is expected the plan will establish a clear direction for future revitalization of the Doheny Village area as an attractive, unique neighborhood within the Capistrano Beach community of Dana Point, and as a vital link to other areas of the City.



Doheny State Beach Final General Plan and EIR *(2004)*

This General Plan serves as a framework to guide the park's day-today decisions on park operations and improvements. It also serves as the Environmental Impact Report (EIR), which assesses the park's existing environmental conditions and identifies measures to preserve, restore and manage the park's environmental resources in compliance with the *California Environmental Quality Act* (CEQA). It provides guidelines for future land use management and designation, including land acquisition and the facilities required to accommodate expected increased visitation.

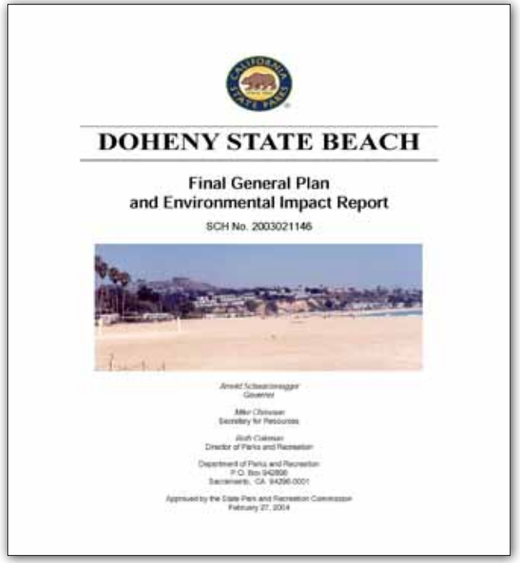
Goal PD 4: Doheny State Beach becomes a memorable "experience along a journey" for local and regional cyclists and pedestrians, including hikers following the California Coastal Trail.

Guideline PD 4.1: A focused study should be conducted to provide a separate system for through access by cyclists and skaters that links with local and regional trails. Key components of the study would include the potential for a separate 10 foot wide bicycle/skate route through the South Day Use Area, designated bicycle lane at the main park entrance, recommendations on facilities such as bicycle racks and information signs, and delineation of areas for pedestrian-only use or restricted periods (e.g., weekdays only) when joint pedestrian/bicycle use would be permitted. The study should include recommendations on completing missing links, restrictions or limitations on types of users, and ADA compliance.

Goal PD 5: Safe pathways are provided in the park, which are adequately separated from motor vehicle lanes.

Guideline PD 5.1: The focused study in Guideline 4.1 should include a specific design for construction of a sidewalk from the south end of the Coast Highway bridge to the South Day Use Area. The road is only approximately 24 feet wide with no shoulders available to accommodate pedestrians, who must share the roadway with cars and RVs, cyclists and skaters. Recommendations should also be provided on completing other missing links, adequate signage, restrictions or limitations on types of users, and ADA compliance.

Guideline PD 5.2: Pedestrian access along the South Day Use Area beachfront should be established and protected from encroachment by vehicles. As an alternative to a paved walkway, it could be improved with decomposed granite or a composite, synthetic boardwalk.



General Plan: Circulation Element *(1995)*

The purpose of the Circulation Element is to provide a safe, sensible, and efficient circulation system for the City. The current State mandate for a Circulation Element states that the General Plan shall include:

> *"...a Circulation Element consisting of the general location for proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element of the Plan."*

GOAL 1: Provide a system of streets that meets the needs of current and future residents and facilitates the safe and efficient movement of people and goods throughout the City. *(Coastal Act/30252)*

Policy 1.10: Design local and collector streets to discourage their use as through traffic routes.

Policy 1.11: Require that proposals for major new developments include a future traffic impact analysis which identifies measures to mitigate any identified project impacts. *(Coastal Act/30250)*

Policy 1.12: Encourage new development which facilitates transit services, provides for non-automobile circulation and minimizes vehicle miles traveled. *(Coastal Act/30252)*

Policy 1.13: Minimize pedestrian and vehicular conflicts. *(Coastal Act/30252)*

Policy 1.14: Establish landscaping buffers and building setback requirements along all roads where appropriate. *(Coastal Act/30252)*

Policy 1.15: Develop a circulation system which highlights environmental amenities and scenic areas. *(Coastal Act/30251)*

GOAL 5: Encourage non-motorized transportation, such as bicycle and pedestrian circulation.

Policy 5.1: Promote the safety of pedestrians and cyclists by adhering to national standards and uniform practices.

Policy 5.2: Maintain existing pedestrian facilities and encourage new development to provide pedestrian walkways between developments, schools and public facilities.

Policy 5.3: Ensure accessibility of pedestrian facilities to the elderly and disabled.

Policy 5.4: Support and coordinate the development and maintenance of bikeways in conjunction with the County of Orange *Master Plan of Countywide Bikeways* to assure that local bicycle routes will be compatible with routes of neighboring jurisdictions.

Policy 5.5: Encourage the provision of showers, changing rooms and an accessible and secure area for bicycle storage at all new and existing developments and public places. *(Coastal Act/30213)*

Policy 5.6: Develop programs that encourage the safe utilization of easements and/or rights-of-way along flood control channels, public utility rights-of-way, railroad rights-of-way, and street rights-of-way wherever possible for the use of bicycles and/or hiking trails.

Policy 5.7: Explore possible link-up of trails within the City to regional trail systems.

Policy 5.8: Improve the safety of pedestrians crossing Pacific Coast Highway. *(Coastal Act/30252)*

Policy 5.9: Support and coordinate the development and maintenance of bikeways and trails in conjunction with the master plans of the appropriate agencies.

Policy 5.10: Encourage safe biking by supporting the clinics sponsored by the County Sheriff's Department.

Policy 5.11: Consider the provision of unique non-motorized circulation methods for special events.

Policy 5.12: Provide for a non-vehicular circulation system that encourages mass-transit, bicycle transportation, pedestrian circulation. *(Coastal Act/30252, 30253)*

2 Existing Conditions

Existing Conditions Images

The following images were collected during field work as part of site analysis and are included here to provide a visual overview of the typical conditions pedestrians and cyclists experience within the study area. Image captions are included to highlight issues and opportunities. The images are also grouped by location on each page with key maps illustrating their general area.

Pedestrian bridge over PCH connecting north side to Doheny State Beach

Intersection of PCH, Dana Point Harbor Drive and Del Obispo Street - View northwest from adjacent pedestrian bridge

Area Image Key

Vehicle signage on PCH northwestbound near San Juan Creek Trail maintenance entrance

Passageway connecting south end of pedestrian bridge with Doheny State Beach - Note surveillance signage

Signage at west end of pedestrian bridge

Signage on Del Obispo Street directing pedestrians to pedestrian bridge

Lower end of meandering pathway within Heritage Park - Commonly used by cyclists to climb from Dana Point Harbor to Dana Point Town Center in lieu of roadways such as Golden Lantern or extremely steep Cove Road

Heritage Park - Upper end of meandering pathway through park connecting with Dana Point Harbor

Meandering pathway connecting Dana Point Harbor and Lantern Bay Park

Area Image Key

Golden Lantern - Note bicycle lanes and wide sidewalks

Intersection of Golden Lantern and Dana Point Harbor Drive - Note stairs and meandering pathway to Lantern Bay Park at top of slope

Dana Point Harbor Drive - Note frequency of bicycle lane markings

Del Prado (southeastbound) and PCH (northwestbound) couplet - Note streetscape amenities including bicycle lanes each direction, wide sidewalks and established street trees

Del Prado and PCH intersection - Part of a popular coastal recreational and fitness cycling route

Mid-block crossing of PCH Connector/Park Lantern at DoubleTree Hotel - Note advance stop bars in background and family walking toward crosswalk in right photo

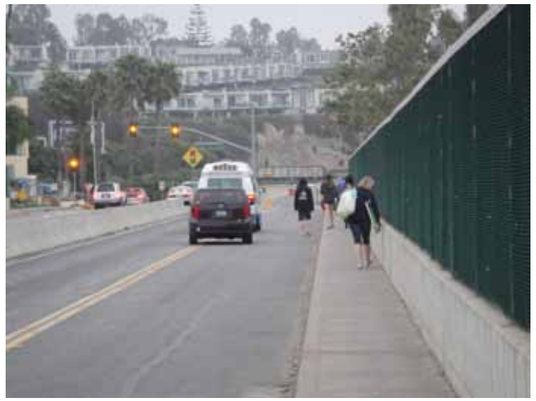
Park Lantern/PCH Connector bridge over San Juan Creek looking southeast toward DoubleTree Hotel

PCH Connector approaching rail line bridge and intersection with Coast Highway and Doheny Park Road beyond

Northwest end of Park Lantern bridge over San Juan Creek - Note extremely narrow connection from Doheny State Beach pathway (red curb ramp)

PCH Connector lane on north side of bridge over San Juan Creek at left and Park Lantern on right - Note width of buffers on both side of PCH Connector travel lane

Area Image Key



Typical conditions on Park Lantern - Note narrow walkway on beach side and drivers' reactions to pedestrians in roadway

Park Lantern/PCH Connector approach to mid-block crossing at DoubleTree Hotel - Entrance to southeastern portion of Doheny State Beach on right at stop-controlled intersection

Park Lantern within southeastern portion of Doheny State Beach - 15 mph posted speed limit and significant cyclist and pedestrian volumes appear to discourage excessive vehicle speeds

Area Image Key

View north of Doheny Park Road from intersection with Coast Highway and PCH Connector

View of PCH Connector from intersection with Coast Highway and Doheny Park Road - Note cyclist under bridge positioned away from roadway

Signage at southwest end of crosswalk across PCH Connector to Coast Highway

View northwest of crossing conditions at intersection of PCH Connector, Coast Highway and Doheny Park Road - Note approaching vehicle at left from PCH Connector with no traffic controls

PCH Connector, Coast Highway and Doheny Park Road intersection looking southeast - Note cyclist's use of right-turn-only lane to proceed straight to Coast Highway

View of PCH Connector from intersection with Coast Highway and Doheny Park Road - Note uncontrolled right slip lane approaching crosswalk

Doheny Park Road southeastbound under PCH bridge approaching intersection with PCH Connector and Coast Highway

Doheny Park Road northbound approaching PCH bridge - Note cyclist on sidewalk riding against traffic, which was observed here several times

Doheny Park Road southbound approach to State Route 1/PCH/I-5 Ramp, as well as southbound Coast Highway

Pathway through Doheny State Beach paralleling San Juan Creek Trail (which lies beyond fence and trees at left)

Pathway through Doheny State Beach at southern end of San Juan Creek Trail

Signage on Del Prado approaching Golden Lantern

Pathway through Doheny State Beach to bridge connecting two halves of park - Note traffic on PCH Connector beyond K-rail separator in background

San Juan Creek Trail - PCH Connector/Park Lantern bridge in background

Doheny State Beach entrance - Note signal buttons and wide bicycle/pedestrian path separated from entry roadway by curb

Area Image Key

Misaligned curb ramp at Doheny State Beach entrance on Dana Point Harbor Drive

San Juan Creek Trail under PCH Connector/Park Lantern during high tide event (7 June 2012)

Signage in Doheny State Beach at entrance from pedestrian bridge over PCH

3

Analysis

Analysis Mapping

The following maps were compiled from datasets and documents collected for existing condition analysis. Figures 3 to 8 address factors commonly assessed for mobility planning, including average daily traffic volumes, existing land use and parks, existing and proposed bicycle facilities, and ownership.

Note that all routes and other data shown in this chapter were excerpted from existing documents, datasets and adopted plans. Recommendations are addressed in the following chapter.

Figure 3: Average Daily Vehicle Traffic

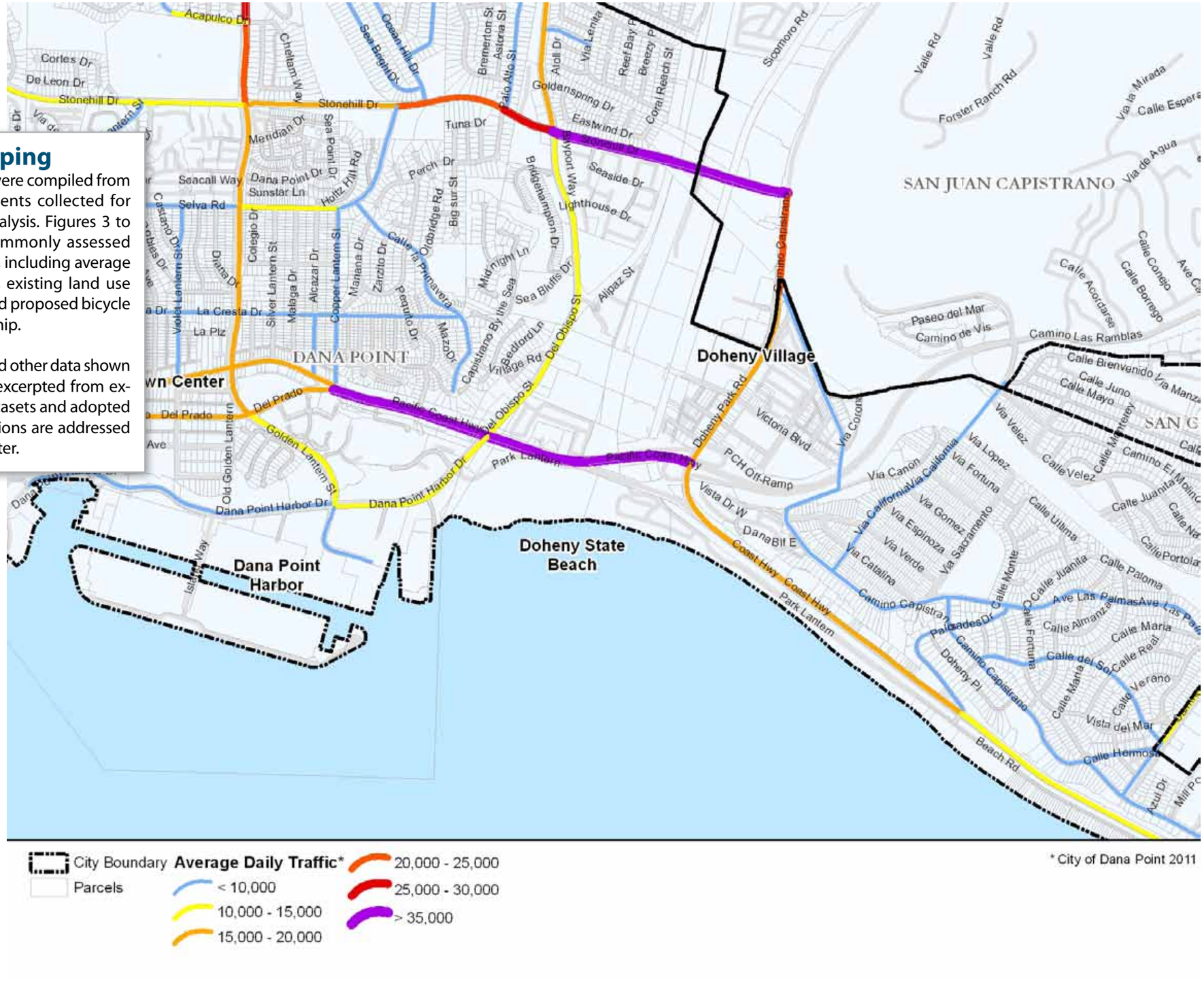


Figure 4: Existing Land Use

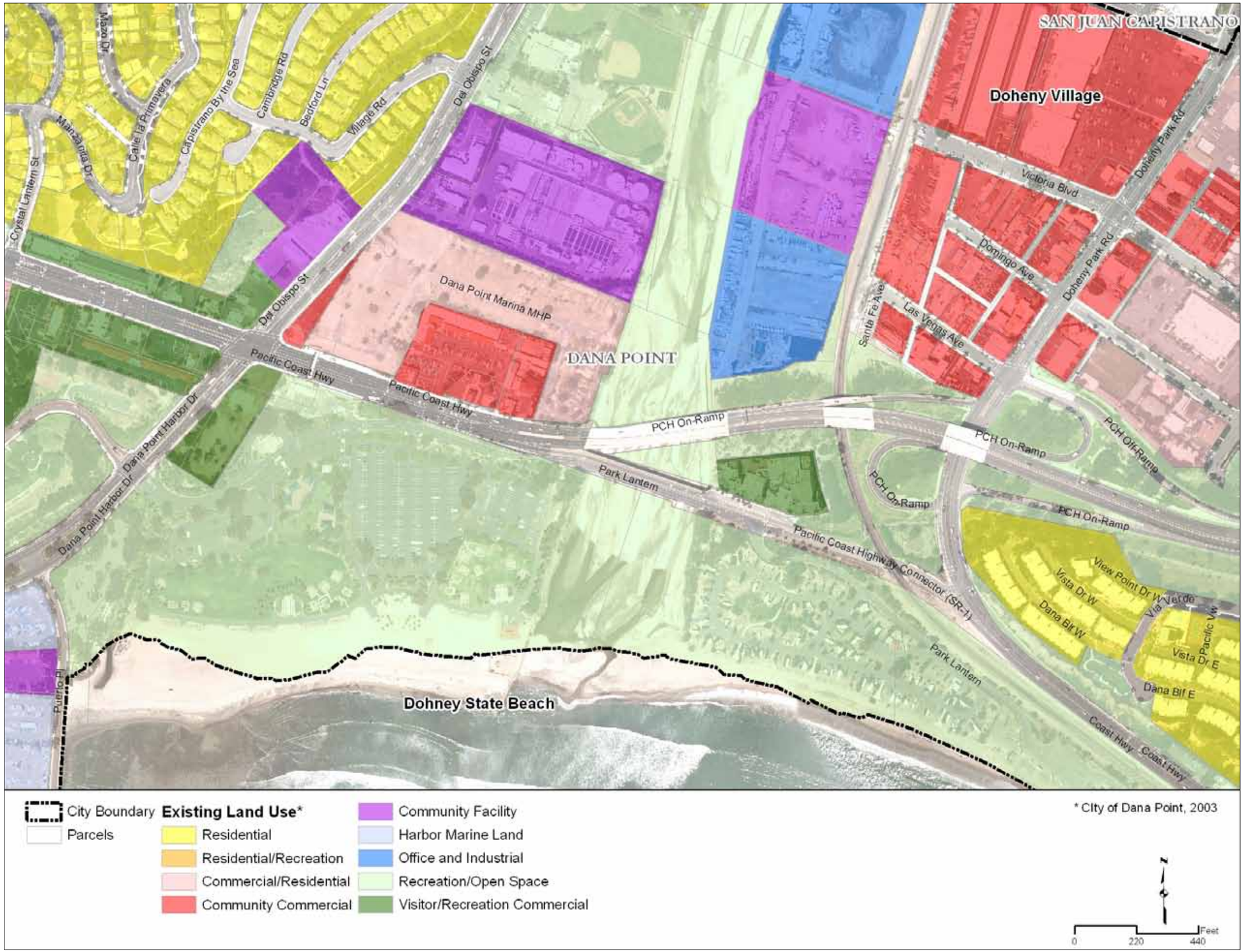


Figure 5: Existing Parks

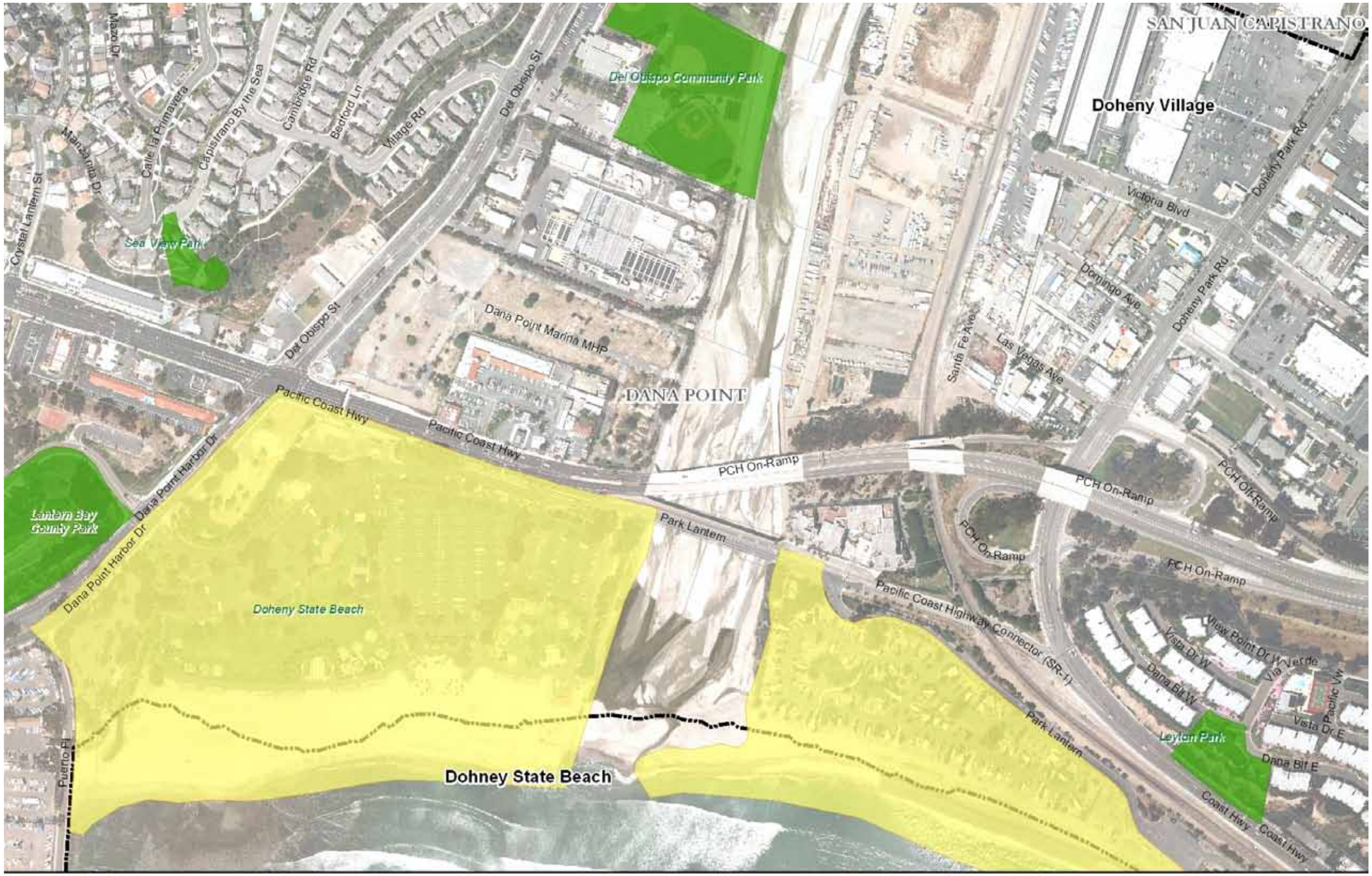


Figure 6: Existing Bicycle Facilities

Figure 7: OCTA Bicycle Facilities

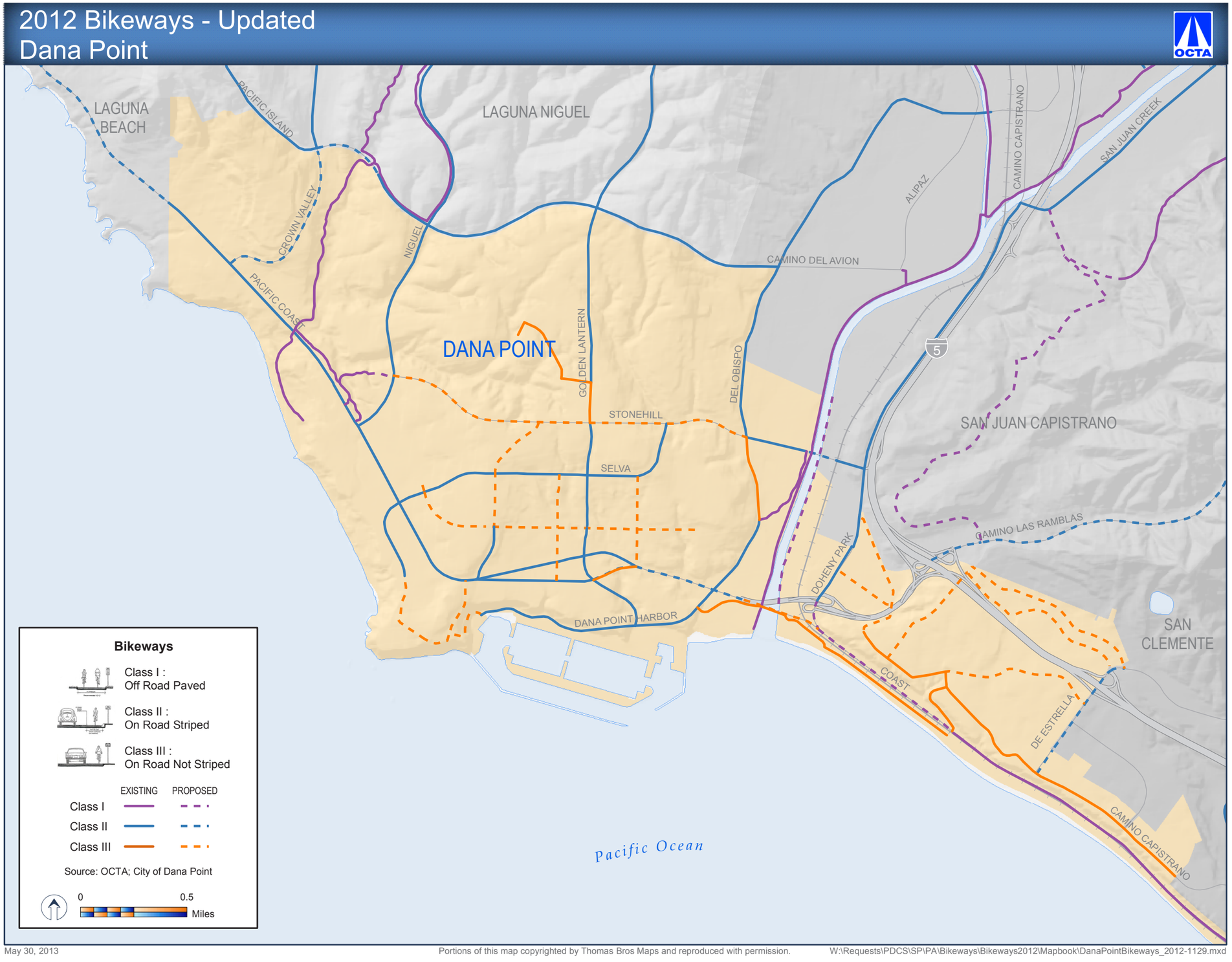


Figure 8: Ownership

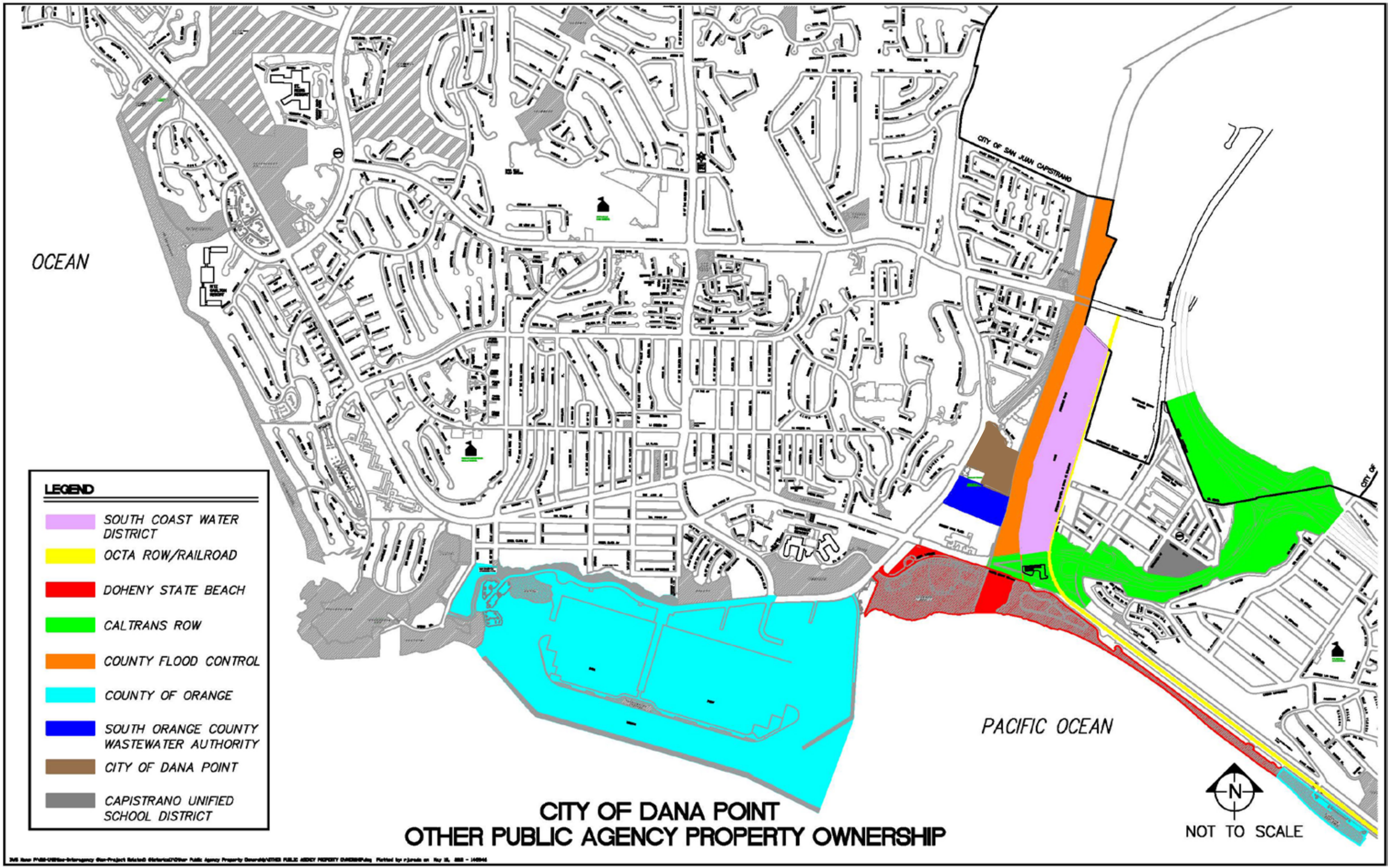
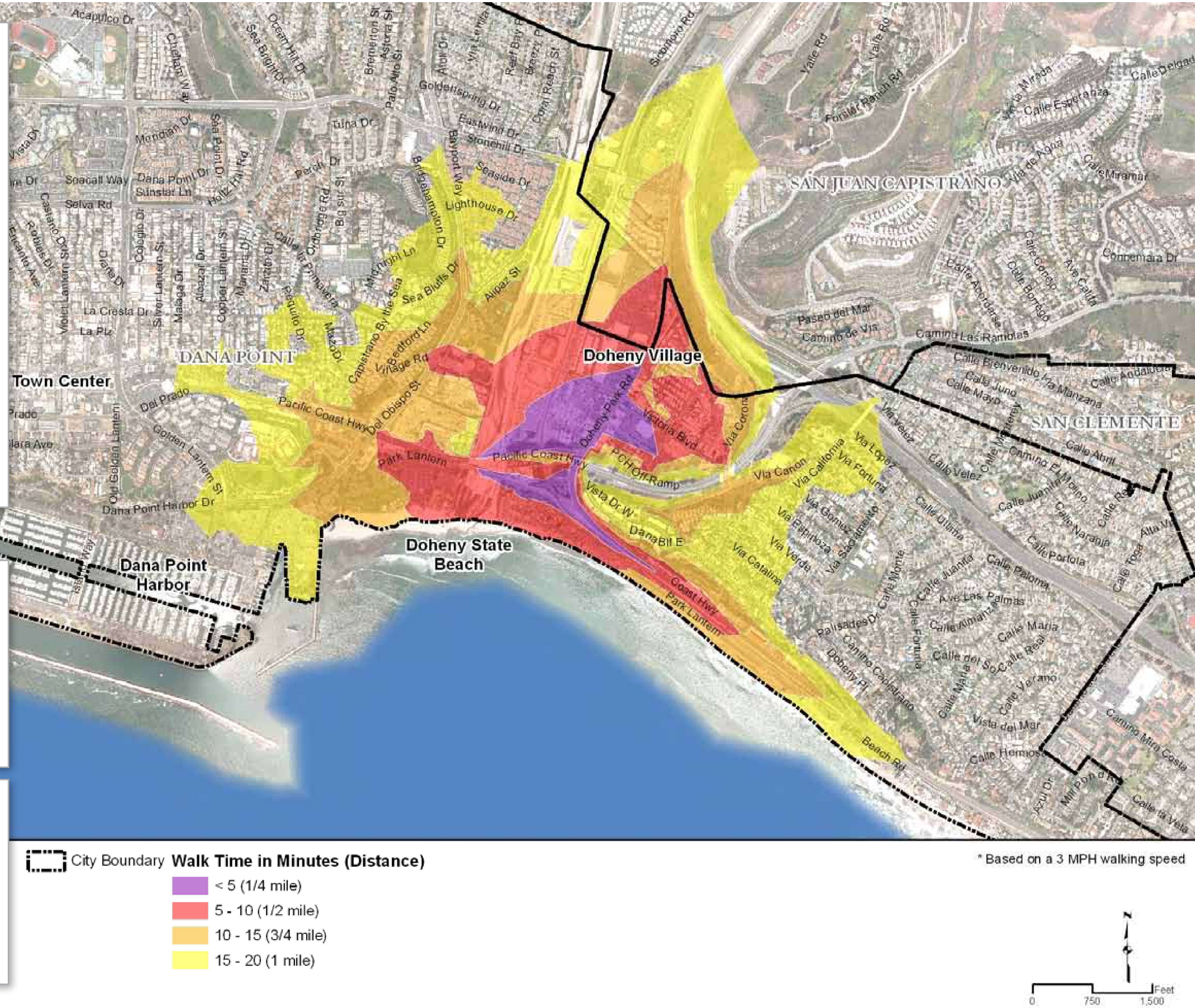


Figure 9: Walk Time from PCH/Coast Highway Intersection



Walk Times and Demographics

Figure 9 identifies the areas likely to be most affected by improved non-motorized connectivity. This analysis employed the existing street network using a three mile per hour walk time to illustrate the extent of the area affected, using the PCH/Coast Highway intersection as the central reference point. This provided a more accurate representation of pedestrian accessibility within specified time frames. Because people think of walking in different ways, some by time and some by distance, both indicators are routinely employed in analysis mapping.

From the resulting walkshed areas, demographic data were extracted to define existing and future population and employment characteristics. The tables below summarize the potential demographic impact on access that improved connections can make for cyclists and pedestrians. This data only summarizes available information for local population and employment demographics, but improved access can also provide viable tourism connections.

Population Estimates*

Walk Time *(Minutes)*	2010	2030
< 5 (1/4 Mile)	234	246
5 - 10 (1/2 Mile)	1,008	1,060
10 - 15 (3/4 Mile)	1,984	2,084
15 - 20 (1 Mile)	2,714	2,854
Totals	**5,940**	**6,245**

** SCAG RTP 2007*

Employment Estimates*

Walk Time *(Minutes)*	2010	2030
< 5 (1/4 Mile)	210	227
5 - 10 (1/2 Mile)	756	819
10 - 15 (3/4 Mile)	1,243	1,348
15 - 20 (1 Mile)	1,697	1,844
Totals	**3,906**	**4,237**

** SCAG RTP 2007*

Conclusions

Usage patterns for all modes derived from counts and extensive field observations underpinned the analysis performed for this connectivity study. The following conclusions came from consideration of existing conditions in combination with analysis mapping. Roadway dimensions were measured in the field wherever traffic conditions allowed. These measurements were supplemented with available CAD data and aerial photography, over which conceptual plans were drawn.

Connectivity appears to be adequate within the Town Center areas, and will likely improve upon implementation of the *Dana Point Town Center Plan*, particularly due to the provision of bicycle facilities when the existing one-way couplet system of Del Prado and Pacific Coast Highway is converted to two-way streets. Consistent wayfinding is needed here, as well as throughout the study area.

Class 2 bicycle lanes and sidewalks exist along Dana Point Harbor Drive, but connectivity between the State Beach and harbor areas could be improved with an additional path between them, such as a continuation of existing paths along the State Beach.

The draft *Doheny Village Master Plan* addresses non-motorized connectivity within this plan area, including proposing a bridge at Victoria Drive to span the rail line and San Juan Creek, landing on the west bank near Del Obispo Community Park. This alignment would presumably connect with the existing San Juan Creek Trail connecting the Doheny State Beach and harbor area with neighborhoods upstream. This would provide a much-needed non-motorized connection between Doheny Village and the rest of Dana Point, but would be peripheral to the study area.

Class 2 bicycle lanes and sidewalks exist along Doheny Park Road to just north of the PCH interchange, but facilities from the interchange southward are limited to a sidewalk only along the west side.

Based on this analysis, within the study area, the most significant connectivity obstacle appears to be from the point where sidewalks and bicycle lanes in Doheny Village end on Doheny Park Road southward between there and Doheny State Beach and Campground. This zone essentially forms a barrier to non-motorized travel and is also confusing for drivers unfamiliar with the area due to freeway on- and off-ramps and one-way roadways. Convenient travel in this area is further impeded by other impediments such as San Juan Creek, a rail line and a lack of adequate non-motorized routes and roadway crossings.

Regulatory signage at PCH on-ramp

Cyclist riding wrong way on sidewalk along northbound Doheny Park Road approaching PCH bridge

View of wide sidewalks and bicycle lanes on Golden Lantern as seen from Lantern Bay Park

Fitness cyclists on Golden Lantern at Pacific Coast Highway

Recreational cyclists entering Doheny State Beach from Dana Point Harbor Drive

4 Recommendations

Based on the existing conditions analysis, conceptual plans were developed to address missing connections, barriers and conflict points that appeared to be interfering with study area connectivity, including context-sensitive changes to improve both motorized and non-motorized mobility and the visual environment. This "Complete Streets" approach included new bicycle and pedestrian facilities and treatments, wayfinding signage, streetscape enhancements and some roadway changes.

Measures to reduce locally generated traffic volumes were investigated to better support non-motorized and vehicular mobility within the study area. Connectivity improvements would benefit both State Beach users and local businesses because most campers likely have both the time and the inclination to explore nearby areas without driving, including for shopping and dining. Better bicycle and pedestrian facilities would also benefit local residents who could access Doheny State Beach, Doheny Village and the harbor without having to drive their vehicles, which would also reduce overall parking demand. Due to the locally mild climate and relatively short distances involved, improved walking and cycling facilities are likely to be well used.

Route Continuity

Recommended improvements shown in the conceptual plans (See Pages 26-31) also addressed existing coastal bikeway route discontinuity. Currently, the legal on-street route cyclists traveling up the coast must use takes them a significant distance out of their way to the nearest inland roadway crossing of San Juan Creek, Stonehill Drive, a nearly two mile round trip. This is because there is no bicycle-legal northbound on-street route connecting Coast Highway and points north where it becomes Doheny Park Road as it turns inland toward Doheny Village and passes through the PCH/Doheny Park Road interchange connecting to Interstate 5.

Cyclists who want to continue up the coast past this point must know well in advance to access the multi-use path at Palisades Drive, which continues north through the State Park, terminating at the park entrance on Dana Point Harbor Drive. However, even if northbound cyclists are aware of this route, the path is heavily used by all types of non-motorized users, some segments are narrower than current standards allow, and the route goes through motor home parking areas and parking lots with relatively high turnover.

Streetscape

The conceptual plans on the following pages include street tree and landscape treatments as aesthetic and safety improvements, but also take advantage of the opportunity to create a gateway into Dana Point that visually ties it with other recent improvements elsewhere along major arterials, particularly the Del Prado/Pacific Coast Highway project where *Phoenix dactylifera* date palms are planned for installation.

In addition, other broad crowned street trees can not only improve walkability and enhance an area's overall visual appeal, but also reduce the urban heat island effect, the evapotranspiration rate of underlying landscape, block winds, and sequester carbon and produce oxygen. Street trees also provide a traffic calming function since they create visual "friction" along the roadway, which has been shown to discourage excessive speed.

Also, as noted in the *City of Dana Point Design Guidelines*, plant material should be both drought tolerant and require little maintenance. Turf was therefore avoided in the concept plans and plantings were intended to be tolerant of reclaimed water.

Streetscape enhancements could also be used to differentiate PCH Connector and other roadways as separate from the Interstate 5 corridor. Once on PCH Connector, drivers need to know they are approaching a popular recreational area, particularly Doheny State Beach and Campground, where they can be expected to encounter significant numbers of pedestrians and cyclists.

Stormwater runoff and re-use features should also be included in project design, where possible, especially where new facilities will be constructed. Sustainable stormwater runoff control methods may include bio-swales, infiltration trenches, permeable pavements, subsurface runoff detention, or a combination of these treatments. This may be especially applicable as part of walkway and bicycle route design, as well as a component of curb extensions.

Phoenix dactylifera date palms

Street trees along Del Prado

Lighting

The study area has very little existing lighting. Park Lantern Road in Doheny State Beach from Dana Point Harbor Drive, including the bridge over San Juan Creek, are not lighted. Pacific Coast Highway and Doheny Park Road have conventional highway "cobra head" type lighting with high pressure sodium vapor (HPSV) fixtures typically used for multi-lane arterial highways. Traffic signals with safety lighting on the signal poles exist at Pacific Coast Highway and Doheny Park Road. There is also a signal at the Doheny Park Road and Pacific Coast Highway westbound ramps with safety lighting.

Lighting provides essential nighttime illumination to support walking and cycling and vehicle safety. Sustainability in terms of low maintenance and functionality should be the focus of lighting plans. Well-designed street lighting enhances the public realm while providing safety and security on roadways, paths and lanes. Lighting walkways and bicycle routes enhances their transportation value, and raises these modes to the same standard as motor vehicles.

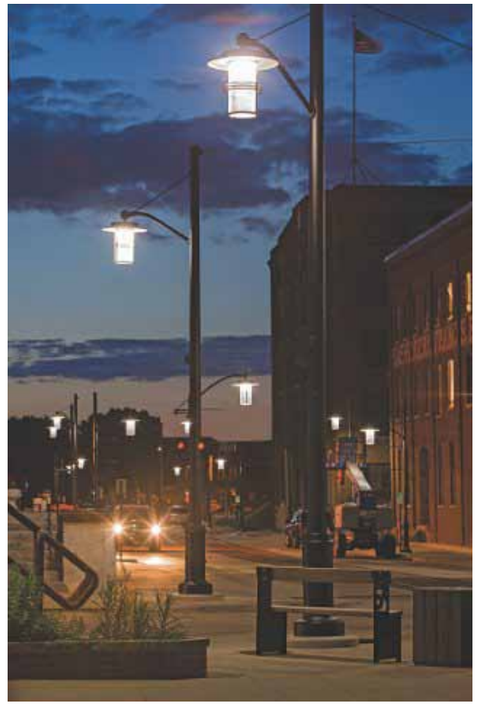
New installations and any retrofitting or upgrading of existing street lights should provide lighting on adjacent walkways and paths. Path lighting should be added to existing street light poles where feasible unless spacing between street light poles does not support adequate path lighting, in which case path lighting may need to be provided between the street light poles. Such path lighting fixtures are smaller scaled than street lighting poles and are therefore usually placed a shorter distance apart than street lights. Depending on specific site conditions, path lighting could employ bollard type fixtures.

Basic Guidelines

- Light fixtures should not be located next to tree canopies that may block the light.
- Where path lighting is not provided on street light poles, special fixtures should be located between street light poles.
- All light sources should provide a warm white color light.
- Design should relate and be coordinated with the design of other streetscape elements and recognize the history and distinction of the neighborhoods where the light poles are located.
- As appropriate, dark sky-compliant lighting should be selected to minimize light pollution cast into the sky while maximizing light cast onto the ground.
- Solar-powered light fixtures should be utilized where possible for new installations or for retrofit projects.
- Lighting levels should be consistent with applicable local and state regulations and standards.
- Historically significant street light poles and fixtures should be maintained and upgraded where appropriate.

Crossings

Lighting is important to include at all crossing locations for the comfort, safety and convenience of all roadway users. Lighting should be present at all marked crossing locations. Properly designed lighting provides cues to drivers to expect pedestrians and cyclists.



Small scale lighting fixture examples

Energy Conservation
It is expected that lighting will be a part of project improvements and some additional roadway lighting may be considered. Revised lighting at traffic signal locations and possibly specific modifications to signal control and operation should be examined as viable improvements.

The bicycle/pedestrian route is expected to be enhanced with low level pathway lighting designed to illuminate the route and increase security for night use. The use of energy-efficient Light Emitting Diode (LED) lighting fixtures should be considered for application throughout the project limits. LED lighting can be used with various light fixtures to address most applications. Lenses or refractors are commonly used to control light distribution.

LED efficiency benefits include long life (up to 100,000 hours) and reduced maintenance due to longer periods between lamp module replacements, but the greatest benefit is reduced energy consumption by as much as an estimated 60 percent when compared to comparable output HPSV lamps. LEDs can have a lifetime of 12-15 years and a cost recovery of around three years.

The benefit of lower energy consumption and reduced maintenance costs are very attractive and support the installation of LED lighting. Some objections have occurred because the intense white light can be perceived as a surprising change from the warmer HPSV lighting people have grown accustomed to seeing. Measures can be taken to reduce the initial impact of LED lighting with lower wattage modules and dimming. Also, new LEDs are becoming available that have color similar to conventional lamps.

The following is a brief summary of advantages to using LED lighting versus conventional technology:

- Low power consumption and reduced maintenance costs
- Dimming capability
- More accurate color rendering
- Quick turn on and restart
- Does not contain toxic lead or gas
- Ease of light spillage control where light is undesirable
- High output at low temperatures

Wayfinding Signage

A cohesive, well designed and informative signage system is a critical mobility enhancement because clear wayfinding is important to any streetscape design and function. It not only provides users the information they need to navigate an area, but can also showcase local themes, brand the area and function as public art. Based on site analysis and proposed layouts, a comprehensive wayfinding program is recommended to tie together and enhance the connectivity strategies detailed in this study.

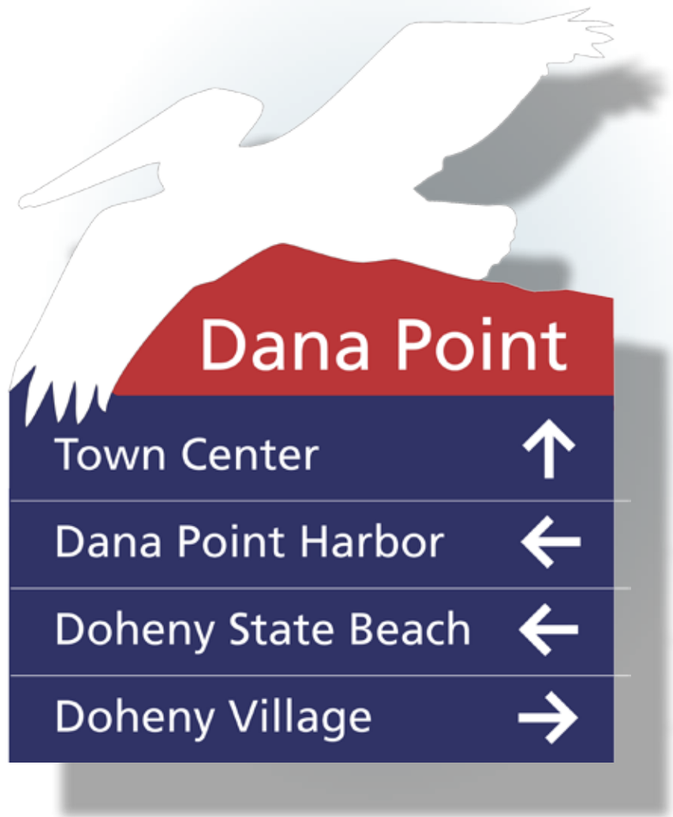
Conceptual signage designs were developed for both non-motorized and vehicular circulation systems within the study area. Both signage types were scaled to reflect each system according to standard practice. The vehicular signage would therefore be larger and mounted higher than the non-motorized signage because it needs to be legible from greater distances and at higher speeds. The vehicular signage shown to the right would therefore be roughly three times the size of the pedestrian/cyclist signage concepts shown on the facing page.

At roadway locations where directions need to be provided for all user types, the larger vehicular signs could be used alone. However, pedestrian/bicycle signs may be needed along some roadways well in advance of decision points in addition to the vehicular signage, particularly at major intersections such as at Golden Lantern and Dana Point Harbor Drive where cyclists may need to cross multiple lanes to make left turns. Otherwise, the smaller signs would be used primarily on non-motorized routes away from roadways.

For clarity and legibility, the number of destinations per sign should be kept to a maximum of six, but four is preferred, especially for vehicular signage. Both sign types could be post or flag mounted, depending upon specific location requirements and conditions.

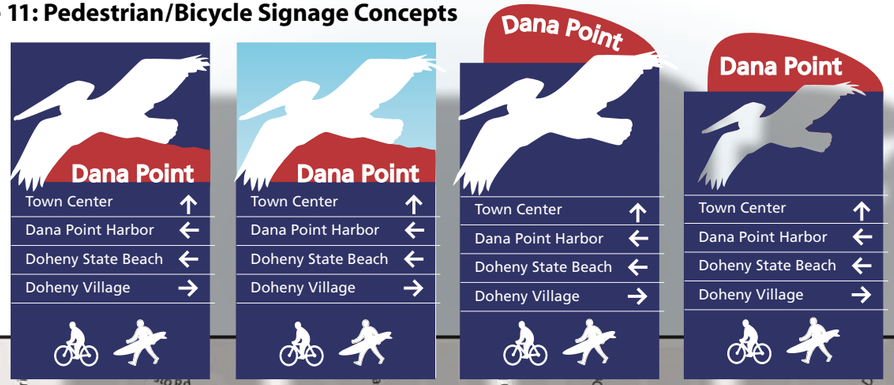
The conceptual signage location plan shown on the following page reflects this connectivity study's recommended roadway changes at the PCH Connector/Doheny Park Road/Coast Highway intersection (See Pages 24-25), the associated multi-use path additions within the study area, as well as relevant changes recommended in other recent area plans (See Pages 3-5).

Figure 10: Vehicular Signage Concept



Approximate dimensions: 36" wide X up to 48" tall

Figure 11: Pedestrian/Bicycle Signage Concepts



Approximate dimensions: 12″ wide X 18″ tall

Figure 12: Conceptual Signage Locations

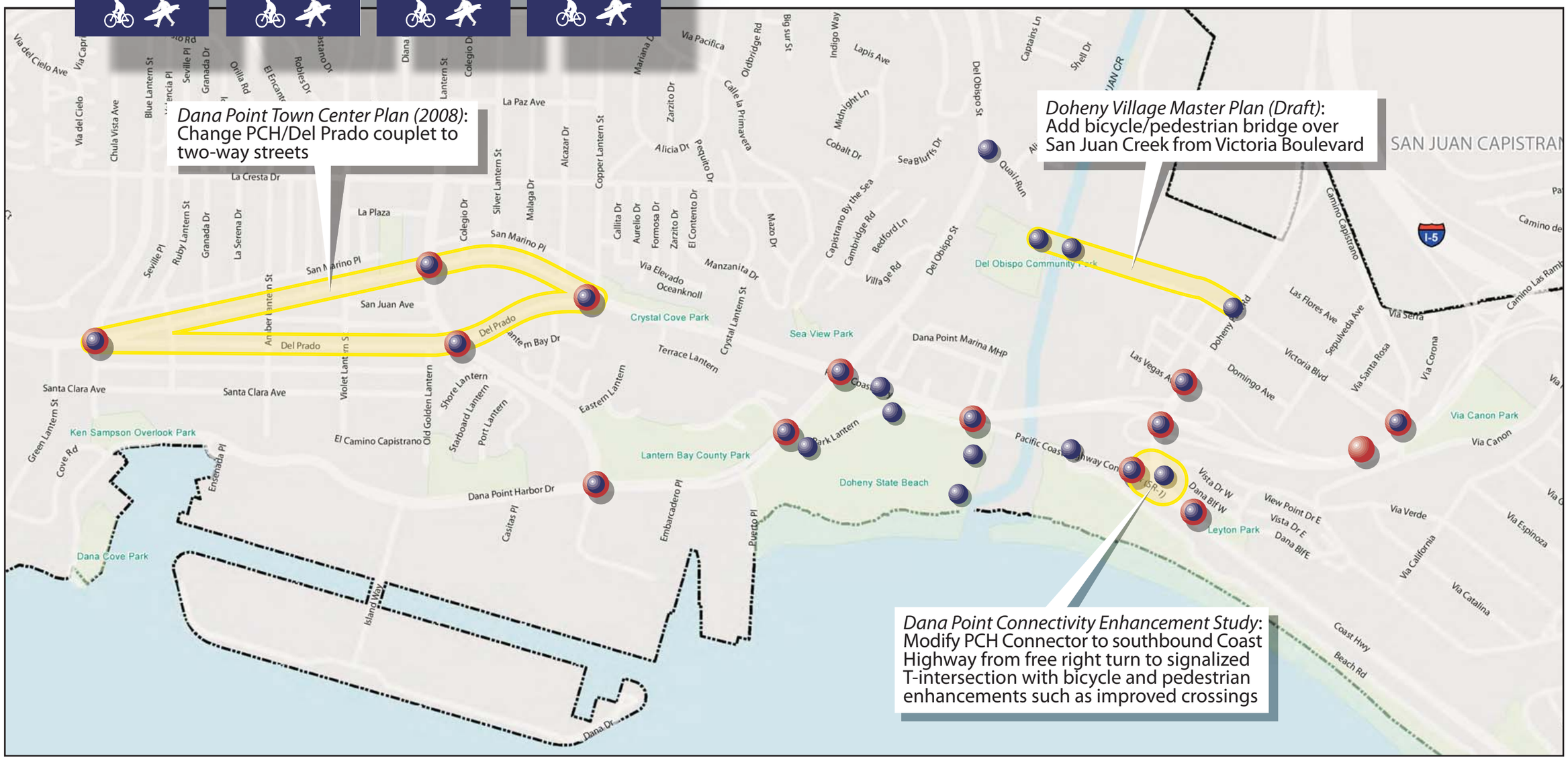


Figure 13: PCH Connector/Doheny Park Road/Coast Highway Intersection Existing Conditions

Conceptual Layout Plans

The conceptual layout plans shown on the following pages include improvements such as lighting, median and parkway planting areas, street trees and wayfinding signage.

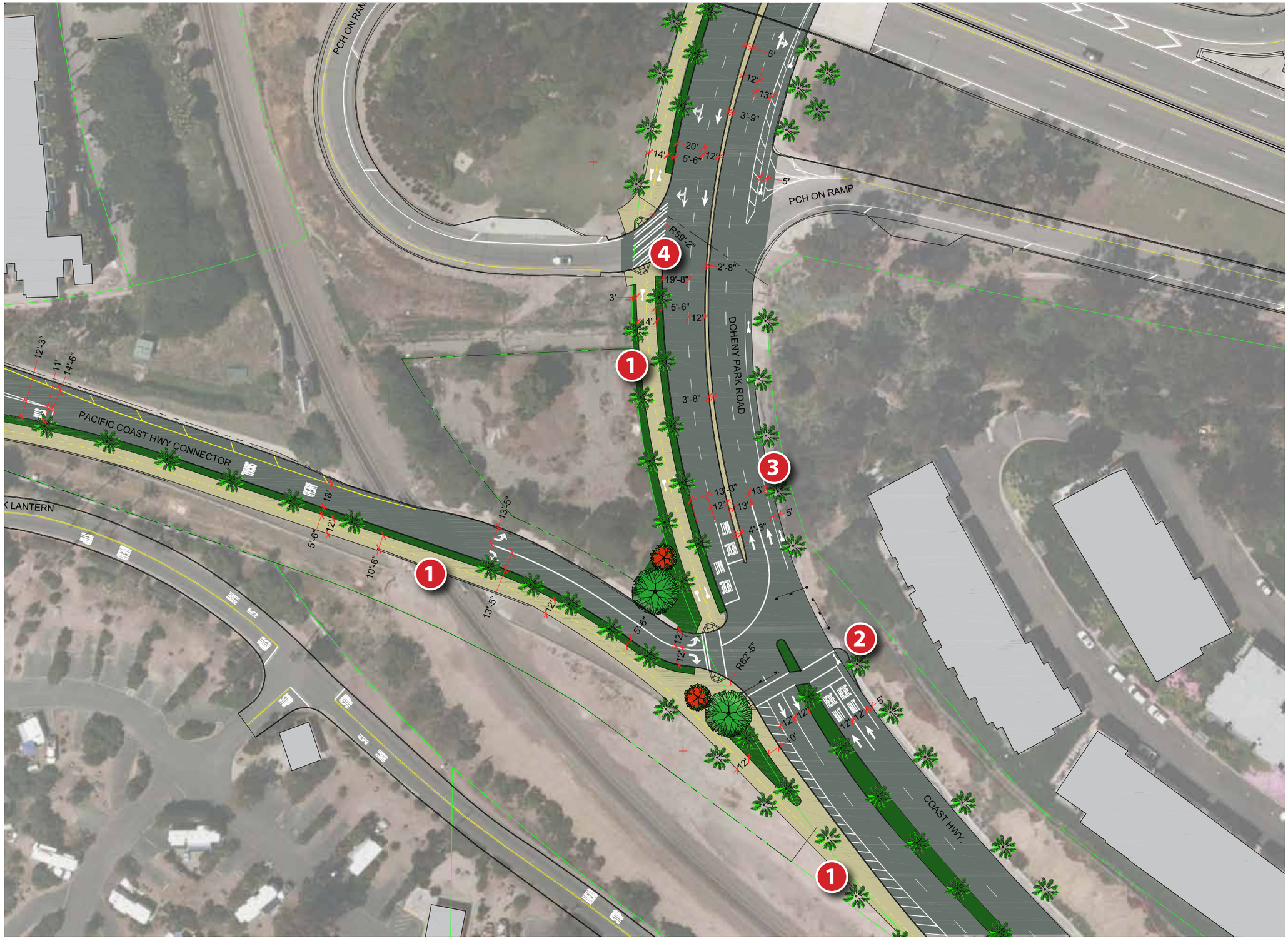
The layout plans call out the recommended alterations to the existing conditions, all intended to support better connectivity. To clearly illustrate the changes between the existing and recommended layouts, they are presented side-by-side with dimensions. Roadway paving is shown in dark grey and other paving such as sidewalks, paths and medians are shown in light brown. Existing and proposed pavement markings are also shown. (Consult the annotated images in the existing conditions chapter for more information about these areas, particularly those on Page 10. See Appendix B for regulatory signage for these areas.)

PCH Connector/Doheny Park Road/Coast Highway Intersection

Recommended changes in this area would include replacement of the free right turn from PCH Connector southbound to Coast Highway with a "T" intersection, installation of a multi-use pathway along PCH Connector and Doheny Park Road, as well as a Class 2 bicycle lane and an enhanced cyclist and pedestrian crossing with a "jug handle" on the east end. This feature would provide space for cyclists proceeding north up the coast a safe place while waiting to crossing the intersection directly to the proposed multi-use path along PCH Connector, instead of the current legal route that requires them to continue northward to Stonehill Drive to cross San Juan Creek.

Other improvements would include landscape and street trees buffering the multi-use paths from adjacent roadways (per Caltrans requirements), which would also improve the visual environment, as well as roadway lane modifications to more equitably support all connectivity modes. In particular, these recommendations would provide significantly better connectivity for cyclists and pedestrians by providing them a much safer and more attractive route between Coast Highway, Doheny Village and the State Beach and Campground. Other than roadway crossings, the recommended improvements would create a route entirely separated from motor vehicle traffic.

Figure 14: PCH Connector/Doheny Park Road/Coast Highway Intersection Proposed Improvements



1. Multi-use Path
2. "Jug Handle" Crossing
3. Bicycle Lane
4. High Visibility Crosswalk

Figure 15: Doheny Park Road Existing Conditions

Doheny Park Road

This is a continuation of the improvements north of those shown in the previous area's concept plan intended to make the connection with the existing sidewalks and Class 2 bicycle lanes within Doheny Village along Doheny Park Road. (See lower row of images on Page 10 for existing conditions. This would include continuing the recommended streetscape treatments, as well as curb extensions designed to shorten crossing distances. The number and type of travel lanes has not been changed, but widths would be slightly modified to accommodate recommended facilities. PCH on-ramp crossings would include safety improvements such as enhanced crosswalk striping and signage.

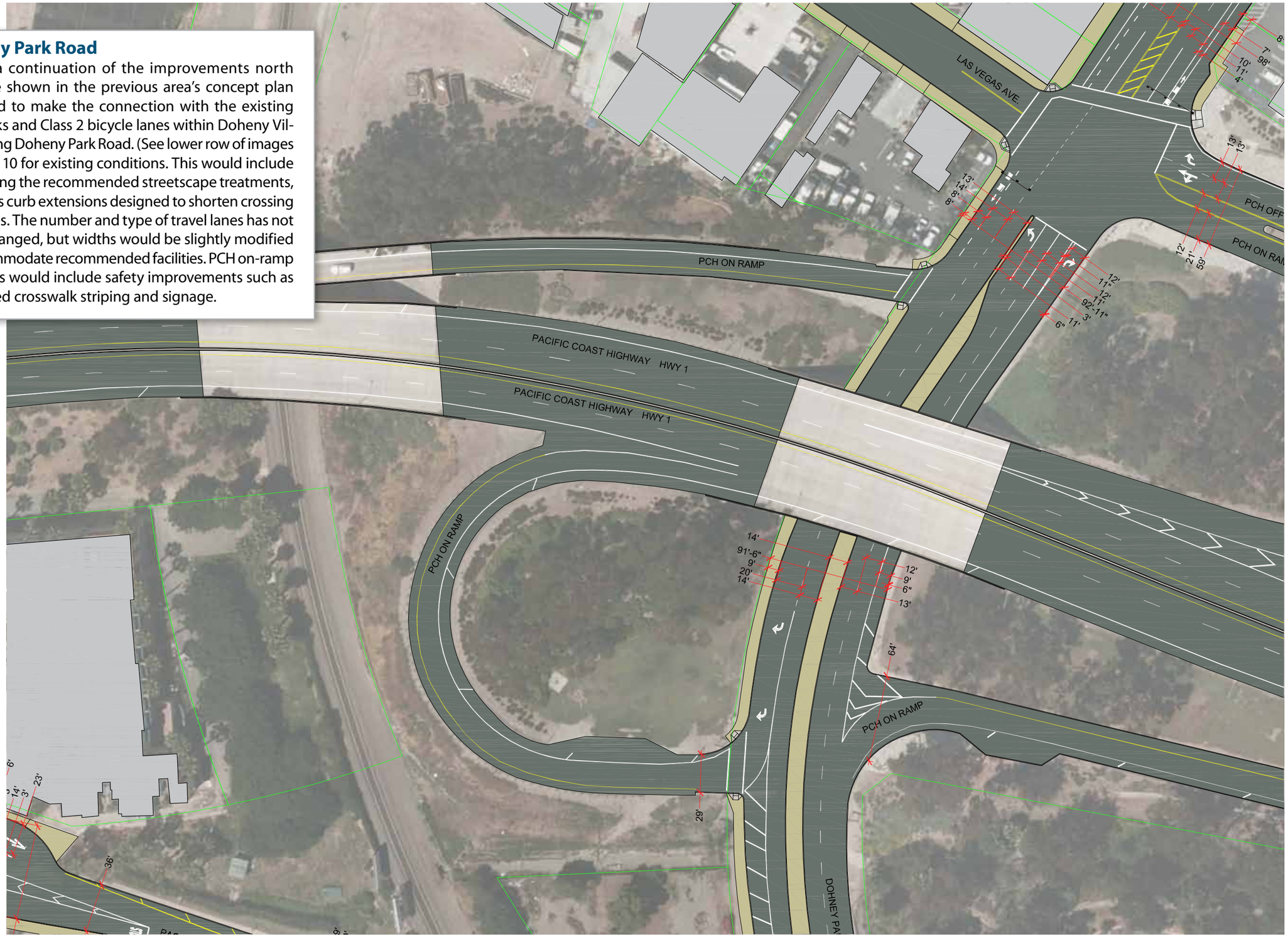
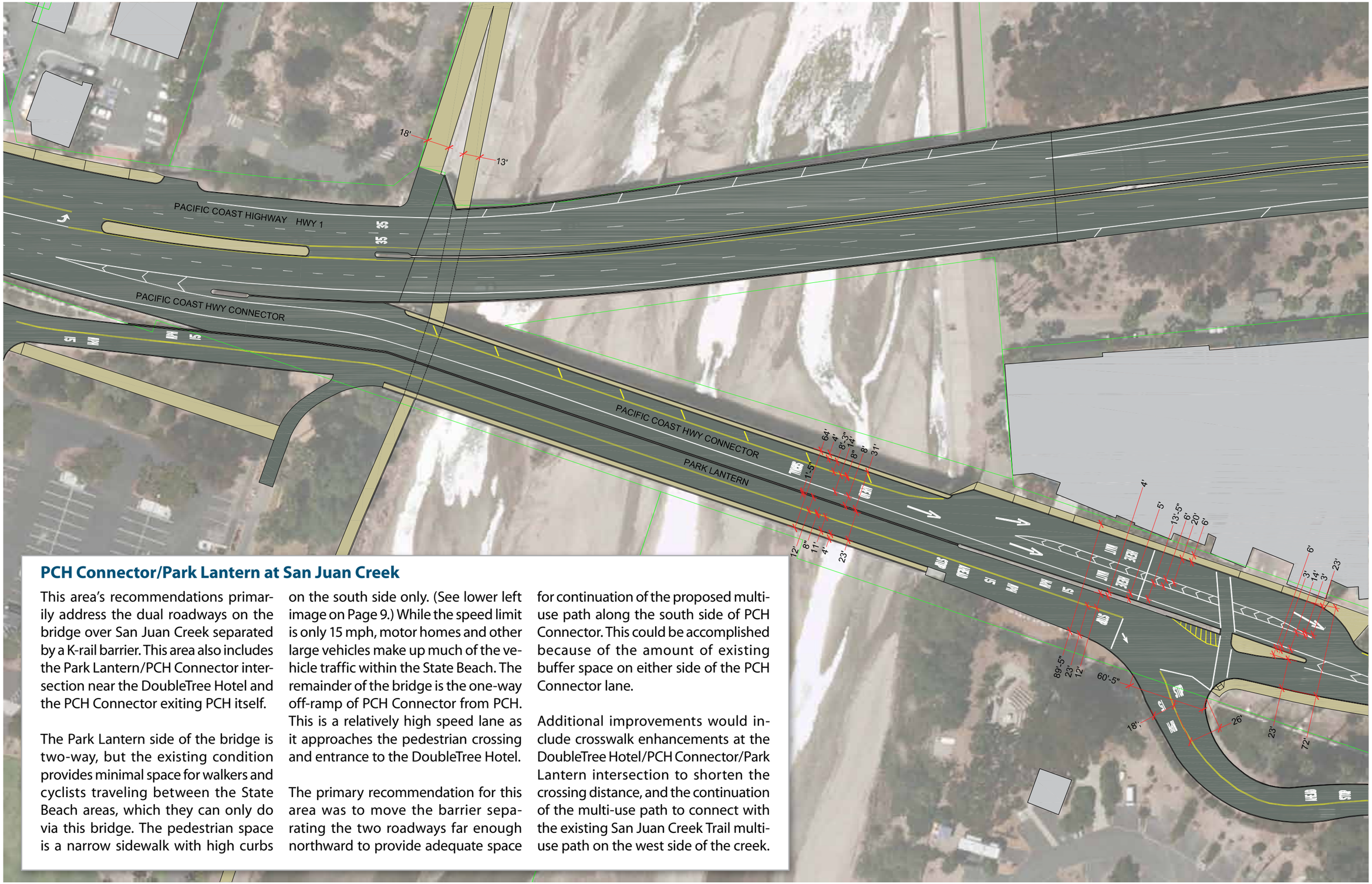


Figure 16: Doheny Park Road Proposed Improvements

1. **Multi-use Path**
2. **Bicycle Lane**
3. **Curb Extension**
4. **High Visibility Crosswalk**

Figure 17: PCH Connector/Park Lantern at San Juan Creek Existing Conditions



PCH Connector/Park Lantern at San Juan Creek

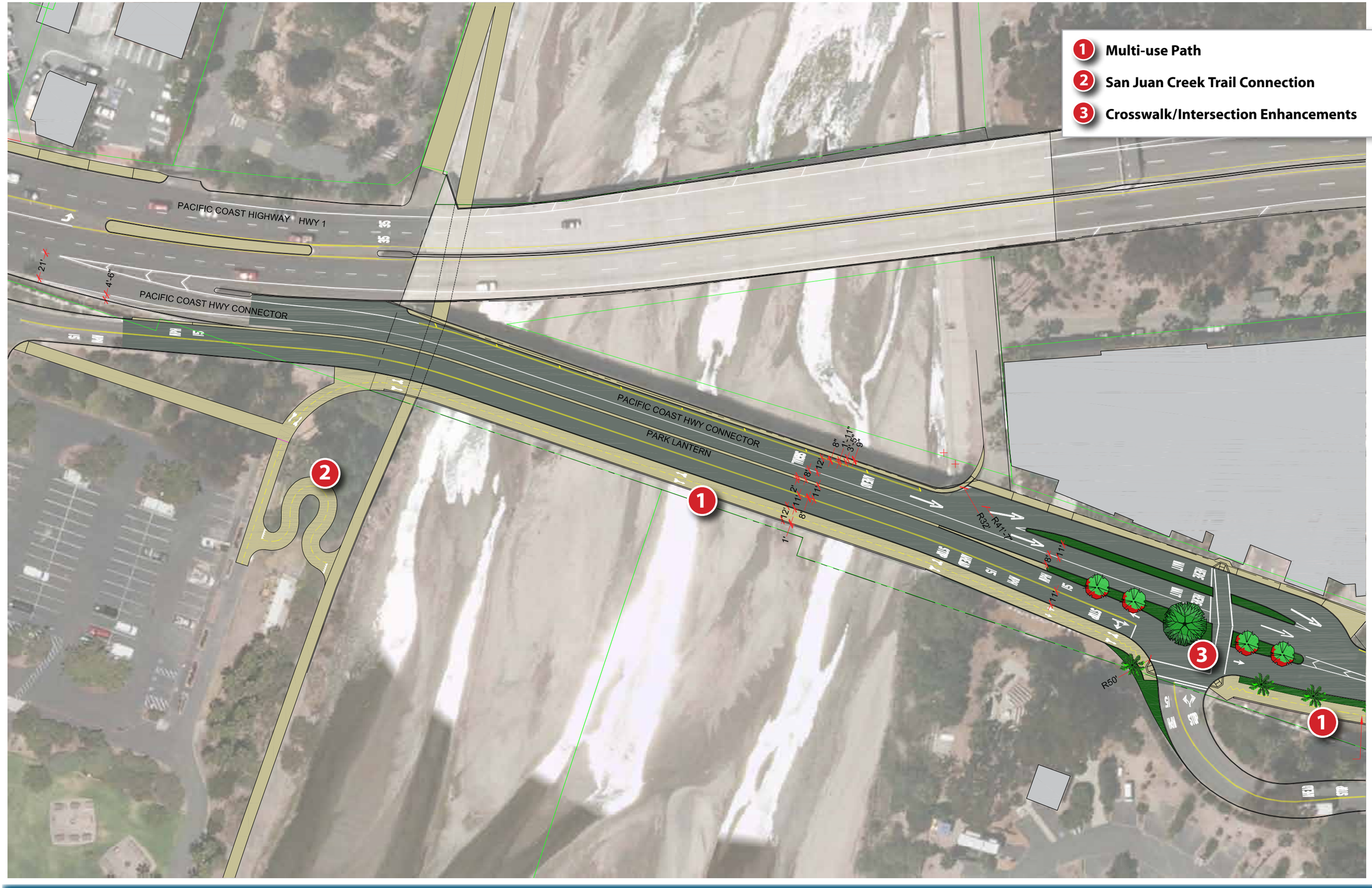
This area's recommendations primarily address the dual roadways on the bridge over San Juan Creek separated by a K-rail barrier. This area also includes the Park Lantern/PCH Connector intersection near the DoubleTree Hotel and the PCH Connector exiting PCH itself.

The Park Lantern side of the bridge is two-way, but the existing condition provides minimal space for walkers and cyclists traveling between the State Beach areas, which they can only do via this bridge. The pedestrian space is a narrow sidewalk with high curbs on the south side only. (See lower left image on Page 9.) While the speed limit is only 15 mph, motor homes and other large vehicles make up much of the vehicle traffic within the State Beach. The remainder of the bridge is the one-way off-ramp of PCH Connector from PCH. This is a relatively high speed lane as it approaches the pedestrian crossing and entrance to the DoubleTree Hotel.

The primary recommendation for this area was to move the barrier separating the two roadways far enough northward to provide adequate space for continuation of the proposed multi-use path along the south side of PCH Connector. This could be accomplished because of the amount of existing buffer space on either side of the PCH Connector lane.

Additional improvements would include crosswalk enhancements at the DoubleTree Hotel/PCH Connector/Park Lantern intersection to shorten the crossing distance, and the continuation of the multi-use path to connect with the existing San Juan Creek Trail multi-use path on the west side of the creek.

Figure 18: PCH Connector/Park Lantern at San Juan Creek Proposed Improvements

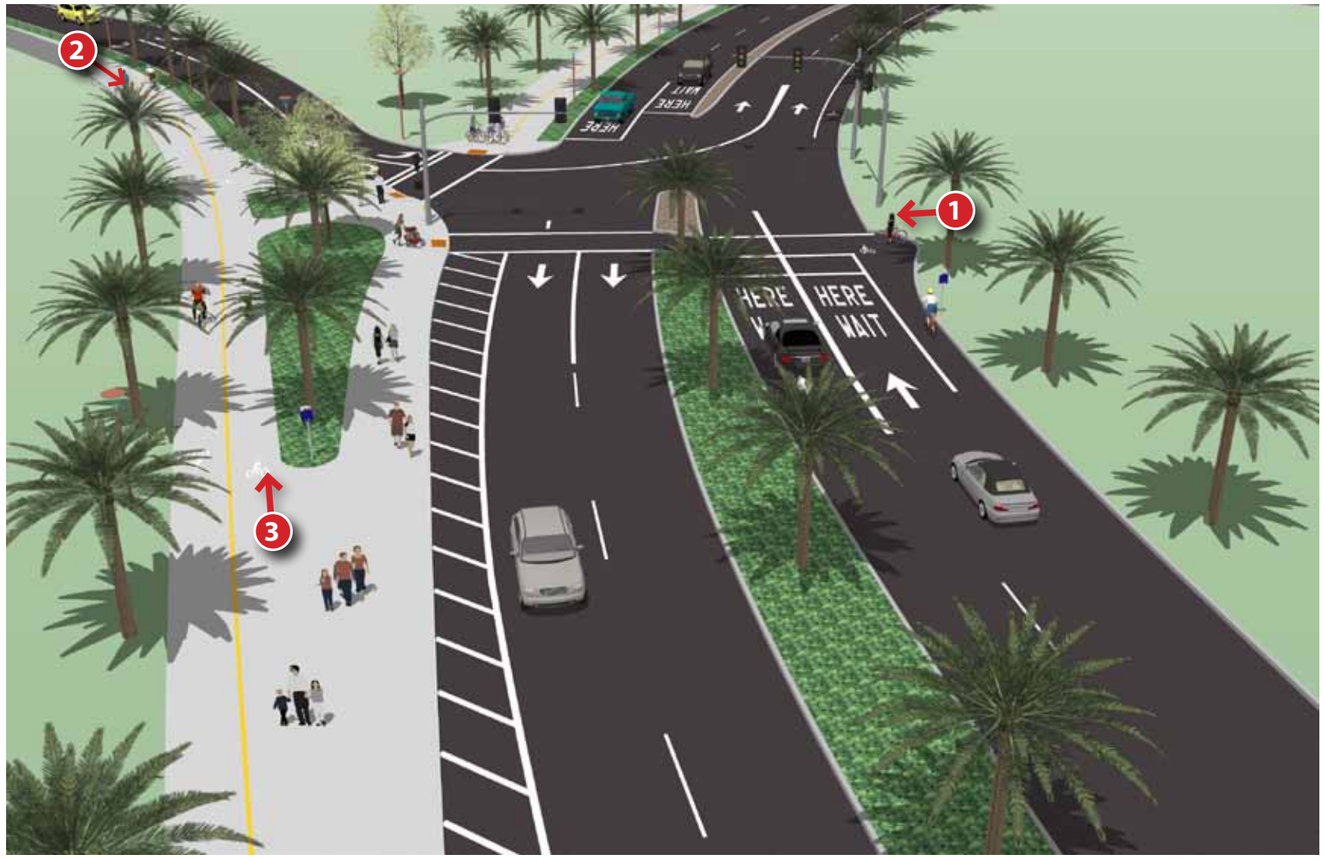


3D Model Views

As well as the plan view conceptual layout plans on the preceding pages, a digital model was created of the intersection of PCH Connector/Doheny Park Road/Coast Highway. Models like this are intended to better convey recommended changes to help support the reasoning behind their intent. In this case, while surrounding areas have been substantially addressed in other planning efforts, study analysis showed that improving this intersection for non-motorized users supported superior pedestrian and cycling connectivity for the entire study area. The recommended realignment and associated enhancements are therefore critical to improving overall connectivity.

In addition to the aerial view, renderings were prepared from the viewpoint of three approaches to the intersection to better illustrate the recommended changes. Call-outs are provided for the other three renderings to facilitate orientation within the overall view. (See Page 10 for images of existing conditions at this intersection and Appendix B for recommended regulatory signage for this area.)

Overall view of intersection from Coast Highway



1 **View southwest across intersection from "jug handle" at east side of crossing**

2 **View southeast from path along PCH Connector approaching intersection**

3 **View northwest from path along Coast Highway approaching intersection**

5

Funding

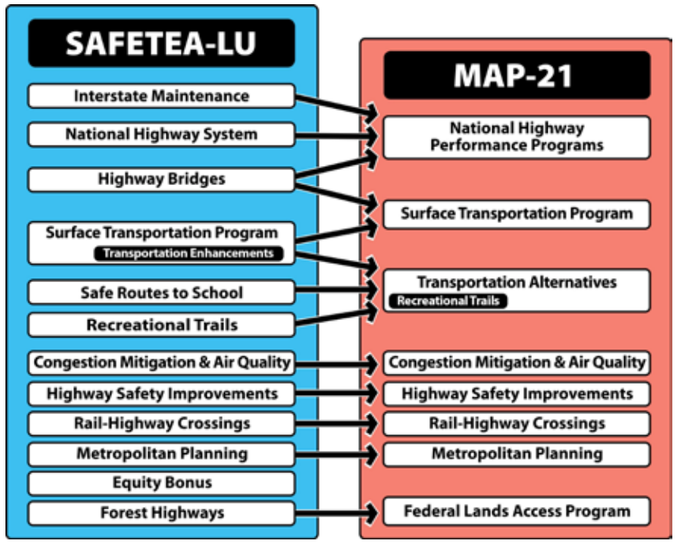
Funding Sources

This study's recommendations directly support improved connectivity, especially in a coastal environment where numerous entities are concerned about this issue. This means that these improvements may be more likely to find support from grantors and that phasing should therefore reflect funding agencies' priorities and mandates.

Federal, State and local government agencies invest billions of dollars every year in the nation's transportation system. Only a fraction of that funding is used in development projects, policy development and planning to improve conditions for cyclists and walkers. Even though appropriate funds are limited, they are available, but desirable projects sometimes go unfunded because communities may be unaware of a fund's existence, or may apply for the wrong type of grants. Also, the competition between municipalities for available funding is often fierce.

Whenever federal funds are used for bicycle or pedestrian projects, a certain level of State and/or local matching funding is generally required. State funds are often available to local governments on the similar terms. Almost every implemented bicycle program and facility in the United States has had more than one funding source and it often takes a good deal of coordination to pull the various sources together.

According to the Federal Highway Administration's (FHWA) publication, *An Analysis of Current Funding Mechanisms for Bicycle and Pedestrian Programs at the Federal, State and Local Levels*, where successful local bicycle and pedestrian facility programs exist, there is usually a full time transportation coordinator with extensive understanding of funding sources. Cities such as Seattle, Washington, Portland, Oregon and Tucson are prime examples. Coordinators are often in a position to develop a competitive project and detailed proposal that can be used to improve conditions for cyclists and walkers within their jurisdictions. Much of the following information on federal and State funding sources was derived from the previously mentioned FHWA publication.



Bicycle and Pedestrian Project and Programs • Federal Funding Sources

Continuing federal programs and eligibility under Map-21

TAP	Transportation Alternatives
CMAQ	Congestion Mitigation and Air Quality Improvement
STP	Surface Transportation Program
HSIP	Highway Safety Improvement Program
NHPP	National Highway Performance Program
TTP	Tribal Transportation Program
FLTP	Federal Lands Transportation Program
PLA	State/Metropolitan Planning Funds
UZA	Urbanized Area Formula Program
402	State and Community Highway Safety Grant Program
SGR	State of Good Repair Grant Program
BBF	Bus and Bus Facilities
5310	Enhanced Mobility of Seniors and Individuals with Disabilities
5311	Formula Grants for Rural Areas, Transit Assist Programs and Public Transportation on Indian Reservations

Funds available until expended, not continuing MAP-21 programs

RTP	Recreational Trails Program
SRTS	Safe Routes to Schools
BYW	Scenic Byways
FLH	Federal Lands Highway Program
TCSP	Transportation, Community and System Preservation
JOBS	Access to Jobs/Reverse Commute
FTA	Federal Transit Capital
FTE-TE	Transit Enhancements

Specific Project or Program	TAP	CMAQ	STP	HSIP	NHPP	TTP	FLTP	PLA	UZA	402	SGR	BBF	5310	5311	RTP	SRTS	BYW	FLH	TCSP	JOBS	FTA	FTA-TE
Bicycle and pedestrian plan			●					●						●					●		●	
Bicycle lane on roadway	●	●	●	●	●	●	●		●							●	●	●	●		●	●
Paved shoulder	●	●	●	●	●	●	●		●							●	●	●	●			
Signed bike route	●	●	●		●	●	●		●							●	●	●	●		●	
Shared use path/trail	●	●	●	●	●	●	●								●	●	●	●	●		●	
Single track hike/bike trail	●		●												●			●	●			
Spot improvement program	●	●	●	●												●			●		●	
Maps	●	●	●							●						●			●		●	
Bicycle rack on bus	●	●	●			●	●		●		●	●		●					●		●	●
Bicycle parking facility	●	●	●			●	●		●		●	●		●		●	●		●		●	●
Bicycle share *(Capital and equipment; not for operations)*	●	●	●			●	●											●	●	●	●	●
Bicycle storage/service center	●	●	●			●	●		●		●	●		●		●			●	●	●	●
Sidewalk, new or retrofit	●	●	●	●	●	●	●		●				●			●	●	●	●		●	●
Crosswalk, new or retrofit	●	●	●	●	●	●	●		●				●			●	●	●	●		●	●
Trail/highway intersection	●	●	●	●	●	●	●								●	●	●	●	●		●	●
Signal improvements	●	●	●	●	●	●	●									●			●		●	●
Curb cut and ramp	●	●	●	●	●	●	●		●				●			●			●		●	●
Traffic calming						●	●									●			●		●	●
Coordinator position		●														●						
Safety/education position	●		●													●						
Police patrol	●															●						
Helmet promotion			●							●						●						
Safety brochure/book		●	●							●					●	●					●	
Training		●	●							●				●	●	●					●	
Technical assistance	●	●	●							●				●		●					●	

For more information, see the "MAP-21 Find it, fund it!" on-line tool: www.advocacyadvance.org/MAP21/finditfundit

Federal Sources

The long legacy of U.S. Department of Transportation Enhancement Funds SAFETEA-LU (*Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users)* has ended and it has been substantially replaced with a new funding mechanism entitled MAP-21, (*Moving Ahead for Progress in the 21st Century*), which was approved by Congress and signed by the President in 2012.

MAP-21 replaced SAFETEA-LU with a similar amount of total funding, but significantly changes the overall number and scope of programs, which have been consolidated by two-thirds. The graphic on the previous page illustrates the relationship between the two federal funding sources. The Transportation Enhancements (TE) program has been eliminated and replaced with Transportation Alternatives (TA). The Recreational Trails program is now housed under the Transportation Alternatives Program. Bicycle projects remain eligible for major funding and MAP-21 does have an emphasis on safety and active transportation with a 30 percent increase in CMAQ, doubled Highway Safety Improvement funds and specific mentions of bicycle projects.

There are still many unknowns regarding the details and interpretations of these changes. The federal levels of funding and scope have been set, yet it remains to be defined how the state and local programs will individually implement these funding mechanisms. For more in-depth information on the funding changes and the regional funding implications, contact OCTA Federal Relations Manager, Richard Bacigalupo or visit OCTA's Website: *About OCTA - Government Relations http://www.octa.net/About/Government-Relations/Federal-Relations/Overview/.*

Table 19: Federal Funding Sources

Grant Source	Annual Total	Agency	Funding Cycle	Match	Remarks
Land and Water Conservation Act of 1965		CA Dept of Parks and Rec	Decem-ber	50%	Funding subject to North/South split. (60% for Southern California) Funds outdoor recreation projects
MAP-21 - Surface Transportation Program (STP)		FHWA / Caltrans	June 1	20%	STP funds may be exchanged for local funds for non-federally certified local agencies. No match required if project improves safety
MAP-21 - Transportation Alternatives (TA)		FHWA / Caltrans	Annual	TBD	Funds recreational trails, Safe Routes to School and Transportation Enhancement projects
MAP-21 - TA - Recreational Trails	$5.3M in 2013	FHWA/CA Dept. of Parks and Rec	Annual	TBD	No longer a separate program, now falls under Transportation Alternatives.
MAP-21 - National Highway Performance Program		FHWA / Caltrans		20%	Bicycle projects must provide a high degree of safety
MAP-21 - Highway Safety Improvement Program		FHWA / Caltrans		10%	Bicycle projects must provide a high degree of safety
MAP-21 - Congestion Mitigation and Air Quality (CMAQ)		FHWA / Caltrans	April	20%	The amount of CMAQ Funds depends on the state's population share and on the degree of air pollution
Rivers, Trails and Conservation Assistance Program (RTCA)		National Park Service	August		Expenditures include bikeway plans, corridor studies and trails assistance
Energy Efficiency and Block Grant Program	$3M	Department of Energy			Provided formula funding for cities, counties and states to take part in energy efficient activities
Community Development Block Grants (CDBG)	$3M	HUD and CA Dept of Housing and Com. Development	Ongoing	10%	Funds improve land use and transportation infrastructure in low-income neighborhoods or citywide for accessibility improvements.
Federal Lands Highway Program	$611M 2008-10	FLH/FHWA	Ongoing	Varies	May be used to build bicycle and pedestrian facilities in conjunction with roads and parkways at the discretion of the grantee
Land and Water Conservation Fund (LWCF)	$30M in 2010	NPS/California Department of Parks and Recreation	Annual	50%	LWCF grants may be used for outdoor recreational planning and for acquiring and developing recreational parks and facilities, especially in urban areas.
Sustainable Communities Regional Planning Grants	$68M	HUD	Annually	20%	Funding for preparing or implementing regional plans for sustainable development
American Recovery and Reinvestment Act of 2009 (ARRA)	$73 M in CA for 2010	FHWA	Ongoing		*http://www.recovery.gov*

Safe Routes to School Programs

Caltrans administers two "Safe Routes" programs. One is the State-legislated program referred to as "SR2S" and the other is the federal program referred to as "SRTS." Both programs are intended to achieve the same basic goal of increasing the number of children walking and riding to school by making it safer for them to do so. The differences between the two programs are as follows:

Legislative Authority
SR2S - Streets and Highways Code Section 2330-2334
SRTS - Section 1122 in MAP-21

Expires
SR2S - AB 57 extended program indefinitely
SRTS - September 30, 2014

Eligible Applicants
SR2S - Cities and counties
SRTS - State, local, and regional agencies experienced in meeting federal transportation requirements. Non-profit organizations, school districts, public health departments, and Native American Tribes must partner with a city, county, MPO, or RTPA to serve as the responsible agency for their project.

Eligible Projects
SR2S - Infrastructure projects
SRTS - Stand-alone infrastructure or non-infrastructure projects

Local Match
SR2S - 10 percent minimum required/SRTS – TBD

Project Completion Deadline
SR2S - Within 4 ½ years after project funds are allocated
SRTS - Within 4 ½ years after project is amended into FTIP

Restriction on Infrastructure Projects
SR2S - Must be located in the vicinity of a school
SRTS - Infrastructure projects must be within 2 miles of a grade school or middle school

Targeted Beneficiaries
SR2S - Children in grades K-12
SRTS - Children in grades K-8

Funding
SR2S - $24.25M annual funding
SRTS - TBD

The Safe Routes to School Program funds non-motorized facilities in conjunction with improving access to schools through the Caltrans Safe Routes to School Coordinator. For more information: *http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm*

Department of the Interior - Land and Water Conservation Fund (LWCF)

The U.S. Recreation and Heritage Conservation Service and the State Department of Park and Recreation administer this funding source. Any project for which LWCF funds are desired must meet two specific criteria. The first is that projects acquired or developed under the program must be primarily for recreational use and not transportation purposes and the second is that the lead agency must guarantee to maintain the facility in perpetuity for public recreation. The application will be considered using criteria such as priority status within the State Comprehensive Outdoor Recreation Plan (SCORP). The State Department of Park and Recreation will select which projects to submit to the National Park Service (NPS) for approval. Final approval is based on the amount of funds available that year, which is determined using a population-based formula. Trails are the most commonly approved project.

Rivers, Trails, and Conservation Assistance Program (RTCA)

The Rivers, Trails and Conservation Assistance Program is the community assistance arm of the National Park Service. RTCA provides technical assistance to communities in order to preserve open space and develop trails. The assistance that RTCA provides is not for infrastructure, but rather building plans, engaging public participation and identifying other sources of funding for conservation and outdoor recreation projects.

American Recovery and Reinvestment Act 2009

The $789 billion economic stimulus package provided $27.5 billion to modernize roads and bridges and includes a three percent set aside of each State's share of the $27.5 billion for the Transportation Enhancements Program. At least half of the funds must be obligated by states within 120 days, or the U.S. Secretary of Transportation can recall up to 50 percent of the unobligated funds.

Also included is $8.4 billion to increase public transportation and improve transit facilities, $8 billion for investment in high speed rail and $1.5 billion for a discretionary surface transportation grant program to be awarded competitively by the Secretary of Transportation.

The Federal Highway Administration (FHWA) and Federal Transit Administration have issued guidance to assist state and local agencies in preparing for implementation of the stimulus bill. The guidance includes Q&As and actions that can be taken to expedite economic recovery projects.

Other Infrastructure Funding Options

Additionally, States received a one time appropriation of $53.6 billion in state fiscal stabilization under the American Recovery and Reinvestment Act (ARRA) in 2009. States must use 18.2 percent of their funding – or $9.7 billion – for public safety and government services. An eligible activity under this section is to provide funding to K-12 schools and institutions of higher education to make repairs, modernize and make renovations to meet green building standards.

Also, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council (USGBC), addresses green standards for schools that include bicycle and pedestrian facilities and access to schools.

Another $5 billion is provided for the Energy Efficiency and Block Grant Program. This provides formula funding to cities, counties and states to undertake a range of energy efficiency activities and an eligible uses include bicycle and pedestrian infrastructure projects.

State Sources

Streets and Highways Code

Bicycle Transportation Account (BTA)

The Bicycle Transportation Account (BTA) funds non-motorized facilities and access to cities and counties that have adopted bikeway master plans. Section 2106 (b) of the *Streets and Highways Code* transfers funds annually to the BTA from revenue derived from the excise tax on motor vehicle fuel. The Caltrans Office of Bicycle Facilities administers the BTA.

For a project to be funded from the BTA, the project shall:

i) Be approximately parallel to a State, county, or city roadways, where the separation of bicycle traffic from motor vehicle traffic will increase the traffic capacity of the roadway; and

ii) Serve the functional needs of commuting cyclists

iii) Include but not be limited to:

New bikeways serving major transportation corridors

New bikeways removing travel barriers to potential bicycle commuters

Secure bicycle parking at employment centers, park and ride lots and transit terminals

Bicycle carrying facilities on public transit vehicles

Installation of traffic control devices to improve the safety and efficiency of bicycle travel

Elimination of hazardous conditions on existing bikeways serving a utility purpose

Project planning

Preliminary and construction engineering

Allocation takes into consideration the relative cost effectiveness of the proposed project and maintenance is specifically excluded from funding.

State Highway Account

Section 157.4 of the *Streets and Highways Code* requires Caltrans to set aside $360,000 for the construction of non motorized facilities that will be used in conjunction with the State highway system. The Office of Bicycle Facilities also administers the State Highway Account fund. Funding is divided into different project categories. Minor B projects (less than $42,000) are funded by a lump sum allocation by the California Transportation Commission (CTC) and are used at the discretion of each Caltrans District office. Minor A projects (estimated to cost between $42,000 and $300,000) must be approved by the CTC. Major projects (more than $300,000) must be included in the *State Transportation Improvement Program* and approved by the CTC. Funded projects have included fencing and bicycle warning signs related to rail corridors.

Transportation Development Act Article III (Senate Bill 821)

TDA funds are based on a ¼ percent state sales tax, with revenues made available primarily for transit operating and capital purposes. By law, the Orange County Auditor's office estimates the apportionment for the upcoming fiscal year. TDA Article 3 funds may be used for the following activities related to the planning and construction of bicycle and pedestrian facilities:

Engineering expenses leading to construction

Right-of-way acquisition

Construction and reconstruction

Retrofitting existing bicycle facilities to comply with ADA requirements

Route improvements, such as signal controls for cyclists, bicycle loop detectors and rubberized rail crossings

Purchase and installation of bicycle facilities such as improved intersections, bicycle parking, benches, drinking fountains, rest rooms, showers adjacent to bicycle trails, employment centers, park-and-ride lots, and/or transit terminals accessible to the general public

State Funding Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match**	**Remarks**
State Highway Account (SHA): Bicycle Transportation Account (BTA)	$7.2M/yr. state-wide	Caltrans	March application deadline. Consult Local Assistance Office	10%	Must have an adopted Bicycle Transportation Plan. Funding available for all phases of projects
Transportation Development Act (TDA) Section 99234		OCTA	Annually	None	2% of TDA total, funds for bicycle and pedestrian projects
AB 2766 Vehicle Registration Funds	$30M in 2010	SCAQMD	February	None	Competitive program for projects that benefit air quality
Vehicle Registration Surcharge Fee (AB 434) RCF		APCB	July	None	Competitive program for projects that benefit air quality
Vehicle Registration Surcharge Fee (AB 434) PMF	40% from grant source	APCB	April	None	Funds distributed to county communities based on population
Developer Fees or Exactions	Project-specific	Cities	Ongoing	None	Mitigation required during land use approval process
State Gas Tax (local share)		Allocated by State Auditor-Controller	Monthly allocation	None	Major Projects, >$300,000
State and Local Transportation Partnership Program (SLPP)	Est. $200M/yr. state-wide	Caltrans	Summer	50%	Road projects with bicycle lanes are eligible, requires developer or traffic fee match
Caltrans Minor Capital Program	Varies	Caltrans	Ongoing after July 1	None	Projects must be on state highways; such as upgraded bicycle facilities
Environmental Enhancement and Mitigation Program (EEM)	$10M/yr. state-wide	State Resources Agency	October annually	None required, but favored	Individual grants limited to $350K.

State Funding Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match**	**Remarks**
Petroleum Violation Escrow Account (PVEA)	Varies	Caltrans, CA Community Services and Development, Air Resources Board	March	None	Projects must save energy, provide public restitution and be approved by CA Energy Commission and US DOE
Community Based Transportation Planning Demonstration Grant Program	$3M annually	Caltrans	November	20%	Projects must have a transportation component or objective
Habitat Conservation Fund Grant Program (HCF)	$2M	CA Dept of Park and Recreation	October	50%	Will only be available until July 1, 2020
Office of Traffic Safety Program (OTS)	Varies	Office of Traffic Safety	January	None	Goal to reduce vehicle fatalities and injuries through a safety program to include: education, enforcement and engineering
Safe Routes to School Program (SR2S)	$24M in 2009*	Caltrans	April	10%	Eligible for projects in the vicinity of a school and grades K-12
State Transportation Improvement Program (STIP)	Varies	Caltrans	Every 4 years	None	Gives metropolitan regions more control over state transportation fund investment
California Conservation Corps (CCC)		California Conservation Corps			The CCC provides emergency assistance and public service conservation work.
Environmental Justice (EJ) Planning Grants	$9M in 2010	Caltrans	Annually	10%	Engage low-income and minority communities in transportation projects to ensure equity and positive social, economic and environmental impacts
California River Parkways	Varies	CA Natural Resources Agency	October	None	Create or expand trails for walking, cycling and/or equestrian activities compatible with other conservation objectives

Local Sources

Developer Impact Fees

As a condition for development approval, municipalities can require developers to provide certain infrastructure improvements, which can include bikeway projects. These projects have commonly provided Class 2 facilities for portions of on street, previously planned routes. They can also be used to provide bicycle parking or shower and locker facilities. The type of facility that should be required to be built by developers should reflect the greatest need for the particular project and its local area. Legal challenges to these types of fees have resulted in the requirement to illustrate a clear nexus between the particular project and the mandated improvement and cost.

New Construction

Future road widening and construction projects are one means of providing on street bicycle facilities. To ensure that roadway construction projects provide bicycle lanes where needed, it is important that the review process includes input pertaining to consistency with the proposed system. Future development in the City of Dana Point will contribute only if the projects are conditioned.

Restoration

Cable TV and telephone companies sometimes need new cable routes within public rights of way. Recently, this has most commonly occurred during expansion of fiber optic networks. Since these projects require a significant amount of advance planning and disruption of curb lanes, it may be possible to request reimbursement for affected bicycle facilities to mitigate construction impacts. In cases where cable routes cross undeveloped areas, it may be possible to provide for new bikeway facilities following completion of the cable trenching, such as sharing the use of maintenance roads.

Local Funding Sources

Grant Source	Annual Total	Agency	Funding Cycle	Match	Remarks
Transportation Development Act (TDA)		OCTA	Annual (March)	None	TDA funds originate from a statewide sales tax of one quarter cent for transportation projects, which includes two percent for pedestrian and bicycle facilities.
Parking Meter Districts		City	Annual Budget	N/A	Parking Meter Districts can use parking meter revenues for streetscape improvements such as pedestrian facilities, landscaping and lighting.
Bicycle Corridor Improvement Program (BCI)	$4.5M in 2012	OCTA	Annual Budget	12% minimum	Eligible projects include: provision of bicycle facilities, recreation trails and facilities and safety/outreach programs.
Transient Occupancy Tax (TOT)		City	Annual Budget	None	Created to cover expenses and improvements related to tourism and to encourage more tourists to visit. This fund may be appropriate in areas where heavy tourism exists such as along the waterfront, major parks and historic neighborhoods.
Measure M2 Turnback	36.4M in 2009	OCTA	Annual Budget	None	For streets and roadway improvements, including bicycle and pedestrian facilities.

Private Funding Sources

Grant Source	Annual Total	Agency	Funding Cycle	Match	Remarks
SRAM Cycling Fund	$400,000+/yr	SRAM	Ongoing	None	*www.sramcyclingfund.org*
Surdna Foundation	Project-specific	Surdna Foundation	Ongoing	None	Surdna Foundation makes grants to nonprofit organizations in the areas of environment, community revitalization, effective citizenry, the arts, and the nonprofit sector.
Bikes Belong	$180,000 annually	Bikes Belong Coalition	Three times a year	50%	Community grants focus on funding facilities and programs. *www.bikesbelong.org*
Kaiser Permanente Community Health Initiatives	$54M annually	Kaiser Permanente	Ongoing	None	Numerous programs supporting Healthy Initiatives
Health Foundations		Various foundations	Ongoing		Focus active transportation improvements for an obesity prevention strategy. Examples include California Wellness Foundation, Kaiser and California Endowment.
Rails to Trails Conservancy		Rails to Trails Conservancy			Provides technical assistance for converting abandoned rail corridors to use as multi-use trails.
Donations		Depends on nature of project	Ongoing		Corporate or individual donations, sponsorships, merchandising or special events.
In-kind Services		Depends on nature of project	Ongoing		Donated labor and materials for facility construction or maintenance such as tree planting programs or trail construction and maintenance.

Other Sources

Local sales taxes, fees and permits may be implemented as new funding sources for bicycle projects. However, any of these potential sources would require a local election. Volunteer programs may be developed to substantially reduce the cost of implementing some routes, particularly multi-use paths. For example, a local college design class may use such a multi-use route as a student project, working with a local landscape architectural or engineering firm. A local construction company may donate or discount services beyond what the volunteers can do. A challenge grant program with local businesses may be a good source of local funding, in which the businesses can "adopt" a route or segment of one to help construct and maintain it.

Private Sources

Private funding can be acquired by applying through advocacy organizations such as the Bikes Belong Coalition. Most private funding comes from foundations wanting to enhance and improve cycling and walking facilities and advocacy. Grant applications will typically be through the advocacy groups as they leverage funding from federal, state and private sources on behalf of the requester.

Estimated Costs

Improvements identified herein can range from $1.0 million to $3.0 million, depending on specific design features.

Appendix A: Count Summaries

Conducting bicycle and pedestrian counts are critical in determining existing non-motorized volumes and assessing the effects of changed conditions. Bicycle and pedestrian counts were conducted at 12 locations for this project.

These locations were selected in collaboration between the consultants and City staff. Typically, these types of counts are conducted during the school year to count children riding or walking to school and at peak commuting times. For Dana Point, it was determined that the counts should be conducted during July when bicycle and pedestrian activity is highest due to tourist influx and the proximity to Doheny State Beach, Dana Point Harbor and the Town Center.

The count locations were distributed particularly at connections within the study area. Additional counts were conducted just outside the study area to capture additional volumes that could affect the study area.

Since nearby major attractions attract high volumes of tourists, counts were conducted a few hours later than usual to capture the majority of the known ridership in the area. While peak AM counts were taken later than typical, PM counts were taken earlier to capture daily commuters and tourists. Weekday counts were conducted between 9am to 11am and 2pm to 4pm. Weekend counts were combined since volumes vary throughout the day compared to peak weekday commute times. Pedestrian and bicycle counts were collected on weekends between 10am to 12pm and 2pm to 4pm.

The counts show much higher levels of bicycle and pedestrian traffic on weekends. Locations that almost double in volume on weekends were along Dana Point Harbor, San Juan Creek Trail and Doheny Park Road. Dana Point Harbor Drive and Doheny Park Road are major connections to the beach, harbor and commercial areas. The San Juan Creek trail is a major bicycle/pedestrian-only facility that connects residential neighborhoods to Doheny State Beach.

Dana Point Harbor Drive is a popular connection for weekend cyclists since it has bicycle lanes and has less vehicular traffic than nearby Pacific Coast Highway. It is the most commonly used connection for cyclists between Laguna Beach and San Clemente. Doheny Park Road provides a connection between the commercial areas of Doheny Village and Doheny State Beach and Campground. However, adequate bicycle facilities do not exist southeast of Interstate 5.

The following tables and figures summarize the vehicular, bicycle and pedestrian counts conducted for this study.

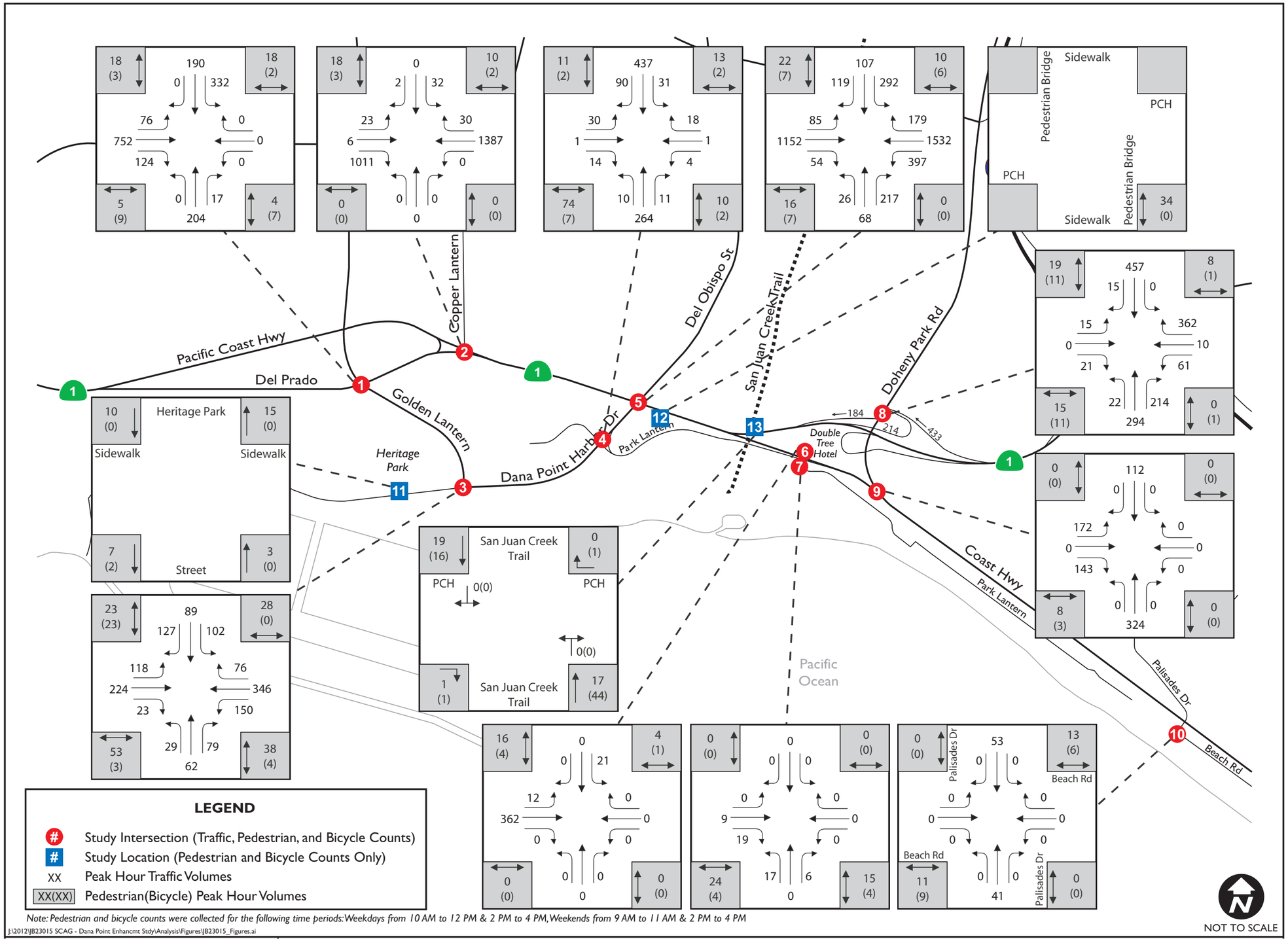
Pedestrian Count Summary

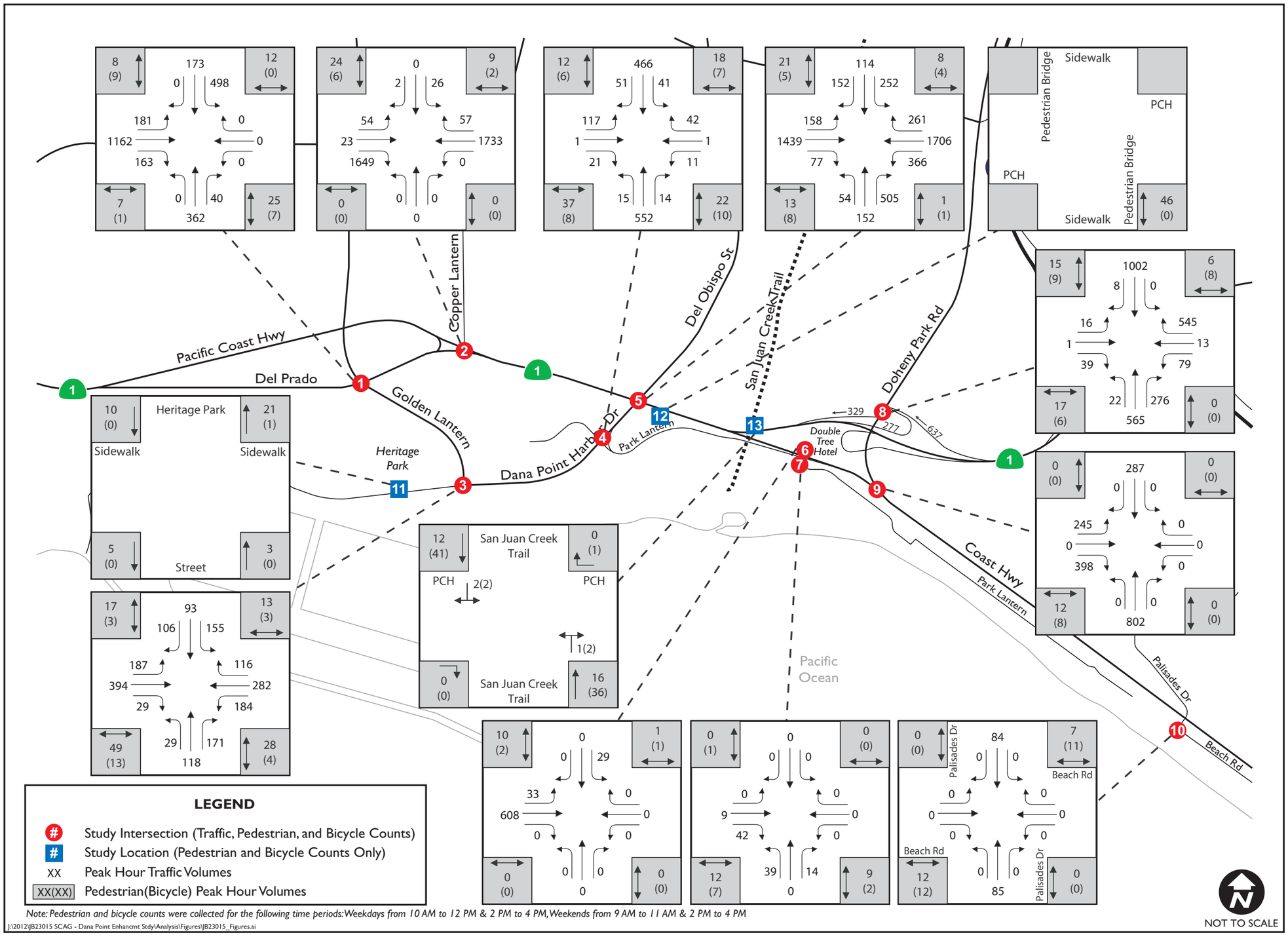
	Location	AM	PM	Weekend	Pedestrian Facility
1	Del Prado and Golden Lantern	45	52	61	Sidewalks with planting strip
2	Pacific Coast Highway and Copper Lantern	28	33	31	Sidewalks
3	Dana Point Harbor Drive and Golden Lantern	142	107	254	All directions except on north side of Dana Point Harbor - Path exists on Lantern Bay Park
4	Dana Point Harbor Drive and Park Lantern	108	89	156	All directions except north side of Dana Point Harbor towards Puerto Place - Path on Lantern Bay Park
5	Pacific Coast Highway and Del Obispo Street/ Dana Point Harbor Drive	48	43	67	Sidewalks
6	DoubleTree Hotel	20	11	33	Sidewalks and crosswalk to Park Lantern
7	PCH Connector (SR-1) and Park Lantern	39	21	79	Wide sidewalk on PCH Connector south of Park Lantern - No sidewalk on Park Lantern
8	Doheny Park Road and PCH On-Ramp	42	38	60	Sidewalk on southbound lanes of Doheny Park Road
9	PCH Connector (SR-1) and Coast Highway	8	12	13	Southbound sidewalk along Doheny Park Road and wide sidewalk on southbound lanes on PCH Connector
10	Beach Road and Palisades Drive	24	10	35	Sidewalk on southbound lanes of Palisades Drive - No sidewalk on Beach Road
11	Dana Point Harbor Drive and Heritage Park	35	40	55	Sidewalk on southbound lanes of Dana Point Harbor Drive
12	Pacific Coast Highway Pedestrian Bridge	48	46	46	Sidewalks on both sides of PCH
13	San Juan Creek Trail	34	28	75	Pedestrian and bicycle only facility

Bicycle Count Summary

	Location	AM	PM	Weekend	Bicycle Facility
1	Del Prado and Golden Lantern	21	17	27	Bicycle lanes on Golden Lantern
2	Pacific Coast Highway and Copper Lantern	5	8	5	None
3	Dana Point Harbor Drive and Golden Lantern	30	23	64	Bicycle lanes
4	Dana Point Harbor Drive and Park Lantern	13	31	75	Bicycle lanes on Dana Point Harbor Drive
5	Pacific Coast Highway and Del Obispo St/Dana Point Harbor Drive	20	18	26	None on PCH, bicycle lanes on Del Obispo Street and Dana Point Harbor Drive
6	Double Tree Hotel	5	3	2	None
7	PCH Connector (SR-1) and Park Lantern	8	10	17	None
8	Doheny Park Road and PCH On-Ramp	24	23	43	Southbound bicycle lanes end at PCH On-ramp
9	PCH Connector (SR-1) and Coast Highway	3	8	16	None
10	Beach Road and Palisades Drive	15	23	50	None
11	Dana Point Harbor Drive and Heritage Park	2	1	9	Bicycle lanes
12	Pacific Coast Highway Pedestrian Bridge	0	0	0	None
13	San Juan Creek Trail	62	78	140	Pedestrian and bicycle only facility

Existing AM Volumes

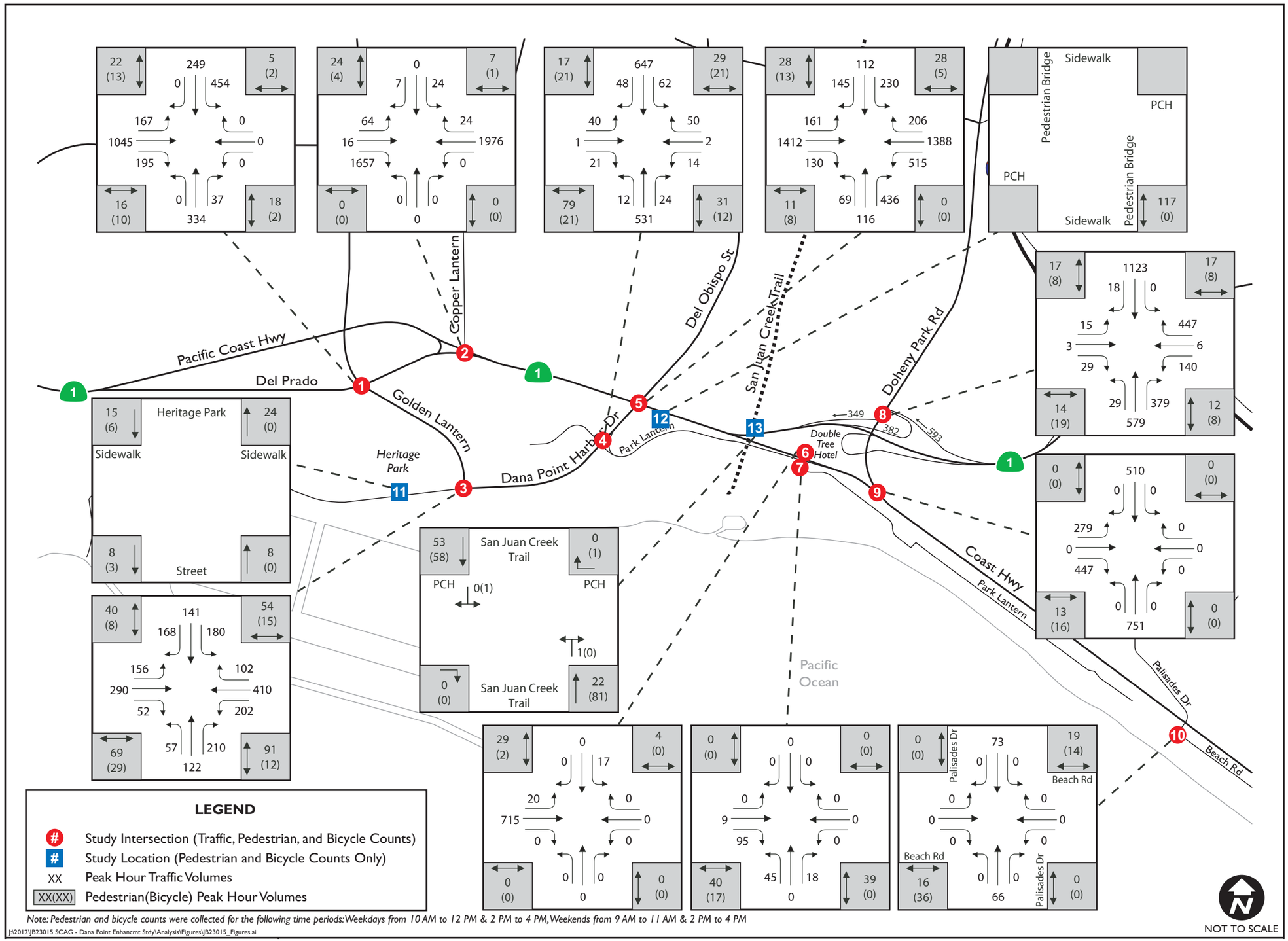




Note: Pedestrian and bicycle counts were collected for the following time periods: Weekdays from 10 AM to 12 PM & 2 PM to 4 PM, Weekends from 9 AM to 11 AM & 2 PM to 4 PM

J:\2012\JB23015 SCAG - Dana Point Enhancmt Stdy\Analysis\Figures\JB23015_Figures.ai

Weekend Volumes



Appendix B: Regulatory Signage

The *California Manual on Uniform Traffic Control Devices* (California MUTCD) is published by the State of California, Department of Transportation to provide uniform standards and specifications for all official traffic control devices, in accordance with Section 21400 of the California Vehicle Code.

This section specifically addresses the recommended signage for the Dana Point Connectivity Enhancement Study area. Additional regulatory signage can be found in the 2012 California MUTCD in Chapter 9: Traffic Control of Bicycle Facilities.

Finally, regulatory signage recommendations are conceptual only and are likely to change in the course of specific project design and implementation.

Regulatory Signs and Plaques for Bicycle Facilities

R1-1

R9-6

R10-26

R1-2

R5-3

R44A (CA)

R4-4

Custom Regulatory Signs and Plaques for Bicycle Facilities

Warning Signs, Plaques and Object Markers for Bicycle Facilities

W5-4a

*W11-15P**

*W11-15**

*W16-7P**

*W16-9P**

**Fluorescent yellow-green background color may be used for these signs and plaques, such as the pedestrian signs to the right. Plaque background color should match the color of the warning sign it supplements.*

Guide Signs and Plaques for Bicycle Facilities

D11-1

D11-1bP

See the Wayfinding Signage section (Page 22) for conceptual designs prepared for this study to supplement these standard signs and plaques.

Optional Warning Signs for Pedestrian Crossings

R1-9

The R1-6b sign is a deformable plastic pylon placed in the roadway just ahead of a cross-walk or on an island, if available, but always in clear view of approaching drivers.

R1-6b

PCH Connector/Doheny Park Road/Coast Highway Intersection

Doheny Park Road

PCH Connector/Park Lantern at San Juan Creek