Appendix G

Bicycle Master Plan

Adopted
May 2012

Fullerton BICYCLE Master Plan

Acknowledgements

Bicycle Users Subcommittee

Vince Buck
John Carroll
Gene Hiegel
Matthew Leslie
Kent Morris
Jane Rands
Beth Trimble
Richard Osborn (2009-2011)
James Donovan (2007-2011)

City Staff

Heather Allen, Planning Manager
Don Hoppe, Engineering Director and Acting Director of Maintenance Services
Thuy Nguyen, Civil Engineer
Mark Miller, Consultant Traffic Engineer

Consultant Team

RBF Consulting
Ryan Snyder Associates

This page is intentionally blank.

Table of Contents

Chapter 4: Objectives

Chapter 5: Implementation

Appendix A: Community Involvement and Participation

Appendix B: Inventory of Existing Conditions

Appendix C: Improvement Options

Appendix D: Priority Recommendations and Expenditure Estimates

Appendix E: Funding Opportunities

Tables and Figures

Exhibits

This page is intentionally blank.

Chapter 1 Introduction

1.1 Introduction to the Bicycle Master Plan

In conjunction with the preparation of the update to the City's General Plan, The Fullerton Plan, the City Council authorized the preparation of a stand-alone bicycle element. The Bicycle Master Plan is being prepared to provide the goal, policies and actions to The Fullerton Plan while also meeting the requirements for a Bicycle Transportation Plan (Section 891.2(a) through (k) of the Streets and Highways Code) to establish the City of Fullerton's eligibility for Caltrans Bicycle Transportation Account funds as outlined in Table 1-1.

The Bicycle Master Plan seeks to elevate prior work efforts dating back to City bikeway plans of 1971, 1983 and 1996, and the work of the Fullerton Bicycle Task Force from 1990-1992; recognizing that bicycling as a means of mobility is a priority to the Fullerton community and that the needs of bicycle users in the City, and the creation of a complete and safe bicycle network, are central to maintaining and enhancing Fullerton's quality of life[1].

Although the information provided to the City Council in 1992 met many of the requirements for a Bicycle Transportation Plan, this Bicycle Master Plan is the first which will seek formal approval under the Streets and Highways Code. As the first comprehensive plan, it is a starting, not an ending point. With the integration of the Bicycle Master Plan and The Fullerton Plan, the framework exists to continuously improve bicycling within the City of Fullerton.

The Bicycle Master Plan covers on- and off-street paved bicycle facilities for both commuting and recreation. A Bicycle Transportation Plan is not required to discuss recreational bicycling; the Streets and Highways Code focuses a Plan on bicycle commuting. However, because opportunities to ride a bicycle for recreation are just as important to Fullerton's quality of life as are opportunities to commute by bicycle, and the paved bicycle network supports both user groups, Fullerton's Bicycle Master Plan addresses both purposes.

[1] The Fullerton Plan Outline, approved by General Plan Advisory Committee on April 27, 2009 and the City Council on August 18, 2009.

1.2 Relationship to Fullerton's Trail System

The City of Fullerton has approximately 28 miles of unpaved recreation trails. These trails accommodate bicyclists, walkers, runners and equestrians simultaneously. Because they are unpaved, these routes are generally not suitable for, or used for, commuting and are therefore not included in the Bicycle Master Plan. They are however an integral part of the City's Parks and Recreation infrastructure and contribute directly to Fullerton's quality of life. The location as well as the goals and policies related to them, are discussed in The Fullerton Plan as part of the Parks and Recreation Chapter.

1.3 Relationship to Region

1.3.1 Orange County

As a city in Orange County, Fullerton's bike routes not only move residents and workers throughout the City, but the network is also a piece of the larger Orange County system. The Orange County Transportation Authority (OCTA) adopted the 2009 Commuter Bikeways Strategic Plan (CBSP) on May 22, 2009. The plan was originally written in 1995 and is intended to create a comprehensive blueprint of the existing bikeways in the county, as well as propose new facilities to complete a network of bikeways. In addition to analysis of existing and proposed bikeways, the CBSP also contains information regarding several aspects of bicycle commuting. The CBSP provides information on bicycle amenities, such as bike lockers, parking, signage and trail markings. It also includes discussion of safety and education programs, innovative roadway markings, bikeway fundamentals and funding sources. A comprehensive and complete bicycle network will greatly benefit residents and visitors to Orange County.[2]

Fullerton is also part of the 4th Supervisorial District along with the surrounding cities of Anaheim, Buena Park, La Habra and Placentia. Building on the collaboration begun with the development of this Bicycle Master Plan, The Fourth Supervisorial District Bikeways Collaborative, led by Supervisor Shawn Nelson, was initiated to identify, prioritize and implement regional bikeway improvements within this area of Orange County. The Collaborative will work together to identify opportunities and constrains associated with bicycle facilitates in the 4th District.[3] Efforts are focused on connecting cities through a north-south and east-west system that also integrates access to the Santa Ana River Trail and a fully-developed Coyote Creek Trail for bicycle commuters and recreational bicyclists alike.

The coordinated efforts with the 4th District cities and the City of Brea are reflected in this Bicycle Master Plan.

[2] Orange County Transportation Authority, Bikeways Master Plan, http://www.octa.net/master_plan.aspx, accessed August 11, 2011.

[3] Orange County Transportation Authority, The Fourth Supervisorial District Bikeways Collaborative, http://www.octa.net/fourthbike.aspx, accessed August 11, 2011.

1.3.2 Southern California

Fullerton is one of the 191 cities in the six counties that comprise the Southern California Association of Governments (SCAG), the nation's largest metropolitan planning organization. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California now and in the future.[4]

SCAG's 2008 Regional Comprehensive Plan (RCP) is a major advisory plan that addresses important regional issues and serves as an advisory document to local agencies in the Southern California region for their information and voluntary use for preparing local plans and handling local issues of regional significance. In addressing the topic of strategic growth linked to transportation, the RCP acknowledges that in conventional transportation planning, many streets are designed solely for the automobile. They lack adequate sidewalks to support wheelchairs; are not wide enough to support bicycle lanes or transit riders; and, in some cases, simply lack sidewalks. These "incomplete streets" serve as a disincentive for other modes of transportation besides the automobile. By incorporating transportation and land use improvements that provide incentives for alternatives to the automobile, the efficiency of the system can be increased. These "complete streets" are designed and operated to enable safe, attractive, and comfortable access and travel for all users, regardless of mode.[5]

SCAG's 2008 Regional Transportation Plan (RTP) identifies that bicycling and walking play an important role in our transportation system. According to the 2001 National Household Travel Survey, 50 percent of all trips made nationwide in urban areas were shorter than 3 miles, and 28 percent of all trips were less than 1 mile. These trips are ideal for biking, walking, and transit or a combination of those modes of travel. Regionwide, however, our average commute distance to work is 19.2 miles, too far for many bicyclists and all pedestrians. However, the integration between bicycle and transit nodes offers the opportunity to extend the commuting range of bicyclists. Bicycle transportation infrastructure has a role in regional mobility and air quality improvements. Every automobile driver that switches to an alternative transportation choice (walking, bicycling, using transit) reduces air pollution, congestion, the need for increasing roadway capacity, and improves public health. Bicycle and pedestrian improvements are included as part of many larger street maintenance and construction projects, and should always be included in general plan updates, with which SCAG can assist in the development through the Compass Blueprint Program. The RTP policies aim to work with local governments and increase the safety, convenience, and attractiveness of bicycling and walking as modes of travel.[6]

The 2012 Regional Transportation Plan is currently being developed by SCAG. As a part of this process, Orange County cities have developed a Sustainable Communities Strategy (SCS) for the County which contributes to the regional plan to reduce greenhouse gas emissions for automobiles and light duty trucks through integrated transportation, land use, housing and environmental planning.

---

[4] Southern California Association of Governments, official website, http://www.scag.ca.gov/, accessed August 11, 2011.

[5] Southern California Association of Governments, 2008 Regional Comprehensive Plan, http://www.scag.ca.gov/rcp/pdf/finalrcp/f2008RCP_Complete.pdf, accessed August 11, 2011.

[6] Southern California Association of Governments, 2008 Regional Transportation Plan, http://www.scag.ca.gov/rtp2008/pdfs/finalrtp/f2008RTP_Complete.pdf, accessed August 11, 2011.

Fullerton's Bicycle Master Plan is therefore consistent with the RCP, the 2008 RTP, and the Orange County SCS. Consistency with the 2012 RTP is also anticipated.

Table 1-1 – Bicycle Transportation Plan Compliance Matrix

Bicycle Transportation Plan Requirement	Reference
Bicycle Commuters - 891.2(a) The estimated number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan.	Section 2.4
Land Use - 891.2(b) A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, and major employment centers.	Contained within The Fullerton Plan *(Part I, Focus Areas and Part II, Community Development and Design Element & related Exhibits)*
Bicycle Plan - 891.2(c) A map and description of existing and proposed bikeways.	Section 3.1, Chapter 5, Appendix B, Appendix C
Bicycle Parking Facilities – 891.2(d) A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings, and major employment centers.	Section 3.3
Transportation Connections - 891.2(e) A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	Section 3.2
End-of-Trip Amenities - 891.2(f) A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom, and shower facilities near bicycle parking facilities.	Section 3.3
Safety and Education - 891.2(g) A description of bicycle safety and education programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.	Section 3.4
Community Outreach - 891.2(h) A description of the extent of citizen and community involvement in development of the plan, including, but not limited to, letters of support.	Appendix A

Table 1-1 – Bicycle Transportation Plan Compliance Matrix	
Bicycle Transportation Plan Requirement	**Reference**
Regional Consistency - 891.2(i) A description of how the bicycle transportation plan has been coordinated and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, programs that provide incentives for bicycle commuting.	Section 1.3
Facilities Improvements - 891.2(j) A description of the projects proposed in the plan and a listing of their priorities for implementation.	Chapter 5, Appendix C & Appendix D
Past Expenditures and Financial Need - 891.2(k) A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.	Section 5.6 & Appendix E

This page is intentionally left blank.

Chapter 2

About Bicycling

2.1 Bicycle Facilities

There are three important context-setting definitions:

Shared Roadway: Any street or highway with no bikeway designation. Operation of a bicycle is permitted on roadways pursuant to Division 11, Chapter 1, Article 4 of the California Vehicle Code.

Bikeway: A facility that is provided primarily for bicycle travel. These are generally divided into Class I, Class II, and Class III (see Section 2.2, Bikeway Facilities).[1]

Multi-purpose Path: An off-street paved path for the use of non-motorized transportation, but not designed for the primary use of bicyclists.

In practice, bicyclists may use a combination of shared roadways, bikeways, and multi-purpose paths to reach their destinations. To that end, Streets and Highways Code Section 891 establishes that jurisdictions responsible for the development or operation of bikeways or roadways where bicycle travel is permitted utilize minimum design criteria and uniform specifications and symbols.[2] The Caltrans Highway Design Manual, Chapter 1000 and the California Manual on Uniform Traffic Control Devices (California MUTCD) establish these minimum standards.

2.2 Bikeway Facilities

The Caltrans Highway Design Manual, Chapter 1000, "Bikeway Planning and Design," in accordance with its authority under the Streets and Highways Code, defines three options for bikeway facilities. It is important to note that:

- Caltrans is charged with both establishing and regularly updating the design criteria for bikeways. While the use of Class I, II, and III and their general distinctions is established in the Streets and Highways Code, the design criteria, including but not limited to, the design speed of the facility, minimum widths and

[1] California Streets and Highway Code Section 890.4

[2] California Streets and Highway Code Section 891.

clearances, grade, radius of curvature, pavement surface, actuation of automatic traffic control devices, drainage, and general safety may change over time[3]. Caltrans has also authorized pilot programs to test exceptions to current criteria. Specific design criteria for facilities are not therefore called out in this document.

- It is emphasized that the designation of bikeways as Class I, II and III should not be construed as a hierarchy of bikeways, that one is better than the other. Each class of bikeway has its appropriate application.[4]

Class I Bikeway (Bike Path): Provides a completely separated right-of-way (off-street) designated for the exclusive use of bicycles and pedestrians with crossflow traffic minimized.[5]

- **Purpose**: To serve corridors not served by streets or where wide right-of-way exists, permitting such facilities to be constructed away from the influence of parallel streets to offer opportunities not provided by the road system.[6]
- **Bicyclists generally served**: Basic and children (see section 2.3)
- **Common applications:** Along rivers, utility right of way, abandoned railroad right of way, within college campuses, within and between parks, or to close gaps caused by natural barriers; may also be situations where such facilities can be provided as part of planned developments.[7]
- **Considerations:** If significant pedestrian use is anticipated, separate facilities for pedestrians, are necessary to minimize conflicts.[8] Separate facilities can be accomplished through pavement markings on a single path of sufficient width to accommodate both user groups while minimizing conflicts.

[3] California Streets and Highways Code Section 890.6

[4] Caltrans Highway Design Manual, September 1, 2006, Topic 1002.1

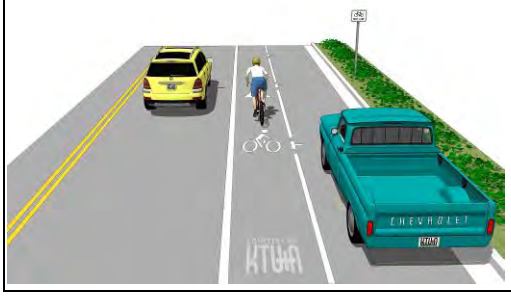
[5] California Streets and Highways Code Section 890.4

[6] Caltrans Highway Design Manual, September 1, 2006, Topic 1002.1

[7] Ibid.

[8] Caltrans Highway Design Manual, July 24, 2009, Topic 1003.1

Class II Bikeway (Bike Lane): Provides a restricted right-of-way (on-street) designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with crossflows by pedestrians and motorists permitted.[9] Vehicle parking can be allowed to the right of a bike lane if sufficient right-of-way width exists.



- **Purpose:** To improve conditions for bicyclists in the corridors to delineate the right-of-way assigned to bicyclists and motorists and to provide for more predictable movements by each.[10]
- **Bicyclists generally served:** Advanced, basic and children (see section 2.3)
- **Common applications:** Along streets in corridors where there is significant bicycle demand and adequate right-of-way, and where there are distinct needs that can be served by them.[11]
- **Considerations:** If bicycle travel is to be controlled by delineation, special efforts should be made to assure that high levels of service are provided with these lanes (e.g. surface improvements, augmented sweeping programs, special signal facilities, etc.) as pavement markings alone will not measurably enhance bicycling.[12]

[9] California Streets and Highways Code Section 890.4

[10] Caltrans Highway Design Manual, September 1, 2006, Topic 1002.1

[11] Ibid.

[12] Ibid.

Class III Bikeway (Bike Route): Identifies a right-of-way (on-street) designated by signs or permanent markings and shared with pedestrians or motorists.[13]

- **Purpose:** Use to provide continuity to other bicycle facilities (usually Class II bikeways) or designate preferred routes through high demand corridors, including lightly travelled routes that bicycle riders might otherwise not be aware of.
- **Bicyclists generally served:** Advanced, basic* and children* (see section 2.3)

  * Where facility is located on neighborhood or residential street
- **Considerations:** To be of benefit to bicyclists, bike routes should offer a higher degree of service than alternative streets.

2.3 Types of Bicyclists

Since 1994, the Federal Highway Administration has used three general categories of bicycle user types (A, B and C) to assist in determining the impact of different facility types and roadway conditions on bicyclists. These classifications reinforce the importance that a bicycle infrastructure should be planned and designed as a multi-tiered network providing opportunities which meet the needs of each type of bicyclist. Only by recognizing the differing needs of user groups can facilities be developed which provide a comfortable experience to the greatest number of bicyclists.

Consistent with the Bicycle Master Plan's combined focus on bicycle commuters and recreational cyclists, the following categories are identified:

Advanced or experienced commuters are riding for convenience and speed and want direct access to destinations with minimum detour or delay. Advanced or experienced recreational cyclists are less concerned with finding the shortest route to a place as it is often the route itself that is the "destination".

[13] California Streets and Highways Code Section 890.4

Both users groups are typically comfortable riding with motor vehicle traffic (Class III Bikeway or shared roadway); however, they need sufficient operating space on the travel lane or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.

Basic or less confident adult commuters and recreational riders prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. These riders are comfortable riding on neighborhood streets and multi-purpose paths and prefer designated facilities such as bike lanes (Class II Bikeway) or wide shoulder lanes on busier streets.

Children riding on their own or with their parents may not travel as fast as their adult counterparts, but still require access to key destinations in their community, such as schools, stores, playgrounds, and other recreational facilities. Residential streets with low motor vehicle speeds, linked with multi-purpose paths and busier streets with well-defined pavement markings between bicycles and motor vehicles (Class II Bikeway) can accommodate children without encouraging them to ride in the travel lane of major arterials.

2.4 Rider Data

Specific bicycle ridership data is difficult to come by few as surveys exist which truly capture the magnitude of bicyclists riding to, from and through the City of Fullerton on a daily basis. From observations, we know that on any given day there are bicycle commuters, recreational riders, youth, and college students riding their bikes in Fullerton. The following discussion uses the available data to attempt to quantify ridership. Given the limits of the data, these figures essentially establish the lower end of a range of the number of riders and identify the potential opportunities for increased ridership through improved bikeway facilities.

2.4.1 Bicycle Commuters

Of each type of bicyclist within Fullerton, most is known statistically about the bicycle commuter. The 2009 American Community Survey from the U.S. Census Bureau indicates that of Fullerton's 62,723 workers age 16 and older, 1.2 percent or 752 people commuted to work by bicycle. This is 1.9 percent of male workers and 0.4 percent of female workers.

We also know from the Survey that 60 percent of Fullerton residents live less than 30 minutes from their workplace, with 41 percent within 20 minutes.

Table 2-1 – 2009 American Community Survey Percentage of Residents by Travel Time from Home to Workplace	
Travel Time from Home to Workplace	**Percentage of Fullerton Residents**
Less than 10 minutes	10.7% (6,711 workers)
10 to 19 minutes	30.7% (19,255 workers)
20 to 29 minutes	18.8% (11,791 workers)

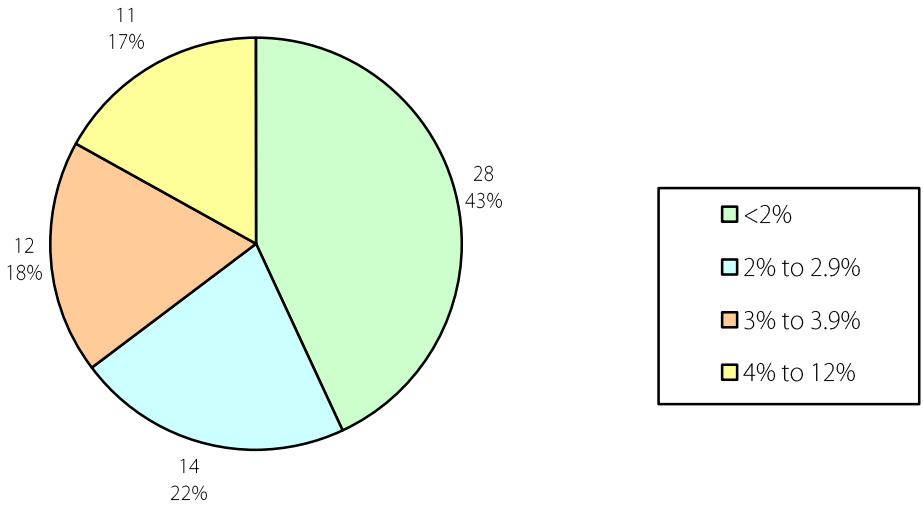
Between men and women in the workforce, women generally work closer to home.

Table 2-2 – 2009 American Community Survey Residents by Travel Time from Home to Workplace	
Less than 10 minutes from work	
Women	12.9%
Men	8.9%
Mean travel time to work	
Women	24.9 minutes
Men	27.8 minutes

We also know that 3.2 percent or 2007 workers used public transportation. The Survey does not capture the data on those workers who used a bicycle as part of their commute. For example, the means of transportation for someone who rides a bicycle to or from a train station would be counted in the public transportation number. It also does not capture data on those who, while they do not commute by bicycle each day, still use it as an option several times a week or month.

The League of American Bicyclists has compiled the 2009 American Community Survey (ACS) journey to work data on the 244 communities with populations greater the 65,000. Of the 244 cities, 231 had some level of bicycle commute trips. Fullerton's rate of 1.2 percent of commute trips ranks the City 66th of 231. Percentages of the 65 higher-ranked cities range from 1.2 percent to 12.3 percent, with most of the cities between 1.2 percent and 3.9 percent. The average rate of the 65 cities, influenced by the top-five cities of Boulder, CO (12.3 percent), Eugene, OR (10.8 percent), Fort Collins, CO (9.9 percent), Berkeley, CA (8.9 percent), and Cambridge, MA (8.5percent) is 3.0 percent with the majority of the cities between 1.2 percent and 2.1 percent as depicted in Figure 2-1.

Figure 2-1: Cities with Greater Percentages of Commutes by Bicycle



Considering these statistics along with the types of bicyclists identified in Section 2.3 above, there are clearly opportunities to improve the bicycle network for convenience and safety, which will increase ridership among those workers residing near their workplace and make bicycling a more viable option for those living farther away, but still a reasonable distance for riding. Additionally, opportunities exist to attract women to bicycle commuting.

The following estimates the additional bicycle commute trips which could be generated using the ACS data as a reference point:

Table 2-3: Existing and Future Bicycle Commuters

% of Bicycle Commuters	1.2%	2.1 %	3.0 %	3.9 %	5.0 %
Existing Bicycle Commuters	752	752	752	752	752
New Commuters		565	1,129	1,694	2,384
Total Bicycle Commuters	**752**	**1,317**	**1,881**	**2,446**	**3,136**
% of Workers with Commute Less than 10 minutes	11%	20%	28%	36%	47%
% of Workers with Commute Less than 20 minutes	3%	5%	7%	9%	12%

2.4.2 Recreational Riders

The National Sporting Goods Association (NSGA) reports that an estimated 39.8 million Americans age seven and older have ridden a bicycle six times or more in 2010, an increase of about 4.3 percent from 2009.[14] The National Bicycle Dealers Association's (NBDA's) Specialty Bicycle Sales data also shows growth in 2010, with the key growth area in the road bike category.[15] This increase is being attributed primarily to consumer reaction to high gas prices mid-year as they turned to the bicycle in order to use less fuel and save money.[16] Retailers also reported an increase in service and repair work during this period as people were bringing bicycles they already owned out of storage and wanted to make them road-worthy.[17]

However, NBDA indicates that even with these increases in commuting, in the United States bicycles primarily appeal to a recreation market. Their 2006 survey conducted by the Bicycle Market Research Institute found that 73 percent of cyclists rode for recreation, 53 percent for fitness, 10 percent of commuting, 8 percent racing and 6 percent sport (with some riding in multiple ways).[18] Assuming that Fullerton's 752 bike commuters represent 10 percent of its bike riders, it could be estimated that there are over 7,500 bicyclists in Fullerton.

NSGA data also shows that recreational riding is more evenly split between men and women, 56 percent and 44 percent respectively in 2009 unlike commuters which was 84.5 percent men and 15.5 percent women for the same period.[19]

2.4.3 Youth

NSGA data for youth bicycling in 2009 shows that for children between the ages of 7 and 17, 11 percent ride frequently, 53 percent ride occasionally, and 35 percent ride infrequently.[20] 2010 Census data indicates that approximately 20 percent of Fullerton residents are under age 16, equating to 27,559 people.[21] Assuming a similar

[14] National Sporting Goods Association, 2010 Participation Ranked by Total Participation, http://www.nsga.org/files/public/2010_Participation_Ranked_by_Total_Participation_4Web_100521.pdf, accessed August 11, 2011.

[15] National Bike Dealers Association, Industry Overview 2010, http://nbda.com/articles/industry-overview-2010-pg34.htm, accessed August 11, 2011.

[16] Ibid.

[17] Ibid.

[18] Ibid.

[19] National Sporting Goods Association, 2002-2010 Participation by Mean Age – Male and Female, http://www.nsga.org/files/public/2002-2010_Participation_by_Mean_Age_Male&Female_100723.pdf, accessed August 11, 2011.

[20] City of Los Angeles, 2010 Bicycle Plan

[21] US Census Bureau, American Fact Finder, http://factfinder2.census.gov, accessed August 11, 2011.

frequency of riding, approximately 64 percent (17,637 children) ride a bike on somewhat regular basis. However, fewer than 15 percent of them use active modes of transportation.[22]

In a 2004 U.S. Centers for Disease Control survey on barriers to walking to or from school for children aged 5 to 18 found that 61.5 percent reported distance and 30.4% reported traffic-related dangers.[23] While this survey focused on walking, it provides important lessons and opportunities for increased bicycle trips to school. Safe Routes to School data has shown that infrastructure improvements focused on removing these barriers has increased bicycling and walking by up to 200 percent.[24]

2.4.4 College Students

The City of Fullerton is home to Cal State University Fullerton (CSUF), Fullerton College, Hope International University, Dongseo University, Southern California College of Optometry, and Western State College of Law.

These higher educational intuitions, particularly Fullerton College and CSUF, offer strong potential to increase the number of bicycle commuters. Across the United States, college communities frequently have the highest numbers of bicycle commuters. The combined total enrollment of these two schools alone is approximately 58,000 students and 6,000 faculty and staff.[25] Fullerton College does not have any on-campus housing, and CSUF provides will provide on campus housing style living for approximately 2,000 students. This leaves approximately 56,000 students and all faculty and staff, to commute to classes. Students, faculty, and staff represent both current and potential bicycle commuters as many are likely to live near their college campuses, thus providing an opportunity to commute by bicycle.

As a point of magnitude, CSUF does an annual count of bicycles which they began in 2006. The study looks at the number of bikes visibly parked on campus (in and out of racks). It takes multiple counts during the day on two different days in the same week – meaning the same bike could be counted twice in a given day as students and faculty move around the campus – and it does not count bikes that are not visible (i.e. stored in a faculty or staff office). Assuming the same challenges with data gathering each year, the magnitude of bikes observed has increased on average 57 percent (Tuesday 48 percent and Wednesday 66 percent).[26]

[22] US Centers for Disease Control, Barriers to Children Walking to or from School --- United States, 2004, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5438a2.htm, accessed August 11, 2011.

[23] Ibid.

[24] Safe Routes to School Safety and Mobility Analysis: A report to the California legislature, California Department of Transportation, Ornstein, M., et al., 2007 as quoted in 2010 Bicycle Plan, City of Los Angeles.

[25] Fullerton College website and personal communication, Chris Reese, CSUF Director of Community Relations

[26] 2010 Annual Update, Bicycle Parking Analysis, California State University, Fullerton

Table 2-4: Cal State Fullerton Bicycle Counts			
	2006	2010	Percent increase from 2006 to 2010
Tuesday			
8:30 am - 9:45 am	163	398	
10:00 am - 11:15 am	284	187	
11:30 am - 12:45 pm	282	415	
1:00 pm - 2:15 pm	293	533	
2:30 pm - 3:45 pm	217	483	
4:00 pm - 6:45 pm	233	245	
7:00 pm - 9:45 pm	205	212	
	1,677	**2,473**	**48%**
Wednesday			
8:00 am - 8:50 am	189	102	
9:00 am - 9:50 am	247	286	
10:00 am - 10:50 am	274	625	
11:00 am - 11:50 am	234	509	
12:00 pm - 12:50 pm	263	559	
1:00 pm - 2:15 pm	270	631	
2:30 pm - 3:34 pm	213	473	
4:00 pm - 6:45 pm	241	147	
7:00 pm - 9:45 pm	161	140	
	2,092	**3,472**	**66%**
Average	**1,885**	**2,973**	**57%**

Source: 2010 Annual Update, Bicycle Parking Analysis, California State University, Fullerton

Chapter 3

Bicycle Network and Facilities

3.1 Summary

Fullerton's existing bicycle network totals approximately 37.25-miles, including over 4.59 miles of Class I off-street bikeways or paved multi-purpose paths, 20.46 miles of Class II on-street bicycle lanes, and 12.20 miles of Class III on-street bicycle routes.

See Exhibit 3-1, Existing Bicycle Network, for the location and classification of the bikeways and paved multi-purpose paths that exist or are under construction at the time of Plan adoption.

3.2 Multi- Modal Transportation Connections

Bicycles play an important role in a City's multi-modal transportation system. As discussed in Chapter 2, a robust bicycle network has the potential to increase the viability of alternative transportation modes by providing a way to reach bus stops or train stations that may be out of walking distance from popular trip origins and destinations.

Fullerton's regional transit station, the Fullerton Transportation Center, is located near the intersection of Harbor Boulevard and Commonwealth Avenue. Metrolink, Amtrak and commuter bus service are all provided at this major transportation nexus. Collectively, these services provide links to locations throughout Orange County and the neighboring counties of Los Angeles, Riverside, and San Diego. OCTA provides local and regional bus service throughout the City of Fullerton. All OCTA buses are equipped with bicycle racks on the front. Metrolink also provides bicycle racks on trains.

In October 2010, the Fullerton City Council adopted the Fullerton Transportation Center Specific Plan, a market-based plan for future development which will create a sustainable transit-oriented district at the Fullerton Transportation Center. One purpose of the Specific Plan is to increase walking, bicycling, and transit ridership. The Specific Plan relocates the OCTA Bus Depot to provide direct access from buses to the train platform, making connections more convenient and includes, in addition to bike racks, bike lockers, and storage areas within developments, a Bike-N-Ride facility near the Fullerton Train Depot. The facility would provide secure bicycle parking and related services to make the cycling commute more convenient.

Fullerton has a park-and-ride lot at the intersection of Orangethorpe Avenue and Magnolia Avenue where carpoolers and vanpoolers meet. Bus service also stops at this center.

See Exhibit 3-2, Transportation Connections, for the location of major transit facilities.

3.3 Bicycle Parking and End-of-trip Facilities

3.3.1 Bicycle Parking

Bike racks are provided at key destinations within the City, including Fullerton Transportation Center, throughout Downtown Fullerton, City-owned parks and other facilities including the public libraries, CSUF, Fullerton College and a number of large employment sites and commercial centers. The park-and-ride lot also has racks for bicycles. Several large private development projects have been recently conditioned to accommodate secure bicycle storage for residents and guests as have smaller commercial remodels (typically restaurants in commercial centers) where a demand for bicycle parking exists.

As stated in Section 3.2 above, the public and private development projects in the Fullerton Transportation Center Specific Plan area will include bicycle parking as does the Transportation Center parking structure currently under construction on the west side of Harbor Boulevard. Based on this location, this bicycle parking will be available to both Downtown patrons and transit riders.

3.3.2 End-of-trip Facilities

The City of Fullerton requires commercial, office/professional, hotel, industrial, and mixed uses exceeding a certain size to provide end-of-trip facilities. The requirements are prescribed by Section 15.30.100 of the Fullerton Zoning Code, "Transportation Demand Management strategies to reduce single occupant vehicles," and Section 15.40.070, "Transportation demand management strategies to reduce single occupancy automobiles." The Zoning Code specifies that "secure, adequate and convenient storage shall be provided for bicycles." Additionally, "a shower and locker room facility for employees of each sex shall be provided in each building of 100,000 gross square feet or more" and in developments of 100,000 gross square feet or more. These requirements apply to new commercial or industrial development, and major expansions of commercial or industrial development estimated to employ 100 or more people.

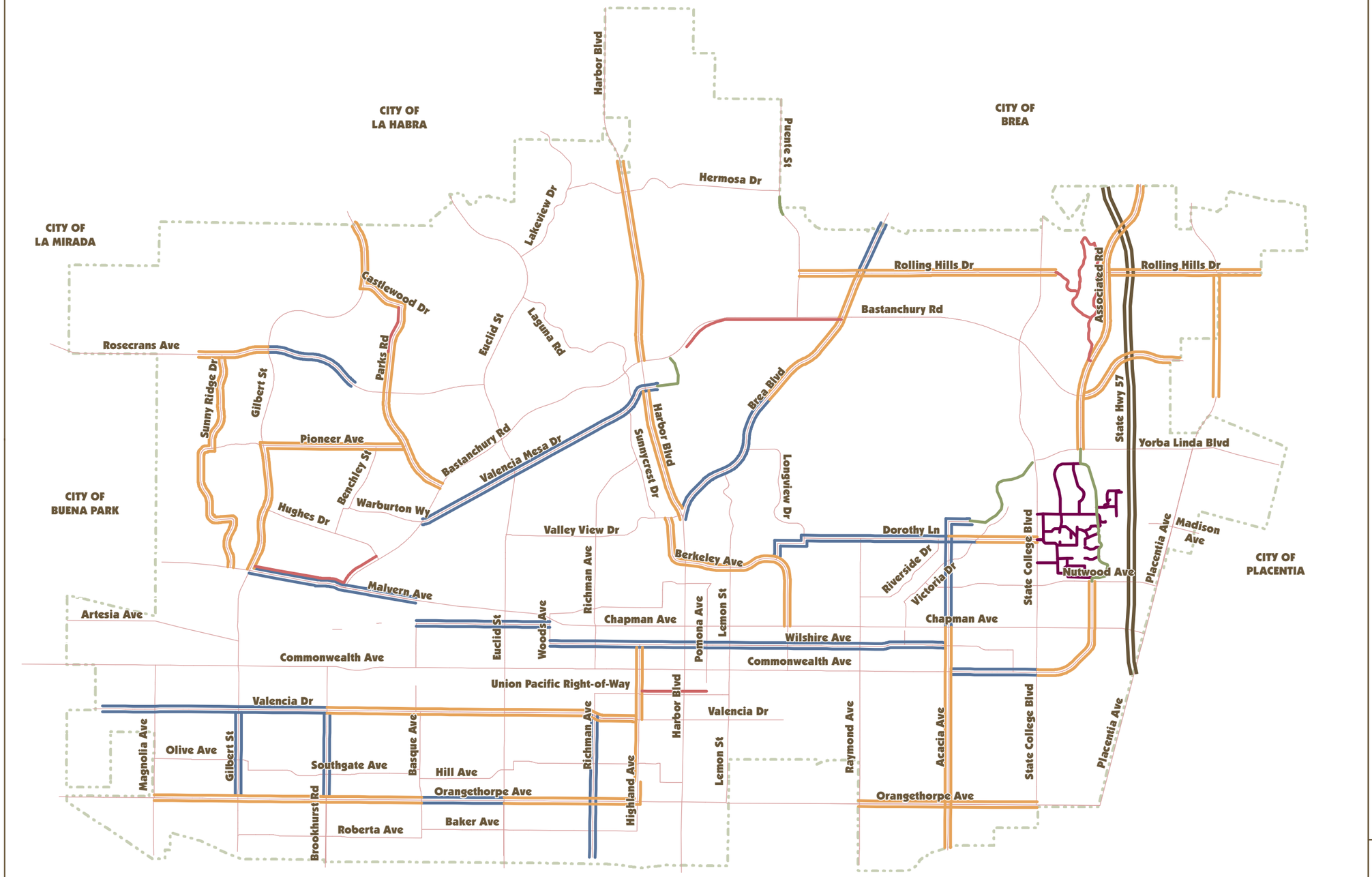
While the City does not typically have a record of private facilities, showers and clothing lockers are provided on the CSUF and Fullerton College campuses for their respective users. The Community Center, currently under construction, will include shower and locker room facilities. The Bike-N-Ride facility planned near the Fullerton Train Depot is envisioned to provide end-of-trip facilities including repair services, commute information, bicycle and equipment sales and/or rentals in addition to changing/shower facilities.

3.4 Safety and Education

The City of Fullerton Police Department enforces the provisions of the California Vehicle Code pertaining to bicycles. The City has not adopted any local ordinances as allowed under the California Vehicle Code. CSUF does have "dismount zones" at specified locations within the interior of their campus. Campus Police are responsible for enforcement of their regulations.

At the time of Plan adoption, the City of Fullerton is home to four bicycle retailers, Bannings Bikes (206 N. Harbor Boulevard), Fullerton Bicycles (424 E. Commonwealth Avenue), Jax Bicycle Center (2520 E. Chapman Avenue) and Road Warrior (337 S. State College Boulevard). Collaboration opportunities exist with the retailers on safety and education programs. Additionally, the City's Parks and Recreation facilities, programs, and summer camps provide opportunities for outreach to children and adults.

This page is intentionally blank.



Existing Bikeways Network

City of Fullerton Bicycle Master Plan

Exhibit 3.1

This page is intentionally blank.

Legend

- OCTA Bus Stop
- Fullerton Transportation Center
- Park & Ride Facility
- 1/4 and 1/2 mile Radius from Fullerton Transportation Center

N

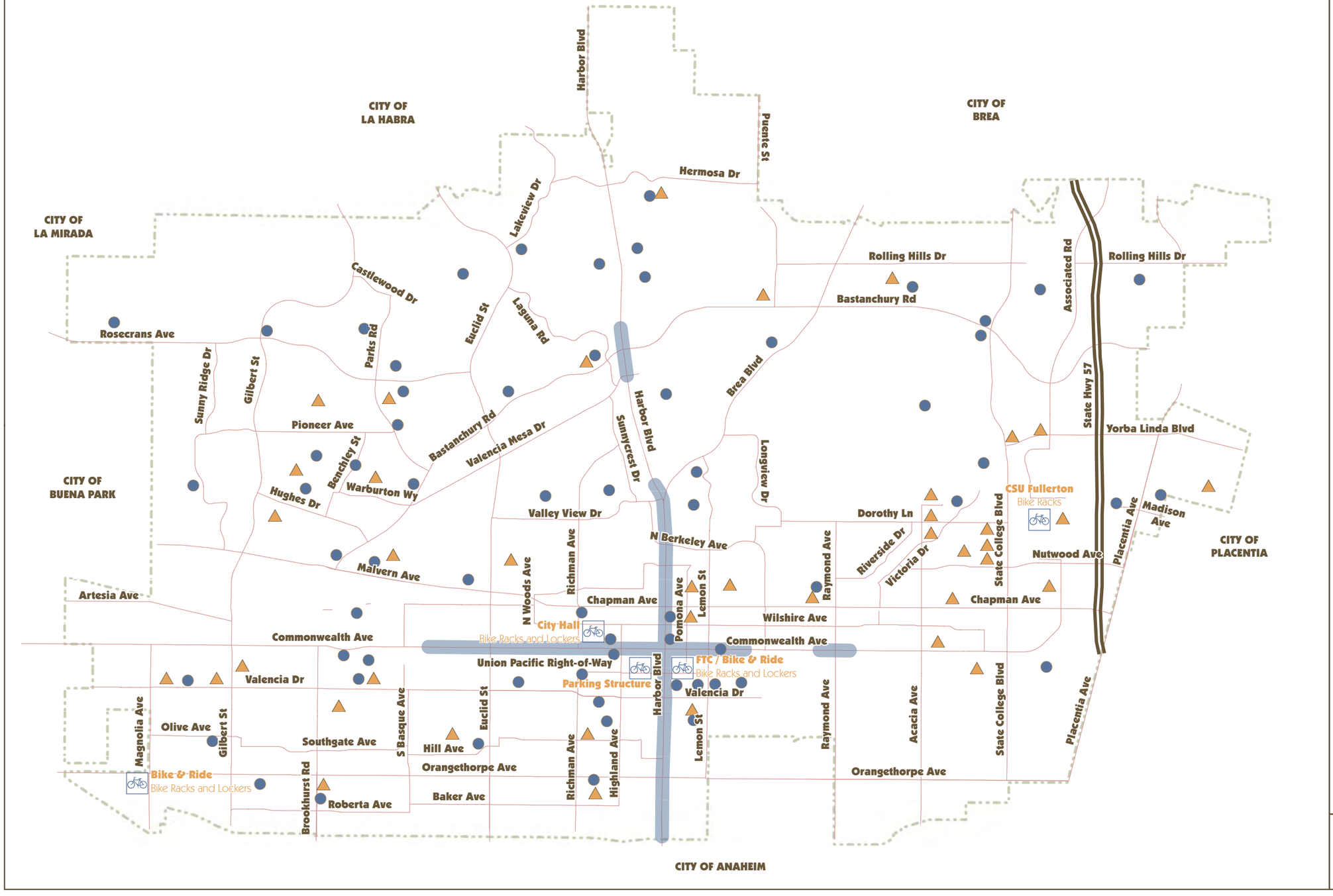
Map not to a scale

Transportation Connections

City of Fullerton Bicycle Master Plan

Exhibit 3.2

This page is intentionally blank.



Bicycle Parking and End-of-Trip Amenities

City of Fullerton Bicycle Master Plan

Exhibit 3.3

This page is intentionally blank.

Chapter 4

Objectives

4.1 Relationship to The Fullerton Plan

Chapter 4 of the Bicycle Master Plan establishes the overriding objectives relating to bicycling in the City of Fullerton. Consistent with City Council direction, this Chapter is also the basis of the Bicycle Element of The Fullerton Plan.

The Fullerton Plan serves as Fullerton's General Plan pursuant to State law, but goes beyond California's General Plan Guidelines. The Fullerton Plan serves as a City governance tool focused on achieving The Fullerton Vision, by aligning City efforts, reaching out to partners in Fullerton and the region, and engaging the Fullerton community.

State Law requires that General Plan address the seven topics (referred to as "Elements") of land use, circulation, housing, open space, conservation, safety and noise (California Government Code Section 65302). A General Plan may also include other topics of interest, as chosen by the local jurisdiction (California Government Code Section 65303). The Bicycle Element is an optional element based on City Council action.

4.2 Construction of the Bicycle Element

Consistent with the structure of The Fullerton Plan, this Chapter utilizes goals and policy statements to convey its objectives.

Goals are general statements of aspiration or intent to achieve a desired condition that serves as an endpoint and may be attainable.

Policies are specific statements that provide a directive or framework for City decision-making that directly contribute to the attainment of the goal. Policies have been written utilizing versions of the same sentence construction. All policies begin with an applicable version of "Support efforts, projects, programs, policies, and regulations…" Taken together as a comprehensive decision-making framework, the policies of The Fullerton Plan provide both "yard-stick" by which actions are taken and a governance tool to ensure accountability of those taking the actions back to The Fullerton Vision.

Further, State law requires a General Plan to be internally consistent, meaning no one policy can conflict with another. This approach is also inherently sustainable as policies at least have to be neutral to one another, if not supportive across the Elements.

In practice, this means that as a Commission, Committee, or the City Council is reviewing a request, the decision-making body identifies the nature of the item, for example the consideration of a new project. The decision-making body then identifies all policies applicable to the consideration of a project, verifies that the project is consistent with the relevant policies and is at least neutral to – or not in conflict with – the rest. The decision-making body then uses this finding of General Plan consistency as a basis for their action.

The Fullerton Plan provides guidance for four levels of geography, from the region to the individual project level. It looks outward to Orange County, Southern California, and beyond in order to stay abreast of larger currents affecting Fullerton and to provide leadership in regional matters. It also looks inward at the City of Fullerton as a whole, its districts and neighborhoods, and individual projects as three arenas where the community can work toward achievement of The Fullerton Vision. This Chapter follows this framework as follows:

Region/Subregion Level – For matters affecting Fullerton that extend beyond its borders, the City communicates and coordinates with neighboring cities or other jurisdictions operating within North Orange County, Orange County or Southern California.

City Level – Within Fullerton's borders, the City operates several departments, makes decisions within its jurisdiction about activities that affect public interests; partners with other public agencies and private sector entities, and develops plans, programs and policies that will be carried out citywide.

District/Neighborhood Level – Districts and Neighborhoods are areas within Fullerton with their own distinct identities. They lend themselves to the formation of community-based groups that seek to improve or maintain these areas. The City can enhance districts within Fullerton by working with these groups, guiding development, directly making physical improvements and carrying out programs. At the neighborhood level, the City plays a similar role with an emphasis on maintaining and enhancing neighborhood character.

Project Level – A project is an undertaking that changes the built environment. Often it is an individual proposal for development that the City reviews for compliance with policies such as design guidelines and zoning. As part of this review, the City considers the project's possible environmental impacts, and impacts on public infrastructure such as streets and parks. The City also carries out projects of its own, such as redevelopment activities or constructing public facilities— sometimes in partnership with a private entity or another public agency such as a school district.

4.3 Goals and Policies

GOAL

A bicycle friendly city where bicycling is a safe and convenient alternative to motorized transportation and a recreational opportunity for people of all ages and abilities.

POLICIES

Regional/Subregional Level

P1. Support regional and subregional efforts to ensure bicyclists are considered when developing new or retrofitting existing transportation facilities and systems.

P2. Support efforts to maintain, expand and create new connections between the Fullerton bicycle network and the bicycle networks of adjacent cities, Orange County, and the region.

City Level

P3. Support projects, programs and policies to maintain and update as necessary a Bicycle Transportation Plan prepared and approved pursuant to the California Streets and Highways Code to maintain eligibility for funding for State Bicycle Transportation Account funds.

P4. Support projects, programs, policies and regulations to recognize that every street in Fullerton is a street that a bicyclist can use.

P5. Support projects, programs, policies and regulations that make bicycling safer and more convenient for all types of bicyclists.

P6. Support projects, programs, policies, and regulations to facilitate safe travel by bicycle to key destinations within the community and larger region.

P7. Support projects, programs, policies, and regulations to reduce negative impacts to and increase opportunities for bicycle users and the bicycle network in private and public development projects.

P8. Support projects, programs, policies, and regulations to develop a multi-tiered network of bicycle travel options that consider traffic volumes and rider experience; and which recognizes that all streets should be safe for bicycling.

P9. Support projects, programs, policies, and regulations to support the safe and efficient movement of bicyclists through and across intersections.

P10. Support projects and programs in conjunction with local bike shops, organizations, and advocates to foster responsible ridership reduce barriers to bicycling.

Neighborhood/District Level

P11. Support projects, programs, policies and regulations to connect neighborhoods via a multi-modal network to each other and to and through the City's Focus Areas.

Project Level

P12. Support projects, programs, policies, and regulations to provide convenient bicycle parking and other bicycle facilities in existing and potential high demand locations within the City, such as educational institutions, parks, business districts, transit stops, retail, commercial and employment centers.

P13. Support projects, programs, policies, and regulations to utilize recognized bicycle infrastructure design standards of the Federal Highway Administration, California Department of Transportation, and the American Association of State Highway and Transportation Officials and participate in their pilot studies for alternative designs when appropriate.

P14. Support projects, programs, policies, and regulations to consider bicycle friendly design using new technologies and innovative treatments.

Policies related to bicycles and bicycling are also contained in other elements or chapters of The Fullerton Plan and are incorporated herein by reference. These are as follows:

Chapter 4 Mobility

P5.1 Circulation Between Cities
Support regional and subregional efforts to implement programs that coordinate the multi-modal transportation needs and requirements across jurisdictions, including but not limited to the Master Plan of Arterial Highways, the Commuter Bikeways Strategic Plan, the Signal Synchronization Master Plan, the Orange County Congestion Management Plan, and the Growth Management Plan.

P5.7 Complete Streets
Support projects, programs, policies and regulations to maintain a balanced multi-modal transportation network that meets the needs of all users of the streets, roads and highways – including bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation and seniors – for safe and convenient travel in a manner that is suitable to the suburban and urban contexts within the City.

P5.9 Coordination with Schools
Support projects, programs, policies and regulations to improve – in coordination with the school districts – alternatives to the motorized transport of students by parents to and from school.

P5.10 Easements and Rights-Of-Way
Support projects, programs, policies and regulations to use public easements and rights-of-way along flood control channels and/or inactive railroads as part of the multi-modal network.

P5.15 Neighborhood and Focus Area Connections
Support projects, programs, policies and regulations to connect neighborhoods via a multi-modal network to each other and to the City's Focus Areas.

Chapter 19: Open Space and Natural Resources

P24.10 Trail Linkages to Open Space
Support projects, programs, policies and regulations to promote recreational trails and the bikeway system to link open spaces to public areas and neighborhoods.

This page is intentionally blank.

Chapter 5
Implementation

5.1 Relationship to The Fullerton Plan

Chapter 5 of the Bicycle Master Plan establishes actions to improve bicycling in the City of Fullerton. Like Chapter 4, this information is included in The Fullerton Plan.

The Fullerton Plan identifies an implementation strategy. A component of that strategy is a Short-Term Action Plan. The Short-Term Action Plan identifies a set of actions, by Element, which are to be accomplished in the near term in support of achieving the vision for the City of Fullerton. The actions identified by the Bicycle Master Plan are included in the Short-Term Action Plan.

Actions are specific implementation steps, to be lead by the City that will contribute to the attainment of the goal within specific timeframes. Part III of The Fullerton Plan, and thus the City Council, establishes a list of short-term actions to be completed within three to five years of adoption of The Fullerton Plan. The City Departments with the Lead and Secondary responsibility for accomplishing the action are also identified. New short-term actions plans will be subsequently established by the City Council during their regular priority setting process outlined in Part III of The Fullerton Plan.

The Fullerton Plan also establishes an annual priority setting process in conjunction with Department budgeting and Capital Improvement Planning. The purpose of this two-step process is to review and align the Short-Term Action Plan with Council priorities and funding availability.

5.2 Actions

A1. Work with the Bicycle Users Subcommittee and the community to further develop the current bicycle network into a multi-tiered network of on- and off-street bicycle travel options.

A2. Establish a regular review through the Bicycle Users Subcommittee of network gaps, barriers, new opportunities, and unsafe conditions on any City street; and their relative priority for completion. This list would be presented to the City Council for review and approval as part of priority setting process to implement The Fullerton Plan with the approved list informing Capital Improvement Project planning and funding needs.

A3. Collaborate with the Orange Country Transportation Authority (OCTA), North Orange County cities and other agencies as appropriate on short- and long-term strategies to integrate bicycle routes and networks across jurisdictional boundaries.

A4. Establish City standards for intersection improvements which include signal systems appropriate to detect bicycles and time to facilitate safe crossing.

A5. Establish City standards to require a road to be restored to, or exceed if warranted by the prior condition, its original quality, following the completion of road work repairs by the City, private entity or other agencies such as utilities, paying particular attention to surface smoothness and re-striping suitable for bicycling.

A6. Update the variables in the pavement management system to give priority or otherwise have a shorter replacement cycle to those streets which are identified as a Class II or Class III bikeway in the City's Bicycle Master Plan.

A7. Develop City-standards for signage when bikeways are impacted by construction or require the use of signs consistent with recognized standards including those of the Federal Highway Administration, California Department of Transportation, and the American Association of State Highway and Transportation Officials and include review of proposed signs by the City as part of a Traffic Control Plan or similar.

A8. Establish City standards for bicycle parking and storage, including specifications for racks and lockers, in public and private projects.

A9. Evaluate a location for and pursue pilot projects to employ traffic calming and other measures to create a bicycle boulevard, a low speed street which has been optimized for bicycle traffic. Bicycle boulevards discourage cut-through motor vehicle traffic, but typically allow local motor vehicle traffic.

Actions related to bicycles and bicycling are also associated with other elements or chapters of The Fullerton Plan and are listed in the Short-Term Action Plan in Part III: The Fullerton Implementation Strategy. These actions are incorporated herein by reference and are as follows:

A5.5 Dedications for Right-of-Way
Establish by local ordinance the ability to require a dedication or irrevocable offer of dedication of real property for streets, alleys, and additional land as may be necessary to provide bicycle paths and/or local transit facilities, consistent with the provisions of the Subdivision Map Act or as otherwise allowed under State law.

A5.6 Right-of-Way Deficiencies
Monitor private development projects adjacent to the street intersections/segments with substandard (deficient) right-of-way, as analyzed to accommodate multi-modal transportation infrastructure, and facilitate dedication in accordance with the City regulations.

A5.7 Traffic Impact Fee Program
Revise the traffic impact fee program to ensure that new development pays its appropriate fair share of the costs (fair share contribution) of improvements needed to accommodate the development when considered in the context of a multi-modal transportation system.

A5.8 Safe Routes to School Program
Work with local school districts, individual schools and parent organizations to develop and implement a Safe Routes to School Program for safe walking and bicycling to schools at every elementary, middle and high school.

5.3 Network Improvements

Ryan Snyder Associates prepared a menu of options for possible improvements to the existing off-street and on-street bikeways and multi-purpose paths, as well as recommendations for additional bicycle facilities, bicycle amenities, crossings, and educational programs. This list, contained in Appendix C, serves as a starting point for the Bicycle Users Subcommittee to accomplish the actions identified in Section 5.2 and goal and policies of Section 4.3.

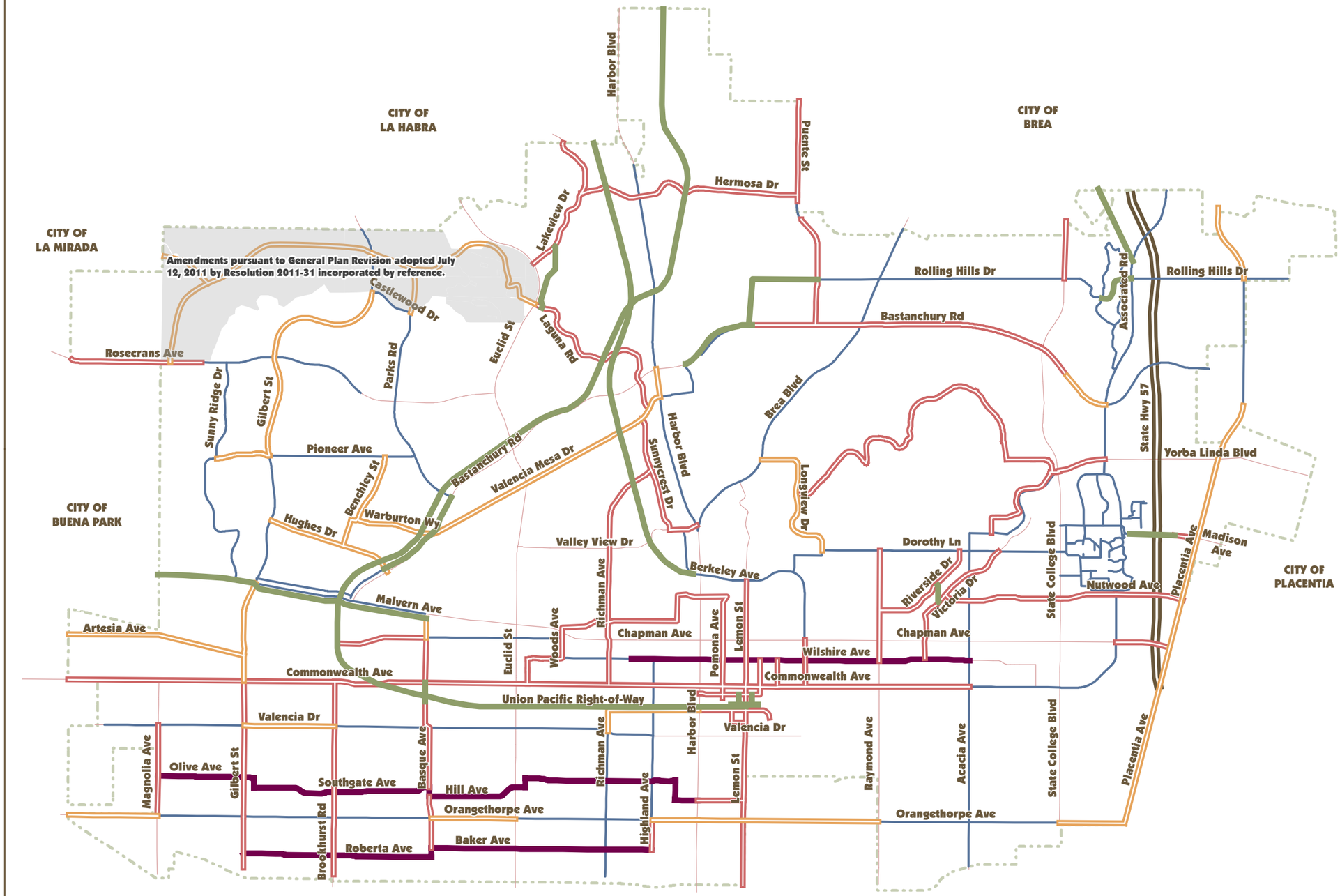
Of particular note, policy P11 in Section 4.3 identifies planning of a multi-modal network to and though the City's Focus Areas. As discussed in detail in Part I of The Fullerton Plan, Focus Areas are areas of the City which have been identified as warranting community-based planning efforts because they possess some or all of the following characteristics:

- Areas that are currently experiencing transition or anticipated transition in the near future,
- Areas that exhibit special community resources (historic, educational, cultural, etc.),
- Areas providing a variety of development options or market interest,
- Areas exhibiting potential for enhancement or reinvestment through public or private investment.

As of July 2011, planning efforts encompassing seven of the twelve Focus Areas are being initiated. The Downtown Core and Corridor Specific Plan will cover six areas including the downtown and Fullerton's major entry corridors. The Collegetown Specific Plan will cover the area around the City's six colleges and universities. Bicycle network and facility improvements will be considered in both efforts.

Exhibit 5-1 Proposed Network illustrates future facilities identified in project entitlements, and potential regional and local facilities. Exhibit 5-2 overlays school facilities with the proposed network to inform future Safe Routes to School efforts.

This page is intentionally blank.



Legend

- Proposed Class I Bike Path
- Proposed Class II Bike Lane
- Proposed Class III Bike Route
- Potential Bike Boulevard
- Existing Facilities

N

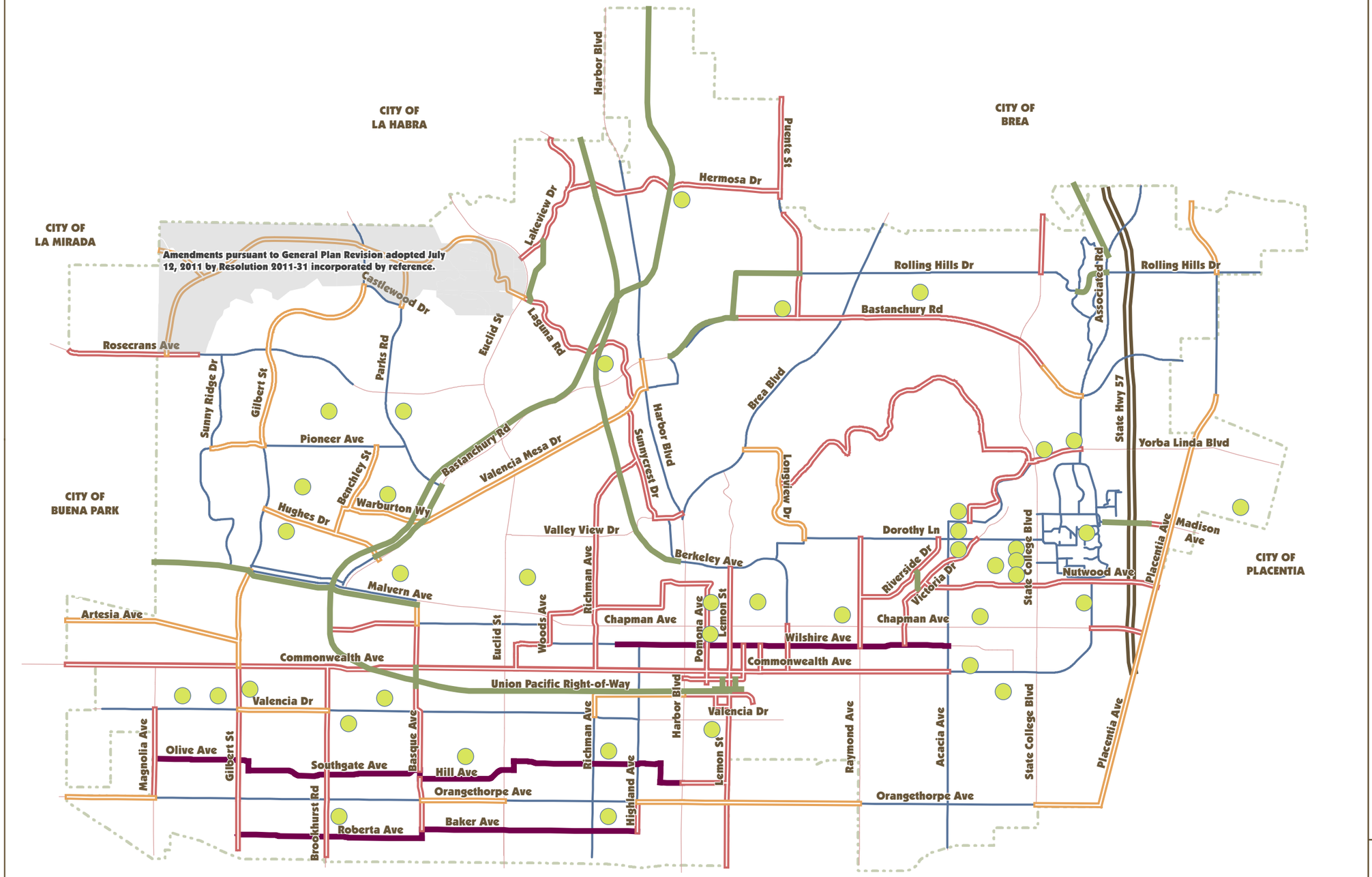
Map not to a scale

Proposed Bikeway Improvements

City of Fullerton Bicycle Master Plan

Exhibit 5.1

This page is intentionally blank.



Legend

- Proposed Class I Bike Path
- Proposed Class II Bike Lane
- Proposed Class III Bike Route
- Potential Bike Boulevard
- Existing Facilities
- School

N

Map not to a scale

Proposed Bikeway Improvements with School Locations

City of Fullerton Bicycle Master Plan

Exhibit 5.2

This page is intentionally blank.

5.4 Prioritization

Action A2 identifies an annual priority setting effort to implement the Bicycle Master Plan linked to both The Fullerton Plan and the Capital Improvement Program. As stated in Action A2, the Bicycle Users Subcommittee (BUSC) is tasked with identifying and prioritizing for City Council consideration, improvements to the bicycle network, facilities, and programs.

The prioritization criteria that the BUSC will use include community need, physical and non-physical feasibility in addition to other considerations. Physical constraints may include the need for additional right-of-way and/or alterations to the street beyond adding a paint stripe or posting signage, such as alterations to existing parking, addition of traffic calming elements, major construction activities such as grade crossings, etc. Non-physical feasibility issues include multi-agency coordination efforts, public support, and funding. Other considerations include, in order of importance:

- Improves safety,
- Fills a gap or removes a barrier or otherwise completes a segment,
- Completes a connection to an adjoining city,
- Provides a connection to an employment or commercial shopping center or other key community destination ,
- Provides a connection to transit and/or alternative transportation modes,
- Provides a connection to a regional recreational facility.

5.5 Costs

While detailed and accurate cost estimates must be undertaken as part of the planning and design phase of any future network improvement project, the following figures are provided[1] as a general reference of construction costs and provide an order of magnitude comparison for projects.

Class I

Pavement	$200,000/mile (8-foot wide path with pavement section of 4"AC/8"AB)
Earthwork	$50,000/mile (at grade path with pavement section of 4"AC/8"AB, minimal fill)
Drainage	$75,000/mile (mostly sheet flow with catch basins every 300 feet)
Miscellaneous	$170,000/mile (additional grading, drainage for additional storm water requirements, traffic items, etc.)
Striping	$5,000/mile (center stripe only)

[1] RBF Consulting historical data, June 2011

Class II and III

Signs	$250 each
Bike lane striping	$1/linear foot or $10,560/mile for bike lanes in both directions
Roadway restriping	$5/linear foot or $26,400/mile for full re-striping both directions

Bike/Pedestrian Bridge

Bridge	$350/square foot

Not included in the above estimates are the costs for traffic calming or traffic diverting improvements or accompanying landscape and lighting.

5.6 Funding

Most of the bicycle improvements in Fullerton have been made as part of street repainting or resurfacing. As the street is repainted or resurfaced, the City puts in bike lanes at that time without requiring special funding. The City received a $300,000 Measure M grant for a Class I bike path along the Union Pacific Trail from OCTA, as well as $295,000 for a Class I bike path connecting Puente Street across Arovista Park. The City has also been awarded $495,000 for a bike route on Bastanchury Road and Valencia Mesa out of Measure M Regional funds.

In order to fully implement desired improvements to the Fullerton bicycle network, additional funding through local, State and Federal programs will need to be pursued. Appendix E provides a list of potential sources available at the time of Bicycle Master Plan adoption.

Appendix A

Community Involvement and Participation

A.1 Introduction

This appendix describes the City's approach to community involvement and the opportunities for public participation offered during the planning process. The following community involvement activities were conducted during the development of the Bicycle Master Plan:

- Introduction to the Bicycle Element Presentation: May 16, 2007
- Online Community Survey: June 2007 to January 2010
- Community Workshop: June 18, 2007
- Educational Community Bicycle Collaboration Roundtable: August 26, 2008
- Bicycle Users Subcommittee (BUSC) Meetings throughout Master Plan development
- Public Review Draft

In addition to the workshops and meetings conducted specifically for the preparation of the Bicycle Master Plan, the City conducted community workshops throughout the development of The Fullerton Plan. Community input collected throughout the outreach activities for The Fullerton Plan, which pertains to the Bicycle Master Plan, was incorporated into the development of the Bicycle Master Plan.

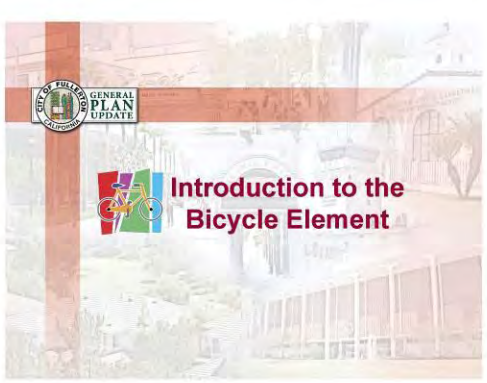
A.2 Introduction to the Bicycle Element Presentation

The City and consultant presented to members of the BUSC and other interested parties, including members of the Recreational Trails Users Group, an introduction to the Bicycle Master Plan/Bicycle Element on May 16, 2007. The presentation was held in the City Council Chambers following a regularly scheduled BUSC meeting. The presentation covered the anticipated components of the Bicycle Element, Caltrans requirements for a Bicycle Master Plan, a schedule of the project, and an overview of each project element. After the presentation, "'Preliminary Feedback Forms" were distributed, and attendees were asked to respond to the following questions:

1. Describe your expectations for the Bicycle Element. What do you hope most for it to accomplish?

2. As a City bikeways and trails user, what expectations do you have for your involvement in the drafting of the Bicycle Element? How can we best include your insight and knowledge of the system over the course of our work on the project?

3. In your experience, currently what are the greatest conflicts and/or issues with the existing bikeway system?



Attendees filled out the forms during and after a question and answer session. Audience questions, concerns and ideas were recorded on a flipchart. The flipchart notes are provided in Section N.1.1. Section N.1.2 includes the responses provided on the Preliminary Feedback Forms. In total, eleven feedback forms were collected at the end of the meeting.

A.3 Online Community Survey

The City provided opportunities for the community to virtually participate in the development of the Bicycle Master Plan through an online survey that was available from June 2007 through January 2010. The survey asked participants to identify bicycle community preferences, safety concerns, and opportunities to encourage and increase bicycling. The survey form and the results are provided in Section N.2.

A.4 Community Workshop

On June 18th, 2007, the City held a community workshop to discuss bikeways planning issues. Approximately 35 community members attended the workshop, held from 6:30 to 8:00 pm in the Fullerton Main Library. Through this workshop, the City began the process of identifying issues that were important to City residents and bikeway users. The workshop identified specific concerns related to bicyclist/pedestrian safety, design of bikeway facilities, connectivity between bikeways and recreation trails, and bicycle accessibility.

The June 18th workshop was promoted via the City's website, and through flyers distributed at General Plan Update meetings and local businesses. Flyers were also posted along bikeways and trails within the City, and handed out and posted at Fullerton College and Cal State Fullerton. Emails announcing the workshop were sent to those that left their email address on a Bicycle Element interest list at a past General Plan Update meeting or a past BUSC Meeting. Emails were also sent to those who left their email address when taking the City online survey.

Workshop attendees participated in a mapping activity to identify areas within Fullerton that were of interest to bicyclists, including their favorite or most used routes, trouble areas, or places they would like to see improvements.

Participants viewed a continuously running PowerPoint presentation introducing the Bicycle Element and the preliminary findings from the online survey. Laptops connected to the Internet allowed participants to take the online survey. A kid's table was available for younger workshop participants to identify ways to make bicycling more attractive to kids.

Participants were asked to join one of four group activity"Stations" located around the room. At each Station, a facilitator guided participants through an activity or discussion on different topics pertaining to the Bicycle Element and the needs of bicyclists in the City. The four stations were: Envision a Bicycle Friendly Fullerton, Destinations and Connections, Safety and Perceptions, and Bikeway Design and Facilities.

Workshop attendees rotated through the four Stations in teams of approximately eight participants. Upon completion, each Station facilitator reported back the main ideas or findings identified by each team summary findings. Information on the workshop is included in Section N.3.

Participants identify points of interest on a map of the City's bicycle network.

Senior Planner Bob St. Paul welcomes workshop attendees and introduces the evening's activities.

A.5 Educational Community Bicycle Collaboration Roundtable

On August 26, 2008, the City conducted a focused roundtable with representatives from universities and school districts throughout Fullerton who cultivate a large bicycling population. Fullerton College, Cal State Fullerton and Fullerton Joint Union High School District participated in the roundtable. Each representative provided pertinent information on their existing bicyclist population, existing facilities, planned improvements, facility/program needs, priorities, and collaboration strategies to achieve a bicycle-friendly community for Fullerton residents, students, and faculty. Notes from the meeting are provided in Section N.4.

A.6 Bicycle Users Subcommittee Meetings

The Bicycle Users Subcommittee provided input throughout the development of the Bicycle Master Plan, beginning with an introduction to the Bicycle Master Plan on May 16, 2007. Collaboration with the BUSC continued throughout the development of the plan by providing input on its contents. BUSC members also identified specific

improvements they would like to see occur to bicycle facilities throughout the City. The Bicycle Master Plan was also discussed extensively at the BUSC meetings and BUSC reviewed and provided technical feedback on the Administrative Draft of the Bicycle Master Plan. The BUSC authorized the conversion of the Administrative Draft into a Public Review Draft on July 27, 2011. During the summer of 2011, the BUSC solicited public input on proposed routes and attitudes towards bicycling in general at the Fullerton Farmers Market and at an OCTA-hosted event on regional bicycle coordination. Surveys and results are presented in Section N.5. The BUSC approved the proposed bike routes on February 2, 2012.

A.7 Public Review Draft

The Public Review Draft of the Bicycle Master Plan was released to the public on February 21, 2012. Hard copies of the Plan were placed at the Main Library and Fullerton City Hall 2nd Floor Lobby. An electronic version of the plan was posted on the City's website at http://www.cityoffullerton.com/depts/dev_serv/bike_master_plan.

N.1 Introduction to the Bicycle Element Meeting- May 16, 2007

N.1.1 Flip Chart Notes

- How will it include other trails
- Funding sources for other trails
- Bicyclists who use bike everyday→ non-recreational trip
    - Major user group of the future
- Consider re-scheduling June 18th workshop
- Yorba Linda incorporates both trails and bikeways
- More meetings for bicycle community
- Outreach
    - Ethnically diverse bicycle commuters
    - Go out to communities
- Contact bicycle clubs/groups and universities, colleges, businesses
- Recreational trail user
- Different interest than bicycle commuter
- Fullerton Recreational Riders
    - Trails named after members
    - Against paving these trails
        - Not best for commuters
- Keep recreational elements of trails
- Level of involvement of this group
    - Volunteers?
- Inventory – how to become aware of underutilized/less known areas?
- Terminology – confusion
    - What is difference between trails, paths, bikeways, etc.?
    - Paved or unpaved?
    - Use pictures to help clarify terminology
- Concern about paving dirt trails to get Cal Trans funding
- New trails or improve/change existing trails?
- Bicycle users committee focus limited to bikeways
- Will General Plan look at funding for schools?
- Elevate safety as important part of dialogue and plan
- Are you working with schools?
    - Safe routes to school funding
- Where is online survey being promoted?
- Article in local newspapers
- Contact places where there are bicycles parked during the day at businesses
- GPS survey – is that just recreational trails or bikeways too?
- What are the benefits for the recreational trail users?
    - Included on map?
- Some trails are also considered bikeways
- CSF and Fullerton College out for summer – may miss that population of bicycle commuters

  - Safety issues
  - Routes on/to campus
  - Consider allowing window of time in fall for this group to take survey
  - CSF web portal – can post info there for online survey
- When will presentation be available on the website?

N.1.2 Preliminary Feedback Form – Responses

(Comments are provided verbatim.)

1) Describe your expectations for the Bicycle Element. What do you hope most for it to accomplish?

Feedback Form 1

- New innovative methods of improving bicycle circulation and increasing ridership.
- Increasing planned bicycle routes by 30-50 percent.
- A focus on specific problem sites or locations where investments can alleviate choke points and encourage bicycle use.

Feedback Form 2

- Recreational trail map.
- Identify additional trails and link.

Feedback Form 3

- To make Fullerton a bicycle-friendly city on the level of San Jose, Santa Cruz, Berkeley, etc. and to bring attention to the great diversity of users.

Feedback Form 4

- No response given.

Feedback Form 5

- Better signage & maps
- Linkage to adjacent trails/bikeways
- Need bike parking at bus stops
- Do not want current trails paved.

Feedback Form 6

- Would support bikeways along streets.

Feedback Form 7

- Qualify Fullerton for funding for bicycle related projects
- Promote safe alternatives to motorcycle use
- Identify opportunities for safer bicycle [sic] transportation
- Develop those opportunities

Feedback Form 8

- A comprehensive bike plan for the city, which allows opportunities for funding.

Feedback Form 9

- Create a more bicycle user-friendly city.

Feedback Form 10

- As an occasional bike user I would like to see more bike lanes/trails/paths toward the downtown area.
- To the lanes that already exist, I would like to see them highlighted more toward public use.

Feedback Form 11

- To establish a long-term plan for Fullerton to increase safe bike use throughout the city.
- Also, to [sic] evash the city to compete for funding for bicycle issues.

2) **As a City bikeways and trails user, what expectations do you have for your involvement in the drafting of the Bicycle Element? How can we best include your insight and knowledge of the system over the course of our work on the project?**

Feedback Form 1

- Clarity on process – how often does web-based outreach get updated?
- Will there be an ability to establish a news list to alert people to project meetings?
- Interactive meeting or workshop with visual resources, graphic, participatory input.
- Work with Fullerton school districts to encourage campus-specific thinking for safe routes to schools. (contact school site councils)

Feedback Form 2

- Recreational trail user perspective.

Feedback Form 3

- As a member of the bicycling subcommittee I would hope for direct involvement and interfacing with the planning department.

Feedback Form 4

- No response given.

Feedback Form 5

- As a multiple user (walking, running, riding) along with my academic background in landscape architecture I might be able to offer several different perspectives.

Feedback Form 6

- Please keep me (Fullerton Recreational Riders) informed of all meetings.
- Would oppose paving of any existing trails.
- Current trails are recreational and are not being used much for commuter traffic.

Feedback Form 7
- I would like to be involved in all stages.

Feedback Form 8
- Meetings – several.

Feedback Form 9
- Bring results/findings to Bicycle User Committee to allow comment/feedback prior to completion.

Feedback Form 10
- As a member of the T&CC and the BUSC, you can count on my support on this project.

Feedback Form 11
- I will participate in all that you described tonight. However, I encourage you to contact the typically underrepresented bicyclists in Fullerton through churches, schools and other groups.

3) In your experience, currently what are the greatest conflicts and/or issues with the existing bikeway system?

Feedback Form 1
- Too much focus on Class II routes along arterials.
- Not enough progress in developing Class I trails (which is not a planning problem)

Feedback Form 2
- Satisfying variety of users.
- Expanding trail system in a built-out city.
- Maintenance and supervision (eyes) of trails.

Feedback Form 3
- The conflict between the various types of bicycle users and between bike users and other uses and automobiles.

Feedback Form 4
- As a recreational trail user, I would like them to remain unpaved.
- Also, there is always a problem between the walkers and bicycles, which can sometimes be dangerous.
- Some of the dirt trails should be widened because of the dual use.

Feedback Form 5
- Mountain bikers can be, on rare occasions, not very considerate of walkers and runners.

Feedback Form 6
- Recreational trails versus commuter bike trails.

Feedback Form 7

- Traffic
- Conflicts with cars
- Direct routes between locations
- Facilities for safe [sic] storage.

Feedback Form 8

- Some streets are not safe for bicycles.
- Because of the hills in Fullerton, many streets do not go across town.

Feedback Form 9

- More clearly marked paths/routes are needed.

Feedback Form 10

- I'm not a serious recreational user, but I would say some lanes are narrow on some of our major streets.

Feedback Form 11

- Safe coexistence with cars.

N.2 Community Survey

Bicycle Element

Thank you for taking time to participate in this survey designed to help the City of Fullerton identify your needs as a bikeway user. Your answers will help us in our preparation of a Bicycle Master Plan to guide future bikeway and trail development in the City. Please check back on the City website for other opportunities to provide your input on the Bicycle Element component of the General Plan Update.

If you have any questions regarding this survey, please contact: ***Bob St. Paul****, Senior Planner with the City of Fullerton, at 714-738-6559 or BobSP@ci.fullerton.ca.us.*

---

1. What is the primary reason you choose to bike?

- ❑ Recreation and health
- ❑ Commuting
- ❑ Shopping/errands
- ❑ Parking cost/availability
- ❑ I don't own a car
- ❑ Cost of gas
- ❑ Avoid congestion and traffic
- ❑ Its good for the environment
- ❑ Other reasons: _____
- ❑ I do not bike

2. For what other reasons do you choose to bike? (check all that apply)

- ❑ Recreation and health
- ❑ Commuting
- ❑ Shopping/errands
- ❑ Parking cost/availability
- ❑ I don't own a car
- ❑ Cost of gas
- ❑ Avoid congestion and traffic
- ❑ Its good for the environment
- ❑ Other reasons: _____
- ❑ I do not bike

3. In addition to biking, what other activities do you do use the City's bikeways and recreational trails for? (check all that apply)

- ❑ Hiking, Walking, Jogging and running
- ❑ Taking my children to school
- ❑ Horseback riding
- ❑ Skateboarding or rollerblading
- ❑ Biking only
- ❑ I do not currently use the City's bikeways and recreational trails
- ❑ Other non-biking activities: _____

4. Which of the following do you prefer to use on MOST of your bicycle trips? (check all that apply)

- ❑ Off-street paved routes
- ❑ Off-street non-paved routes
- ❑ On-street striped bike lanes
- ❑ Sharing a lane with vehicles
- ❑ Sidewalks

5. To what extent would each of the following encourage you to ride your bicycle more often?

	It would definitely <u>not</u> encourage me to ride more often				***It would <u>definitely</u> encourage me to ride more often***
➢ Improved surfaces	1	2	3	4	5
➢ Better linkages between routes	1	2	3	4	5
➢ Better linkages to destinations	1	2	3	4	5
➢ Better access to public transit	1	2	3	4	5
➢ Commuter incentives	1	2	3	4	5
➢ Better bike accommodations on transit	1	2	3	4	5
➢ More on-street bike lanes	1	2	3	4	5
➢ More off-street bike paths/trails	1	2	3	4	5
➢ Wider bicycle lanes	1	2	3	4	5
➢ Safer street crossings	1	2	3	4	5
➢ Motorists being more careful	1	2	3	4	5
➢ Other bikers being more careful	1	2	3	4	5

➢ More/better bike parking	1	2	3	4	5	
➢ Better signage on routes/streets	1	2	3	4	5	
➢ Improved landscaping/aesthetics	1	2	3	4	5	
➢ More seating areas/benches		1	2	3	4	5
➢ More bike lockers	1	2	3	4	5	
➢ Better lighting along routes		1	2	3	4	5
➢ Shower facilities at work/school	1	2	3	4	5	
➢ Organized citywide bike activities/events	1	2	3	4	5	
➢ Other: _____		1	2	3	4	5

6. When you are biking in the City of Fullerton, to what degree do each of the following potential hazards worry you?

	This hazard <u>does not</u> worry me at all.				***This hazard <u>definitely</u> worries me***	
	(1)				**(5)**	
➢ Poorly maintained roads	1	2	3	4	5	
➢ Poorly maintained route surfaces	1	2	3	4	5	
➢ Debris on the roads, bikeways or trails		1	2	3	4	5
➢ Opening of car doors by parked cars		1	2	3	4	5
➢ Cars making right turns ahead of me		1	2	3	4	5
➢ Cars entering or leaving parking spaces or driveways		1	2	3	4	5
➢ Oncoming cars making left turns	1	2	3	4	5	
➢ Narrow roads or lanes		1	2	3	4	5
➢ High vehicle speeds		1	2	3	4	5
➢ Passing vehicles stopped in traffic	1	2	3	4	5	
➢ Roadway construction projects		1	2	3	4	5
➢ Not being seen by cars in the dark	1	2	3	4	5	
➢ Fear of crime		1	2	3	4	5
➢ Poor lighting or lack of lighting		1	2	3	4	5
➢ Motorists not knowledgable of or following bike laws	1	2	3	4	5	
➢ Bicyclists not knowledgable of or following	1	2	3	4	5	

bike laws

- Verbal abuse 1 2 3 4 5
- Other:_____ 1 2 3 4 5

7. Where do your bicycle trips most often originate from?

- ☐ My home
- ☐ My place of employment
- ☐ The Fullerton Metrolink Station (Santa De Depot)
- ☐ A bus stop
- ☐ Other:_____

8. When you ride your bike, what are currently your most common destinations? (check all that apply)

- ☐ Fullerton Metrolink Station (Santa Fe Depot)
- ☐ Downtown Fullerton
- ☐ SOCO District
- ☐ Fullerton Civic Center (including City Hall and the Main Library)
- ☐ Cal State Fullerton
- ☐ Fullerton College
- ☐ Hope University
- ☐ Western College
- ☐ Elementary School
- ☐ Middle School
- ☐ High School
- ☐ Craig Regional Park
- ☐ Fullerton Sports Complex
- ☐ Brea Dam Recreational Area
- ☐ West Coyote Hills Nature Preserve
- ☐ Fullerton Arboretum
- ☐ Other Park(s): _____
- ☐ Park and Ride Facility
- ☐ Bus Stop
- ☐ Friend/Family's Home
- ☐ Local restaurant or shopping center
- ☐ Place of employment

- ❑ St. Jude's Medical Center
- ❑ Amerige Heights
- ❑ Destinations not in the City of Fullerton
- ❑ Other Park(s): _____
- ❑ Other destinations: _____

9. Which of the following destinations would you be more likely to ride to if bikeways and trails were established or improved to get you there more easily? (check all that apply)

- ❑ Fullerton Metrolink Station (Santa Fe Depot)
- ❑ Downtown Fullerton
- ❑ SOCO District
- ❑ Fullerton Civic Center (including City Hall and the Main Library)
- ❑ Cal State Fullerton
- ❑ Fullerton College
- ❑ Hope University
- ❑ Western College
- ❑ Elementary School
- ❑ Middle School
- ❑ High School
- ❑ Craig Regional Park
- ❑ Fullerton Sports Complex
- ❑ Brea Dam Recreational Area
- ❑ West Coyote Hills Nature Preserve
- ❑ Fullerton Arboretum
- ❑ Park and Ride Facility
- ❑ Bus Stop
- ❑ Friend/Family's Home
- ❑ Local restaurant or shopping center
- ❑ Place of employment
- ❑ St. Jude's Medical Center
- ❑ Amerige Heights
- ❑ Destinations not in the City of Fullerton
- ❑ Other Park(s): _____
- ❑ Other destinations: _____

10. In your opinion, a bicycle safety and education program aimed at which of the following groups would be most effective in increasing the safety of Fullerton bikeway and trail users?

- ❑ Youth/children in grade school
- ❑ Adult recreational bicyclists
- ❑ Adult commuter bicyclists
- ❑ College and University students
- ❑ Non-bicyclist trail users
- ❑ Motorists
- ❑ Other group(s): _____

11. How long are your most frequent bicycle trips?

- ❑ 0 - 20 minutes
- ❑ 20- 45 minutes
- ❑ 45 – 90 minutes
- ❑ More than 90 minutes

12. How often do you ride your bike?

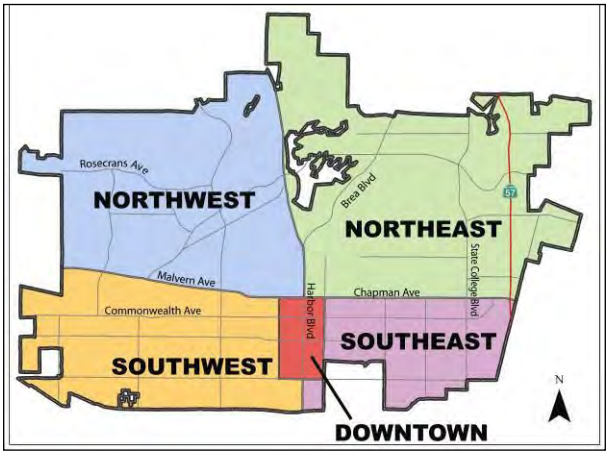
- ❑ Daily
- ❑ 1-2 days/week
- ❑ 3-5 days/week
- ❑ 2-3 times/month
- ❑ Once a month or less
- ❑ Never

13. How would you describe yourself? (check all that apply)

- ❑ Fullerton resident
- ❑ Fullerton employee
- ❑ College or University Student
- ❑ Resident of another city
- ❑ Other

14. If you are a Fullerton resident, where do you live?

- ☐ Northwest Fullerton
- ☐ Northeast Fullerton
- ☐ Southwest Fullerton
- ☐ Southeast Fullerton
- ☐ I am not a Fullerton resident



15. What is the distance between your home and your place of employment?

- ☐ 2 miles or less
- ☐ Between 2 and 5 miles
- ☐ Between 5 and 10 miles
- ☐ Between 10 and 20 miles
- ☐ More than 20 miles
- ☐ I work at home
- ☐ I do not currently work

16. What is your age?

- ☐ 17 years or younger
- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55+

17. What is your Gender?

- ❑ Male
- ❑ Female

18. Do you have any additional comments you would like to share?

If you would like us to be able to contact you in the future about your responses to this survey, please leave your name and contact information.

Name (optional):_____

Email address (optional): _____

Phone number (optional): _____

Thank you for taking this survey! Please return form to the City of Fullerton upon completion (one survey submittal per individual). Your responses will be used to inform the Bicycle Element process.

N.3 Community Workshop -June 18, 2007

N.3.1 Mapping Activity

Participants placed numbered stickers on a map of Fullerton to identify areas of interest. Areas of interest were defined as favorite bike locations, trouble areas, or places where they would like to see specific improvements. A number of locations throughout the City were identified, including:

- Harbor Blvd: Identified as a major bikeway through the City. Additionally, Harbor was identified as lacking adequate bicycle parking in downtown.
- Malvern Ave: Identified as unsafe for bicyclists between Gilbert and Euclid, as bikes must share their lane with parked cars
- Coyote Creek: Identified as a favorite destination
- Request to complete the bikeway along the old railroad ROW, between the train station and Independence Park
- Chapman Ave, between State College and Harbor was identified as "scary".
- City Hall/Library/Senior Center *(reason for identification was not specified)*
- Train Station *(reason for identification was not specified)*
- Intersections were identified at Chapman/Acacia, Wilshire/Acacia, and Chapman/Harbor that proved challenging and with conflicts
- Requests made for a Class I bikeway through Brea Dam and golf course, and between the Fullerton and Brea golf courses, to connect neighborhoods

N.3.2 Kids Table

Three children attended the workshop. At the kid's table, children were asked to describe how to encourage kids to ride their bikes more often. Comments collected at the kid's table include:

- What ideas do you have to make biking cool?
- "Jumping off curbs."
- How would you get your friends to ride bikes to school, the playground, or a friends' house?
- "I don't know"
- "Make it safer"
- Is it cool to ride your bike? Why or why not?
- "Yes, because I like to jump off things."

The youth were also asked to identify on a poster how they get to school, by placing stickers next to images of a variety of modes of transportation. One response was given for walking to school, one response was given for biking to school, and two responses were given for getting to school by car.

N.3.3 Station 1: Envision a Bike Friendly Fullerton

At Station 1, participants were asked to describe their vision of what would make Fullerton a 'Bike Friendly City'. Participants were asked to complete the sentence "My vision of an ideal bike city includes…" on post-it notes and then place the notes on a large poster. The Station Facilitator, with help from the participants, grouped the post-its into common topic areas.

The most common topic areas identified by participants included:

- Facilities
- Routes
- Connectivity
- Safety
- Education
- Maintenance
- Bicycle Events
- Bicycle Culture
- Bicycle Parking

A visioning exercise designed to identify both broad and specific desires of residents and bikeway users in the City.

Comments made by Workshop attendees in each of these topic areas included:

Routes/Connectivity:

- More class 1
- Bike boulevard on Wilshire from Euclid to Raymond
- Trail to commute to Beach (Blvd)
- Safe bike routes
- Integrated bike routes with surrounding cites
- City events focused on biking
- Safe routes/environment so students (grade 4 + older) would ride to school
- More class 1 routes off street, without cars
- Make connections of bikeways throughout the city and to adjacent cities
- Better way to cross the train tracks near Harbor, neighborhood isolation, Socowalk to hard to cross.
- Continuous east-west routes across city
- More bike lanes

- Overall all - county (or adjacent cities) bikeways map – connections (Is there one already?)
- Good route along Orangethorpe
- More bike-only routes connectivity major destination points
- Complete class 1 bike-way from transportation center to Independence Park
- Class 1 bike-way thru Brea Dam & golf course
- Class 1 route from Valencia Mesa to Rolling Hills Dr.
- Expand recreational trails "rails-to-trails"
- Bike routes connectivity residential areas & shopping/recreation areas
- Signs, lights, censors on Harbor, Chapman, and Malvern for safety, awareness, and convenience!
- Under/over pass (bridge) connections on cross busy streets

Bike Storage:

- Places to safely leave a bike (lockers, etc.)
- Bike + transit station at FJC
- Destination parking racks
- A bike station at the transportation center
- Better bike parking at transportation center, and downtown
- Better bike routes connectivity Fullerton train station and major regional parks (Craig and Clark)
- Bike storage at train station
- Bike rack on private property, i.e. shopping centers
- Need a bike rack at Costco
- Bike racks at museum and at both farmers markets and at post office
- More places to lock bikes downtown
- Bike parking throughout the city
- Secure bike parking and storage
- Bike boxes at busy intersections like Chapman and Harbor and Chapman and State College
- Secure bicycle parking throughout city

Events:

- Require city officials to cycle to work periodically
- City-wide bicycle events – a race in downtown?
- Annual "bike-a-thon" would be fantastic: trail and road
- Fullerton loop annual bike race
- City sponsored rides
- Encourage family rides especially educating the youth. Maybe an annual or monthly event.
- Periodic city rides for safety awareness and education
- Annual/monthly bike events that are both fun and educational group rides!

Route Maintenance/Additions:

- Bike-accessible traffic buttons at controlled intersections
- Promote residential alleys for bike use
- Elevator at train station is unreliable
- Separate bike paths from auto traffic
- Reduced traffic interaction on recreational trails
- No cars or at least car free areas/routes
- Well marked bike lanes
- Dirt trails
- Solicit pavement maintenance issues from cyclists
- Repave rough shoulders so we can stay right without going down
- Not so much mulch on the trails
- No gravel on trails (Panorama)
- Sharrows

Education:

- Integrate cyclists with motorists
- Figure out a way to get the people who must commute by bicycle to these meetings

- Enforcement of vehicle lanes from bicyclists, ride with traffic
- Motorists understand traffic laws
- Motorists and cyclists sharing the road (don't seclude the cyclists)
- Motorists having more courtesy for runners, biker, etc
- Motorists overall awareness of cyclists!
- Motorists smile and wave as they pass a bicycle
- Motorists that are aware and respectful of cyclists
- Bike friendly city campaign
- Mandatory road lessons for new bicyclists
- City promote safe bicycling for employees of business (especially low income)
- Educate young kids on bike safety to get them riding to school and send literature home to inform parents how to drive safely around cyclists
- Educational workshops and licensing of bikes of youths
- Bicycle education in schools and?
- City could promote group rides
- Consistent bicycling safety signage (for motorists edification)
- Widespread promotion of bicycle usage
- Encourage employers to provide bike facilities
- Bicycle education in school K-8th
- Bike route map - easily available
- Free bike route map with bike parking listed, bike shops listed
- Articles promoting bike use in quarterly city recreation newsletter
- Educate motorists about cyclists rights (signage)
- Police support/enforced cyclists on roads

Safety and Signage:

- City bike shops visible in the community (sponsor a group ride?)
- Railroad crossing west of highland (convince issue too)
- City governed biking/safety seminar
- More bike shops/repair facilities

- Promote safety and recognition with motorists
- Car free routes around CSUF during school days and hours
- Better pavement on bicycle routes (i.e. Valencia)
- Safe use of main streets posting of signage
- Bike sensor at signals
- Making everyone (motorists and bicycle riders) aware of the traffic rules concerning bicycles
- Bulletins on road, "Share the road with bicyclist please"
- Better informed bicyclists and motorists rules of the road!
- Parking structures with better guidance for drivers at the entries and exits
- Safe/secure bike parking in appropriate locations
- Pamphlets for autos describing laws and rights of cyclists
- Better bike signs with descriptions (arrows/directions)
- Printed paths for bike lanes
- No segregated bike lanes
- More/safer railroad crossings (bike bridges!)
- Need a safe way to cross the 57 freeway from the east near CSUF
- Bicycle safety/patrol on the Fullerton loop
- More road signage

Participants identifying their most commonly used routes through the City, and bike barriers they encounter.

N.3.4 Station 2: Destinations and Connections

Participants were asked to draw on a large map of the City their most common bike trip origins and destinations, the bike routes they most often take through the City, barriers that they encounter along these routes, and where they wish routes existed. The four teams made the following notes during the activity:

TEAM 1

Major Routes:

- Malvern/Chapman throughout City
- Harbor Boulevard

- Brea Boulevard
- Bastanchury Rd
- Rolling Hills Dr
- Dorothy Lane
- Orangethorpe Ave

Common Destinations:

- Euclid/Malvern
- Hill Crest Park
- Fullerton College
- Downtown
- CSUF
- City of Brea
- State College Blvd at the northern City boundary

Bicycle Barriers:

- Narrow car lane, no bike lane along Chapman Ave between State College and Acacia Ave.
- Uneven pavement, potholes along Harbor Boulevard, from Brea Blvd through Downtown.
- Narrow roadway along Harbor through downtown.
- Along Malvern Ave in the vicinity of Raymond Ave – parking in the way of bike lane/shoulder, fast vehicles.
- Wilshire Ave through Downtown.
- 57 Freeway.

Wish List Bikeways:

- Better routes along Harbor Blvd, throughout the City.
- Better routes along Malvern Ave and Chapman Ave.
- Bikeway along Lemon Street, north of Chapman.
- Better crossing over 57 Freeway.

TEAM 2

Major Routes:

- Harbor Blvd
- Chapman Ave
- Commonwealth Ave
- Orangethorpe Ave
- Rosecrans Ave
- Bastanchury Rd

Common Destinations:

- CSUF
- Downtown
- Transportation Center
- Fullerton College

Bicycle Barriers:

- Narrow roads and poor road condition along Harbor Blvd, from Brea Boulevard to the southern City boundary.
- Poor visibility along Malvern Ave between Euclid St and Chapman Ave.
- Obtrusive landscaping along Chapman between State College and Associated Rd.
- Difficult crossings at the 91 in the south and the 57 in the east.

Wish List Bikeways:

- Malvern from the western City boundary to Euclid St.
- Grade separated crossings over the 57

TEAM 3

Major Routes:

- Basque between Orangethorpe Ave and Valencia Dr.

- Euclid between Valencia Dr and Commonwealth Ave.
- Highland between Orangethorpe Ave and Wilshire Ave
- Wilshire Ave from Harbor Blvd to Acacia
- Orangethorpe Ave from the western City boundary to Basque
- Berkeley Ave
- Dorothy Lane

Common Destinations:

- CSUF
- Craig Regional Park
- South of Hiltscher Park
- Chapman Park
- Independence Park
- I-5/91 Interchange

Bicycle Barriers

- Malvern, vicinity of Euclid – no shoulder and fast traffic.
- Euclid between Commonwealth and Valencia – congested traffic, poor visibility.
- Intersection of Highland and Commonwealth – no traffic button.
- SOCO Walk Crossing/Train Station Bridge.
- Intersection of Raymond and Wilshire – uncontrolled intersection.
- Intersection of Acacia and Wilshire.

Wish List Bikeways:

- Connect Malvern Ave to south end of Valencia Mesa Drive.
- Connect Rolling Hills Drive to the north end of Valencia Mesa Drive.
- Through Craig Regional Park.
- Crossing of 57 at Yorba Linda and at Nutwood
- Connect to Buena Park via Malvern Ave.

TEAM 4

Major Routes:

- Harbor Boulevard
- Chapman Ave
- Commonweath Ave
- Brea Blvd
- Wilshire Blvd
- Gilbert St
- Dorothy Lane
- Acacia Ave
- State College, north of Chapman Ave
- Bastanchury Rd, east of Brea Blvd

Common Destinations:

- Adjacent cities Buena Park, La Habra, Brea & Anaheim
- Intersection of Harbor and Brea
- Valencia Mesa Drive, near Harbor Boulevard
- Fullerton College
- CSUF
- Intersection of Orangethorpe Ave and Harbor Blvd
- Civic Center Area
- Bastanchury Greenbelt Activity Park
- Intersection of Commonwealth Ave and Euclid St
- Intersection of Wilshire and Raymond
- Santa Ana River

Bicycle Barriers:

- Malvern Ave, between Basque and Euclid – no bike lane.
- Euclid St, between Orangethorpe and Valencia – poor lighting.

- Harbor Blvd, between Valencia and Orangethorpe Ave.
- Harbor Blvd, between Commonwealth and Brea Boulevard – car wrecks, traffic, congestion, speed.
- Berkeley Ave – left turn difficult along northern boundary of Fullerton College.
- Commonwealth, between Gilbert and Basque – heavy traffic.
- Along Magnolia Ave, Basque Ave and Euclid St, between Valencia Dr and Orangethorpe Ave.
- Malvern Ave, between Gilbert and Bastanchury – congestion.
- State College, between Chapman Ave and Yorba Linda Blvd.
- Yorba Linda Blvd, between State College and Placentia Ave.
- Nutwood Ave, crossing the 57.

Wish List Bikeways:

- None specified

N.3.5 Station 3: Safety and Perceptions

Participants entered into small group discussions on the topic of bicyclist safety and perceptions of bicycle riding in the City of Fullerton. Participants described why they do or do not feel safe when bicycling in the City, and were asked to share past experiences with unfavorable bicycle/motorist/pedestrian interactions in the City.

Participants discuss bicycle and pedestrian safety issues in the City in small groups.

Groups then brainstormed solutions to the safety issues they had identified, including ways in which to educate motorists, children, adult bicycle riders, and other demographics within the City on bicycle laws and safety. A poster collage showing a variety of education and awareness materials used in other cities aided in the brainstorm discussions.

Through the group discussions, the following safety issues were identified and discussed:

Bicyclists Disregarding Rules of the Road:

- Bicyclists are not stopping at stop signs or lights.
- Bicyclists disregard the rules of the road when they believe it is safe to do so.
- Bicyclists are riding at night without reflective gear or lights, aren't watching for cars, and ride the wrong way in bike lanes.
- Experienced cyclists and recreational riders have different knowledge and experience levels.
- Bicyclists are not communicating with other trail users, and using their iPods instead of staying alert on the bikeways and trails

Motorists Disregarding Rules of the Road:

- Motorists aren't stopping at signs and lights or at crosswalks.
- Road rage and aggressive motorists are endangering bicyclists.
- Motorists aren't properly sharing lanes.
- Motorists are drifting into bike lanes
- Motorists not using turn signals

Design/Facility Related Safety Problems:

- Bike lanes are giving a false sense of security.
- Debris in the lanes is a safety hazard.
- Intersection conflicts exist
- Incorrectly marked bike lanes
- Problems associated with bike lanes shared with parking lanes
- Problems associated with driveways, parking lots, and parking structures

In response to the above summarized safety concerns, the groups discussed the following potential education and safety awareness programs and improvements:

Desire for all-encompassing education program:

- Any education materials must be multi-lingual.
- Address and meet the needs of all trail users.

- Stress safety basics: the need and importance of riding on the correct side of the street, reflectors and lights, helmets, etc.
- Youth/Parents education (bike week, special events, races were all mentioned)
- Incorporate bicycle safety into all education levels at schools
- Bike safety/awareness presence at the Farmer's Market, in schools, etc
- Public awareness campaign aimed at motorists, letting them know that bicycles are vehicles and allowed on all streets

Pamphlets, Brochures & Other Outreach Materials:

- Handouts given out on the trails/sidewalks
- Pamphlets showing where it is safest to ride
- Map showing bike parking facilities
- City mailers promoting outreach and education
- Bicycle Map that is widely available at the Museum, City website, train station, bus stops, etc.
- Include information with water bills
- Include as part of Traffic School, DMV tests

Education/Awareness Signs & Banners, Etc.

- Want signage to be consistent throughout the City
- Use signage to educate about the rules of the road
- Signage should be placed on both streets and trails
- Street banners could raise awareness of bicyclists (i.e. Banners saying, "Fullerton is a Bike Town").

N.3.6. Station 4: Bikeway Design and Facilities

Participants viewed images of bikeway facilities currently used in the City of Fullerton, as well as a variety of facilities that are currently not used in the City. Participants first discussed the facilities currently used in the City, including Class I, Class II and Class III bikeways, and recreation trails. These facilities are defined in the following way:

Class I Bikeway (Bike Path): Provides a completed separated right of way for the exclusive use of bicycles and pedestrians. They have a minimum paved width of 8 feet for two-way traffic, and a minimum graded shoulder of 2 feet. Class I bikeways should not be shared with equestrians.

Class II Bikeway (Bike Lane): Provides a striped lane for one-way bicycle travel on a street. They are a minimum width of 4 feet where parking is prohibited, and a minimum width of 12 feet where parking is allowed.

Class III Bikeway (Bike Route): Provides for shared use with pedestrian (when not within a street) or motor vehicle traffic (when within a street), and is not delineated with a bike lane stripe. While bikes are allowed on all streets, whether or not a designated bike route, bike routes identify bike-friendly environments where lanes are wide, auto speeds are slow, and where maintenance occurs often.

Recreational Trail (Multipurpose Trail): Used by hikers, equestrians, bicyclists, and other users. Usually do not meet standards for Class I bikeways because they are either not paved, or not used primarily by bicyclists. They are not designed for high-speed bicycle travel.

Participants then discussed a variety of facility types that are not currently used in the City (such as bicycle roundabouts, bicycle boulevards, 'Share the Road' signage and pavement stencils, etc.). Participants were reminded that not all designs and facilities discussed in the groups and shown on the collage boards provided to aid in conversation may be feasible when factors such as cost, engineering feasibility, and safety concerns were considered later in the Bicycle Element process.

A Station Facilitator records on a map of the City where participants want to see specific improvements.

A collage showing a variety of facilities and designs assisted small group discussions on what would be appropriate for use in Fullerton.

Participants held small group discussions about which facilities might be appropriate for Fullerton's bicycle network and why. Participants debated the merits of a variety of design solutions to common bicycle issues and safety concerns. Participants used maps of the City to identify where they thought certain designs would work well.

Some of the more popular ideas in the small group discussions were the use of 'Sharrows' ('Share the Road' pavement markings) in various locations, addition of bicycle signals at intersections, and the provision of more bike parking - specifically downtown, at the transportation center, and at City education facilities. In summary, participants made the following comments in their small group discussions pertaining to facilities and design:

Class I and Class II Facilities

- More bikeways through City parks.

- Need a new Class II along Bastanchury, from Brea Blvd to Associated Rd.
- Consider coloring the Class II lanes.
- Traffic calming methods along Harbor Blvd.

Intersection Facilities

- Use Bike Box at the intersection of Chapman Ave and Harbor Blvd.
- Find a way to safely cross the 57.
- Alternate ways for bicyclists to cross train tracks.

Bike & Traffic Signals

- Signal buttons are needed at the intersections of Highland and Commonwealth, Wilshire and Raymond, and Wilshire and Acacia.
- At the intersection of Acacia and Chapman, the signals are unusable by bikers because of right-turn lane conflicts with cars.
- Sometimes the existing bike/pedestrian signals take too long.

Signage and Stencils

- "Sharrows" on every street.
- Put "Sharrows" on all roads where bike traffic is high and the roadway is narrow.
- "Sharrows" along Harbor Blvd, Chapman Ave, and Brea Blvd.

Bike Parking

- Need a Bike Station or Bike Barn at the Fullerton Transportation Center.
- More bike parking at schools, colleges, universities.
- Locked bike cages, where you can check out a key at the transportation center.
- More bike parking downtown.

Other Concerns & Ideas

- New facilities should only be added when there is a realizable need.
- Bike sharing programs should be considered.

N.3.7 Workshop Conclusion

After each team had participated in each of the four stations, attendees regrouped while Station Facilitators reported back on the ideas and findings from each group. The workshop concluded with a Question & Answer session. During this discussion, workshop participants identified issues and asked questions relevant to the Bicycle Element. Attendees asked a number of questions that will be further researched by the project consultants for incorporation into the Bicycle Element process. These questions included:

At the Workshop's conclusion, Station Facilitators reported back a summary of findings from each station.

- Is it possible to conduct a level of service (LOS) study for cyclists as part of the General Plan? Would this be a useful tool?
- What is the starting point/model for the Bicycle Element, this being the first such Element undertaken by the City of Fullerton?
- What funding sources and opportunities will the Bicycle Element enable the City to apply for?
- Will the needs of people using their bikes to run errands/go shopping be considered?
- How will facilities be designed? During the design phase, will past mistakes be considered?
- How will the General Plan be implemented?
- Can volunteers and local groups be used to get the word out on bike safety and education?

N.4 Educational Community Bicycle Collaboration Roundtable

N.4.1 CSUF

Existing Conditions:

- Existing Class 1 facility north/south through campus
- Bike Tune-Up program
    - Give students $30 a year for carpooling/biking/walking
- Directive #16 is being implemented
    - Addresses various mobility forms
        - Skateboarding, biking on campus
    - Promotes multi-modal forms of transportation (bike to bus to train, etc)
- Students are parking off campus and biking or walking onto campus
    - Primarily along Victoria or near Acacia Park
- Signage Program in the process of being created
- Funding comes from fines collected at the university and other university generated sources
- Existing Campus BMP (on web; contacts- Jay Bond and Kim Apel)

Commuters:

- Primarily students
- Some employees/staff
- Commuter Needs & Priorities:
    - Safe access to campus – access via State College & Raymond
    - Improved facilities along Nutwood & Commonwealth
    - Adequate and secure parking areas, area to shower/change after riding

Future:

- Need for safe crossing of 57 for students (@ Madison)
- Improved facilities and increased facilities onto campus
- Improved connections with on- off- campus commuters, heightened ridership, safety, etc.
- Eliminate/reduce the "build first" standard practice (specifically related to accommodating parking first).
- Create programs or coordinate on methods to change the way we think about accommodating transportation methods

N.4.2 Fullerton Union HS District

Existing Conditions:

- Facilities - On campus bike racks
    - safe location near administrative building
    - Current facilities are sufficient at this time
- Minimal theft/vandalism of bikes on campus
- Fullerton HS –school busing has been reduced – no short term impacts
- Fullerton HS - Safety a big concern – busy arterials
- Troy HS – good routes to school
- High pedestrian traffic along Pomona deters riders and parents from allowing children to ride
- No existing safety or education programs
- Fullerton HS - Bike Rodeo (didn't happen last year but potentially restart up nest year)
- No existing routes on campus or pursuit of funding for improved routes onto campus

Commuters:

- Fullerton HS - About 50 out of 2000 students ride bikes
- About same number of bikers for Sunny Hills
- Few employees ride
- Stigma with driving in HS difficult to overcome
- Fullerton HS – near Downtown so many students walk
- Sunny Hills – Parents drive students
    - Education to break from the habit/routine of dropping students off
    - Change culture
- Commuter Needs & Priorities:
    - Safe access via Hornet & Berkeley

Future:

- Need to provide safe routes along main roads
- Break driving habit
- Change culture – start early – one class at a time

N.4.3 Fullerton College

Existing Conditions:

- Bike Program – Park of AQMD carpool program
    - Monetary incentive for biking
        - Employees
- New parking structure recently built

- Students get dropped off by parents
- Buses drop-off/pick-up on all corners
- *Increase in biking this year
- Facilities - 12-15 existing bike racks (2 new facilities this year)
    - Bike parking deficiency
- No specific funding source for biking facilities/programs

Commuters:

- Users have multiple destinations which increases barriers to bike
- Community College – younger population – parents drop off
    - Break driving culture

Future:

- Potentially additional bike racks

N.4.4 Other Discussions & Findings

Future:

- Networking between educational institutions and groups
    - address common concerns and work towards collaborative solutions

Challenges

- Changing the driving culture
- Educating parents and students
- Removing barriers to create safe routes – traffic and congestion – on-street parking
- Reducing parking options
- Accommodating the multi-destination commuter
- Balancing available funding to provide enticing incentives for making the choice to bike
- Issue with skateboarding on campuses
- Riding on Lemon Street
- Malvern and Gilbert conflict area
- Bridging the gap between residents and commuting opportunities
- Limited signing (for educational, and directional purposes)

Opportunities

- Taking advantage of street improvements to add bicycle facility at that time
- Provide venue that allows individuals to give testimonials of biking and health etc.
- Bike helmet distribution for free
- Marketing Campaign – make connection between health and biking
- Coordinating with local bike shops – subsidize bike purchases
- Making connection – advocating – connection between biking and health benefits
- Increased bike awareness – activities – events – advocate – education (parents & students)
    - Rodeos
    - Encouraging individuals to clean up old bikes in garage and use them
    - Bike fair
    - School readership competitions
- Take advantage of Safe Routes to Schools funding
- Increased incentives for biking
- Create a signage program that educates individuals and allows them to safely navigate through community.
- Strengthen the "car light" goal of reducing auto traffic through increased bike commuting city-wide
- Create safe and comprehensive connections

Other

- Sidewalks are legal to ride on in Fullerton

N.5 2011 Bicycle Master Plan Survey

N.5.1 Survey Instrument

Why do you bicycle? (Check all that apply)

- ☐ For the enjoyment.
- ☐ For the exercise.
- ☐ For transportation to/from my job or school.
- ☐ To get to/from transit.
- ☐ For personal errands.
- ☐ For the environment.
- ☐ To save money.
- ☐ Other (please specify):

What affects your decision to not use a bicycle for a trip? (Check all that apply)

- ☐ Lack physical ability or bike-riding skills.
- ☐ Lack of enough striped bike lanes.
- ☐ Poor road conditions.
- ☐ Fear of traffic and road safety.
- ☐ My job or school is too far away.
- ☐ Negative behaviors from drivers.
- ☐ Lack of secure bike parking.
- ☐ Seems like more of a hassle than driving .
- ☐ Fear of personal safety.
- ☐ Other (please specify):

What would cause you to ride a bicycle more often? (Check all that apply)

- ☐ More striped bike lanes (on road, separate from traffic).
- ☐ More shared lane markings (one road, with traffic).
- ☐ More bicycle boulevards (low speed street optimized for bicycle traffic).
- ☐ More separated bike paths (off road, paved).
- ☐ More secure bike parking.
- ☐ Environment where drivers share the road with bicyclists.
- ☐ Environment where bicyclists ride predictably and follow the rules of the road.
- ☐ Increased traffic enforcement for drivers and bicyclists who break the law.
- ☐ Access to bike safety and training classes
- ☐ Other (please specify):.

What improvements can be made to make Fullerton a more bicycle-friendly city? (General or specific comments)	
Tell us about yourself: ❑ I don't use a bicycle but would like to ❑ Beginner (ride on non-busy streets or dedicated bike paths or lanes, mostly for pleasure or errands) ❑ Intermediate (bike on most streets for pleasure, errands or work, but avoid some traffic or difficult conditions) ❑ Advanced (bike on any street at any time for pleasure, errands or work) ❑ Expert (avid cyclist and comfortable navigating all conditions)	❑ Female ❑ Male Predominantly ride: ❑ Road ❑ Mountain
To stay involved in the conversation on bicycling in Fullerton: Name:	
Email:	

N.5.2 Survey Results

Why do you bicycle? (Check all that apply)	
For the enjoyment.	76
For the exercise.	75
For transportation to/from my job or school.	46
To get to/from transit.	13
For personal errands.	36
For the environment.	42
To save money.	35
Other (please specify):	• to feel part of community • power wheel chair
What affects your decision to not use a bicycle for a trip? (Check all that apply)	

Lack physical ability or bike-riding skills.	6
Lack of enough striped bike lanes.	34
Poor road conditions.	34
Fear of traffic and road safety.	41
My job or school is too far away.	11
Negative behaviors from drivers.	37
Lack of secure bike parking.	26
Seems like more of a hassle than driving .	5
Fear of personal safety.	25
Other (please specify):	• consider self same as auto • weather • transport large items • no bike lock & no bike parking at destination • weather • friend hit by bus in crosswalk • not visible at night • cargo • to far to some places • cargo. Time. Unsafe bus drivers.
What would cause you to ride a bicycle more often? (Check all that apply)	
More striped bike lanes (on road, separate from traffic).	70
More shared lane markings (one road, with traffic).	42
More bicycle boulevards (low speed street optimized for bicycle traffic).	44
More separated bike paths (off road, paved).	51
More secure bike parking.	31
Environment where drivers share the road with bicyclists.	47
Environment where bicyclists ride predictably and follow the rules of the road.	29
Increased traffic enforcement for drivers and bicyclists who break the law.	28

Access to bike safety and training classes	14
Other (please specify):.	• more signs • better road maintenance • bridge over 57 on Madison • car driver training - watch for bikes • environment where drivers ride predictably and follow the rules of the road.
What improvements can be made to make Fullerton a more bicycle-friendly city? (General or specific comments)	
	• more bike parking. Safer roads around schools K-12. • repave roads • left turn should be triggered by bikes • repave roads • continuous routes • connectivity w/surrounding cites • repave roads • safer for children • Orangethorpe pavement • more ramps • bike car awareness classes • Amerige Heights parking lot more accessible • fix rough roads and pot holes • racks near downtown shops & security to watch for thieves • repaint bike lanes with reflective paint • Driver awareness. Better road conditions. • Bike lanes on State College • Bike lane on Chapman • Road/Path maintenance • Bike Blvd Wilshire • Bike lane on major streets. • Easier crossing RR • Public statement of bike friendly community • Community awareness. Saturday rides. • Countdown to yellow. Signals triggered by bike. Right hand turn pockets that designate bikes to left. • Fix pot holes on sidewalks where there are no bike lanes • Safer roads. Signs for drivers to be aware of cyclists. • More dedicated lanes

	• Bike info available. • Paths along RR tracks. • Complete bike lane on Bastanchury • More Mtn bike trails • More bike lanes and trails. • Inform public of laws regarding bicycles. • Wider rightmost lanes. • Bike lanes on major north/south and east/west streets. Connect trails. • training. Info on where to ride. • Completed Orangethorpe connections • Harbor improvements should consider bikes. Bike lane vs. planted median. Maintain abandoned bikeway on Malvern. • Downtown Fullerton race. • Buena Park City Council involvement
Tell us about yourself:	
I don't use a bicycle but would like to	3
Beginner (ride on non-busy streets or dedicated bike paths or lanes, mostly for pleasure or errands)	6
Intermediate (bike on most streets for pleasure, errands or work, but avoid some traffic or difficult conditions)	26
Advanced (bike on any street at any time for pleasure, errands or work)	33
Expert (avid cyclist and comfortable navigating all conditions)	20
Male/Female	
Male	72
Female	18
Declined to Answer	1
Predominately Ride:	
Only Road	62
Only Mountain	11
Both	15

Appendix B
Existing Conditions Inventory

B.1 Introduction

Ryan Snyder Associates and RBF Consulting conducted an inventory of existing conditions to determine the location, type, and condition of the City's bicycle network. The inventory process also provided an opportunity to verify and explore a variety of issues, facilities, conditions, and situations identified during the community outreach process (Appendix A).

An initial inventory was conducted by a field survey team on bicycles and on foot between June and September of 2007. The field survey team used handheld Global Positioning System (GPS) units with up to one-meter accuracy to document the location of bikeways. The GPS devices also allowed the field survey team to document specific conditions observed for each segment, including pavement condition, presence and type of signage, presence of street parking, connectivity, gaps, and barriers in the network (including narrow roadway widths, debris, obstructing landscape conditions, etc.). Digital cameras linked to the GPS units were used to photograph each segment and document important elements along the bikeways.

Subsequent fieldwork was conducted in July through October of 2009 to verify information from the initial field survey, and to collect more detailed documentation of the bikeway network. This involved more extensive riding on the bikeway network, curb-to-curb measurements to determine right-of-way width, additional photographs, and notation of bike lanes, bike lane width, signage and other details. In total, data and observations were recorded for more than 225 roadway segments, and covered almost 90 miles of streets within the City. A detailed record of the bikeways facilities was generated through this process, and information was compiled into a database, mapped, and analyzed using a Geographic Information System (GIS).

B.2 Existing Off-Street Bikeways (Class I) and Multi-Purpose Paths

Fullerton's existing off-street bikeways are generally short segments, around a mile or less in length. The Class I bike paths are distinct from one another, with some in the north-east part of the City and others in the west part of the city. The City also has a number of multi-purpose paths, which can accommodate bicyclists, but they do not meet the recommended design standards provided by Caltrans. Per California Department of Transportation (Caltrans) standards, Class I bikeways are built to a minimum standard 8-foot paved width with an additional 2-foot clear space on each side. The total preferred width is 12 feet of pavement. At best, the multipurpose paths in Fullerton have a 9-foot right-of-way.

Table B-1 below shows detailed information on existing off-road bikeways (Class I) and paved multi-purpose paths.

Table B-1: Existing Conditions: Off-Street Bikeways (Class I)/Multi-Purpose Paths

Name	From	To	Facility Type	Length (miles)
Brea Creek/Malvern Ave.	Bastanchury Rd	Gilbert St	• Paved multi-purpose path exists along north side	0.55
Craig Regional Park loop path	Rolling Hills Dr. east to Associated Rd.	Along Associated Rd. to south end of the Fullerton Dam	• Class 1 and paved multi-purpose paths	1.58
Fullerton Creek bike path	Melody Ln	State College Blvd	• Paved multi-purpose bike path • Bridge connecting bike path to Old River Rd	0.60
North-south paths through CSU Fullerton	Nutwood Ave	Yorba Linda Blvd	• County-wide path through campus; additional campus paths throughout; dismount zones are located in the center of campus	0.91
East-west paths through CSU Fullerton	Dorothy Ln / State College Blvd	Gymnasium Campus Dr	• Campus bike paths; campus center is restricted to bicycles	0.43
Bastanchury Rd	Malvern Ave	Hughes Dr	• Paved multi-purpose path exists along north side	0.25
Parks Rd	Castlewood Dr	Avenida Del Norte	• Paved multi-purpose path exists along west side	0.27
Union Pacific RR Right-of-Way Multipurpose Path	Harbor Blvd.	Highland Ave.	• Paved multi-purpose path	

B.3 Existing On-Street Bike Lanes (Class II) and Bike Routes (Class III)

Within the City of Fullerton there are approximately 20.46 miles of Class II on-street bicycle lanes, and 12.20 miles of Class III on-street bicycle routes. Together Class II on-street bike lanes and Class III bike routes make up the majority of the bikeways network in the City. Class II and Class III bikeways are located on select major, primary, and secondary arterials, branching throughout the city, and interconnecting with one another as well as the existing Class I off-street bike paths. However, the majority of the City's street system does not currently have bikeways.

Table B-2 and B-3 show existing Class II and Class III bikeways along with their beginning and ending points.

Table B-2: Existing Class II and Class III On-Street Bikeways – East-West Routes			
Street	**From**	**To**	**Facility Type**
Rolling Hills Dr.	Puente St.	Hickory Place	• 6'wide Class II bike lanes
Rolling Hills Dr.	Associated Rd.	Tri-City Park	• 6'wide Class II bike lanes • A painted hatched out buffer exists
Bastanchury Rd.	Associated Rd.	Placentia city limit	• Class II bike lanes
Rosecrans Ave.	Fire Road	Camino Centrolama	• Class II bike lanes from Fire Road to Gilbert St.; Class III bike route from Gilbert St. to Camino Centrolama
Pioneer Ave.	Gilbert St.	Parks Rd.	• 6'- wide Class II bike lanes
Valencia Mesa Dr.	Bastanchury Rd.	Youth Way	• Class III bike route
Berkeley Ave.	West Valley View Dr.	Chapman Ave.	• Class II bike lanes
Dorothy Ln.	Berkeley Ave.	State College Blvd.	• Class II bike lane on north side from Acacia Ave. to Victoria Dr. • Class II bike lanes from Victoria Dr. to State College Blvd. • Class III bike route on south side from Acacia Ave. to Victoria Dr. • Class III bike route from Berkeley Ave. to Acacia Ave.
Malvern Ave.	Gilbert St.	Basque Ave.	• Class III bike route • No facilities eastbound Gilbert to Basque
Chapman Ave./Wilshire Ave.	Basque Ave.	Acacia Ave.	• Class III bike route
Commonwealth Ave.	Acacia Ave.	Nutwood Ave.	• Class III bike route from Acacia Ave. to State College Blvd. • Class II bike lanes from State College Blvd. to Nutwood Ave. • The bike lane between State College Blvd. and Chapman Ave. is shared with parked cars

Table B-2: Existing Class II and Class III On-Street Bikeways – East-West Routes			
Street	**From**	**To**	**Facility Type**
Valencia Dr.	Buena Park city limit	Highland Ave.	• Class II bike lanes from Brookhurst Rd. to Highland Ave. • Class III bike route from Buena Park city limit to Brookhurst Ave.
Orangethorpe Ave.	Magnolia Ave.	State College Blvd.	• Class II bike lanes from State College Blvd. to Raymond Ave. • Class II bike lanes from Highland Ave. to Euclid St. • Class III bike route from Euclid St. to Basque Ave. • Class II bike lanes from Basque Ave. to Magnolia Ave.

Table B-3: Existing Class II and III On-Street Bikeways – North-South Routes			
Street	**From**	**To**	**Facility Type**
Sunny Ridge Dr.	Rosecrans Ave.	Malvern Ave.	• Class II bike lanes
Gilbert St.	La Habra city limit	Orangethorpe Blvd.	• 8'-wide Class II bike lanes from La Habra city limit to Castlewood Dr. • Narrow Class II bike lanes from Pioneer Ave. to Malvern Ave. • Class III bike route from Valencia Dr. to Orangethorpe Ave. – needs more signs
Parks Rd./Castlewood Dr.	Gilbert St.	Bastanchury Rd.	• Class II bike lanes • Multi-purpose trail on west side north of Avenida del Norte
Brookhurst Rd.	Orangethorpe Ave.	Valencia Dr.	• Class III bike route
Richman Ave.	Valencia Dr.	CA-91	• Class III bike route

Table B-3: Existing Class II and III On-Street Bikeways – North-South Routes			
Street	**From**	**To**	**Facility Type**
Highland Ave.	Chapman Ave.	Orangethorpe Ave.	• Class II bike lanes from Wilshire Ave. to Valencia Dr. • Class II bike lane from Hill Ave. to Valencia Dr. on southbound side only • Class II bike lane from Orangethorpe Ave. to Hill Ave. on northbound side only
Harbor Blvd.	La Habra city limit	Brea Blvd.	• Class II bike lanes from La Habra city limit to Bastanchury Rd. • Class II bike lanes from Valencia Mesa Dr. to Valley View Dr. • Class II bike lane on southbound side only from Valley View Dr. to Brea Blvd.
Brea Blvd.	Brea city limit	Harbor Blvd.	• Class III bike route from Brea city limit to Rolling Hills Dr. • Class II bike lanes from Rolling Hills Dr. to just north of Panorama Rd. • Class III bike route from just north of Panorama Rd. to Harbor Blvd.
Melody Ln./Acacia Ave.	Fullerton Creek	Anaheim city limit	• Class III bike route from Fullerton Creek on Melody Ln. and on Acacia Ave. from Melody Ln. to Chapman Ave. • Class II bike lanes from Chapman Ave. to Anaheim city limit
Associated Rd.	Brea city limit	Yorba Linda Blvd.	• Class II bike lanes

B.4 Existing Network Gaps, Barriers and Inconsistent Signage

B.4.1 Existing Network Gaps

Table B-4: Gaps – East-West Routes	
Segment	**Description**
Rolling Hills Drive	Currently no bikeway connects Rolling Hills Drive west of State College Boulevard to Rolling Hills Drive east of Associated Road.
Rosecrans Avenue	From the western City boundary to Gilbert Street, bikeways are present but incomplete, and from Parks Road to Euclid Street bikeways are not present.
Bastanchury Road	From Malvern Avenue to Harbor Boulevard bikeways are not present, and from Harbor Boulevard to Associated Road, bikeways are incomplete or not present.
Malvern Avenue	From the western City boundary to Woods Avenue eastbound bikeways are incomplete and westbound bikeways are not present.
Wilshire Boulevard	Wilshire Boulevard provides an alternative route to the East; however, bikeways are incomplete or not present along Wilshire Boulevard.
Valencia Drive	Bikeways from the western boundary to Highland Avenue are present, but inconsistent (switching frequently between Class II to Class III bikeways) and are impacted by parked cars in areas. To the east of Highland Avenue, bikeways are not present, and the railway right-of-way prevents connections to the east.
Orangethorpe Avenue	Bikeways are present along most of Orangethorpe Avenue from the western to the eastern City boundaries, with gaps present between Brookhurst Road and Euclid Street, Highland Avenue and Raymond Avenue.

Table B-5: Gaps – North-South Routes	
Segment	**Description**
Gilbert Street	From Malvern Avenue to the southern City boundary, bikeways are either incomplete or nonexistent, and from the northern City boundary to Pioneer Avenue bikeways are nonexistent.
Euclid Street	From the northern to the southern City boundaries, this major arterial currently has no bikeways.
Harbor Boulevard	Existing bicycle lanes from the northern City boundary to Valencia Mesa are incomplete, and bicycle lanes from Brea Boulevard to the southern City boundary are not present.
State College Boulevard	From the northern to the southern City boundaries, this major arterial currently has no bikeways.

B.4.2 Existing Network Barriers

Table B-6: Barriers	
Barrier	**Description/Location**
High-Traffic Intersections	Chapman/Acacia, Wilshire/Acacia, Raymond/Wilshire, Chapman/Harbor, and roadways crossing the 57-Freeway.
Roughly paved shoulders	Occurs where gravel and debris accumulate, especially along Harbor Boulevard from Brea Boulevard through downtown.
Conflicts with vehicles	Conflicts occur at access points to driveways, parking lots and parking structures, and where there is on-street parking.
Low Visibility	Including along Malvern Avenue between Euclid Street and Chapman Avenue.
Heavy Vehicular Congestion	Including along Malvern Avenue, Harbor Boulevard, Euclid Street, and along Commonwealth Avenue between Gilbert Street and Basque Avenue.
Obtrusive Landscaping	Including along Chapman Avenue, between State College Boulevard and Acacia Avenue.

B.4.3 Inconsistent Signage

Table B-7: Bikeway Signage Inconsistency	
Street Name	**Location of Inconsistency**
Rolling Hills Drive	Between Puente Street and Tri City Park
Rosecrans Avenue	Between Ralf B. Clark Regional Park and Parks Road
N. Berkeley Avenue	Along Harmony Lane to State College Boulevard
W. Valencia Drive	Between Edwards Avenue to S. Highland Avenue
W. Orangethorpe Avenue	Continue off and on to E. Orangethorpe Avenue
Bastanchury Road	Between Malvern Avenue and Harbor Boulevard

B.5 Crash Analysis

The following table compares bicycle-involved crashes in Fullerton with the statewide average.

Table B-7: Crash Analysis

Number of Bicycle Involved Crashes 2005 (SWITRS 2005)		Number of Bicycle Involved Crashes 2006 (SWITRS 2006)		Number of Bicycle Involved Crashes 2007 (SWITRS 2007)		Total # of Bicycle Crashes for 3 Years	Average # of Bicycle Crashes per Year	2006-2008 Population (American Fact Finder)	Crashes per 1000 people/yr.	Index (relative to state avg. of 0.29/1000)
Fatality	**Injury**	**Fatality**	**Injury**	**Fatality**	**Injury**					
1	53	0	48	0	53	155	52	133,484	0.44	1.53

No discernible trend stands out from the California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) data. The crash index shows that Fullerton has 53 percent more bicycle-involved crashes per resident than the statewide average. This is proportionate to the higher percentage of residents commuting by bicycle in Fullerton (1.2 percent) compared to the percent of residents commuting by bicycle statewide (0.8 percent). The City has experienced roughly the same number of bicycle-involved crashes every year.

Appendix C
Improvement Options

Ryan Snyder Associates (RSA) compiled a list of recommended improvements to the bicycle network based in part on the needs and concerns identified by the Fullerton bicycling public through the community outreach program (Appendix A) and the existing conditions inventory (Appendix B).

C.1 Potential Network Improvements

Table C-1: Network Recommendations - East-West Streets

General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.

Street	From	To	Recommendations
Hermosa Dr.	Lakeview Dr.	Puente St.	• Add Class III signed route
Rolling Hills Dr.	Associated Rd.	Tri-City Park	• Move bike lane on eastbound side between Associated Rd. and Tri-City Park to the curb side of the painted hatched out buffer
Bastanchury Rd.	Malvern Ave.	Placentia city limit	• Add bike lanes from Malvern Ave. to Euclid St. • Add Class III bike route from Euclid St. to State College Blvd.; restripe this segment to widen the curb lane • Add 7' bike lanes from State College Blvd. to Associated Rd. and add painted hatched out buffer • Widen existing bike lanes from Associated Rd. to Placentia city limit and add painted hatched out buffer
Rosecrans Ave.	La Mirada city limit	Euclid St.	• Extend bike lanes (7') to La Mirada city limit • Add buffer to bike lanes between Gilbert St. and La Mirada city limit • Add wide bike lanes between Gilbert St. and Euclid St.

Table C-1: Network Recommendations - East-West Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Pioneer Ave.	Sunny Ridge Dr.	Gilbert St.	• Add Class III bike route
Valencia Mesa Dr.	Bastanchury Rd.	Youth Way	• Add sharrows and wayfinding signs to existing Class III bike route
West Valley View Dr.	Euclid St.	Harbor Blvd.	• Add Class III bike route
Warburton Way	Benchley St.	Bastanchury Rd.	• Add Class III bike route
Nichols St. /Benchley St.	Hughes Dr. to Warburton Way on Nichols St.	Warburton Way to Pioneer Ave. on Benchley St.	• Add Class III bike route
Hughes Dr.	Gilbert St.	Bastanchury Rd.	• Reduce 4 lanes to 2 lanes on east end • Add Class II bike lanes from Bastanchury Rd. to Nichols St. • Add Class III bike route from Nichols St. to Gilbert St.
Berkeley Ave.	West Valley View Dr.	Commonwealth Ave.	• Widen bike lanes • Add Class III bike route from Chapman Ave. to Commonwealth Ave.
Dorothy Ln.	Berkeley Ave.	State College Blvd.	• Add sharrows and wayfinding signs to existing Class III bike route • Widen bike lane between Acacia Ave. and Victoria Dr.
Madison Ave.	Cal State Fullerton campus	Placentia city limit	• Add 6'-wide Class II bike lanes from Placentia city limit to Placentia Ave. • Add Class III bike route from Placentia Ave. to west end near CA-57 • Add bicycle/pedestrian bridge over CA-57 • Add paved multipurpose path in Cal State Fullerton parking lot from CA-57 bridge to East Campus Drive at Gymnasium Campus Drive

Table C-1: Network Recommendations - East-West Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Nutwood Ave.	Victoria Dr.	Placentia Ave.	• Add Class III bike route from Victoria Dr. to State College Blvd. • Reduce from 6 through lanes to 4 through lanes and add wide Class II bike lanes from State College Blvd. to Placentia Ave.
Woods Ave. /Malvern Ave./Malden Ave./Union Ave.	Wilshire Ave.	Pomona Ave.	• Add Class III bike route on Woods Ave./ Malvern Ave./Malden Ave./Union Ave. • Add Class III bike route on alley west of Harbor Blvd. to connect to Berkeley Ave.
Artesia Blvd.	Buena Park city limit	Gilbert St.	• Add 7'-wide bike lanes
Chapman Ave./Wilshire Ave./Lillie Ave.	Union Pacific RR right-of-way	Commonwealth Ave.	• Add a link under RR tunnel to connect with future bike path • Add bike boulevard treatment along Chapman Ave./Woods Ave./Wilshire Ave. to Lillie Ave. and to Commonwealth Ave. • Turn front-in angled parking along Wilshire Ave. in downtown to reverse-in angled parking • Further study will need to be done to determine where to place traffic calming devices, impact on adjacent streets, etc.
Commonwealth Ave.	Buena Park city limit	Nutwood Ave.	• Reduce from 4 through lanes to 2 through lanes and add wide Class II bike lanes as part of a broader street vitalization project that includes wider sidewalks, etc. with study of appropriate locations • If the road diet is done, add painted hatched out buffer from State College Blvd. to Nutwood Ave. • Add left-turn bicycle lane pocket northbound at Nutwood Ave. to turn into Cal State Fullerton campus

Table C-1: Network Recommendations - East-West Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Valencia Dr.	Buena Park city limit	Highland Ave.	• Widen existing bike lanes and add painted hatched out buffer from Brookhurst Rd. to Highland Ave. • Reduce from 4 through lanes to 2 through lanes and add wide Class II bike lanes with painted hatched out buffer
Walnut Ave.	Richman Ave.	Lemon St.	• Widen Class II bike lanes from Richman Ave. to Highland Ave. • Add sharrows and wayfinding signs to existing Class III bike route from Highland Ave. to Lemon St.
Olive Ave. /Pine St./Cherry Ave./Southgate Ave./Basque Ave./Hill Ave./Roosevelt Ave./Knepp Ave./Malden Ave./Southgate Ave.	Magnolia Ave.	Harbor Blvd.	• Add bike boulevard treatment following the route along Olive Ave. /Pine St./Cherry Ave./Southgate Ave./Basque Ave./Hill Ave./Roosevelt Ave./Knepp Ave./Malden Ave./Southgate Ave. • Add traffic signal to cross Brookhurst Rd. for bicycles only – motor vehicles to turn right or left • Further study will need to be done to determine where to place traffic calming devices, impact on adjacent streets, etc.
Orangethorpe Ave.	Buena Park city limit	State College Blvd.	• Add Class II bike lanes from Lemon St. to Harbor Blvd. • Add painted hatched out buffered Class II bike lanes from Harbor Blvd. to Highland Ave. • Add painted hatched out buffer to existing bike lanes from Highland Ave. to Euclid St. • Add painted hatched out buffered Class II bike lanes from Euclid St. to Basque Ave. • Add painted hatched out buffer to existing bike lanes from Basque Ave. to Magnolia Ave. • Add Class II bike lanes from Magnolia Ave. to Buena Park city limit

Table C-1: Network Recommendations - East-West Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Roberta Ave./Basque Ave./Baker Ave.	Gilbert St.	Highland Ave.	• Add bike boulevard • Further study will need to be done to determine where to place traffic calming devices, impact on adjacent streets, etc.

Table C-2:Network Recommendations – North-South Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Magnolia Ave.	Commonwealth Ave.	I-5	• Add Class II bike lanes
Sunny Ridge Dr.	Rosecrans Ave.	Malvern Ave.	• Remove on-street parking • Class II bike lanes the whole way
Gilbert St.	La Habra city limit	CA-91	• Add painted hatched out buffer to existing Class II bike lanes from La Habra city limit to Castlewood Dr. • Eliminate a few parking spaces on the east side just north of Via Linda • Add Class II bike lanes from Castlewood Dr. to Pioneer Ave. • Add Class II bike lanes from Malvern Ave. to Commonwealth Ave. • Add Class III bike route from Commonwealth Ave. to CA-91 • Add bike route signs, sharrows and wayfinding signs to existing Class III bike route
Parks Rd./Castlewood Dr.	Gilbert St.	Bastanchury Rd.	• Widen existing Class II bike lanes to 6' • Add Class II bike lane at the intersection of Rosecrans Ave. between the right-turn lane and the through lane on the northbound side

Table C-2:Network Recommendations – North-South Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Brookhurst Rd.	Commonwealth Ave.	CA-91	• Add Class II bike lanes the whole length
Basque Ave.	Chapman Ave.	Orangethorpe Ave.	• Add Class III bike route from Chapman Ave. to just south of Commonwealth Ave. • Add bridge over the railroad between Commonwealth Ave. and Valencia Dr. • Add Class III bike route from just north of Valencia Dr. to Baker Ave.
Euclid St.	La Habra city limit	CA-91	• Add painted hatched out buffered Class II bike lanes from La Habra city limit to Bastanchury Rd. • Add 6'-wide Class II bike lanes from Bastanchury Rd. to CA-91, except for a small stretch just south of Rodeo Rd.
Lakeview Dr.	La Habra city limit	Euclid St.	• Add Class III bike route the whole way
Laguna Rd.	Euclid St.	Valencia Mesa Dr.	• Add Class III bike route where on-street parking exists • Add Class II bike lanes where no on-street parking exists • Add wayfinding signs to direct bicyclists to the Sunnycrest Dr. bikeway
Sunnycrest Dr.	Valencia Mesa Dr.	Valley View Dr.	• Add Class III bike route the whole way • Add improved bike crossing of Valley View Dr. for cyclists turning left onto Valley View • Add wayfinding signs to direct bicyclists to the Laguna Rd. bikeway
Richman Ave.	Sunnycrest Dr. to Commonwealth Ave. and	Walnut Ave. to Houston Ave.	• Add Class III bike route from Sunnycrest Dr. to Commonwealth Ave. • Add sharrows and wayfinding signs to existing Class III route from Walnut Ave. to Houston Ave.
Highland Ave.	Valencia Dr.	Baker Ave.	• Remove two-way left-turn lanes • Add Class II bike lane on side of the street where it is now missing between Valencia Dr. and Orangethorpe Ave.

Table C-2:Network Recommendations – North-South Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
			• Widen existing bike lanes to 6' • Add Class II bike lanes from Orangethorpe Ave. to Baker Ave.
Harbor Blvd.	La Habra city limit	Brea Blvd.	• Widen Class II bike lanes and add painted hatched out buffer from La Habra city limit to Bastanchury Rd. • Narrow the median from Bastanchury Rd. to Brea Blvd. and add wide Class II bike lanes where they don't exist; widen Class II bike lanes where they exist • Add painted hatched out buffer to new bike lanes from Bastanchury Rd. to Brea Blvd.
Puente St.	Imperial Hwy. to Hermosa Dr. and	Rosarita Dr. to Bastanchury Rd.	• Add Class III bike route from Imperial Hwy. to Hermosa Dr. • Connect on-street segments with Class I bike path • Add Class III bike route from Rosarita Dr. to Bastanchury Rd.
Brea Blvd.	Brea city limit	Harbor Blvd.	• Add 6' Class II bike lanes Brea city limit to Rolling Hills Dr. • Remove 1 travel lane just north of Harbor Blvd. • Add painted hatched out buffered Class II bike lanes from just north of Panorama Rd. to Brea Blvd. • Add painted hatched out buffer to existing bike lanes between Rolling Hills Dr. and just north of Panorama Rd.
Pomona Ave.	Union Ave.	Santa Fe Ave.	• Add Class III bike route • Turn front-in angled parking along Pomona Ave. in downtown to reverse-in angled parking
Lemon St.	Brea Blvd.	Anaheim city limit	• Add Class III bike route from Brea Blvd. to Chapman Ave. • Add Class II bike lanes from Chapman Ave. to Orangethorpe Ave.

Table C-2:Network Recommendations – North-South Streets			
General Recommendation: Class II lanes are recommended where initial study indicates sufficient street width. Where this is later found not to be the case, a Class III route is recommended.			
Street	**From**	**To**	**Recommendations**
Longview Dr.	Brea Blvd.	Dorothy Ln.	• Add Class III bike route from Brea Blvd. to Dorothy Ln.
Raymond Ave.	Dorothy Ln.	Anaheim city limit	• Add Class III bike route from Dorothy Ln. to Chapman Ave. • Reduce from 4 travel lanes to 2 travel lanes from Chapman Ave. to Commonwealth Ave. • Add Class II bike lanes from Chapman Ave. to Anaheim city limit
Acacia Ave.	Chapman Ave.	Anaheim city limit	• Widen existing Class II bike lanes to 7′
Riverside Dr.	Dorothy Ln.	Raymond Ave.	• Add Class III bike route
Victoria Dr./Hart Pl.	Old River Rd.	Wilshire Ave.	• Add Class III bike route on Victoria Dr. from Old River Rd. to Hart Pl. • Add Class III bike route on Hart Pl. from Victoria Dr. to Chapman Ave. • Add bicycle/pedestrian-only signal to cross Chapman Ave. at Hart Pl. • Create paved connection from Chapman Ave. to cul-de-sac at the north end of Hart Pl. just south of Chapman Ave. • Add Class III bike route on Hart Pl. from Chapman Ave. to Wilshire Ave.
State College Blvd.	Brea city limit	Orangethorpe Ave.	• Add buffered Class II bike lanes from Brea city limit to Rolling Hills Dr. • Reduce from 6 through travel lanes to 4 travel lanes from Rolling Hills Dr. to Chapman Ave. • Add buffered Class II bike lanes from Rolling Hills Dr. to Orangethorpe Ave.
Associated Rd.	Brea city limit	Yorba Linda Blvd.	• Widen existing Class II bike lanes
Placentia Ave.	Brea city limit to Placentia city limit and	Placentia city limit to Anaheim city limit	• Remove on-street parking • Add 6′-7′-wide Class II bike lanes

Table C-3: Network Recommendations – Off-Street			
Street	**From**	**To**	**Recommendations**
Brea Creek bike path	Buena Park city limit	Basque Ave.	• Add Class I bike path on south side from Buena Park city limit to just west of Bridgeport Dr. • Add bridge to cross over to north side just west of Bridgeport Dr. • Add Class I bike path from just west of Bridgeport Dr. to just east of Basque Ave. • Add bridge to cross over to south side just west of Basque Ave. – connect to alley • Will require coordination with County of Orange
Union Pacific RR Right-of-Way bike path	La Habra city limit	Pomona Ave.	• Add Class I bike path • Needs study to determine feasibility, alignment, crossing details, etc. • Will require coordination with Union Pacific Railroad
Craig Regional Park connector path	Multipurpose path on west side of park	Multipurpose path on east side of park	• Add east-west multipurpose path crossing the park to create more direct connection between Rolling Hills Dr. on the west side of the park to Rolling Hills Dr. on the east side of the park • Will require coordination with County of Orange
Fullerton Creek bike path	Fullerton Dam	State College Blvd.	• Add Class I bike path that connects to existing multipurpose path at Fullerton Dam going south to Bastanchury Rd., crossing Bastanchury Rd. and following the creek to State College Blvd. • Add crossing of Bastanchury Rd. • Add crossing of State College Blvd. to connect to existing path • Condition development and redevelopment along creek between State College Blvd. and Bastanchury Rd. to dedicate right-of-way • Will require coordination with County of Orange
Fullerton Creek bike bridge	Riverside Dr.	Victoria Dr.	• Sign multipurpose path along existing paved access way between Oakdale Ave. and Ferndale Ave. from Riverside Dr. to the Fullerton Creek Sign multipurpose path along existing paved access way at the end of Harrington Dr. from Victoria Dr. to the Fullerton Creek • Add a bridge and a path over and along the

Table C-3: Network Recommendations – Off-Street			
Street	**From**	**To**	**Recommendations**
			Fullerton Creek to connect these two access ways
Puente Street connector path	Puente St. at Hermosa Dr.	Puente St. at Rosarita Dr.	• Add Class I bike path to link these two future Class III bike routes • Will require coordination with County of Orange
Valencia Mesa Dr.-Rolling Hills Dr. connector path	The end of Valencia Mesa Dr. just east of Harbor Blvd.	The end of Rolling Hills Dr. @ Beechwood Park	• Construct a multipurpose path that goes behind St. Jude's Medical Center up to Bastanchury Rd. • The path will follow the south side of Bastanchury Rd. to Fairway Isles Dr. where it will cross to the north side of Bastanchury Rd. • The path will follow the north side of Bastanchury Rd. from Fairway Isles Dr. to Loma Vista Memorial Park • The path will go along the west and north sides of Loma Vista Memorial Park to Beechwood Park where it will connect to the end of Rolling Hills Dr.

C.2 Potential Signage Improvements

Based on current field conditions and needs identified by bicycle network users, the following bikeways signage improvements are recommended for implementation:

- Improvements and consistency between existing signage
- Filling in gaps where signage is inadequate
- Adoption of a distinctive directional and network signage design, directing bikeway users to destinations and access points.
- Mileage signage and/or pavement markers along major bikeways.
- Signage which supplements bicycle parking and other amenities
- Consistency with college and university campus signage efforts

C.3 Rest Amenities

Rest amenities should be proved along new off-street bikeways. Amenities may include, but are not limited to benches, drinking fountains, picnic tables, and trash receptacles. All rest amenities shall be designed to meet current ADA requirements.

C.4 Lighting

Lighting should be provided along all paved bike paths to a standard that lights up the path as well as cyclists.

C.5 Education and Promotion

Education programs to teach bicycle safety to children, adults, and other groups that encounter bicyclists are recommended as an important component of a successful bicycle network. Additionally, promotional information about the bicycle network, including maps and events, is recommended to build ridership for commuters and recreational riders of all ages and abilities.

This page is intentionally blank.

Appendix D

Priority Recommendations & Expenditure Estimates

Building on the potential improvement options identified in Appendix C, Ryan Snyder Associates and RBF Consulting compiled a preliminary prioritization schedule and cost estimates for completion of these improvements.

Table D-1: Cost Estimates for Proposed Improvements- Short Term

Street or Path	Recommendations	Component	Cost per Mile	Cost per Item (sign, etc.)	Miles/ Units	Cost
Bastanchury Rd.	Add bike lanes from Malvern Ave. to Euclid St.	striping bike lanes only	$10,560		1.25	$13,200
		signage		$250	8	$2,000
	Add Class III bike route from Euclid St. to State College Blvd.; restripe this segment to widen the curb lane	restriping entire roadway	$26,400		3.17	$83,688
		signage		$250	18	$4,500
	7' bike lanes east of State College Blvd. and add painted hatched out buffer	striping bike lanes only	$10,560		0.48	$5,069
		signage		$250	18	$4,500
Berkeley Ave.	Widen bike lanes	striping bike lanes only	$10,560		1.24	$13,094
	Add Class III bike route from Chapman Ave. to Commonwealth Ave.	signage		$250	4	$1,000
Dorothy Ln.	Add sharrows and wayfinding signs to existing Class III bike route	sharrows		$50	8	$400
		signage		$250	8	$2,000
	Widen bike lane between Acacia Ave. and Victoria Dr.	striping bike lanes only	$10,560		0.16	$1,690

Table D-1: Cost Estimates for Proposed Improvements- Short Term

Street or Path	Recommendations	Component	Cost per Mile	Cost per Item (sign, etc.)	Miles/ Units	Cost
Nutwood Ave.	Add Class III bike route from Victoria Dr. to State College Blvd.	signage		$250	2	$500
	Reduce from 6 through lanes to 4 through lanes and add wide Class II bike lanes from State College Blvd. to Placentia Ave.	restriping entire roadway	$26,400		0.68	$17,952
		signage		$250	16	$4,000
Commonwealth Ave.	Reduce from 4 through lanes to 2 through lanes and add wide Class II bike lanes as part of a broader street vitalization project that includes wider sidewalks, etc. with study of appropriate locations	restriping entire roadway	$26,400		5.5	$145,200
		signage		$250	26	$6,500
	If the road diet is done,add painted hatched out buffer from State College Blvd. to Nutwood Ave.	painted buffer	$7,920		0.73	$5,782
	Add left-turn bicycle lane pocket northbound at Nutwood Ave. to turn into Cal State Fullerton campus	restriping entire roadway	$26,400		0.05	$1,320
Walnut Ave.	Widen Class II bike lanes from Richman Ave. to Highland Ave.	striping bike lanes only	$10,560		0.25	$2,640
	Add sharrows and wayfinding signs to existing Class III bike route from Highland Ave. to Lemon St.	sharrows		$50	4	$200
		signage		$250	4	$1,000
Euclid St.	Add painted hatched out buffered Class II bike lanes from La Habra city limit to Bastanchury Rd.	striping bike lanes only	$10,560		1.64	$17,318
		signage		$250	14	$3,500
	Add 6'-wide Class II bike lanes from Bastanchury	striping bike lanes only	$10,560		0.19	$2,006

Table D-1: Cost Estimates for Proposed Improvements- Short Term

Street or Path	Recommendations	Component	Cost per Mile	Cost per Item (sign, etc.)	Miles/ Units	Cost
	Rd. to CA-91, except for a small stretch just south of Rodeo Rd.	signage		$250	21	$5,250
Highland Ave.	Remove two-way left-turn lanes	restriping entire roadway (all segments below)	$26,400		0.63	$16,632
	Add Class II bike lane on side of the street where it is now missing between Valencia Dr. and Orangethorpe Ave.	signage		$250	2	$500
	Widen existing bike lanes to 6'	included above				
	Add Class II bike lanes from Orangethorpe Ave. to Baker Ave.	signage		$250	2	$500
Harbor Blvd.	Widen Class II bike lanes and add painted hatched out buffer from La Habra city limit to Bastanchury Rd.	striping bike lanes only	$10,560		1.14	$12,038
	Narrow the median from Bastanchury Rd. to Brea Blvd. and add wide Class II bike lanes where they don't exist; widen Class II bike lanes where they exist	restriping entire roadway	$26,400		2.02	$53,328
	Add painted hatched out buffer to new bike lanes from Bastanchury Rd. to Brea Blvd.	included above				
Brea Blvd.	Add 6' Class II bike lanes Brea city limit to Rolling Hills Dr.	striping bike lanes only	$10,560		0.3	$3,168
		signage		$250	2	$500
	Remove 1 travel lane just north of Harbor Blvd.	restriping entire roadway	$26,400		0.88	$23,232
	Add painted hatched out buffered Class II bike lanes from just north of Panorama Rd. to Brea Blvd.	included above				
		signage		$250	4	$1,000

Table D-1: Cost Estimates for Proposed Improvements- Short Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
	Add painted hatched out buffer to existing bike lanes between Rolling Hills Dr. and just north of Panorama Rd.	hatched out buffer	$7,920		0.9	$7,128
State College Blvd.	Add buffered Class II bike lanes from Brea city limit to Rolling Hills Dr.	striping bike lanes only	$10,560		0.31	$3,274
		signage		$250	2	$500
	Reduce from 6 through travel lanes to 4 travel lanes from Rolling Hills Dr. to Chapman Ave.	restriping entire roadway	$26,400		3.06	$80,784
	Add buffered Class II bike lanes from Rolling Hills Dr. to Orangethorpe Ave.	included above				
		signage		$250	20	$5,000
Pomona Ave.	Add Class III bike route	signage		$250	8	$2,000
	Turn front-in angled parking along Pomona Ave. in downtown to reverse-in angled parking	signage		$200	10	$2,000
Victoria Dr./Hart Pl.	Add Class III bike route on Victoria Dr. from Old River Rd. to Hart Pl.	signage		$250	6	$1,500
	Add Class III bike route on Hart Pl. from Victoria Dr. to Chapman Ave.	signage		$250	2	$500
	Add bicycle/pedestrian-only signal to cross Chapman Ave. at Hart Pl.			$250,000	2	$500,000
	Create paved connection from Chapman Ave. to cul-de-sac at the north end of Hart Pl. just south of Chapman Ave.		$500,000		0.08	$40,000
	Add Class III bike route on Hart Pl. from Chapman Ave. to Wilshire Ave.	signage		$250	2	$500
Associated Rd.	Widen existing Class II bike lanes	striping bike lanes only	$10,560		1.58	$16,685

Table D-1: Cost Estimates for Proposed Improvements- Short Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
Richman Ave.	Add Class III bike route from Sunnycrest Dr. to Commonwealth Ave.	signage		$250	10	$2,500
	Add sharrows and wayfinding signs to existing Class III route from Walnut Ave. to Houston Ave.	sharrows		$50	6	$300
		signage		$250	6	$1,500
					Short Term Improvements- Estimated Total Cost	**$1,118,978**

Table D-2: Cost Estimates for Proposed Improvements- Medium Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
West Valley View Dr.	Add Class III bike route	signage		$250	2	$500
Gilbert St.	Add painted hatched out buffer to existing Class II bike lanes from La Habra city limit to Castlewood Dr.	hatched out buffer	$7,920		0.32	$2,534
	Eliminate a few parking spaces on the east side just north of Via Linda	included below				
	Add Class II bike lanes from Castlewood Dr. to Pioneer Ave.	striping bike lanes only	$10,560		1.35	$14,256
		signage		$250	8	$2,000
	Add Class II bike lanes from Malvern Ave. to Commonwealth Ave.	striping bike lanes only	$10,560		0.8	$8,448
		signage		$250	6	$1,500
	Add Class III bike route from Commonwealth Ave. to CA-91	signage		$250	4	$1,000
	Add bike route signs, sharrows and wayfinding signs to existing Class III bike route	sharrows		$50	4	$200
		signage		$250	4	$1,000
Puente St.	Add Class III bike route from Imperial Hwy. to Hermosa Dr.	signage		$250	4	$1,000
	Connect on-street segments with Class I bike path		$500,000		0.1	$50,000
	Add Class III bike route from Rosarita Dr. to Bastanchury Rd.	signage		$250	4	$1,000
Brea Creek bike path	Add Class I bike path on south side from Buena Park city limit to just west of Bridgeport Dr.		$500,000		1.03	$515,000
	Add bridge to cross over to north side just west of Bridgeport Dr.	12' wide bridge		$350/sf	504 sf	$176,400
	Add Class I bike path from just west of Bridgeport Dr. to just east of Basque Ave.		$500,000		0.41	$205,000

Table D-2: Cost Estimates for Proposed Improvements- Medium Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
	Add bridge to cross over to south side just west of Basque Ave. – connect to alley	12' wide bridge		$350/sf	504 sf	$176,400
Union Pacific RR Right-of-Way bike path	Add Class I bike path		$500,000		6.19	$3,095,000
	Needs study to determine feasibility, alignment, crossing details, etc.	study				TBD
Fullerton Creek bike bridge	Sign multipurpose path along existing paved access way between Oakdale Ave. and Ferndale Ave. from Riverside Dr. to the Fullerton Creek Sign multipurpose path along existing paved access way at the end of Harrington Dr. from Victoria Dr. to the Fullerton Creek	signage		$250	2	$500
	Add a bridge and a path over and along the Fullerton Creek to connect these two access ways	12' wide bridge		$350/sf	876	S306,600
Lemon St.	Add Class III bike route from Brea Blvd. to Chapman Ave.	signage		$250	4	$1,000
	Add Class II bike lanes from Chapman Ave. to Orangethorpe Ave.	striping bike lanes only	$10,560		1	$10,560
		signage		$250	4	$1,000
Raymond Ave.	Add Class III bike route from Dorothy Ln. to Chapman Ave.	signage		$250	8	$2,000
	Reduce from 4 travel lanes to 2 travel lanes from Chapman Ave. to Commonwealth Ave.	restriping entire roadway	$26,400		0.25	$6,600
	Add Class II bike lanes from Chapman Ave. to Anaheim city limit	striping bike lanes only	$10,560		1.1	$11,616
		signage		$250	14	$3,500
Rosecrans Ave.	Extend bike lanes (7') to La Mirada city limit	striping bike lanes only	$10,560		0.69	$7,286
		signage		$250	2	$500

Table D-2: Cost Estimates for Proposed Improvements- Medium Term

Street or Path	Recommendations	Component	Cost per Mile	Cost per Item (sign, etc.)	Miles/ Units	Cost
	Add buffer to bike lanes between Gilbert St. and La Mirada city limit	hatched out buffer	$7,920		1.13	$8,950
	Add wide bike lanes between Gilbert St. and Euclid St.	striping bike lanes only	$10,560		1.3	$13,728
		signage		$250	4	$1,000
Pioneer Ave.	Add Class III bike route	signage		$250	2	$500
Woods Ave. /Malvern Ave./Malden Ave./Union Ave.	Add Class III bike route on Woods Ave./ Malvern Ave./Malden Ave./Union Ave.	signage		$250	8	$2,000
	Add Class III bike route on alley west of Harbor Blvd. to connect to Berkeley Ave.	signage		$250	2	$500
Valencia Dr.	Widen existing bike lanes and add painted hatched out buffer from Brookhurst Rd. to Highland Ave.	striping bike lanes only	$10,560		1.76	$18,586
	Reduce from 4 through lanes to 2 through lanes and add wide Class II bike lanes with painted hatched out buffer	restriping entire roadway	$26,400		1.31	$34,584
		signage		$250	10	$2,500
Olive Ave. /Pine St. /Cherry Ave./Southgate Ave./Basque Ave./Hill Ave./Roosevelt Ave./Knepp Ave./Malden Ave./Southgate Ave.	Add bike boulevard treatment following the route along Olive Ave. /Pine St./Cherry Ave./Southgate Ave./Basque Ave./Hill Ave./Roosevelt Ave./Knepp Ave./Malden Ave./Southgate Ave.	Further study will need to be done to determine where to place traffic calming devices, impact on adjacent streets, etc.				TBD
	Add traffic signal to cross Brookhurst Rd. for bicycles only – motor vehicles to turn right or left	traffic signal		$250,000	2	$500,000
Orangethorpe Ave.	Add Class II bike lanes from Lemon St. to Harbor Blvd.	striping bike lanes only	$10,560		0.25	$2,640
		signage		$250	4	$1,000
	Add painted hatched out buffered Class II bike lanes from Harbor Blvd. to	striping bike lanes only	$10,560		0.25	$2,640
		signage		$250	2	$500

Table D-2: Cost Estimates for Proposed Improvements- Medium Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
	Highland Ave.					
	Add painted hatched out buffer to existing bike lanes from Highland Ave. to Euclid St.	hatched out buffer	$7,920		0.75	$5,940
	Add painted hatched out buffered Class II bike lanes from Euclid St. to Basque Ave.	striping bike lanes only	$10,560		0.46	$4,858
		signage		$250	6	$1,500
	Add painted hatched out buffer to existing bike lanes from Basque Ave. to Magnolia Ave.	hatched out buffer	$7,920		1.51	$11,959
	Add Class II bike lanes from Magnolia Ave. to Buena Park city limit	striping bike lanes only	$10,560		0.49	$5,174
		signage		$250	4	$1,000
Magnolia Ave.	Add Class II bike lanes	striping bike lanes only	$10,560		0.75	$7,920
		signage		$250	8	$2,000
Sunny Ridge Dr.	Remove on-street parking/Class II bike lanes the whole way	striping bike lanes only	$10,560		1.17	$12,355
		signage		$250	10	$2,500
Brookhurst Rd.	Add Class II bike lanes the whole length	striping bike lanes only	$10,560		1.07	$11,299
		signage		$250	8	$2,000
Laguna Rd.	Add Class III bike route where on-street parking exists	signage		$250	8	$2,000
	Add Class II bike lanes where no on-street parking exists	striping bike lanes only	$10,560		1.09	$11,510
		signage		$250	6	$1,500
	Add wayfinding signs to direct bicyclists to the Sunnycrest Dr. bikeway	signage		$250	1	$250
Sunnycrest Dr.	Add Class III bike route the whole way	signage		$250	4	$1,000
	Add improved bike crossing of Valley View Dr. for cyclists turning left onto Valley View	Additional design work/ study required to determine improvements				TBD

Table D-2: Cost Estimates for Proposed Improvements- Medium Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
	Add wayfinding signs to direct bicyclists to the Laguna Rd. bikeway	signage		$250	1	$250
Acacia Ave.	Widen existing Class II bike lanes to 7'	striping bike lanes only	$10,560		1.25	$13,200
Medium Term Improvements- Estimated Total Cost (Excludes TBD Items)						**$4,982,643**

Table D-3: Cost Estimates for Proposed Improvements- Long Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
Artesia Blvd.	Add 7'-wide bike lanes	striping bike lanes only	$10,560		0.98	$10,349
		signage		$250	4	$1,000
Roberta Ave./Basque Ave./Baker Ave.	Add bike boulevard	Further study will need to be done to determine where to place traffic calming devices, impact on adjacent streets, etc.				TBD
Basque Ave.	Add Class III bike route from Chapman Ave. to just south of Commonwealth Ave.	signage		$250	6	$1,500
	Add bridge over the railroad between Commonwealth Ave. and Valencia Dr.	12' wide bridge		$350/sf	6540 sf	$2,289,000
	Add Class III bike route from just north of Valencia Dr. to Baker Ave.	signage		$250	6	$1,500
Longview Dr.	Add Class III bike route from Brea Blvd. to Dorothy Ln.	signage		$250	4	$1,000
Rolling Hills Dr.	Move bike lane on eastbound side between Associated Rd. and Tri-City Park to the curb side of the painted hatched out buffer	restriping	$10,560		0.87	$9,187
Valencia Mesa Dr.	Add sharrows and wayfinding signs to existing Class III bike route	sharrows		$50	6	$300
		signage		$250	6	$1,500
Warburton Way	Add Class III bike route	signage		$250	2	$500
Nichols St. /Benchley St.	Add Class III bike route	signage		$250	4	$1,000
Hughes Dr.	Reduce 4 lanes to 2 lanes on east end	restriping entire roadway	$26,400		0.09	$2,376
	Add Class II bike lanes from Bastanchury Rd. to Nichols St.	striping bike lanes only	$10,560		0.3	$3,168
		signage		$250	2	$500

Table D-3: Cost Estimates for Proposed Improvements- Long Term

Street or Path	Recommendations	Component	Cost per Mile	Cost per Item (sign, etc.)	Miles/ Units	Cost
	Add Class III bike route from Nichols St. to Gilbert St.	signage		$250	4	$1,000
Madison Ave.	Add 6'-wide Class II bike lanes from Placentia city limit to Placentia Ave.	striping bike lanes only	$10,560		0.12	$1,267
		signage		$250	6	$1,500
	Add Class III bike route from Placentia Ave. to west end near CA-57	signage		$250	2	$500
	Add bicycle/pedestrian bridge over CA-57	12' wide bridge		$350/sf	8364 sf	$2,927,400
	Add paved multipurpose path in Cal State Fullerton parking lot from CA-57 bridge to East Campus Drive at Gymnasium Campus Drive		$500,000		0.09	$45,000
Parks Rd./Castlewood Dr.	Widen existing Class II bike lanes to 6'	striping bike lanes only	$10,560		0.26	$2,746
	Add Class II bike lane at the intersection of Rosecrans Ave. between the right-turn lane and the through lane on the northbound side	striping bike lanes only	$10,560		0.04	$422
Lakeview Dr.	Add Class III bike route the whole way	signage		$250	6	$1,500
Placentia Ave.	Remove on-street parking	included below				
	Add 6'-7'-wide Class II bike lanes	striping bike lanes only	$10,560		1.42	$14,995
		signage		$250	10	$2,500
Craig Regional Park connector path	Add east-west multipurpose path crossing the park to create more direct connection between Rolling Hills Dr. on the west side of the park to Rolling Hills Dr. on the east side of the park		$500,000		1.58	$790,000

Table D-3: Cost Estimates for Proposed Improvements- Long Term						
Street or Path	**Recommendations**	**Component**	**Cost per Mile**	**Cost per Item (sign, etc.)**	**Miles/ Units**	**Cost**
Fullerton Creek bike path	Add Class I bike path that connects to existing multipurpose path at Fullerton Dam going south to Bastanchury Rd., crossing Bastanchury Rd. and following the creek to State College Blvd. Add crossing of Bastanchury Rd. Add crossing of State College Blvd. to connect to existing path		$500,000		0.62	$310,000
Valencia Mesa Dr.-Rolling Hills Dr. connector path	Construct a multipurpose path that goes behind St. Jude's Medical Center up to Bastanchury Rd.	Path	$500,000		1.6	$800,000
Riverside Dr.	Add Class III bike route	signage		$250	4	$1,000
Long Term Improvements- Estimated Total Cost (Excludes TBD Items)						**$6,112,710**

This page is intentionally blank.

Appendix E
Funding Opportunities

Ryan Snyder Associates provided an inventory of potential funding available to a California city in 2010 from Federal, State and local sources. This list is provided as a basis for further research as funding sources change and certain programs may not meet the specific needs of future Fullerton projects. It is also not intended to be an all inclusive list of funding sources. Many of the sources are competitive in nature, require a local match, and are available based on legislative appropriation/authorization.

Table E-1
Potential Financing Mechanisms

Federal
SAFETEA-LU The Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) sets the framework for spending federal transportation revenue. SAFETEA-LU expired with the federal fiscal year in 2009, and operated on a series of short-term extensions through December 21, 2010. SAFETEA-LU contained three major programs that fund bikeway and/or trail projects; Surface Transportation Program (STP), Transportation Enhancement Activities (TEA), and Congestion Mitigation and Air Quality Improvement (CMAQ) along with other programs such as the National Recreational Trails Fund, Section 402 (Safety) funds, Scenic Byways funds, and Federal Lands Highway funds. SAFETEA-LU funding is administered through the California Department of Transportation (Caltrans) and the Orange County Transportation Authority (OCTA). A local match by local jurisdictions is often required for receipt of funds. Most of the SAFETEA-LU funds that OCTA made available came from the TEA program.
Safe Routes to School (SRTS) As of 2006, a new federal Safe Routes to School program offers grants to local agencies and others for facilities and programs. Bikeways, sidewalks, intersection improvements, traffic calming and other projects that enhance bicycle and pedestrian safety to elementary and middle schools are eligible under infrastructure grants. Safety education, enforcement and promotional programs are also eligible under non-infrastructure grants. Caltrans administers this grant and releases the funds in multi-year cycles through their district offices. Approximately $46-million was spent statewide in 2008 SRTS-funded projects. The funds are distributed to each Caltrans district according to school enrollment. Local jurisdictions, school districts and other agencies compete for these funds. This program will have to be reauthorized with the upcoming federal transportation bill.
U.S. Federal Highway Administration (FHWA) Transportation & Community and System Preservation Pilot Program

Table E-1 Potential Financing Mechanisms
(TCSP) Comprehensive initiative of research and grants to investigate the relationships between transportation and community and system preservation and private sector-based initiatives. States, local governments, and metropolitan planning organizations are eligible for these discretionary grants. Grants to plan and implement strategies that improve the efficiency of the transportation system; reduce environmental impacts of transportation; reduce the need for costly future public infrastructure investments; ensure efficient access to jobs, services, and centers of trade; and examine private sector development patterns and investments that support these goals. Further bicycle planning work could be funded.
FTA Metropolitan Planning Program Operated by the Federal Transit Administration (FTA), this program provides financial assistance, through the states, to Metropolitan Planning Organizations (MPO) to support the costs of preparing long-range transportation plans required as a condition of obtaining Federal Capital Program and Urbanized Area Formula Program grants for transit projects. Funds can be used for technical studies relating to management, operations, capital requirements, innovative financing opportunities, and economic feasibility; evaluation of previously assisted projects; and other similar or related activities preliminary to and in preparation for the construction, acquisition or improved operation of transportation systems, facilities and equipment including the planning for "livability" features such as improved pedestrian and bicycle access to the station and shops and community services in the station area, incorporating arts and artistic design in stations and surrounding areas, and other improvements that enhance the usability and community-friendliness of the transit system environment. Up to a maximum of 20 percent of the preliminary engineering and design costs for a transportation facility. This could fund bikeways leading to the Fullerton Transportation Center and the park-and-ride lot, as well as bicycle parking at those locations.
State
Bicycle Transportation Account The State Bicycle Transportation Account (BTA) is an annual statewide discretionary program that is available through the Caltrans Bicycle Facilities Unit for funding bicycle projects. Available as grants to local jurisdictions, the emphasis is on projects that benefit bicycling for commuting purposes. The local match must be a minimum of 10% of the total project cost. BTA funds pay for capital projects.
Environmental Enhancement and Mitigation Program Environmental Enhancement and Mitigation Program Funds are allocated to projects that offset environmental impacts of modified or new public transportation facilities. Bicycle paths, bicycle lanes, and other facilities that encourage alternative transportation are eligible. State gasoline tax monies fund this program. The State Resources Agency administers the funds.
Safe Routes to School (SR2S) The Safe Routes to School program is a state program using funds from the Hazard Elimination Safety program. This program is meant to improve school commute routes by eliminating barriers to bicycle and pedestrian travel through rehabilitation, new projects, education, and traffic calming. This program requires a 10% match. Up to 10% of this fund may be used for non-infrastructure programs such as education and promotion.
Transportation Development Act (TDA) Article 3 (SB 821) TDA Article 3 funds—also known as the Local Transportation Fund (LTF)—are used by cities for the planning and construction of bicycle and pedestrian facilities. 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.

Table E-1
Potential Financing Mechanisms

- Construction and reconstruction.
- Retrofitting existing bicycle facilities to comply with the Americans with Disabilities Act (ADA).
- Route improvements such as signal controls for cyclists, bicycle loop detectors, rubberized rail crossings and bicycle-friendly drainage grates.
- Purchase and installation of bicycle facilities, such as improved intersections, secure bicycle parking, benches, drinking fountains, changing rooms, rest rooms and showers adjacent to bicycle trails, employment centers, park-and-ride lots, and/or transit terminals accessible to the general public.

Up to 5% of this fund may be used for education programs. OCTA administers TDA Article 3 funds. In the past, it has held competitive calls for projects for cities to submit projects for funding. Presently, it is using this fund for bus operations.

Office of Traffic Safety (OTS)

The Office of Traffic Safety (OTS) seeks to reduce motor vehicle fatalities and injuries through a national highway safety program. Priority areas include police traffic services, alcohol and other drugs, occupant protection, pedestrian and bicycle safety, emergency medical services, traffic records, roadway safety and community-based organizations. The OTS provides grants for one to two years. The California Vehicle Code (Sections 2908 and 2909) authorizes the apportionment of federal highway safety funds to the OTS program. Bicycle safety programs are eligible programs for OTS start-up funds. City agencies are eligible to apply.

AB 2766

AB 2766 Clean Air Funds are generated by a surcharge on automobile registration. The South Coast Air Quality Management District (AQMD) allocates 40 percent of these funds to cities according to their proportion of the South Coast's population for projects that improve air quality. The projects are up to the discretion of the city and may be used for bicycle projects that could encourage people to bicycle in lieu of driving. The other 60 percent is allocated through a competitive grant program that has specific guidelines for projects that improve air quality. The guidelines vary and funds are often eligible for a variety of bicycle projects.

Per Capita Grant Program

The Per Capita Grant Program is intended to maintain a high quality of life for California's growing population by providing a continuing investment in parks and recreational facilities. Specifically it is for the acquisition and development of neighborhood, community, and regional parks and recreation lands and facilities in urban and rural areas.

Eligible projects include acquisition, development, improvement, rehabilitation, restoration, enhancement, and the development of interpretive facilities for local parks and recreational lands and facilities. Per Capita grant funds can only be used for capital outlay. These funds could be used for the proposed bike paths in this plan. The California State Parks Department administers them.

Roberti-Z'Berg-Harris (RZH) Grant Program - Proposition 40

Funds for this grant program are to be allocated for projects pursuant to the Roberti-Z'berg-Harris Urban Open Space and Recreational Grant Program and are to be used for:

- High priority projects that satisfy the most urgent park and recreation needs, with emphasis on unmet needs in the most heavily populated and most economically disadvantaged areas within each jurisdiction.

Table E-1
Potential Financing Mechanisms

- Projects for which funding supplements--rather than supplants local expenditures for park and recreation facilities and does not diminish a local jurisdiction's efforts to provide park and recreation services.
- Block grants allocated on the basis of population and location in urbanized areas.
- Need-basis grants to be awarded competitively to eligible entities in urbanized areas and in non-urbanized areas.

Eligible projects include:

- Acquisition of park and recreation lands and facilities
- Development/rehabilitation of park and recreation lands and facilities
- Special Major Maintenance of park and recreation lands and facilities
- Innovative Recreation Programs

These funds could be used for bike path projects in this plan. The California State Parks Department administers them.

Land and Water Conservation Fund

States receive individual allocations of LWCF grant funds based upon a national formula, with state population being the most influential factor. States initiate a statewide competition for the amount available annually. Applications are received by the State up to its specified deadline date. Then, they are scored and ranked according to the project selection criteria so that only the top-ranked projects (up to the total amount available that year) are chosen for funding. Chosen applications are then forwarded to the National Park Service for formal approval and obligation of federal grant monies. These funds could be used for bike path projects in this plan. The California State Parks Department administers them.

Infrastructure State Revolving Fund Program of the California Infrastructure and Economic Development Bank (CIEDP)
This is a loan program that provides low-cost financing to public agencies for a variety of infrastructure programs, including: streets, bridges, drainage, water supply, flood control, environmental mitigation measures, sewage collection and treatment, solid waste collection and disposal, water treatment and distribution, educational facilities and parks and recreational facilities. Funding assistance ranges from $250,000 to $10,000,000. The application process is complicated and slow. There must be a dedicated source for debt service of the loan. Tax increment flowing from redevelopment projects is often favored as a funding source for retiring this debt because it flows for a long time and is steady. The term of the loan can be as long twenty years. This could finance the bikeways and parking in this Bicycle Element.

California Infrastructure and Economic Development Bank (CIEDB)
The CIEDB was created in 1994 to promote economic revitalization, enable future development, and encourage a healthy climate for jobs in California. The CIEDB has broad authority to issue tax-exempt and taxable revenue bonds, provide financing to public agencies, provide credit enhancements, acquire or lease facilities, and leverage State and Federal funds. The Infrastructure Bank's current programs include the Infrastructure State Revolving Fund (ISRF) Program and the Conduit Revenue Bond Program. This could finance the bikeways and parking in this Bicycle Element.

Local and Regional

General Fund
A city's General Fund is used to support ongoing City operations and services, including general government operations, development services, public safety and community services. Primary revenue sources for the General Fund include property taxes, sales taxes and intergovernmental revenues. Improvements and ongoing projects or programs should have general

Table E-1 Potential Financing Mechanisms
community-wide benefits.
General Obligation Bonds (G.O. Bonds) General Obligation bonds may be used to acquire, construct and improve public capital facilities and real property. However, they may not be used to finance equipment purchases, or pay for operations and maintenance. G.O. Bonds must be approved by two-thirds of the voters throughout the Issuer's jurisdiction in advance of their issuance and typically require the issuing jurisdiction to levy a uniform ad valorem (property value) property tax on all taxable properties to repay the annual debt service.
Resurfacing and Repaving A city is able to add bicycle lanes, improve bicycle lane and add sharrows upon resurfacing and repaving of streets. While other lanes are restriped, the bike facilities can be painted as well.
New Construction Future road widening and construction projects are one means of providing bike lanes. Developers may also be required to dedicate land toward the widening of roadways in order to provide for enhanced bicycle mobility.
Impact Fees and Developer Mitigation Impact fees may be assessed on new development to pay for transportation projects, typically tied to vehicle trip generation rates and traffic impacts generated by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- or off-site bikeway improvements that will encourage residents to bicycle rather than drive.
Business Improvement Districts (BIDs) Business Improvement Districts (BIDs) are self-taxing business districts. Business and property owners pay for capital improvements, maintenance, marketing, parking, and other items as jointly agreed to through systematic, periodic self-assessment. These districts may include provisions for bicycle improvements such as bicycle parking or shower and clothing locker amenities.
Landscape and Lighting Maintenance District (LMDs) The Landscaping and Lighting Act of 1972 enables assessments to be imposed in order to finance the maintenance and servicing of landscaping, street lighting facilities, ornamental structures and park and recreational improvements. This could be used for bike paths as well as lighting and amenities along bike paths.
Special Benefit Assessment Districts Special Benefit Assessment Districts (AD) are formed for the purpose of financing specific improvements for the benefit of a specific area by levying an annual assessment on all property owners in the district. Each parcel of property within an AD is assessed a portion of the costs of the public improvements to be financed by the AD, based on the proportion of benefit received by that parcel. The amount of the assessment is strictly limited to an amount that recovers the cost of the "special benefit" provided to the property. Traditionally, improvements to be financed using an AD include, but are not limited to, streets and roads, water, sewer, flood control facilities, utility lines and landscaping. A detailed report prepared by a qualified engineer is required and must demonstrate that the assessment amount is of special benefit to the parcel upon which the assessment is levied. Prior to creating an assessment district, the City, county or special district must hold a public hearing and receive approval from a majority of the affected property owners casting a ballot. Ballots are weighted according to the proportional financial obligation of the affected property. There are many assessment acts that govern the formation of assessment districts, such as the Improvement Act of 1911, Municipal Improvement Act of 1913, Improvement Bond Act of

Table E-1
Potential Financing Mechanisms

1915 and the Benefit Assessment Act of 1982, as well as other specific facility improvement acts. Benefit assessment districts could be used to finance any of the capital improvements in this plan.

In-Lieu Parking Fee
The use of a parking in-lieu fee to construct and fund common parking facilities serving the commercial businesses has been used successfully in other downtown revitalizations. Potential funding sources range from in-lieu fees for spaces to parking revenues from monthly parking and short-term parking fees. . In-lieu parking fees may be used to contribute to the construction of new or improved bicycle parking facilities.

Parking Meter Revenues
Cities can fund various improvements through parking meter revenues. The ordinance that governs the use of the revenues would specify eligible uses. Cities have the option to pass ordinances that specify bicycle facilities as eligible expenditures.

Measure M2
The successor to Measure M, M2 is a 30-year Transportation Investment Program funded through a local transportation sales tax. Major programs include freeways, transit, streets, and environmental projects. Funding may be available to Orange County cities under these programs for bicycle facilities.

Private/Non-Profit (P)

Private Donations
Private donations for a variety of different types of projects are generally available from foundations, institutions, and corporations that have major interests in these areas.

Donor Programs
Some of the proposed improvements may lend themselves to a public campaign for donor gifts. Donor programs have been used very successfully in many cities in the United States for providing funds for streetscape and community design elements. Such programs can be tailored to solicit contributions from individuals, corporations, local businesses and community and business associations. Many improvements could be funded by donor gifts for items such as: benches, trash receptacles, street trees, street tree grates, public art elements and information kiosks. Donors could be acknowledged with a plaque on the element itself or other prominent display, such as a "wall of fame" with donor names.