

ACTIVE TRANSPORTATION PROGRAM 2015 – CYCLE 2

Application No.:
07-Arcadia-1

City of Arcadia
BICYCLE FACILITY IMPROVEMENTS PROJECT



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ACTIVE TRANSPORTATION PROGRAM - CYCLE 2

Application Form for Part A

Parts B & C must be completed using a separate document

PROJECT unique APPLICATION NO.:

07-Arcadia-1

Auto populated

Total ATP Funds Requested:

\$ 1,020

(in 1000s)

Auto populated

Important: Applicants must follow the CTC Guidelines and Chapter 22 of the Local Assistance Program Guidelines, and include attachments and signatures as required in those documents. Ineligible project elements may result in a lower score/ranking or a lower level of ATP funding. Incomplete applications may be disqualified.

Applicants are expected to use the corresponding “step-by-step” Application Instructions and Guidance to complete the application (3 Parts):

Part A: General Project Information

Part B: Narrative Questions

Part C: Application Attachments

Application Part A: General Project Information

Implementing Agency: This agency must enter into a Master Agreement with Caltrans and will be financially and contractually responsible for the delivery of the project within all pertinent Federal and State funding requirements, including being responsible and accountable for the use and expenditure of program funds. This agency is responsible for the accuracy of the technical information provided in the application and is required to sign the application.

IMPLEMENTING AGENCY'S NAME:

Arcadia

IMPLEMENTING AGENCY'S ADDRESS

CITY

ZIP CODE

240 W. Huntington Drive

Arcadia

CA

91007

IMPLEMENTING AGENCY'S CONTACT PERSON:

Linda Hui

CONTACT PERSON'S TITLE:

Transportation Services Manager

CONTACT PERSON'S PHONE NUMBER:

(626) 574-5435

CONTACT PERSON'S EMAIL ADDRESS :

lhui@ci.arcadia.ca.us



Project Partnering Agency: Entities that are unable to apply for Active Transportation Program funds or that are unable to enter into a Master Agreement with the State must partner with an eligible applicant that can implement the project. **In addition, entities that are unfamiliar with the requirements to administer a Federal-Aid Highway Program project may partner with an eligible applicant that can implement the project.**

If another entity (Partnering Agency) agrees to assume responsibility for the ongoing operations and maintenance of the facility, documentation of the agreement (e.g., letter of intent) must be submitted with the project application, and a copy of the Memorandum of Understanding or Interagency Agreement between the parties must be submitted with the first request for allocation. For these projects, the Project Partnering Agency's information shall be provided below.
(The Grant Writer's or Preparer's information should not be provided)

PROJECT PARTNERING AGENCY'S NAME:

Sierra Madre

PROJECT PARTNERING AGENCY'S ADDRESS

CITY

ZIP CODE

232 E. Sierra Madre Blvd.	Sierra Madre	CA	81024
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PROJECT PARTNERING AGENCY'S CONTACT PERSON:

Bruce Inman

CONTACT PERSON'S TITLE:

Director of Public Works

CONTACT PERSON'S PHONE NUMBER:

(626) 355-7135

CONTACT PERSON'S EMAIL ADDRESS :

binman@cityofsierramadre.com

MASTER AGREEMENTS (MAs):

Does the Implementing Agency currently have a MA with Caltrans? Yes No

Implementing Agency's Federal Caltrans MA number 07-5131R

Implementing Agency's State Caltrans MA number

* Implementing Agencies that do not currently have a MA with Caltrans, must be able to meet the requirements and enter into an MA with Caltrans prior to funds allocation. The MA approval process can take 6 to 12 months to complete and there is no guarantee the agency will meet the requirements necessary for the State to enter into a MA with the agency. Delays could also result in a failure to meeting the CTC Allocation timeline requirements and the loss of ATP funding.

PROJECT NAME: (To be used in the CTC project list)

City of Arcadia Bicycle Facility Improvement

Application Number: out of **Applications**

PROJECT DESCRIPTION: (Max of 250 Characters)

The City of Arcadia proposed to design and construct Class II & III bike facilities, signal/intersection modifications, and other bike amenities along multiple corridors connecting to Gold Line Arcadia Station.

PROJECT LOCATION: (Max of 250 Characters)

Throughout Arcadia & part of Sierra Madre. N/S corridors: 1st Av/2nd Av/Highland Oaks Dr from Sierra Madre Bl to south city limit; E/W Corridors: Sierra Madre Bl, Orange Grove Av, Colorado Bl, Santa Clara St, Huntington Dr, Campus Dr & Longden Av.



Will any infrastructure-improvements permanently or temporarily encroach on the State right-of-way? Yes No

If yes, see the application instructions for more details on the required coordination and documentation.

Project Coordinates: (latitude/longitude in decimal format) Lat. 34.132688 /long. 118.036491

Congressional District(s):

State Senate District(s): State Assembly District(s):

Caltrans District(s):

County:

MPO:

RTPA:

MPO UZA Population:

ADDITIONAL PROJECT GENERAL DETAILS: (Must be consistent with Part B of Application)

ESTIMATION OF ACTIVE TRANSPORTATION USERS

Existing Counts:	Pedestrians	<input type="text"/>	Bicyclists	<input type="text" value="680"/>
One Year Projection:	Pedestrians	<input type="text"/>	Bicyclists	<input type="text" value="828"/>
Five Year Projection:	Pedestrians	<input type="text"/>	Bicyclists	<input type="text" value="857"/>

BICYCLE AND/OR PEDESTRIAN INFRASTRUCTURE (Check all that apply)

Bicycle: Class I Class II Class III Other

Pedestrian: Sidewalk Crossing Other

Multiuse Trails/Paths: Meets "Class I" Design Standards Other

DISADVANTAGED COMMUNITIES

Project contributes toward the Disadvantaged Communities funding requirement: the project must clearly demonstrate a direct, meaningful, and assured benefit to a community that meets any of the following criteria: Yes No

If yes, which criterion does the project meet in regards to the Disadvantaged Community (mark all that apply):

Household Income Yes No CalEnvioScreen Yes No

Student Meals Yes No Local Criteria Yes No

Is the majority of the project physically located within the limits of a Disadvantaged Community: Yes No

CORPS

Does the agency intend to utilize the Corps: Yes No



PROJECT TYPE (Check only one: I, NI or I/NI)

Infrastructure (I) **OR Non-Infrastructure (NI)** **OR Combination (N/NI)**

“Plan” applications to show as NI only

Development of a Plan in a Disadvantaged Community: Yes No

If Yes, check all Plan types that apply:

- Bicycle Plan**
- Pedestrian Plan**
- Safe Routes to School Plan**
- Active Transportation Plan**

Indicate any of the following plans that your agency currently has: (Check all that apply)

Bicycle Plan Pedestrian Plan Safe Routes to School Plan Active Transportation Plan

PROJECT SUB-TYPE (check all Project Sub-Types that apply):

- Bicycle Transportation** % of Project 100.0 % (ped + bike must = 100%)
- Pedestrian Transportation** % of Project _____ %
- Safe Routes to School** *(Also fill out Bicycle and Pedestrian Sub-Type information above)*

How many schools does the project impact/serve: _____

If the project involves more than one school: 1) Insert “Multiple Schools” in the School Name, School Address, and distance from school; 2) Fill in the student information based on the total project; and 3) Include an attachment to the application which clearly summarizes the following school information and the school official signature and person to contact for each school.

School name: _____

School address: _____

District name: _____

District address: _____

Co.-Dist.-School Code: _____

School type (K-8 or 9-12 or Both) Project improvements maximum distance from school _____ mile

Total student enrollment: _____

% of students that currently walk or bike to school% _____ %

Approx. # of students living along route proposed for improvement: _____

Percentage of students eligible for free or reduced meal programs ** _____ %

**Refer to the California Department of Education website: <http://www.cde.ca.gov/ds/sh/cw/filesafdc.asp>

A map must be attached to the application which clearly shows the limits of: 1) the student enrollment area,

2) the students considered to be along the walking route being improved, 3) the project improvements.



Trails (Multi-use and Recreational): *(Also fill out Bicycle and Pedestrian Sub-Type information above)*

Trails Projects constructing multi-purpose trails and are generally eligible in the Active Transportation Program. If the applicant believes all or part of their project meets the federal requirements of the Recreational Trails Program they are encouraged to seek a determination from the California Department of Parks and Recreation on the eligibility of their project to complete for this funding. This is optional but recommended because some trails projects may compete well under this funding program.

For all trails projects:

Do you feel a portion of your project is eligible for federal Recreational Trail funding? Yes No

If yes, estimate the total projects costs that are eligible for the Recreational Trail funding: _____

If yes, estimate the % of the total project costs that serve “transportation” uses? _____ %

Applicants intending to pursue “Recreational Trails Program funding” **must submit** the required information to the California Department of Parks and Recreation prior to the ATP application submissions deadline. (See the Application Instructions for details)

PROJECT STATUS and EXPECTED DELIVERY SCHEDULE

Applicants need to enter **either** the date the milestone was completed (for all milestones already complete prior to submitting the application) **or** the date the applicant anticipates completing the milestone. Applicants should enter "N/A" for all CTC Allocations that will not be requested as part of the project. Per CTC Guidelines, all project applications must be submitted with the expectation of receiving partially federally funded and therefore the schedule below must account for the extra time needed for federal project delivery requirements and approvals. *See the application instructions for more details.*

The agency is responsible for meeting all CTC delivery requirements or their ATP funding will be forfeited. For projects consisting of entirely non-infrastructure elements are not required to complete all standard infrastructure project milestones listed below. Non-infrastructure projects only have to provide dates for the milestones identified with a “ * ” and can provide “N/A” for the rest.

MILESTONE:	DATE COMPLETED	OR	EXPECTED DATE
CTC - PA&ED Allocation:	_____		NA
* CEQA Environmental Clearance:	_____		6/30/16
* NEPA Environmental Clearance:	_____		6/30/16
CTC - PS&E Allocation:	_____		10/31/16
CTC - Right of Way Allocation:	_____		NA
* Right of Way Clearance & Permits:	_____		NA
Final/Stamped PS&E package:	_____		6/30/17
* CTC - Construction Allocation:	_____		10/31/17
* Construction Complete:	_____		12/31/18
* Submittal of “Final Report”	_____		3/30/19



PROJECT FUNDING (in 1000s)

Per CTC Guidelines, Local Matching funds are not required for any ATP projects, but Local Leveraging funds are strongly encouraged. See the Application instructions for more details and requirements relating to ATP funding.

ATP funds being requested for this application/project by project delivery phase:

ATP funds for PA&D:	\$35	
ATP funds for PS&E:	\$83	
ATP funds for Right of Way:		
ATP funds for Construction:	\$902	
ATP funds for Non-Infrastructure:		<i>(All NI funding is allocated in a project's Construction Phase)</i>
Total ATP funds being requested for this application/project:		\$1,020

Local funds leveraging or matching the ATP funds: \$437

For local funding to be considered Leveraging/Matching it must be for ATP eligible activities and costs. Per CTC Guidelines, Local Matching funds are not required for any ATP projects, but Local Leveraging funds are strongly encouraged. See the Application instructions for more details and requirements relating to ATP funding.

Additional Local funds that are 'non-participating' for ATP: _____

These are local funds required for the overall project, but not for ATP eligible activities and costs. They are not considered leverage/match.

TOTAL PROJECT FUNDS: \$1,457

ATP - FUNDING TYPE REQUESTED:

Per the CTC Guidelines, All ATP projects must be eligible to receive federal funding. Most ATP projects will receive federal funding, however some projects may be granted State only funding (SOF) for all or part of the project.

Do you believe your project warrants receiving state-only funding? Yes No

If "Yes", provide a brief explanation. (Max of 250 characters) Applicants requesting SOF must also attach an "Exhibit 22-f"

ATP PROJECT PROGRAMMING REQUEST (PPR): In addition to the project funding information provided in Part A of the application, all applicants must complete the ATP Project Programming Request form and include it as Attachment B. More information and guidance on the completion and submittal of this form is located in the Application Instructions Document under Part C - Attachment B.

ACTIVE TRANSPORTATION PROGRAM - CYCLE 2

Part B: Narrative Questions

(Application Screening/Scoring)

Project unique application No.: 07-Arcadia-1

Implementing Agency's Name: City of Arcadia

Important:

- *Applicants must ensure all data in Part B of the application is fully consistent with Part A and C.*
- *Applicants must follow all instructions and guidance to have a chance at receiving full points for the narrative question and to avoid flaws in the application which could result in disqualification.*

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Part B: Narrative Questions

The following Screening Criteria are requirements for applications to be considered for ATP funding. Failure to demonstrate a project meets these criteria will result in the disqualification of the application.

A. Demonstrated fiscal needs of the applicant:

The Active Transportation Program is currently the only state competitive program providing funding for pedestrian and bicycle projects like this one. Regional and local funding sources for active projects have decreased dramatically as the Transportation Activities Enhancement Program, much of which had been programmed by the regions, was discontinued and replaced by the Transportation Alternatives Program distributed through ATP and the State Transportation Improvement Program. Also, local subvention dollars are projected to decline 65% from FY 2013-14 to 2015-16. Federal surface transportation dollars have not been growing at a rate sufficient to keep pace with increased in needs and costs.

The City of Arcadia implements capital projects based on prioritization of the Arcadia's Capital Improvement Program (CIP), which is a five-year program. The CIP is updated each year and the projects are contingent on available funding. In the past three years, Arcadia has had to defer CIP projects due to the economic recession. As a result, there is a backlog of implementable projects that have already been approved by the City. In order to invest in active transportation projects, our limited local funding must be used to leverage state and federal resources. The City and its partner, The City of Sierra Madre, have committed \$437,000, or 30%, in local match. The remaining \$1,020,000 is needed from the ATP.

B. Consistency with Regional Plan.

This Project supports and is consistent with regional transportation goals of the Southern California Association of Governments (SCAG) and Los Angeles County Metropolitan Transportation Authority (Metro). The 2012–2035 SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) has the following goals: 1) Decrease Bicyclist and Pedestrian Fatalities and Injuries, 2) Develop an Active Transportation-Friendly Environment throughout the SCAG Region, and 3) Increase Active Transportation Usage in the SCAG Region, among others related to developing complete streets and healthy, active communities. The adopted 2009 Metro

Long Range Transportation Plan states that bicycle and pedestrian programs are critical components of a successful transportation system. This Project fully supports Metro's goal of implementing "a regional transportation system that increases mobility, fosters walkable and livable communities, and minimizes GHG emissions and environmental impacts," as discussed in Metro's Countywide Sustainability Planning Policy and Implementation Plan. Finally, this Project is consistent with Metro's 2014 First Mile/Last Mile Strategic Plan, which recognizes that the first and last mile to and from transit stations are critical elements of an effective public transportation. The Plan identifies types of barriers addressed by this Project. See attachment I-Screening Criteria 2 for referenced documents.

Part B: Narrative Questions

Question #1

QUESTION #1 POTENTIAL FOR INCREASED WALKING AND BICYCLING, ESPECIALLY AMONG STUDENTS, INCLUDING THE IDENTIFICATION OF WALKING AND BICYCLING ROUTES TO AND FROM SCHOOLS, TRANSIT FACILITIES, COMMUNITY CENTERS, EMPLOYMENT CENTERS, AND OTHER DESTINATIONS; AND INCLUDING INCREASING AND IMPROVING CONNECTIVITY AND MOBILITY OF NON-MOTORIZED USERS. (0-30 POINTS)

A. Describe current and projected types and numbers/rates of users. (12 points max.)

The City of Arcadia proposes to make significant improvements to bicycle infrastructure along multiple corridors connecting to the Metro Gold Line Arcadia Station through constructing 15.5 miles of Class II and Class III bike facilities, modifying signals at intersections and adding additional bike amenities. This Project will **increase the availability of bike lanes by 123%**. One year after completion (2020), the bicycle trip count is anticipated to increase to from 680 to **858 daily bicycle trips**.

The proposed Project traverses the City of Arcadia and is partially within the neighboring City of Sierra Madre. Both cities are suburban “bedroom” communities. Arcadia is also home to many regional employers and activity centers, including a large Mall, a world renowned horse racetrack, a regional hospital, two County parks, and a future Metro Gold Line Station. A range of diverse local commercial destinations also contributes to locally generated trips. The total population within this Project’s influence area is 159,746 individuals according to the American Community Survey (ACS). Of these individuals, **7.7% (12,420) have a disability, 5% (8,021) are students** in 5th through 12th grades; and **1.5% (2,433) live in households without a vehicle**. Also within the Project’s sphere of influence, there are approximately 74,130 internal workers according to the ACS. Approximately **1.8% or 2,828 are transit commuters, 0.2% or 296 are commuter bicyclists, 0.9% or 1,372 are workers in a zero-vehicle household** and 900 commuters walk to work.

The City of Arcadia used a demand model to estimate levels of current and projected use in the Project area. User demand was estimated using a 1.5 to 2.0 mile bikeshed from which potential users in the surrounding community would likely be drawn. The demand model suggests that there are an **estimated 680 daily bicycle trips currently** along the proposed Project corridors. One year after completion (2020), the bicycle trip count is anticipated to increase to **858 daily bicycle trips, a 21% increase** from current levels. Commuters will make 36 of these new daily trips and 32 new trips will be recreational. Five-year projections estimate a **26% increase from**

current levels or 857 daily bicycle trips. Following NCHRP Report 770 guidance, the demand model incorporates key demographic and economic data from the American Community Survey 2009-2013 5-Year Summary File and the 2009 California add-on to the National Household Travel Survey (CA-NHTS) to estimate the total number of walk and bike trips in a given project area based on household trip generation rates, median income, commute to work mode shares, and land use characteristics.

Figure 1: Existing Conditions on Huntington Drive



Other external commuters to the City include those who work at major commercial and entertainment uses. For example, the Santa Anita Park, Arcadia's racetrack has 1,257 employees during the racing season, and 403 employees during the off-season. The majority of Santa Anita Park employees do not live in Arcadia and commute to work.

The number of bicyclist utilizing the Project corridor will also increase due to the future Metro Gold Line Arcadia Station. According to the Gold Line Foothill Extension – Pasadena to Montclair Final Environmental Impact Report (Gold Line Construction Authority, 2007), the Gold Line Arcadia Station will have an average daily boarding of 1,852 passengers.

This Project will not only provide new bicycle access and safety measures, but encourage new users and support future demand associated with new transit.

B. Describe how the project links or connects, or encourages use of existing routes (for non-infrastructure applications) to transportation-related and community identified destinations where an increase in active transportation modes can be realized, including but not limited to: schools, school facilities, transit facilities, community, social service or medical centers, employment centers, high density or affordable housing, regional, State or national trail system, recreational and visitor destinations or other community identified destinations via: (12 points max.)

- a. creation of new routes**
- b. removal of barrier to mobility**
- c. closure of gaps**
- d. other improvements to routes**
- e. educates or encourages use of existing routes**

X
X
X
X

Many community members in Arcadia are hesitant to ride bicycles. Parents, especially, are fearful to allow their children to ride their bikes to school. Much of this is due to the perceived and real lack of safety because of the need for bicycle facilities and infrastructure. Through implementing the proposed safety countermeasures, this Project will help remove one of the largest barriers to mobility in the community of Arcadia—the fear and concern associated with riding a bike on city streets. **For this analysis, connectivity was estimated using a 1.5 to 2.0 mile bikeshed.**

These bike facilities will connect with 10 public schools providing new designated bicycle access for up to 9,701 students. The 10 schools are:

1. Foothills Middle School (769 students for the 2013-2014 school year according to the CA Department of Education’s Educational Demographics Unit) is 0.2 miles from the proposed Class II bike lane on Highland Oaks Drive
2. Rancho Learning Center Alternative School (57 students in 13-14) is 0.3 miles from the proposed Class II bike lane and road diet on Highland Oaks Drive/First Avenue and
3. First Avenue Middle School (786 students in 13-14) is located along a Project segment.
4. Highland Oaks Elementary (691 students in 13-14) is 0.2 miles from proposed Class II and Class III bike lanes on Sierra Madre Boulevard.
5. Richard Henry Dana Middle School (783 students in 13-14) is located along proposed Class III bike lanes on First Avenue.
6. Camino Grove Elementary School (649 students) is 1.0 mile from a Project segment.
7. Arcadia High School (3,490 students in 13-14) is located along a Project corridor where Class II and Class III bike lanes and signal software upgrades are proposed.

8. Holly Avenue Elementary (753 students in 13-14) is 0.3 miles from proposed Class II bike lanes and multiple signal software upgrades.
9. Hugo Reid Elementary (561 students in 13-14) is 1.5 miles from proposed Class II bike lanes and multiple signal software upgrades.
10. Baldwin Stocker Elementary (671 students in 13-14) is 0.3 miles from proposed Class III Bike Lanes.

Additional destinations, or trip generators, that will be served by this Project include (see Figure 2 Following):

- Los Angeles County Park and Arboretum: 1.0 mile from the Huntington Drive corridor and 0.6 miles from an existing Class II bike lane on Baldwin Avenue.
- 9 hotels within 0.25 miles of the Gold Line Station
- Methodist Hospital (1,900 employees) sits along the Huntington Drive corridor.
- Downtown Arcadia
- Arcadia City Hall
- Downtown Sierra Madre
- Arcadia County Park, on a Project Corridor, has 12 lighted tennis courts, an Olympic size swimming pool, 3 lighted ball diamonds, a play area, 2 large group picnic areas, and barbeques.

These 15.5 miles of new bicycle facilities will connect to existing bike facilities, existing and future transit hubs, and many regional and local destinations, including Sierra Madre, Monrovia, Temple City, and Pasadena, closing gaps in bicycle facilities between cities and the region as a whole.

Connections to regional and local bicycle facilities include:

- Proposed bike lanes on Colorado Boulevard will connect with Monrovia's existing Class II lanes to the east;
- The Highland Oaks/First Avenue/Second Avenue corridor will connect with LA County's planned bike route;
- The corridor along Santa Clara Street will connect with LA County's planned bike route to the west; and

- The corridors along Sierra Madre Avenue (in the City of Sierra Madre) and Orange Grove Avenue will connect with Pasadena’s existing and planned bike facilities.

Arcadia has three existing Class II bike routes that provide limited to no connectivity to major points of interest. This Project’s new routes will connect with the existing facilities, thereby greatly expanding the network and providing access to popular destinations like Downtown Arcadia, numerous businesses, medical offices and restaurants, and Downtown Sierra Madre, which offers retail, professional offices and independently owned and operated neighborhood services.

Transit users in the Project area include Foothill Transit and Metro riders. Metro’s Route 487/489 travels along two of the Project corridors: Sierra Madre Boulevard and Highland Oaks/First Avenue/Second Avenue. There are nearly 60 bus stops along or within 1.0 mile of these corridors. Metro’s January 2015 Boarding and Alighting data is provided in the table below. This line stops at Santa Anita and Huntington, in the heart of Arcadia’s downtown district, and a transit hub for Metro and Foothill Transit.

There are several Foothill Transit Line 492 bus stops within this Project’s sphere of influence. The bus stop at Live Oak and Santa Anita is a popular transit hub 0.4 miles from a proposed Class III bike route. Monthly data from this line is provided in Table 1.

Table 1

Foothill Transit Monthly Average August 2014 - February 2015

Line 492:	Boarding	Alighting
Live Oak and 2 nd	141	208
Live Oak and 6 th	98	52
Live Oak and Greenfield	47	153
Santa Anita and Daines	94	44
Santa Anita and Live Oak	416	324

Metro Monthly Average January 2015

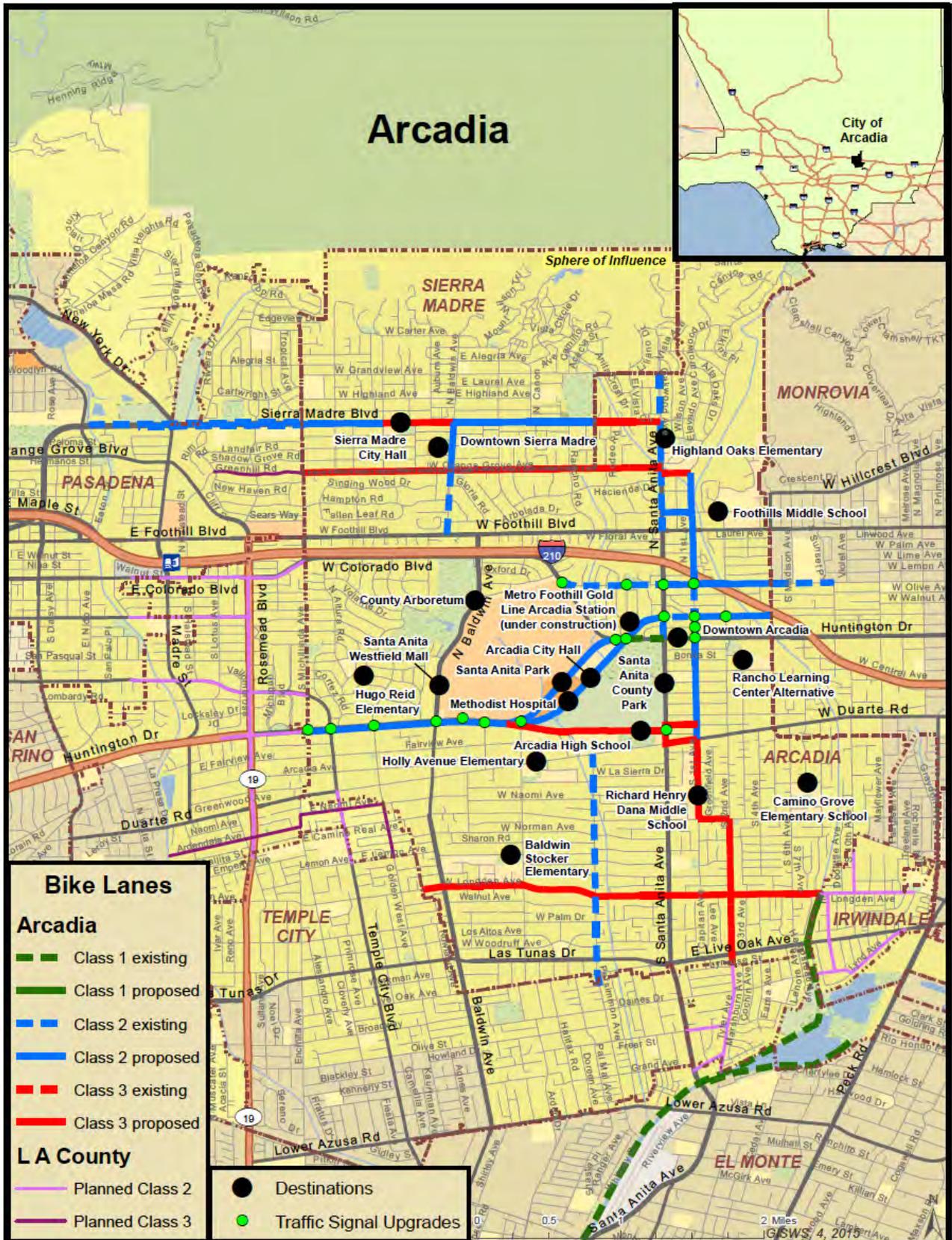
Line 487/489:	Boarding	Alighting
Stops in Project Sphere of Influence	235	238

Beyond serving exiting bus stops, these new facilities will directly connect to Metro’s Gold Line Arcadia Station (currently under construction), providing significant first-mile/last-mile connections for individuals throughout this region. Projected use at the Arcadia Gold Line Station was reviewed during the development of Metro’s “Foothill Extension Bus Interface Plan.” A survey conducted of

1,044 bus riders of routes connecting with or serving the station found that 70 percent of bus passengers intend to use the Gold Line Extension once it is constructed (Attachment I-1). The future Gold Line Arcadia Station will play a significant role in influencing the travel behavior of the City's residents and workers by providing a direct connection to Los Angeles County's regional rail transit network. These bike facilities provide an opportunity for many to use active transportation to reach the Gold Line Station.

Finally, the Project will link two large regional employers, Santa Anita Park and Westfield Santa Anita, Arcadia's indoor shopping mall, with the new Gold Line Arcadia Station. Santa Anita Park is a major tourist destination and employer with up to 1,257 employees (depending on the season). Westfield Santa Anita employs 4,000 part-time and seasonal workers. The addition of bike lanes will enable local and regional visitors and employees, many of whom do not live in Arcadia, to access the park or mall via bicycle or transfer to bicycle via the Gold Line Station. Santa Anita Park is directly on a Project corridor and the Mall is 0.3 miles from a corridor

Figure 2: Project Location and Influence Area in Relation to Primary Activity Centers



-
- C. Referencing the answers to A and B above, describe how the proposed project represents one of the Implementing Agencies (and/or project Partnering Agency's) highest unfunded non-motorized active transportation priorities. (6 points max.)**

This proposed Project is a priority to the City and its partners in that it will provide connectivity for the community and major employers, will support the City's new transit system, will enable the City to encourage increased bicycling, and is consistent with the City's General Plan. Connectivity is one of the guiding principles established in the City of Arcadia's 2010 General Plan and includes an balanced and integrated multi-modal transportation system that is efficient and safe, and connects neighborhoods to jobs, shopping, services, parks, and open space. This Project is further prioritized as it meets policies established in the General Plan's Circulation and Infrastructure element including Goal CI-4: Connected, balanced, and integrated bicycle and pedestrian networks that provide viable alternatives to use of the car (Attachment I-1). Additionally, this Project is fully supported by Metro as it supports regional goals related to first-mile/last-mile and encouraging increased bicycling and walking (Attachment J).

Part B: Narrative Questions

Question #2

QUESTION #2 POTENTIAL FOR REDUCING THE NUMBER AND/OR RATE OF PEDESTRIAN AND BICYCLIST FATALITIES AND INJURIES, INCLUDING THE IDENTIFICATION OF SAFETY HAZARDS FOR PEDESTRIANS AND BICYCLISTS. (0-25 POINTS)

- A. Describe the plan/program influence area or project location's history of collisions resulting in fatalities and injuries to non-motorized users and the source(s) of data used (e.g. collision reports, community observation, surveys, audits). (10 points max.)**

The Transportation Injury Mapping System (TIMS) at UC Berkeley was used for this analysis. Data reported is from 1/1 2009 to 12/21/2012 (note that data from 2013 is incomplete, therefore not used in the analysis).

A total of 109 collisions/incidents with non-motorized users occurred within the Project's influence area between 2009 and 2012, as demonstrated in Table 3. Of those collisions reported, 23 or 21%, occurred on the Project's roadway locations, including one bicyclist fatality. Table 2 presents the type of collisions that occurred in the Project's limits and influence area. A total of 86 collisions occurred in the Project influence area: of these, two resulted in fatalities, 46 injuries were sustained by bicyclists, and 40 injuries were sustained by pedestrians. Table 3 provides a summary of injury severity and fatalities for all collisions between 2009 and 2012. The number of total injuries is larger than the number of collisions as more than one injury may have occurred per collision. Complete data is provided in Attachment I-2.

Figure 2 following illustrates the location of collisions in relation to the City's limits.

Table 2

2009-2012 Motor Vehicle Collision With	Collisions/Incidents in Project Locations/Alignments	Collisions/Incidents in Project Influence Area
Pedestrian	7	40
Bicyclist	16	46
Totals	23	86
Total Collisions	109	

Table 3

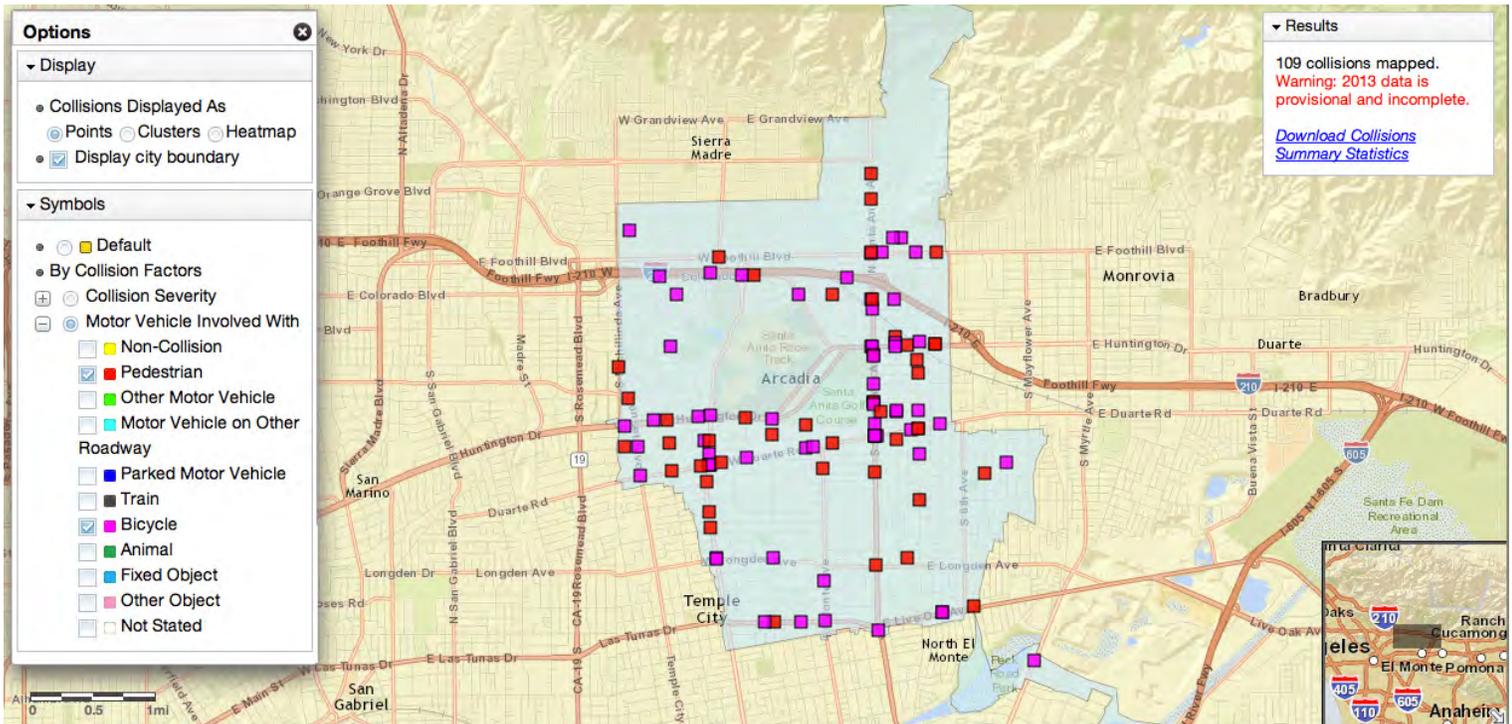
2009-2012 Motor Vehicle Collision With	Within Project Limits					Within 2 Mile Influence Area					
	Fatalities	Injuries				Total	Fatalities	Injuries			
AIS Severity Level	1	2	3	4		1	2	3	4		
Pedestrian	0	1	5	1	7	1	2	21	17	41	
Bicyclist	1	0	8	8	17	1	1	26	19	47	
Total	1	1	13	9	24	2	3	47	36	88	

The City of Arcadia also keeps records of collisions involving bicyclists. Between 2013 and 2015 (as of this writing) 22 injury collisions involving bicyclists occurred on the Project locations, as demonstrated in Table 4. As this data is not yet available in TIMS, it was provided in a separate table.

Table 4

Number of Injury Collisions Involving Bicyclists for 2013 - 2015									
Year	Orange Grove Ave.	Huntington Dr.	Colorado Blvd.	Santa Clara St.	Longden Ave.	2nd Ave.	1st Ave.	Santa Anita Ave.	TOTAL
2013	1	4	1	1	1	1	2	4	15
2014		3			1			2	6
2015								1	1
									22

Figure 2: Bike and pedestrian collisions involving personal injuries within Arcadia City limits between January 2009 and December 2012 (SWITRS via TIMS database)



B. Describe how the project/program/plan will remedy (one or more) potential safety hazards that contribute to pedestrian and/or bicyclist injuries or fatalities; including but not limited to the following possible areas: (15 points max.)

- Reduces speed or volume of motor vehicles in the proximity of non-motorized users.
- Improves sight distance and visibility between motorized and non-motorized users.
- Eliminates potential conflict points between motorized and non-motorized users, including creating physical separation between motorized and non-motorized users.
- Improves local traffic law compliance for both motorized and non-motorized users.
- Addresses inadequate traffic control devices.
- Eliminates or reduces behaviors that lead to collisions involving non-motorized users.
- Addresses inadequate or unsafe traffic control devices, bicycle facilities, trails, crosswalks and/or sidewalks.

X
X
X
X
X

Figure 3: Existing Conditions on Santa Clara Street



One half-mile of **road diets** are proposed along First Ave, which connects to downtown Arcadia, First Ave Middle School and many residences. A total of 9 incidents occurred on First Ave between 2009 and 2015, indicating the need for a major safety countermeasure. The Federal Highway Administration (FHWA) reports that road diets benefits “include a crash reduction of **19 to 47 percent**, reduced vehicle speed differential,

improved mobility and access by all road users, and integration of the roadway into surrounding uses that results in an enhanced quality of life.” (See Attachment I-2 for additional benefits of road narrowing.)

The 15.5 miles of **new Class II bike lanes** are proposed by this Project will create a dedicated path of travel that is visible to motorists and potential users. Class II lanes are proposed along: Highland Oaks/First Ave; on Baldwin Ave; Sierra Madre; Sycamore Blvd; Colorado Blvd; Santa Clara St; Huntington Dr; and on Longden Ave. FHWA’s Pedestrian Safety Guide and Countermeasure Selection System reports that bicycle lanes “create a more predictable traffic environment by reducing conflicts between all modes of travel, Dedicated bicycle facilities...provide a buffer between pedestrians and motor vehicle traffic, encourage lower motor vehicle speeds, and reduce pedestrian exposure to motor vehicles at crossings,” (Attachment I-2). Around 17% of collisions on

the Project locations and 16% of collisions in the Project influence area were reported as a bicyclist on the roadway moving against the flow of traffic. Clearly striped bike lanes will enable visible separation for bicyclists so bicyclists and motorists can correctly share the road.

Finally, 27% of collisions in the influence area were reported as by drivers failing to yield to pedestrians in crosswalks. The **four signal upgrades with bicycle detection** and **14 signal upgrades** will address pedestrian safety at intersections.

These safety countermeasures will increase safety and encourage new users to utilize active transportation for recreation, regional and local trips.

Part B: Narrative Questions

Question #3

QUESTION #3 PUBLIC PARTICIPATION and PLANNING (0-15 POINTS)

Describe the community based public participation process that culminated in the project/program proposal or will be utilized as part of the development of a plan.

A. Who: Describe who was engaged in the identification and development of this project/program/plan (for plans: who will be engaged). (5 points max)

Elements of this Project were developed during the comprehensive public outreach process during preparation of Arcadia's 2010 General Plan, including:

- 6 workshops between 2008 and 2010 that included stakeholders such as: residents, local business owner, representatives from the City, the Arcadia Chinese Association and the Chamber of Commerce.
- Interviews with City stakeholders including elected officials, planning commissioners, community organizations, and interest groups. Members who participated are identified in Table 6 below.
- 13 community members, business owners, and the City Council and Planning Commission assisted as members of the General Plan Advisory Committee (GPAC).

Documentation for all public participation activities in provided in Attachment I-3.

Figure 4: General Plan Community Events



Table 6: General Plan Stakeholder Interviews: Groups Participating

Arcadia Association of Realtors	Arcadia Chinese Association
Arcadia Chamber of Commerce Board of Directors	Chinese Lions Club
Arcadia Chamber of Commerce Executive Committee	Chinese American booster club (schools)
Downtown Merchants	Arcadia Historical Society
Arcadia Wins!	City of Arcadia Beautiful Commission
Arcadia High School Student Council and Student Body	Arcadia First!
Arcadia School District Board	City of Arcadia Historical Museum Commission
Arcadia School District PTA (Elementary, Junior High, and High School)	City of Arcadia Planning Commission
Arcadia School District PTA subgroups: Chinese, Hispanic	City of Arcadia Human Resources Commission
Arcadia Interfaith Group	City of Arcadia Library Board of Trustees
American Red Cross	City of Arcadia Recreation and Parks Commission
Alpha Auxiliary (Methodist Hospital Foundation)	City of Arcadia Senior Citizen's Commission
Arcadia Host Lion Club	Anoakia Estate Homeowners Association
Arcadia Masons	Highland Oaks Homeowners Association
Arcadia Women's Club	Lower Rancho Homeowners Association
Assistance League of Arcadia – Headquarters	Santa Anita Oaks Homeowners Association
Elks Lodge	Santa Anita Village Homeowners Association
Knights of Columbus – Council 3073	Upper Rancho Homeowners Association
Rotary Club of Arcadia	Whispering Pines Homeowners Association
Sunrise Rotary Club	

B. How: Describe how stakeholders were engaged (or will be for a plan). (4 points max)

The General Plan extensive community engagement process was designed to understand the community's aspirations and to establish a foundation based on the vision for the future. Outreach activities included:

- Six general plan workshops, including:
 - an introductory workshop on May 31, 2008,
 - a focused workshop on Downtown Arcadia on October 11, 2008,
 - a joint workshop with the Chamber of Commerce for the Business Community on August 4, 2009
 - two community workshops to present the Draft General Plan to the public during the summer of 2010, and

- workshops with the Planning Commission and City Council in the fall of 2010 prior to formal public hearings.
- zoning code amendments with the Planning Commission on September 14, 2010.
- Workshop in 2008 with the Arcadia Chinese Association;
- Presentations and events with the Chamber of Commerce, including a business expo focused on local Chinese American businesses, a Governmental Affairs Forum, and the annual Business Expo.
- Interviews consisting of one-on-one discussions and group meetings to identify issues of concern to policy makers, residents, and the business community.
- The City Council and Planning Commission held a series of study sessions throughout the General Plan process to review draft land use proposals.
- The City maintained a General Plan website throughout the process to keep the public informed. Visitors could review summaries of interviews and workshops, comment on the Guiding Principles, read background reports, and review the draft General Plan.
- The General Plan Steering Committee (community members and business owners) accomplished:
 - Development of the Guiding Principles
 - Participation in community workshops and joint City Council and Planning Commission workshops
 - Definition and refinement of recommended land use focus areas
 - Development of policies for focus areas
 - Input on draft elements

C. What: Describe the feedback received during the stakeholder engagement process and describe how the public participation and planning process has improved the project's overall effectiveness at meeting the purpose and goals of the ATP. (5 points max)

During the General Plan workshops, Arcadia residents strongly supported a bicycle network within the City, including a conceptual network of 17 miles of bicycle facilities designed to connect residential communities to local destinations and recreational facilities. Community participation also identified 10 Guiding Principles that served as the basis for the General Plan's policies and objectives. Additionally, the GPAC provided varied perspectives of the community and represented opinions and concerns of residents, landowners, interest groups, homeowners' associations, and others interested in the effort. The GPAC also made recommendations to staff prior to Planning Commission and City Council consideration.

Finally, the GPAC helped identify focus areas arose through extensive analysis and discussion during the summer of 2008. This Project encompasses five of the six focus areas: Downtown Arcadia; First Ave and Duarte Road; Live Oak Ave; Baldwin Ave and Duarte Road; and Santa Anita Park and involves strategies that were developed by the GPAC, City leaders, City staff, and the community.

D. Describe how stakeholders will continue to be engaged in the implementation of the project/program/plan. (1 points max)

The community, stakeholders, and interested parties will continue to be involved via public workshops held at key stages during the proposed Project. Information about the proposed Project and opportunities to comment are also anticipated to be distributed at community-wide events.

Part B: Narrative Questions

Question #4

QUESTION #4 IMPROVED PUBLIC HEALTH (0-10 points)

- **NOTE: Applicants applying for the disadvantaged community set aside must respond to the below questions with health data specific to the disadvantaged communities. Failure to do so will result in lost points.**

A. Describe the health status of the targeted users of the project/program/plan. (3 points max)

Significant public health challenges exist in the Project location and the surrounding disadvantaged communities in its influence area. The Project area is part of Los Angeles County Department of Public Health's (DPH) Service Planning Area 3, which serves Arcadia, and many of the disadvantaged communities it neighbors, such as Temple City, Monrovia, San Gabriel, and El Monte. According to DPH. The Health facts for this area include:

- 20.9% of children in grades 5, 7 & 9 are obese.
- 22.2% of adults are obese.
- 8.2% of adults were diagnosed with diabetes.
- 24.2% of adults were diagnosed with hypertension.
- 31.5% of adults were diagnosed with high cholesterol.
- 7.9% of adults were diagnosed with a heart problem.

Furthermore, According to DPH's, 2011 Mortality in Los Angeles County Report, the leading cause of death and premature death in SPA 3 was coronary heart disease. The second leading cause of death was stroke. Both of these are chronic diseases where physical inactivity is a contributing factor.

Information compiled by the California Health Interview Survey (CHIS) reports on additional health indicators for ZIP Codes in the Project's influence area, including four disadvantaged communities: El Monte, Monrovia, San Gabriel and Temple City. Table 7 identifies the prevalence of asthma, diabetes, obesity, among other factors in relation to the prevalence for LA County and the State. Of particular importance:

- Arcadia, Monrovia, San Gabriel and Temple City have a higher prevalence for asthma diagnoses for adults than the County and the State.

- 29.6% of adults 18 to 64 in El Monte have fair or poor health—significantly higher than County’s rate of 21.4%.
- 24.3% of adults in Monrovia and 25.4% of adults in El Monte are obese.

Table 7

Health Indicators	California	Los Angeles County	Project Limits		Disadvantaged Communities in Project's Sphere of Influence			
			91006	91007	91016	91731	91775	91780
			Arcadia	Arcadia	Monrovia	El Monte	San Gabriel	Temple City
Ever diagnosed with asthma (18+)	13.7%	12.2%	14.6%	14.2%	16.2%	11.8%	14.3%	13.7%
Ever diagnosed with diabetes (18+)	8.4%	8.8%	7.7%	7.8%	7.1%	9.9%	8.1%	8.4%
Fair or poor health (18-64)	17.9%	21.4%	16.7%	19.3%	19.2%	29.6%	21.2%	23.6%
Ever diagnosed with heart disease (18+)	6.3%	5.9%	6.2%	6.7%	5.8%	5.7%	6.2%	6.7%
Obese (BMI ≥ 30) (18+)	24.8%	24.7%	16.2%	16.4%	24.3%	25.4%	18.1%	18.0%
Walked at least 150 minutes (18+)	33.3%	35.0%	32.6%	32.0%	32.6%	33.4%	32.7%	31.8%

Source: AskCHIS Neighborhood Edition, The California Health Interview Survey (CHIS)

B. Describe how you expect your project/proposal/plan to enhance public health. (7 points max.)

The improved health outcomes the proposed Project are consistent with the Los Angeles County Department of Public Health 2013-2017 Strategic Plan. These are:

- Goal 1.1: Increase the capacity of community environments to support active living and healthy eating.
- Goal 1.3: Increase community safety and decrease potential for injuries.”

(Attachment I-4).

As demonstrated throughout this application, this Project will increase safety through the implantation of road diets and distinct bike lanes and will encourage and support active living by increasing bicycle facilities by 123%.

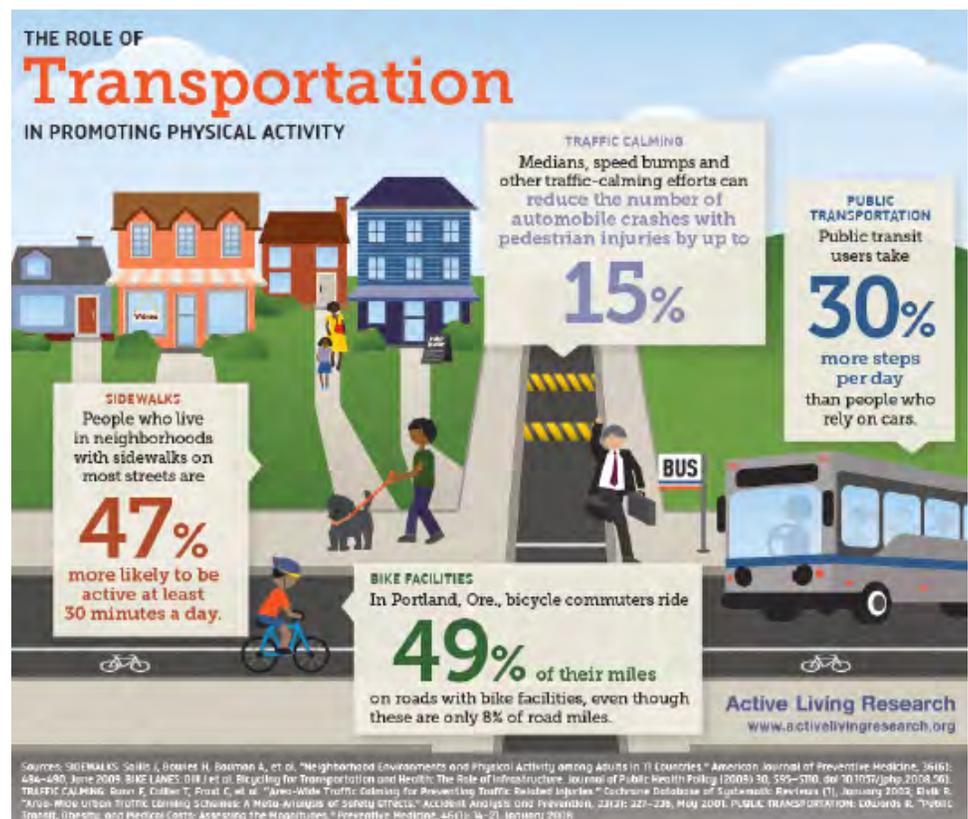
Active Living Research reports in “The Role of Transportation in Promoting Physical Activity” infographic (Figure 5) that traffic-calming efforts can reduce the number of automobile crashes with pedestrian injuries by up to 15%. The traffic calming measures included in the Project are road-diets and bike lanes. Between 2009 and 2015, there were 132 collisions between motor vehicles and pedestrians or cyclists. A 15% reduction means 20 fewer collisions.

As described in Question 1, this Project will result in a 21% increase from current levels of daily bike trips, or an additional 68 bicycle trips per day. Physical activity has been documented to help prevent heart disease obesity, high blood pressure, Type 2 diabetes, Osteoporosis, and Mental health problems such as depression (according to the Pedestrian & Bicycle Information Center Health Benefits Fact Sheet. See Attachment I-4). Increased physical activity will prove a huge benefit to this community where 20% of children in grades 5, 7, and 9 and 22% of adults are obese and where the two leading causes of death are chronic diseases where physical inactivity is a contributing factor.

Finally, the ATP Benefit/Cost Tool assumes 50 percent of new bike trips displace previous auto trips, resulting in an annual reduction of 12,311 vehicle miles traveled and improvements to local air quality (Attachment I-6).

Figure 5: Active Living Research Infographic

The Department of Public Health’s Place Program assisted with this analysis and provided a Letter of Support for this Project (Attachment J).



Part B: Narrative Questions

QUESTION #5 BENEFIT TO DISADVANTAGED COMMUNITIES (0-10 points)

A. Identification of disadvantaged communities: (0 points – SCREENING ONLY)

Provide a map showing the boundaries of the proposed project/program/plan and the geographic boundaries of the disadvantaged community that the project/program/plan is located within and/or benefiting.

Census Tract(s)	Median Income	Population	CES		Project Nexus to Disadvantaged Communities	
			Score	Percentile	Located Within	Directly Benefits
6037481202	\$55,435	5,254	41.07	81-85%		X
6037431501	\$45,492	4,219	36.28	71-75%		X
6037431400	\$65,375	3,798	40.11	81-85%	x	X

Figure 6 following illustrates these communities in relation to the Project and its sphere of influence.

	Yes	No
Is the project located in a disadvantaged community?	X	
Does the project provide a direct, meaningful, and assured benefit to individuals from a disadvantaged community?	X	

Which criteria does this project meet?

- Option 1.** Median household income by census tract for the community(ies) benefited by the project.
- Option 2.** California Communities Environmental Health Screen Tool 2.0 (CalEnvironScreen) score for the community benefited by the project.
- Option 3.** Percent of students eligible for the Free or Reduced Price Meals Programs
- Option 4.** Alternative criteria for identifying disadvantaged communities.

X

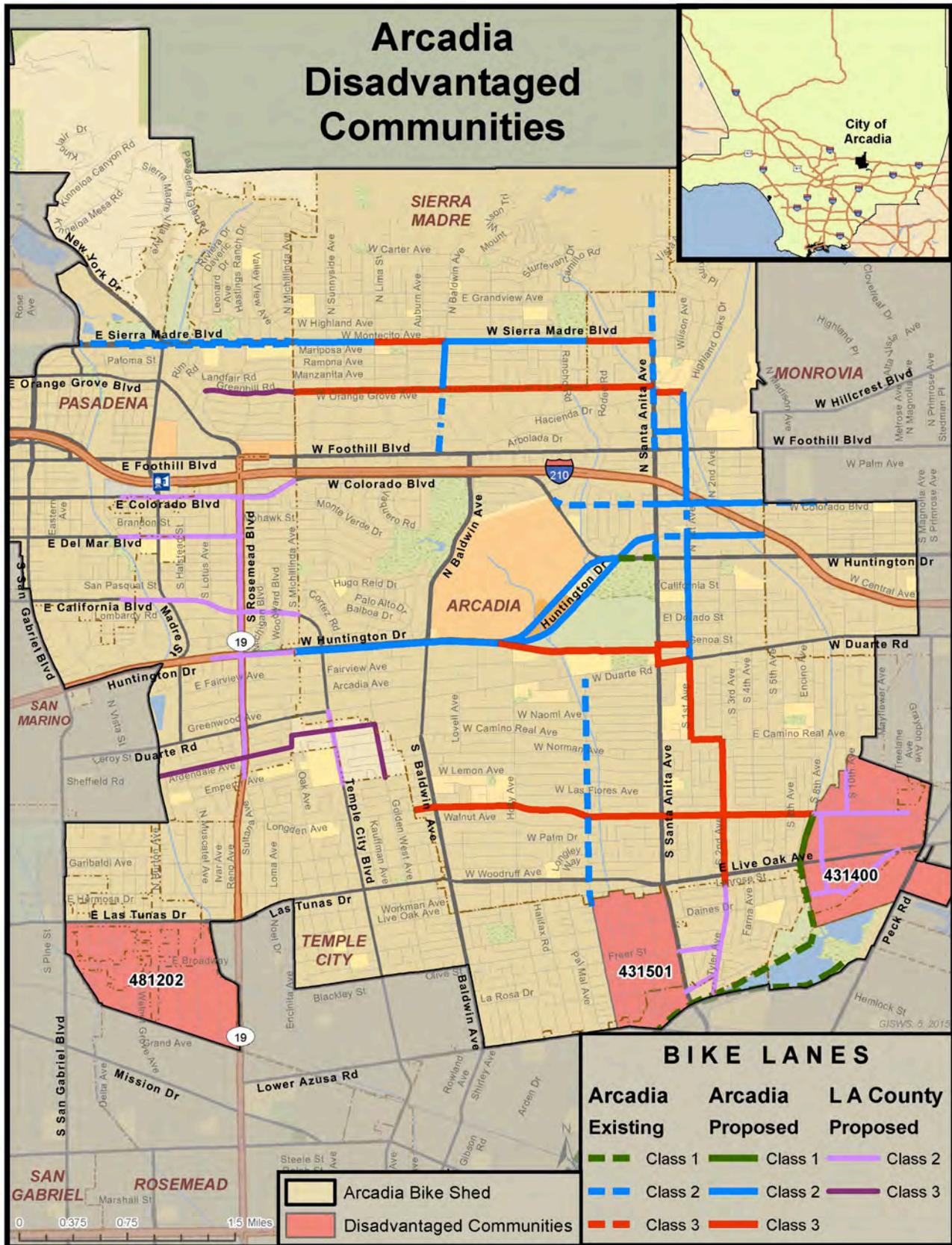
B. For proposals located within disadvantage community: (5 points max)

What percent of the funds requested will be expended in the disadvantaged community? Explain how this percent was calculated.

5%

The 2-mile catchment area for this Class II and III bicycle facility Project encompasses 35 census tracts. Of these four census tracts are classified as disadvantaged based on their CalEnvironScreen score, as demonstrated in the table above. As only one of these census tracts is within the Project’s limits a conservative estimate of 5% was used to estimate the funds being expended in the disadvantaged community.

Figure 6: Proposed Project in Relation to Disadvantaged Communities



C. Describe how the project/program/plan provides (for plans: will provide) a direct, meaningful, and assured benefit to members of the disadvantaged community. (5 points max)

Define what direct, meaningful, and assured benefit means for your proposed project/program/plan, how this benefit will be achieved, and who will receive this benefit.

While only one census tract within the City is disadvantaged, as defined by this program, the proposed Project will provide improved mobility options for many lower-income workers employed in Arcadia, and will provide greater regional mobility and recreational opportunities for disadvantaged individuals living in the communities surrounding Arcadia. A total of 13,271 disadvantaged individuals live within two miles of this Project.

This Project will directly, meaningfully, and assuredly benefit these individuals by providing a safe and continuous active transportation to employment destinations in Arcadia. Santa Anita Race Track (directly links to Project) employs up to 1,257 people. Most of these workers are paid minimum wage and work less than full-time. Methodist Hospital (directly links to Project), a regional medical center, has 1,900 employees. This number includes 30 medical staff. The remaining staff includes lower-earning housekeeping and maintenance staff. Santa Anita Mall (0.3 miles from the Project), the City's single largest employer, has approximately 4,000 employees. Most of these employees are part-time or seasonal. In addition, the nine hotels near the future Gold Line Arcadia Station employ a large number of maintenance and housekeeping staff. Additionally, individuals who work in or near Los Angeles will benefit through improved access to the Gold Line Arcadia Station.

Of equal importance, this Project will provide opportunities for improved health for disadvantaged individuals through increased access to new biking facilities. As noted in Question #4, obesity, diabetes, and asthma rates for these disadvantaged communities are equal to or higher than that of the County and the State. Increased physical activity is proven to improve health and well-being. This Project will provide an opportunity for all individuals in its vicinity to ride the bike more frequently for errands, work, or recreation.

Part B: Narrative Questions

Question #6

QUESTION #6 COST EFFECTIVENESS (0-5 POINTS)

- A. Describe the alternatives that were considered and how the ATP-related benefits vs. project-costs varied between them. Explain why the final proposed alternative is considered to have the highest Benefit to Cost Ratio (B/C) with respect to the ATP purpose of “increased use of active modes of transportation”. (3 points max.)

Arcadia considered two alternatives other than the proposed Project:

Alternative 1—Transit Improvements

A bus interface study was conducted as part of the Gold Line Foothill Extension Construction. The study recommended that the existing Metro and Foothill Transit bus lines be rerouted around the Gold Line Arcadia Station in order to provide better connectivity. Since the City does not have jurisdiction over Metro and Foothill Transit operations, the implementation of bus interfaces is solely dependent on Metro and Foothill Transit. Arcadia does provide a general public demand response transit service within City boundaries. To provide a more efficient and outreaching service, the City is planning to conduct a service needs assessment and transit restructuring study. The transit alternative is deemed feasible, but it does not replace the bicycle mode, as bicycle facilities are still needed to promote alternative transportation and provide improved connectivity. This alternative will be pursued alongside the proposed bicycle facility improvements.

Alternative 2—Pedestrian Improvements

The second alternative considered was to expanding the current pedestrian facility improvement plan to incorporate citywide pedestrian improvements. The current plan is to improve pedestrian facilities near Gold Line Arcadia Station. These pedestrian facilities will connect the station to Downtown Arcadia in which three areas of high employment are located: a concentration of hotels and restaurants, small retail shops and establishments, and various industrial and office buildings. The planned pedestrian improvements would serve both visitors and residents.

Citywide pedestrian improvements were considered. However, current research indicates that typical pedestrians tolerate a $\frac{1}{4}$ mile distance to access a light rail station or for a trip. Regular users may walk up to $\frac{1}{2}$ mile if the route was safe and well kept. Expanding pedestrian facilities to cover all corners of the city would not provide an infrastructure that would effectively encourage more

commuters to use walking as an alternative mode of transportation. Thus, the citywide expansion of pedestrian facilities was deemed inefficient and insufficient.

Proposed Project-

The proposed 15.5 miles of bike lanes and routes and 0.5 mile of road diet will help meet all ATP program goals as well as the City's long term goals of reducing automobile congestion and emissions, providing efficient connectivity, and moving toward healthier lifestyles. Benefits of this Project include: at least 20 fewer collisions with non-motorized users each year, and a 21% increase in cyclists after one year and a 28% increase after 5 years.

This Project provides the greatest benefit to more individuals than the other alternatives as the bike facilities traverse Arcadia connecting it to neighboring cities, transit hubs, major employers, and 10 elementary schools. These bike facilities are an efficient way to promote the use of active transportation for school children, commuters, recreational and casual users.

- B. Use the ATP Benefit/Cost Tool, provided by Caltrans Planning Division, to calculate the ratio of the benefits of the project relative to both the total project cost and ATP funds requested. The Tool is located on the CTC's website at: <http://www.dot.ca.gov/hq/tpp/offices/eab/atp.html>. After calculating the B/C ratios for the project, provide constructive feedback on the tool (2 points max.)**

$$\left(\frac{\textit{Benefit}}{\textit{Total Project Cost}} \textit{ and } \frac{\textit{Benefit}}{\textit{Funds Requested}} \right).$$

According to the ATP Benefit/Cost Tool (see Attachment I-6), this Project will have a benefit to cost (B/C) ratio of 22.4. This means that for every dollar invested, the Project will generate \$22.40 in benefits. Such a large B/C ratio clearly indicates a good investment, with benefits that will well-exceed costs. Similarly, the benefit to funds requested ratio is large (32.0), implying that the Project is a good use of Government funds.

The Project will provide class II and III bike lanes that will provide improved and safer access to the larger bike path network, and nearby transit. The improvement will encourage more people to bike in the area now that safety has been improved, and users can access more of the city without a vehicle.

When making enhancements to the ATP Tool in the future, Caltrans may want to consider the applicability of the model parameters for smaller projects. For instance, many of LA Metro's proposed bike path projects range from .25 miles to 5.0 miles. The value of mobility benefits

assumed in the Tool range from 15.83 minutes per trip to 20.38 minutes per trip, depending on the class of the bike lane. However, in the case of LA Metro's small bike projects, it may not make sense to assume a person would be willing to spend an additional 20.38 minutes per trip just to take a 5 mile bike path. Additional feedback on potential model enhancements for the next ATP cycle is documented in Attachment I-6.

Part B: Narrative Questions

Detailed Instructions for: Question #7

QUESTION #7 LEVERAGING OF NON-ATP FUNDS (0-5 points)

A. The application funding plan will show all federal, state and local funding for the project: (5 points max.)

The City of Arcadia and its partner, the City of Sierra Madre, are committing a total \$437,000 as local match, nearly 30% of the total Project cost. The local match funds will be split 90%/10% split between Arcadia and Sierra Madre. The source of funds is a combination of TDA3, AB2766, Proposition C & Measure R.

\$15,000 will be expended for E&P (PA&PD) to be allocated in FY16/17.

\$36,000 will be expended for PS&E to be allocated in FY16/17.

\$386,000 will be expended for Construction to allocated in FY 17/18.

This is detailed in Attachment B, ATP-PPR.

Part B: Narrative Questions

Detailed Instructions for: Question #8

QUESTION #8 USE OF CALIFORNIA CONSERVATION CORPS (CCC) OR A CERTIFIED COMMUNITY CONSERVATION CORPS (0 or -5 points)

Step 1: Is this an application requesting funds for a Plan (Bike, Pedestrian, SRTS, or ATP Plan)?

- Yes (If this application is for a Plan, there is no need to submit information to the corps and there will be no penalty to applicant: 0 points)
- No (If this application is NOT for a Plan, proceed to Step #2)

Step 2: The applicant must submit the following information via email concurrently to both the CCC AND certified community conservation corps prior to application submittal to Caltrans. The CCC and certified community conservation corps will respond within five (5) business days from receipt of the information.

- Project Title
- Project Description
- Detailed Estimate
- Project Schedule
- Project Map
- Preliminary Plan

California Conservation Corps representative:

Name: Wei Hsieh

Email: atp@ccc.ca.gov

Phone: (916) 341-3154

Community Conservation Corps representative:

Name: Danielle Lynch

Email: inquiry@atpcommunitycorps.org

Phone: (916) 426-9170

Step 3: The applicant has coordinated with Wei Hsieh with the CCC AND Danielle Lynch with the certified community conservation corps and determined the following (check appropriate box):

Neither corps can participate in the project (0 points)

- Applicant intends to utilize the CCC or a certified community conservation corps on the following items listed below

To be determined if a successful applicant. See documentation in Attachment I-8.

Applicant has contacted the corps but intends not to use the corps on a project in which either corps has indicated it can participate (-5 points)

Applicant has not coordinated with both corps (-5 points)

Part B: Narrative Questions

Detailed Instructions for: Question #9

QUESTION #9 APPLICANT'S PERFORMANCE ON PAST GRANTS AND DELIVERABILITY OF PROJECTS
(0 to-10 points OR disqualification)

- A. **Applicant:** Provide short explanation of the Implementing Agency's project delivery history for all projects that include project funding through Caltrans Local Assistance administered programs (ATP, Safe Routes to School, BTA, HSIP, etc.) for the last five (5) years.

The City of Arcadia has consistently relied on grant funding to support its CIP. Currently the City is in the process of delivering a project funded under Cycle 3 of Federal Safe Routes to School (SRTS) program. The City has obtained the Construction Authorization from Caltrans. The construction contract award is expected in May 2015. Construction will start in mid June 2015 with the targeted completion of October 2015.

Caltrans response only:

Caltrans to recommend score for deliverability of scope, cost, and schedule based on the overall application.

Part C: Application Attachments

Applicants must ensure all data in this part of the application is fully consistent with the other parts of the application. See the Application Instructions and Guidance document for more information and requirements related to Part C.

List of Application Attachments

The following attachment names and order must be maintained for all applications. Depending on the Project Type (I, NI or Plans) some attachments will be intentionally left blank. All non-blank attachments must be identified in hard-copy applications using “tabs” with appropriate letter designations

Application Signature Page Required for all applications	Attachment A
ATP - PROJECT PROGRAMMING REQUEST (ATP-PPR) Required for all applications	Attachment B
Engineer’s Checklist Required for Infrastructure Projects	Attachment C
Project Location Map Required for all applications	Attachment D
Project Map/Plans showing existing and proposed conditions Required for Infrastructure Projects (optional for ‘Non-Infrastructure’ and ‘Plan’ Projects)	Attachment E
Photos of Existing Conditions Required for all applications	Attachment F
Project Estimate Required for Infrastructure Projects	Attachment G
Non-Infrastructure Work Plan (Form 22-R) Required for all projects with Non-Infrastructure Elements	Attachment H
Narrative Questions backup information Required for all applications Label attachments separately with “H-#” based on the # of the Narrative Question	Attachment I
Letters of Support Required or Recommended for all projects (as designated in the instructions)	Attachment J
Additional Attachments Additional attachments may be included. They should be organized in a way that allows application reviews easy identification and review of the information.	Attachment K

Application Signature

Attachment A



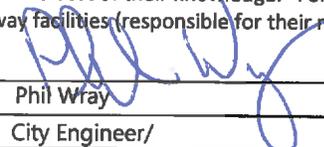
Part C: Attachments

Attachment A: Signature Page

IMPORTANT: Applications will not be accepted without all required signatures.

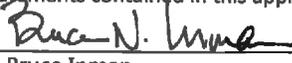
Implementing Agency: Chief Executive Officer, Public Works Director, or other officer authorized by the governing board

The undersigned affirms that their agency will be the "Implementing Agency" for the project if funded with ATP funds and they are the Chief Executive Officer, Public Works Director or other officer **authorized by their governing board with the authority to commit the agency's resources and funds**. They are also affirming that the statements contained in this application package are true and complete to the best of their knowledge. For infrastructure projects, the undersigned affirms that they are the manager of the public right-of-way facilities (responsible for their maintenance and operation) or they have authority over this position.

Signature:		Date:	<u>5/28/2015</u>
Name:	<u>Phil Wray</u>	Phone:	<u>(626) 574-5488</u>
Title:	<u>City Engineer/ Deputy Development Services Director City of Arcadia</u>	e-mail:	<u>pwwray@ci.arcadia.ca.us</u>

For projects with a Partnering Agency: Chief Executive Officer or other officer authorized by the governing board
(For use only when appropriate)

The undersigned affirms that their agency is committed to partner with the "Implementing Agency" and agrees to assume the responsibility for the ongoing operations and maintenance of the facility upon completion by the implementing agency and they intend to document such agreement per the CTC guidelines. The undersigned also affirms that they are the Chief Executive Officer or other officer authorized by their governing board with the authority to commit the agency's resources and funds. They are also affirming that the statements contained in this application package are true and complete to the best of their knowledge.

Signature:		Date:	<u>5/28/2015</u>
Name:	<u>Bruce Inman</u>	Phone:	<u>(626) 355-7135</u>
Title:	<u>Director of Public Works City of Sierra Madre</u>	e-mail:	<u>binman@cityofsierramadre.com</u>

For Safe Routes to School projects and/or projects presented as benefiting a school: School or School District Official
(For use only when appropriate)

The undersigned affirms that the school(s) benefited by this application is not on a school closure list.

Signature:	_____	Date:	_____
Name:	_____	Phone:	_____
Title:	_____	e-mail:	_____

For projects with encroachments on the State right-of-way: Caltrans District Traffic Operations Office Approval*
(For use only when appropriate)

If the application's project proposes improvements within a freeway or state highway right-of-way, whether it affects the safety or operations of the facility or not, it is required that the proposed improvements be reviewed by the district traffic operations office and either a letter of support/acknowledgement from the traffic operations office be attached or the signature of the traffic manager be secured in the application. The Caltrans letter and/or signature does not imply approval of the project, but instead is only an acknowledgement that Caltrans District staff is aware of the proposed project; and upon initial review, the project appears to be reasonable and acceptable.

Is a letter of support/acknowledgement attached? If yes, no signature is required. If no, the following signature is required.

Signature:	_____	Date:	_____
Name:	_____	Phone:	_____
Title:	_____	e-mail:	_____

* Contact the District Local Assistance Engineer (DLAE) for the project to get Caltrans Traffic Ops contact information. DLAE contact information can be found at <http://www.dot.ca.gov/hq/LocalPrograms/dlae.htm>

Project Programming Request

Attachment B

Date: _____

Project Information:					
Project Title:	Bicycle Facility Improvements Project				
District	County	Route	EA	Project ID	PPNO
7	LA	VAR			

Funding Information:									
DO NOT FILL IN ANY SHADED AREAS									
Proposed Total Project Cost (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Notes:
E&P (PA&ED)				50				50	
PS&E				119				119	
R/W									
CON					1,288			1,288	
TOTAL				169	1,288			1,457	

ATP Funds	Infrastructure Cycle 2								Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)				35				35	
PS&E				83				83	Notes:
R/W									
CON					902			902	
TOTAL				118	902			1,020	

ATP Funds	Non-infrastructure Cycle 2								Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

ATP Funds	Plan Cycle 2								Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

ATP Funds	Previous Cycle								Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

ATP Funds	Future Cycles								Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

Date: _____

Project Information:					
Project Title: Bicycle Facility Improvements Project					
District	County	Route	EA	Project ID	PPNO
7	LA	VAR			

Funding Information:
DO NOT FILL IN ANY SHADED AREAS

Fund No. 2:	Local Match								Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)				15				15	Arcadia, Sierra Madre
PS&E				36				36	Notes:
R/W									Arcadia/Sierra Madre Local Match
CON					386			386	Split: 90%/10%
TOTAL				51	386			437	

Fund No. 3:									Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

Fund No. 4:									Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

Fund No. 5:									Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

Fund No. 6:									Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

Fund No. 7:									Program Code
Proposed Funding Allocation (\$1,000s)									
Component	Prior	14/15	15/16	16/17	17/18	18/19	19/20+	Total	Funding Agency
E&P (PA&ED)									
PS&E									Notes:
R/W									
CON									
TOTAL									

Engineer's Checklist

Attachment C

ATP Engineer's Checklist for Infrastructure Projects

Required for "Infrastructure" applications ONLY

This application checklist is to be used by the engineer in "responsible charge" of the preparation of this ATP application to ensure all of the primary elements of the application are included as necessary to meet the CTC's requirements for a PSR-Equivalent document (per CTC's ATP Guidelines and CTC's Adoption of PSR Guidelines - Resolution G-99-33) and to ensure the application is free of critical errors and omissions; allowing the application to be accurately ranked in the statewide ATP selection process.

Special Considerations for Engineers before they Sign and Stamp this document attesting to the accuracy of the application:

Chapter 7; Article 3; Section 6735 of the Professional Engineer's Act of the State of California requires engineering calculation(s) or report(s) be either prepared by or under the responsible charge of a licensed civil engineer. Since the corresponding ATP Infrastructure-application defines the scope of work of a future civil construction project and requires complex engineering principles and calculations which are based on the best data available at the time of the application, the application must be signed and stamped by a licensed civil engineer.

By signing and stamping this document, the engineer is attesting to this application's technical information and engineering data upon which local agency's recommendations, conclusions, and decisions are made. This action is governed by the Professional Engineer's Act and the corresponding Code of Professional Conduct, under Sections 6775 and 6735.

The following checklist is to be completed by the engineer in "responsible charge" of defining the projects Scope, Cost and Schedule per the expectations of the CTC's PSR Equivalent. The checklist is expected to be used during the preparation of the documents, but not initialed and stamped until the final application and application attachments are complete and ready for submission to Caltrans.

1. **Vicinity map /Location map** Engineer's Initials: PAW
 - a. The project limits must be clearly depicted in relationship to the overall agency boundary

2. **Project layout-plan/map** showing existing and proposed conditions must: Engineer's Initials: PAW
 - a. Be to a scale which allows the visual verification of the overall project "construction" limits and limits of each primary element of the project
 - b. Show the full scope of the proposed project, including any non-participating construction items
 - c. Show all changes to existing motorized/non-motorized lane and shoulder widths. Label the proposed widths
 - d. Show agency's right of way (ROW) lines when permanent or temporary ROW impacts are possible. (As appropriate, also show Caltrans', Railroad, and all other government agencies ROW lines)

3. **Typical cross-section(s)** showing existing and proposed conditions. Engineer's Initials: PAW
(Include cross-section for each controlling configuration that varies significantly from the typical)
 - a. Show and dimension: changes in lane widths, ROW lines, side slopes, etc.

4. **Detailed Engineer's Estimate** Engineer's Initials: PAW
 - a. Estimate is reasonable and complete.
 - b. Each of the main project elements are broken out into separate construction items. The costs for each item are based on calculated quantities and appropriate corresponding unit costs
 - c. All non-participating costs in relation to the ATP funding are clearly identified and accounted for separately from the eligible costs.
 - d. All project elements the applicant intends to utilize the CCC (or a certified community conservation corps) on need to be clearly identified and accounted for
 - e. All project development costs to be funded by the ATP need to be accounted for in the total project cost

5. **Crash/Safety Data, Collision maps and Countermeasures:** Engineer's Initials: Paw
a. Confirmation that crash data shown occurred within influence area of proposed improvements.

6. **Project Schedule and Requested programming of ATP funding** Engineer's Initials: Paw
a. All applicants must anticipate receiving federal ATP funding for the project and therefore the project schedules and programming included in the application must account for all applicable requirements and timeframes.
b. "Completed Dates" for project Milestone Dates shown in the application have been reviewed and verified
c. "Expected Dates" for project Milestone Dates shown in the application account for all reasonable project timetables, including: Interagency MOUs, Caltrans agreements, CTC allocations, FHWA authorizations, federal environmental studies and approvals, federal right-of-way acquisitions, federal consultant selections, project permits, etc.
d. The fiscal year and funding amounts shown in the PPR must be consistent with the values shown in the project cost estimate(s), expected project milestone dates and expected matching funds.

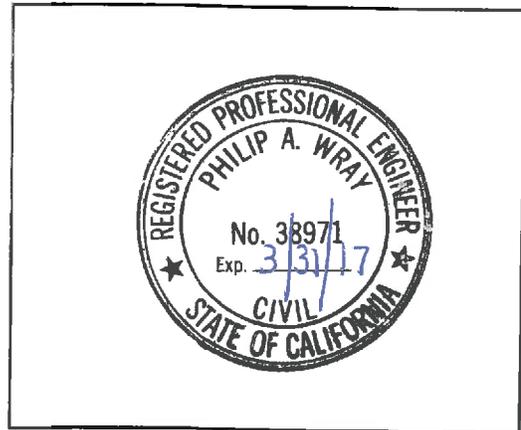
7. **Warrant studies/guidance (Check if not applicable)** Engineer's Initials: Paw
 N/A a. For new Signals - Warrant 4, 5 or 7 must be met (CA MUTCD): Signal warrants must be documented as having been met based on the CA MUTCD

8. **Additional narration and documentation:** Engineer's Initials: Paw
a. The text in the "Narrative Questions" in the application is consistent with and supports the engineering logic and calculations used in the development of the plans/maps and estimate
b. When needed to clarify non-standard ATP project elements (i.e. vehicular roadway widening necessary for the construction of the primary ATP elements); appropriate documentation is attached to the application to document the engineering decisions and calculations requiring the inclusion of these non-standard elements.

Licensed Engineer:

Name (Last, First): PHILIP A WRAY
Title: DEV. SVCS. DIRECTOR/CITY ENGINEER
Engineer License Number: RGE 38971
Signature: [Handwritten Signature]
Date: 5/27/15
Email: pwray@ciarcadia.ca.us
Phone: 626-574-5488

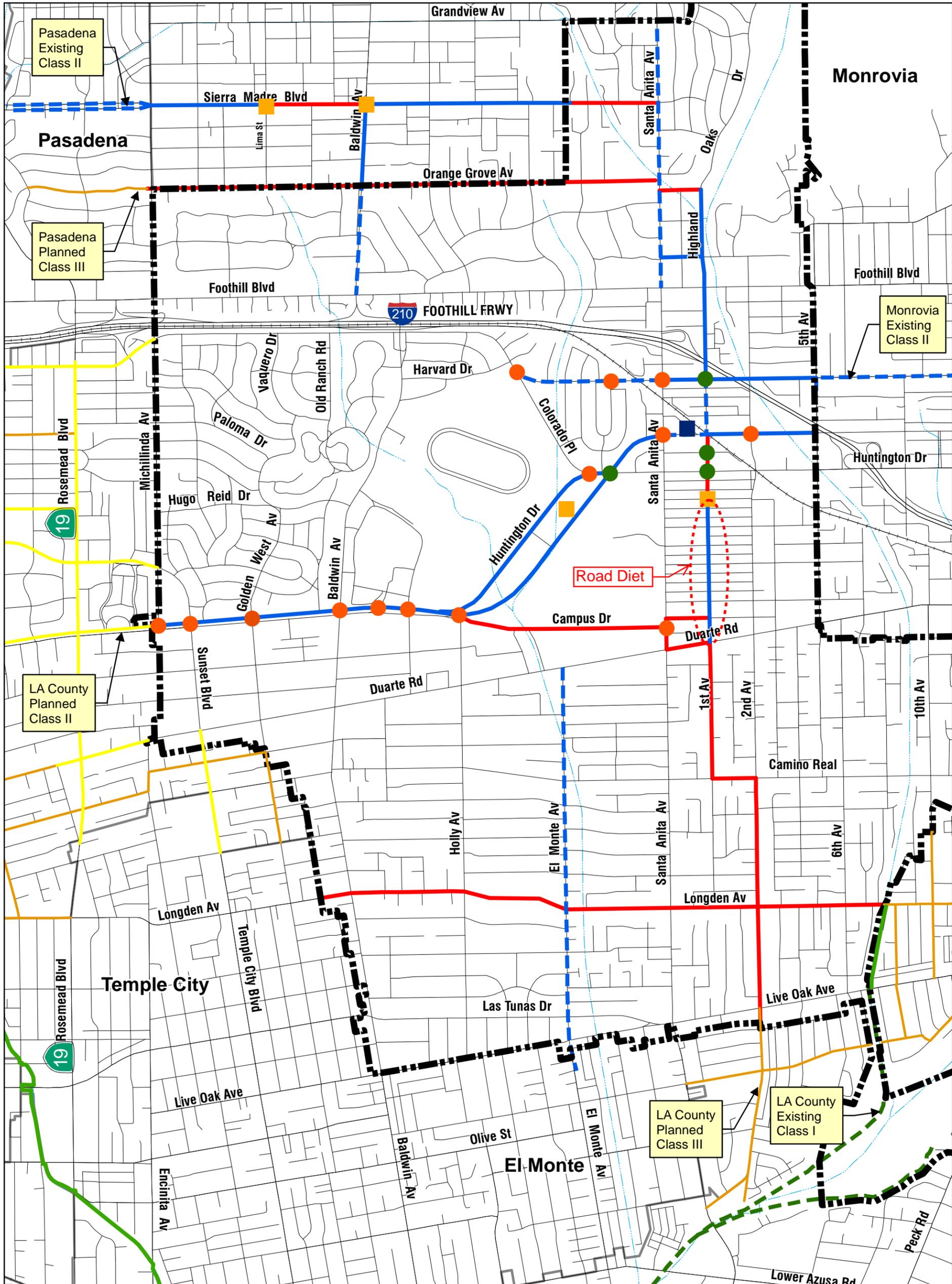
Engineer's Stamp:



Project Location Map

Attachment D

Attachmnet D- Project Location Map



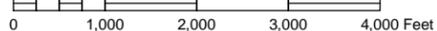
Mapped by: Hogle-Ireland Inc., 2010.
Data Sources: The Mobility Group, 2010.

Bike Classification

- | | | | |
|--|------------------------------|--|-----------------------------|
| | Existing Class I Bike Path | | LA County |
| | Existing Class II Bike Lane | | |
| | Proposed Class II Bike Lane | | |
| | Proposed Class III Bike Lane | | |
| | Planned Class I Bike Path | | |
| | | | Planned Class III Bike Lane |

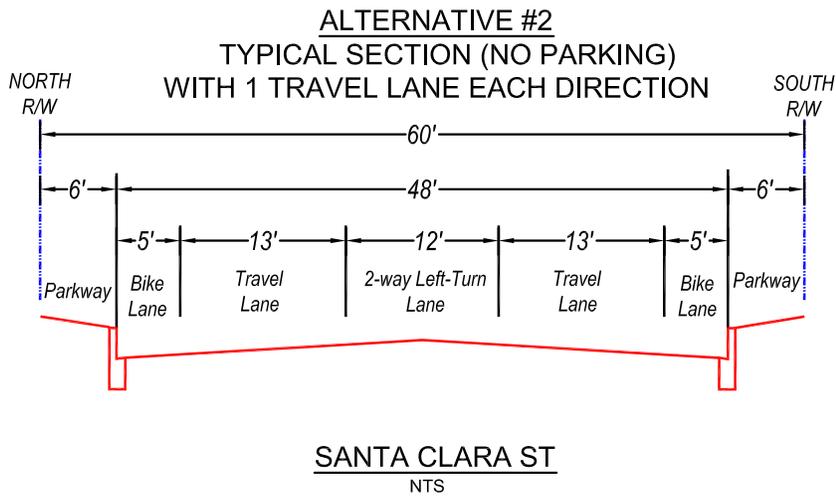
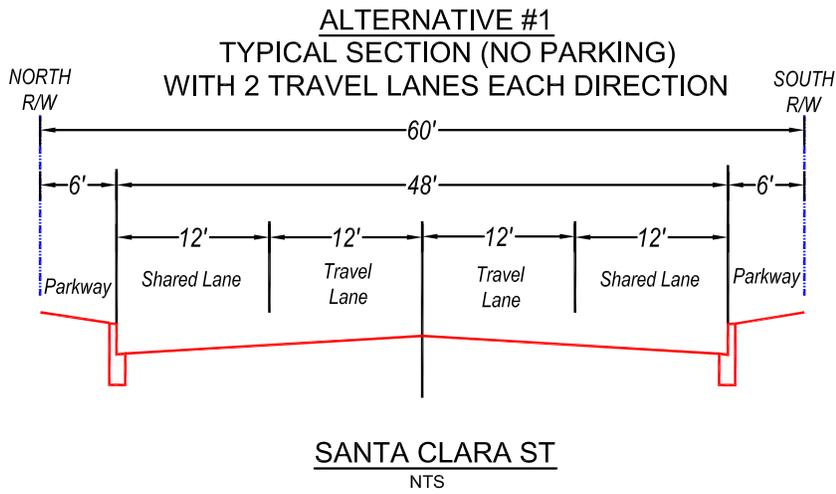
Base Map Features

- City Boundary
- Sphere of Influence
- Freeway
- Local Road
- Railroad
- Water Feature



Project Map/Plans
Existing and Proposed
Conditions
Attachment E

Attachment E - Project Layout/Plans



CITY OF ARCADIA



DEVELOPMENT SERVICES DEPT.
ENGINEERING DIVISION

SANTA CLARA STREET

TYPICAL STREET SECTIONS
BETWEEN SANTA ANITA AVE & FIRST AVE
ALTERNATIVE #1 & #2

DATE: 3/1/2011

BY: KLM

CHK'D BY:

SCALE:

NOT TO SCALE

DRAWING NO.

2

Photos of Existing Conditions

Attachment F

City of Arcadia Bicycle Facility Improvements

Attachment F: Photos of Existing Conditions



Santa Clara Avenue



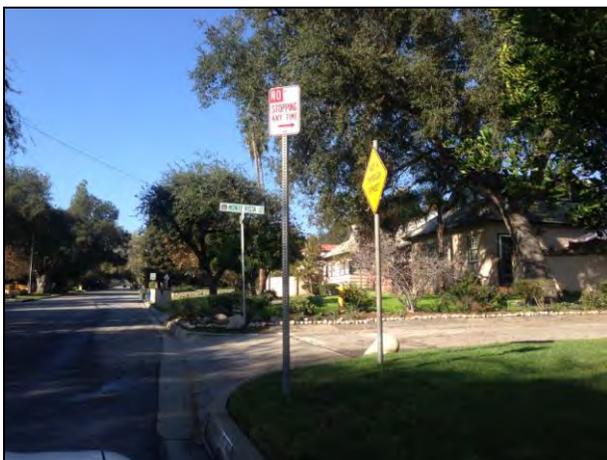
Highland Oaks Drive



First Avenue and Santa Clara



Huntington Drive



Orange Grove Avenue



Sierra Madre Boulevard

All photos depict the lack of separate and clearly marked bicycle lanes. Currently, bicyclists must share the road with cars, risking dooring and collisions with motorists.

Project Estimate

Attachment G

Detailed Engineer's Estimate and Total Project Cost

Attachment G

Important: Read the Instructions in the other sheet (tab) before entering data. Do not enter in shaded fields (with formulas).

Project Information:

Agency:	City of Arcadia			
Application ID:	Prepared by:	Linda Huiq	Date:	5/20/15
Project Description:	Bicycle Facility Improvements Project			
Project Location:	Throughout Arcadia & part of Sierra Madre. N/S corridors: 1st Av/2nd Av/Highland Oaks Dr from Sierra Madre Bl to south city limit; E/W Corridors: Sierra Madre Bl, Orange Grove Av, Colorado Bl, Santa Clara St, Huntington Dr, Campus Dr & Longden Av.			

Engineer's Estimate and Cost Breakdown:

Engineer's Estimate (for Construction Items Only)						Cost Breakdown							
						Note: Cost can apply to more than one category. Therefore may be over 100%.							
						ATP Eligible Items		Landscaping		Non-Participating Items		To be Constructed by Corps/CCC	
Item No.	Item	Quantity	Units	Unit Cost	Total Item Cost	%	\$	%	\$	%	\$	%	\$
1	Traffic Signal Upgrade	3	ea	\$15,000.00	\$45,000	100%	\$45,000						
2	Bike Signal Detection	35	ea	\$8,800.00	\$308,000	100%	\$308,000						
3	Bike Signal Head & Configuration	1	LS	\$25,000.00	\$25,000	100%	\$25,000						
4	Sharrows	19.4	ea	\$155.00	\$3,006	100%	\$3,006						
5	Sinage	400	ea	\$300.00	\$120,000	100%	\$120,000						
6	Striping: Removal	38420	LF	\$6.00	\$230,520	100%	\$230,520						
7	Striping: Installation	74900	LF	\$4.00	\$299,600	100%	\$299,600						
8	Striping: Road diet Installation	3060	LF	\$8.00	\$24,480	100%	\$24,480						
9	Bike Racks	6	ea	\$1,200.00	\$7,200	100%	\$7,200						
10													
11													
12													
13													
14													
15													
16													
Subtotal of Construction Items:					\$1,062,806		\$1,062,806						
Construction Item Contingencies (% of Construction Items):				10.00%	\$106,281								
Enter in the cell to the right													
Total (Construction Items & Contingencies) cost:					\$1,169,086								

Project Cost Estimate:

Type of Project Delivery Cost	Cost \$		
Preliminary Engineering (PE)			
Environmental Studies and Permits(PA&ED):	\$ 50,000		
Plans, Specifications and Estimates (PS&E):	\$ 119,000		
Total PE:	\$ 169,000	14%	25% Max
Right of Way (RW)			
Right of Way Engineering:			
Acquisitions and Utilities:			
Total RW:	\$ -		
Construction (CON)			
Construction Engineering (CE):	\$ 119,000	9%	15% Max
Total Construction Items & Contingencies:	\$1,169,086		
Total CON:	\$ 1,288,086		
Total Project Cost Estimate:		\$ 1,457,086	

**Non-Infrastructure Work Plan
(Form 22-R)
Attachment H**

Not Applicable

Narrative Questions
Back-up Information
Attachment I

Attachment I-Screening Criteria 2

1. SCAG 2012-2035 RTP/SCS (Excerpt)
2. Metro Long Range Plan (Excerpt)
3. Metro Countywide Sustainability Planning Policy & Implementation Plan (Excerpt)
4. Metro First Last Mile Strategic Plan (Excerpt)

COASTAL TRAILS

In addition to bikeways, local trails have played an important role in increasing accessibility and providing opportunities for active transportation. Trails along the coast of California have been utilized as long as people have inhabited the region. In an effort to develop a “continuous public right-of-way along the California coastline, a trail designed to foster appreciation and stewardship of the scenic and natural resources of coastal trekking through hiking and other complementary modes of non-motorized transportation,” the California Coastal Trail (CCT) was established. SCAG proposes the completion of the CCT to increase active transportation access to the coast. Completion of the CCT would provide 183 miles of multipurpose trails.

SAFE ROUTES TO SCHOOL

SAFETEA-LU established the Safe Routes to School (SRTS) program to “enable and encourage primary and secondary school children to walk and bicycle to school” and to support infrastructure-related and behavioral projects that are “geared toward providing a safe, appealing environment for walking and bicycling that will improve the quality of our children’s lives and support national health objectives by reducing traffic, fuel consumption, and air pollution in the vicinity of schools.” Safe Route to School programs can play a critical role in eliminating some of the vehicle trips that occur during peak periods to drop off or pick up students by ensuring safe routes to bike or walk to school.

COMPLETE STREETS

The Complete Streets Act of 2008 (AB 1358) requires cities and counties to incorporate the concept of Complete Streets in their General Plan updates to ensure that transportation plans meet the needs of all users of our roadway system. SCAG supports and encourages implementation of Complete Streets policies in the 2012–2035 RTP/SCS. SCAG will work with the local jurisdictions as they implement Complete Streets strategies within their jurisdictions by providing information and resources to support local planning activities. SCAG also supports the following policies and actions related to active transportation:

- Encourage and support local jurisdictions to develop comprehensive educational programs for all road users,
 - Encourage local jurisdictions to direct enforcement agencies to focus on bicycling and walking safety to reduce multimodal conflicts,
 - Support local advocacy groups and bicycle-related businesses to provide bicycle-safety curricula to the general public,
 - Encourage children, including those with disabilities, to walk and bicycle to school,
 - Encourage local jurisdictions to adopt and implement the proposed SCAG Regional Bikeway Network,
 - Support local jurisdictions to connect all of the cities within the SCAG region via bicycle facilities,
 - Encourage local jurisdictions to complete the California Coastal Trail,
 - Encourage the use of intelligent traffic signals and other technologies that detect slower pedestrians in signalized crosswalks and extend signal time as appropriate,
 - Support the facilitation, planning, development, and implementation of projects and activities that will improve safety and reduce traffic and air pollution in the vicinity of primary and middle schools, and
 - Encourage local jurisdictions to prioritize and implement projects/policies to comply with ADA requirements.
- Encourage and support local jurisdictions to develop “Active Transportation Plans” for their jurisdictions if they do not already have one,

Policy Recommendations

While SCAG is not an implementing agency SCAG may work with local jurisdictions to assist them with developing policies and projects that may improve active transportation.

Agencies, Groups and Individuals in Bicycle and Walking Planning

Federal and state regulations require SCAG to plan and accommodate for bicycle and walking transportation. As the region's MPO, SCAG develops regional planning strategies and encourages local jurisdictions to think about transportation at the regional level, since individual travel decisions are not bound by political boundaries and often transverse multiple jurisdictions. A regional approach towards transportation planning will provide increased connectivity and accessibility. The 2012 RTP has been developed in cooperation and collaboration with federal, state and local stakeholders. Each stakeholder plays a different role in the development and final adoption of the RTP.

FEDERAL GOVERNMENT

Federal statutes have mandated Metropolitan Planning Organizations (MPOs) to include pedestrian and bicycle facility strategies as part of their overall systematic approach in addressing current and future transportation demands.

STATE OF CALIFORNIA

The State of California and Caltrans has long supported active transportation planning, design policies and practices.

COUNTIES

Each county within the SCAG region has developed and maintained a bicycle and walking master plan to guide their active transportation development.

CITIES

Many of the cities within the SCAG region have developed and maintained a bicycle and/or walking plan as part of their circulation element or as a separate document. These

plans are used to guide their transportation development and assist them with the implementation of their active transportation policies.

Performance Measures

In addition to the established goals and objectives the following performance measures have been identified in an effort to maximize the benefits of active transportation modes:

1. Change in Active Transportation mode share: Increase bicycling and walking in the SCAG region by creating and maintaining an active transportation system that includes well maintained bicycle and pedestrian facilities, easy access to transit facilities, and increased safety and security.
2. Change in the amount of Active Transportation facilities: Increase accommodation and planning for bicyclists and pedestrians (including persons with disabilities) for all transportation planning projects.
3. Change in the number of accidents involving Active Transportation users: Decrease bicyclist and pedestrian fatalities and injuries by increasing transportation safety.
4. Change in land use patterns and Active Transportation: Support local jurisdictions comply with the Complete Streets Act and the development of local active transportation plans. SCAG will also work with local jurisdictions in developing a regional active transportation plan.

Proposed Policies

The goals, objectives and policies in this report were derived from information gathered over the course of the planning process, including public input, review of bicycle and pedestrian master plans from local jurisdictions throughout the region.

GOAL 1: DECREASE BICYCLIST AND PEDESTRIAN FATALITIES AND INJURIES

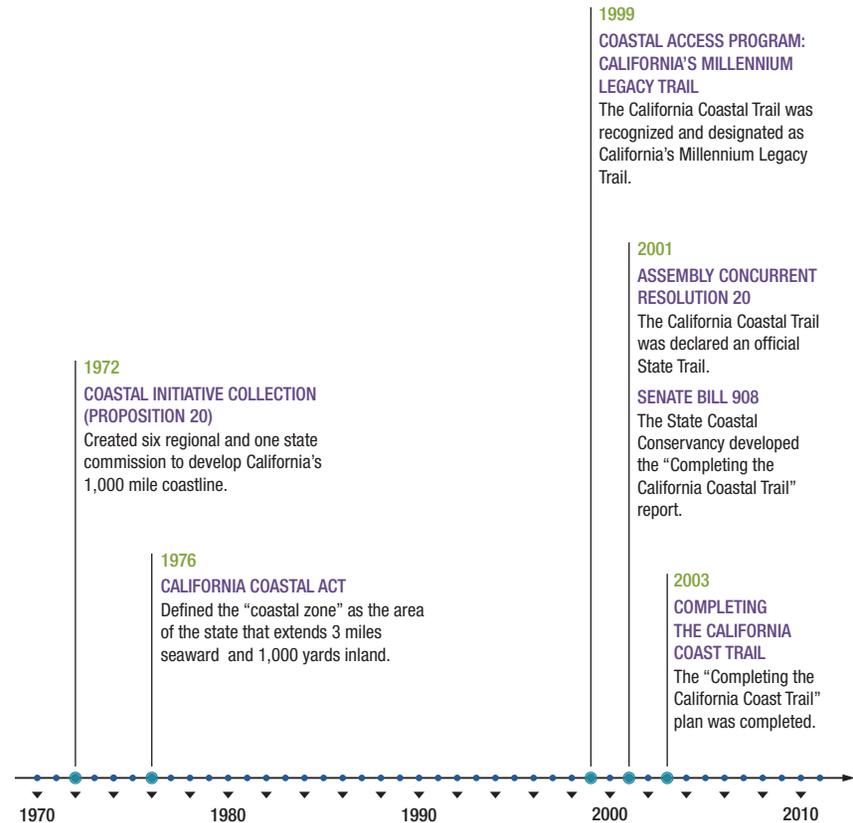
- **Objective 1.1:** SCAG will work with local jurisdictions to support a safe transportation environment in the SCAG Region.
 - Policy 1.1.1: SCAG will work with local jurisdictions to provide comprehensive education for all road users.

- Policy 1.1.2: SCAG will work with local jurisdictions to direct enforcement agencies to focus on bicycling and walking safety to reduce multi-modal conflicts.
- Policy 1.1.3: SCAG will partner with local advocacy groups and bicycle related businesses to provide bicycle-safety curricula to the general public.

The 2006 Strategic Highway Safety Plan (SHSP) established goals to make walking and street crossing safer; and improve bicycle safety. The SHSP intended on achieving these goals by 2010, reducing the number of pedestrian fatalities attributed to vehicle collisions and the number of bicycle roadway fatalities by 25 percent from their 2000 level. These goals were established by the Legislature in the 2002 California Blueprint for Bicycling and Walking, and assumed that the Legislature’s mobility goal of a 50 percent increase in bicycling and pedestrian trips by 2010 would also be achieved.

Improved data collection regarding pedestrian and bicycle trip characteristics, facility conditions and injuries and fatalities would provide local jurisdictions with a clearer understanding of the active transportation conditions within their jurisdictions. Analysis generated from this data would also provide decision makers with a better understanding of the deficiencies and needs within the existing active transportation system.

FIGURE 14 California Coastal Trail Timeline



GOAL 2: DEVELOP AN ACTIVE TRANSPORTATION FRIENDLY ENVIRONMENT THROUGHOUT THE SCAG REGION

- **Objective 2.1:** Produce a comprehensive regional active transportation plan
 - Policy 2.1.1: SCAG will work with local jurisdictions to adopt and implement the proposed SCAG Regional Bikeway Network
 - Policy 2.1.2: SCAG will work with local jurisdictions to connect all cities in the SCAG region via bicycle facilities
 - Policy 2.1.3: SCAG will work with local jurisdictions to complete the California Coastal Trail

The need for active transportation needs to be fully considered for all transportation planning projects. Increased accommodation for bicyclists and pedestrians requires increased funding, multi-modal planning, programming, and design. As planners increase accommodation for active transportation users, an increase in bicyclist and pedestrian safety should also occur.

Research by Dr. Jennifer Dill, Portland State University Associate Professor, and anecdotal evidence from New York City (NYC) indicate that increases in dedicated bicycle facilities (bicycle lanes and bicycle paths) in those cities have resulted in greater bicycle usage. In addition, in NYC, while bicycling use has doubled along with the number of bicycle facilities, bicycle fatalities have not grown, and injuries have actually declined in total. Collaborative efforts that are capable of integrating the needs of all commuters are essential to developing a safe and accessible transportation system for all users.

Adoption of the SCAG Regional Bikeway Network would increase bicycle facilities by 827.5 miles beyond existing local plans, and may further promote ridership in the SCAG region. In addition, SCAG may partner with local jurisdictions on grant opportunities such as the Caltrans Bicycle Transportation Account (BTA) or Safe Routes to School (SRTS) projects. SCAG may also provide local jurisdictions with assistance in the development of their local active transportation plans and by providing them with Pedestrian Safety Action Plan (PSAP) workshops. The SCAG Compass Blueprint program may further assist local jurisdictions with the development of innovative transportation and land-use planning projects.

Adoption of a Complete Streets Policy that would ensure that all streets are safe, comfortable, and convenient for travel for everyone, regardless of age or ability—motorists, pedestrians, bicyclists, and public transportation riders.

GOAL 3: INCREASE ACTIVE TRANSPORTATION USAGE IN THE SCAG REGION

- **Objective 3.1:** Adoption of a Safe Routes to School Policy
 - Policy 3.1.1: Enable and encourage children, including those with disabilities to walk and bicycle to school
 - Policy 3.1.2: Make bicycling and walking to school a safer and more appealing transportation method, thereby encouraging a healthy and active lifestyle from an early age
 - Policy 3.1.3: Facilitate the planning, development, and implementation of project and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (Grade K-8)
- **Objective 3.2:** Adoption of a Complete Streets Policy
 - Policy 3.2.1: Encourage local jurisdictions to prioritize and implement projects/policies to comply with ADA requirements
 - Policy 3.2.2: Encourage local jurisdictions to develop and implement Complete Streets Policies.

Increasing bicycling and walking requires well maintained bicycle and pedestrian facilities, easy access to transit facilities, and increased safety and security. While pedestrian sidewalks are fairly well established in most areas, it is estimated that there are only 4,315 miles of dedicated bicycle facilities in the region, with an additional 7,154 miles planned.

Reliable data for planning is also needed to increase active transportation and investments. Active transportation data needs include, but are not limited to, comprehensive user statistics, user demographics, bicycle travel patterns/corridors, accident mapping, bikeway system characteristics, and sub-regional improvement projects and funding needs.

GOAL 4: ENCOURAGE THE DEVELOPMENT OF LOCAL ACTIVE TRANSPORTATION PLANS

- **Objective 4.1:** SCAG will assist local jurisdictions with the development and maintenance of their local active transportation plans
 - Policy 4.1.1: SCAG will work with local jurisdictions in the development of bicycle/pedestrian plans for all cities in the region
- **Objective 4.2:** Develop Pedestrian Safety Action Plans
 - Policy 4.2.1: SCAG will work with local jurisdictions in the development of PSAPs by conducting workshops
- **Objective 4.3:** Encourage the use of Intelligent Traffic Strategies
 - Policy 4.3.1: Encourage the use of Intelligent Traffic Signals that are able to detect slower pedestrians in signalized crosswalks and extend the signal time appropriately

SCAG will work with all member counties and cities to develop bicycle and walking plans and policies. Active transportation plans have been created or updated within the previous four years are eligible for BTA funds.

Air Quality Improvements

In addition to increased mobility for all users throughout the SCAG region, implementation of the 2012–2035 RTP/SCS will further improve the environment and congestion of the region through the reduction of vehicle miles traveled (VMT).

Potential VMT Reduction

As described previously, active transportation has grown dramatically in recent years. This trend is expected to continue into the foreseeable future aided by several factors. First, dramatic increase in the bicycle network, as demonstrated earlier, will result in improved access to bicycle network for the Region’s residents by more than 50 percent. Second, more compact mixed use urban forms in the future will be much more conducive to biking and walking. Third, better coordination with other modes, primarily transit, will become an incentive for some to switch to biking or walking. Most importantly, a significant change in the culture that values a healthy lifestyle, bikeability and walkability

will become a greater impetus in promoting active transportation as a viable means of accessing opportunities. Given this context and survey data that supports dramatic increase in bicycling and walking mode shares in recent years, it is reasonable to assume this trend will continue into the future. For example, according to the NHTS data, bicycle mode share increased for all trips from 0.8 percent in 2000 to over 1.7 percent in 2009. This is an increase of almost 9 percent on an annualized basis. The share of walk trips for all trip purposes increased by approximately 6 percent on an annualized basis during the same period.

So, if we assumed annualized increase of 9 percent in mode share of bicycle trips for all trips, the potential bicycle mode share could be as high as 4.4 percent in 2020 and as high as 16 percent in 2035. However, it is somewhat unrealistic to assume that 9 percent growth rate could be sustained over such a long period of time. On the other hand, given the significant investments proposed for active transportation and the current trends, it is reasonable to assume that at least 2/3 of all trips shorter than 3 miles or half of all trips that are 5 miles or less could be converted to active transportation by 2035.

As indicated earlier, based on NHTS-CA Survey for all trips, bicycling and walking mode share for all trips are approximately 1.7 percent and 19.24 percent respectively for 2009. This represents a little over 50 percent of all trips less than 3 miles. Assuming 2/3 of all trips under 3 miles or half of all trips under 5 miles as the upper limit of Active Transportation mode share in 2035, relative increase (from the base year of 2008) in bicycling and walking mode shares can be estimated as 1.7 percent and 3.1 percent in 2020, and 3.9 percent and 6.3 percent in 2035. Relative reduction in VMT resulting from these mode shifts are estimated at approximately 7.8 million miles and 20.4 million miles for 2020 and 2035 respectively.

This 2009 Long Range Plan promotes the development of bicycle facilities and pedestrian improvements throughout Los Angeles County.

Bicycle and pedestrian programs are critical components of a successful transit system, as transit riders should be able to access buses and trains without having to drive a vehicle to and from transit stations. The sustainability of our transportation system depends upon the interface between modes.

According to SCAG's Year 2000 Post-Census Travel Survey, nearly 12 percent of all trips in the SCAG region are bicycling and walking trips. According to the 2001 National Household Travel Survey, many trips in metropolitan areas are three miles or shorter. These trips are targets for bicycling and walking, if facilities are available and safe.

Bicycling and walking produce zero emissions as no fossil fuels are used. These trips can eliminate the "cold start" of a vehicle engine and reduce GHGe, VMT, and energy consumption.

Bicycle Programs

This 2009 Plan will help implement the 2006 Metro Board-adopted Bicycle Transportation Strategic Plan (BTSP). It describes a vision for Los Angeles County to improve bicycling as a viable transportation mode. The BTSP outlines a bicycle infrastructure that improves overall mobility, air quality and access to opportunities. It also shifts the focus in countywide bicycle planning from long arterial bikeways to improvements for bicycle access to 167 bike-transit hubs throughout the County. Focusing improvements at bike-transit hubs is a relatively simple way to link bikes with transit and extend the reach of transit without the use of a car. It increases the viability of public transportation and facilitates ridership without a huge investment in infrastructure and right-of-way.

In 2006, the inventory of existing bicycle facilities in the County totaled 1,252 miles, including facilities such as the Metro Orange Line Bike Path, San Gabriel and Los Angeles River Bike Paths, Whittier Greenway Bike Path, Ballona Creek Bike Path, Santa Monica and Venice Boulevard bicycle lanes and hundreds more miles of bicycle lanes and routes. Another 1,145 miles of bikeway projects have been proposed in local agency bicycle plans that would nearly double the current bikeway system. Further, Metro identified 53 gaps in the inter-jurisdictional bikeway system that can be filled by on-street or off-street bicycle facilities.

Bicycle parking at transit stations is essential to encourage the use of bicycles with transit. Bicycle parking at employment centers and local destinations also help reduce the expanding need for costly automobile parking,



Bicycles and Pedestrians



- > There are more than 1,250 miles of bikeways in Los Angeles County.
- > The Metro Call for Projects will fund an expansion of the bicycle network.
- > Metro will focus on improving bicycle safety and bicycle access on buses and trains, and at transit hubs.
- > Coordinating pedestrian links between transit and the user's final destination is critical to an effective transportation system.
- > Metro will improve pedestrian linkages to bus centers and rail stations.

Attachment I- Screening Criteria 2

particularly in dense urban areas where space is limited. As many as 36 bicycles can be parked in the space of one automobile.

Local governments will continue to build bicycle facilities using their Transportation Development Act (TDA) Article 3 and Proposition C local return funding, while Metro will provide regional funds through the Call for Projects. Eligible projects include on- and off-street bicycle improvements, bicycle parking, safety education, bicycle racks on buses, bicycle stations and other bicycle access improvements. Other sources of funds are Safe Routes to School and State BTA (Bicycle Transportation Account) Grant funds. While acknowledging its role in coordinating bicycle facility planning in the region, Metro recognizes the importance of local bicycle planning and strongly encourages cities to develop their own plans. Metro provides technical assistance to develop those plans and qualify them for BTA funding.

Pedestrian Priority Improvement Program

Nearly all trips within Los Angeles County, regardless of purpose, include a non-motorized component. Although almost nine percent of all the trips within Los Angeles County are exclusively pedestrian trips and about half of these are walking trips to and from home to work, the pedestrian system can be improved further. All non-motorized transport modes should connect to an efficient, aesthetically pleasing and safe pedestrian system that enables a person to successfully complete a trip. Motorized transport modes should seamlessly link to the pedestrian system in a way that efficiently allows people to access primary and secondary destinations as well as to make connections to the public transit system.

Several factors combine to create a pedestrian-friendly environment. Examples include: a wayfinding signage system, ease of access to destinations from the sidewalk network, appropriate street-crossing safety features, and easy connection to public transport modes. Physically attractive features and amenities facilitate the flow of pedestrian movement and encourage people to walk.

The primary challenge to improving the quality of the pedestrian environment is retrofitting the existing built form to make walking a more viable option for more people, more often. Since much of the built form is orientated to access by automobiles and the set of development standards and regulations governing land development are primarily focused on maintaining auto accessibility, significantly increasing the share of non-motorized trips will require time, coordinated policy and program development, and a sustained funding approach. Many cities in Los Angeles County have begun to initiate activities to improve the livability of their neighborhoods, including reducing traffic congestion and improving

Call for Projects

FIGURE BB

Bicycle Program

\$ IN MILLIONS
ESCALATED TO YEAR OF EXPENDITURE

Constrained Plan	\$11.7 m/yr in 2009 dollars	\$ 287
Strategic Plan	\$12.5 m/yr in 2009 dollars	\$ 302

FIGURE CC

Pedestrian Program

\$ IN MILLIONS
ESCALATED TO YEAR OF EXPENDITURE

Constrained Plan	\$11.7 m/yr in 2009 dollars	\$ 287
Strategic Plan	\$10.0 m/yr in 2009 dollars	\$ 242

FIGURE DD

Transportation Enhancements Program

\$ IN MILLIONS
ESCALATED TO YEAR OF EXPENDITURE

Constrained Plan	\$2.3 m/yr in 2009 dollars	\$ 72
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THE SUSTAINABILITY OF OUR TRANSPORTATION SYSTEM DEPENDS UPON THE INTERFACE BETWEEN MODES.

overall mobility. The linkages between development and transportation modes are a critical factor in improving overall mobility while maintaining the economic and social viability and attractiveness of these communities.

Metro's Pedestrian Priority Improvement Program is designed to achieve a qualitative improvement in the pedestrian environment in Los Angeles County. The approach focuses on the development of public policy and adoption of appropriate regulatory standards and targeted funding to develop more safe, connected and walkable pedestrian environments that promote non-motorized transport as a viable alternative for an increasing share of trips made by residents and visitors of Los Angeles County.

Metro Countywide Sustainability Planning Policy & Implementation Plan

Adopted December, 2012



Metro

This policy was developed by the
Countywide Sustainability Planning
Program as part of a contract with ARUP,
the Center for Neighborhood Technology,
Fehr and Peers, and Barrio Planners.

Section 1: Overview, Purpose and Background

1.1 Overview

The Los Angeles County Metropolitan Transportation Authority (Metro) is dedicated to the sustainability of Los Angeles County's people, environment, and economy. Many people and organizations share these goals and are pursuing visions of sustainability in their own households, neighborhoods, businesses, cities, and region-wide. Metro's unique role in achieving a sustainable future is to plan, fund, construct, and operate a transportation system that improves residents' health and well-being, strengthens the economy, and enhances the natural environment.

The Metro Countywide Sustainability Planning Policy is a complement to Metro's efforts to improve air quality and increase transportation choices that have been underway for more than two decades. It is a tool for better defining the agency's long-term, desired sustainability outcomes in order to facilitate greater coordination and collaboration across transportation modes, planning disciplines (land-use, housing, environment, economic development, health, utilities), and government agencies.

The Policy's focus on coordination and collaboration with respect to sustainability comes at a time of great opportunity as Metro is significantly expanding its transit system, implementing highway improvements, and supporting the development of active transportation networks. To successfully implement these projects and gain support for future projects, Metro will be increasingly called upon to quantify its contributions to society, not just in terms of mobility, but with respect to a broad range of social, economic, and environmental indicators. This is evident from the Livability Principles that influence funding decisions made by federal agencies, the addition of climate change metrics in Regional Transportation Plans (per California Senate Bill 375), and the increased interest from local stakeholders in assessing the health impacts of transportation projects. The Policy was developed in consideration of these factors to establish a planning framework for advancing the mission and goals of the agency, in concert with a broader set of sustainability priorities.

1.2 Purpose

The Countywide Sustainability Planning Policy is a guide to:

- > More fully integrate sustainability into the agency's planning functions,
- > Complement and provide a framework for building upon federal, state, regional and local sustainability policies and plans, and
- > Foster collaboration and inspire partnerships that will lead to more sustainable communities.

The policy demonstrates the agency's continued commitment to sustainability as a core business value and as a strategy for enhancing the quality, efficiency, and value of the transportation system for constituents.

The policy is organized into five sections:

1. Overview, Purpose & Background
2. Planning a Sustainable Transportation System
3. Planning Guidance
4. Policy Implementation & Impact
5. Conclusion

1.3 Background

Metro is responsible for the continuous improvement of an efficient and effective transportation system for Los Angeles County. To advance this mission, Metro has adopted a set of values to guide agency actions. These values include a commitment to sustainability. The agency's business goals reiterate the importance of promoting sustainability by reducing greenhouse gas emissions and increasing energy efficiency. "Sustainability" became an official part of the agency's work program in 2007 when the Board of Directors, with guidance from the Ad Hoc Sustainability Committee, adopted the Sustainability Implementation Plan. The Plan included the following Sustainability Mission and Vision, accompanied by a list of short-term and long-term projects through Fiscal Year 2012.

Mission:

We will provide leadership in sustainability within the Los Angeles region without compromising our core mission of moving people efficiently and effectively.

Vision:

We will be the leader in maximizing the sustainability efforts and its benefits to Los Angeles County's people, finances, and environment.

Building on the overarching guidance of the Sustainability Implementation Plan, the Ad Hoc Sustainability Committee and supporting staff have generally focused on advancing strategies in three primary areas:

1. Leadership, Coordination, and Outreach: Lead the region's sustainability efforts by supporting internal coordination and by collaborating with regional stakeholders.
2. Sustainable Agency and Practices: Minimize environmental impacts from the design, construction, operation, and maintenance of Metro's facilities and operations.
3. Sustainable Regional Transportation System: Plan and implement a regional transportation system that increases mobility, fosters walkable and livable communities, and minimizes GHG emissions and environmental impacts.

The Countywide Sustainability Planning Policy is intended to define outcomes and establish measurements related to the third focus area: developing a Sustainable Regional Transportation System and as a result will further the first focus area related to Leadership, Coordination and Outreach. The Policy broadens Metro's approach to sustainability from focusing on a particular project or transportation mode to developing a more holistic and system-based framework for sustainability analysis and planning. In addition to supporting the environmental aspects of sustainability, the framework also more fully embraces the social and economic dimensions of sustainability.

Understanding a place's "accessibility" –residential density and job centrality—can help define appropriate sustainability strategies. For example, while walking to work may be a great option for more sustainable living in a location where many residents and jobs are close together (Clusters C and D); this option will likely not be widely available in locations where residents and jobs are far apart (Clusters A and B).

Applying the Framework to Real Places

The Accessibility Clusters are general. The policies presented in relation to each cluster will be relevant in many cases, but variation to a policy and a greater level of differentiation may be justified in particular circumstances. Any given corridor may traverse multiple Accessibility Clusters and therefore judgment, data, and creativity will be needed to craft solutions and to customize strategies appropriate to the local community. Empirical data at a finer geographic scale (i.e. census block group, census block) should be used to confirm the relevance of the Accessibility Clusters and strategies.

Section 3: Planning Guidance

3.1 Introduction

This section presents guidance to support Metro in implementing the principles and achieving the priorities established by the policy. The guidance recognizes that many of the priorities can be achieved simply by providing the opportunity for more people to drive less, and in more efficient vehicles. A reduction in per capita vehicle miles traveled (VMT), which can be achieved through mode shift, is associated with the following benefits:

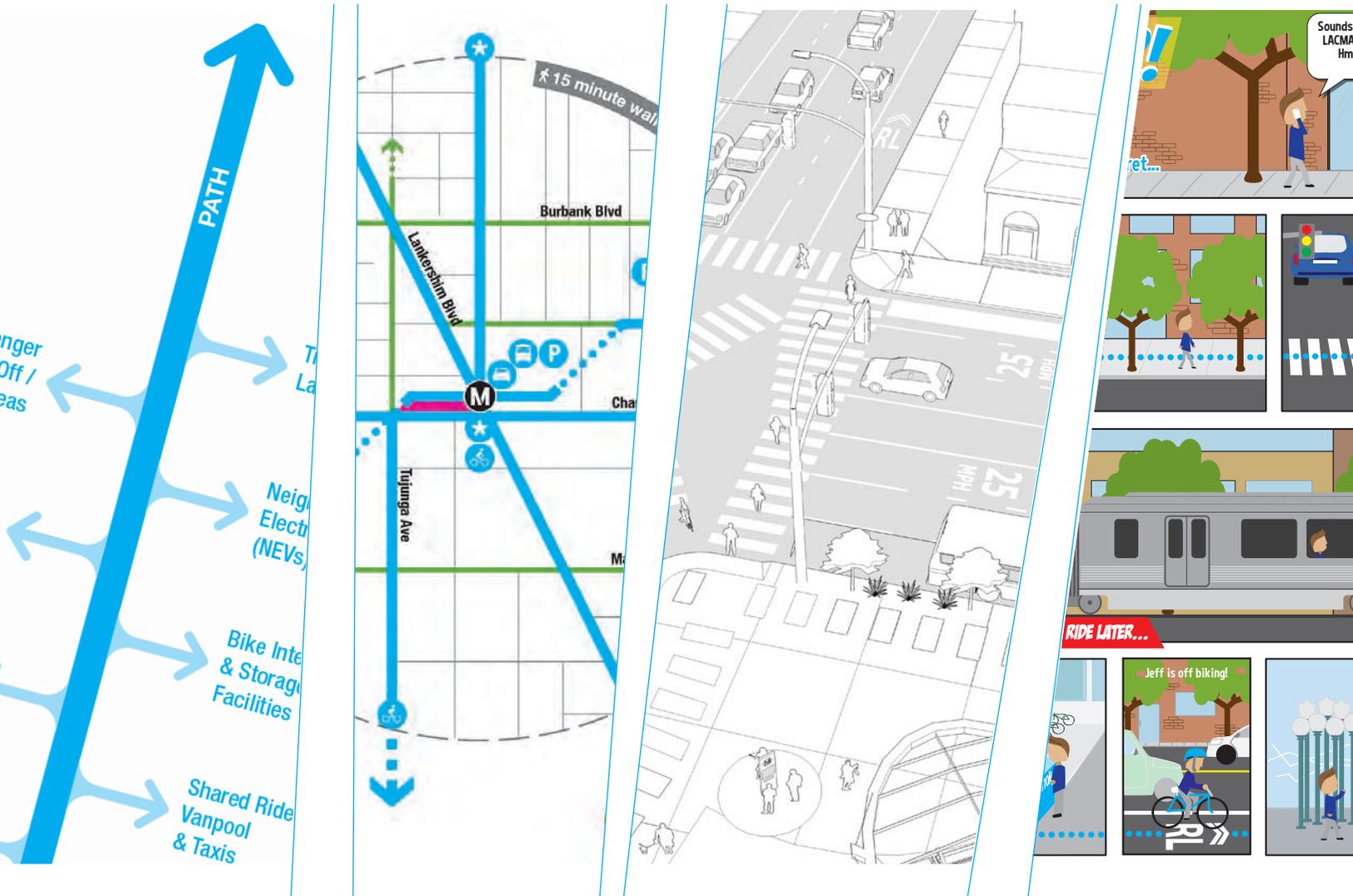
1. Reduced vehicular, bicycle, and pedestrian collisions
2. Reduced fuel use
3. Reduced traffic congestion, particularly during rush hour
4. Reduced emissions of criteria pollutants, resulting in reduced respiratory ailments especially for young children and older adults
5. Reduced greenhouse gas emissions (GHGs)
6. Increased use of active transportation and transit
7. Increased physical activity contributing to a reduction in diseases related to a sedentary lifestyle, such as obesity
8. Economic benefits through the reduction of household transportation costs
9. Reduced infrastructure costs and associated environmental benefits accrued from energy, waste, water reduction and land preservation

When measures to reduce VMT are complemented by actions to increase the efficiency of vehicles through enhancements in technology and congestion reduction, the full range of sustainability priorities presented in the policy can be achieved. Advancements in vehicle technology are particularly important for increasing the efficiency and reducing the impacts of trips that are critical to the health of our economy. In goods movement, for example, an increase in vehicle miles travelled is a sign of strong economic growth. To support this growth, while achieving a broader range of sustainability

DRAFT

First Last Mile Strategic Plan

PATH PLANNING GUIDELINES



Challenges

There are a number of challenges associated with improving first-last mile connections throughout the County. In many situations, especially along higher traveled corridors, right-of-way (ROW) is limited and already overburdened. Providing more robust access facilities could potentially put strain on other complementary travel modes. For example, providing protected bike lanes on a heavily used transit access route may affect vehicular throughput and bus operations in some situations.

Coordination is a challenge; there are many custodians of the public realm throughout the County. Metro is committed to the “continuous improvement of an efficient and effective transportation system for Los Angeles County” but Metro does not own or have jurisdictional control over transit access routes beyond the immediate confines of station facilities.

Funding is limited; there are numerous competing demands on public funds throughout the county. From a user perspective cost is a challenge; pay-for-service access solutions can be promising, but do not help those already struggling to pay for basic transit services.

There are a range of site specific physical challenges faced by individual transit users. For some, stations remain too far to access in a reasonable amount of time. Others don't move fast or nimbly enough to comfortably contend with broken sidewalks and hazardous street crossings. Some are afraid to make the short walk from stations in the dark. All of these challenges can be addressed through thoughtful consideration, strategic planning, engineering, design and most importantly - active coordination.

Metro Users

Metro goes to great lengths to better understand county transit riders in order to improve operations and service. Metro conducts on-board passenger surveys as part of this effort. A review of the Metro 2011 System Wide On-Board Origin-Destination Study provides insights into transit users at a demographic level, some key findings include;

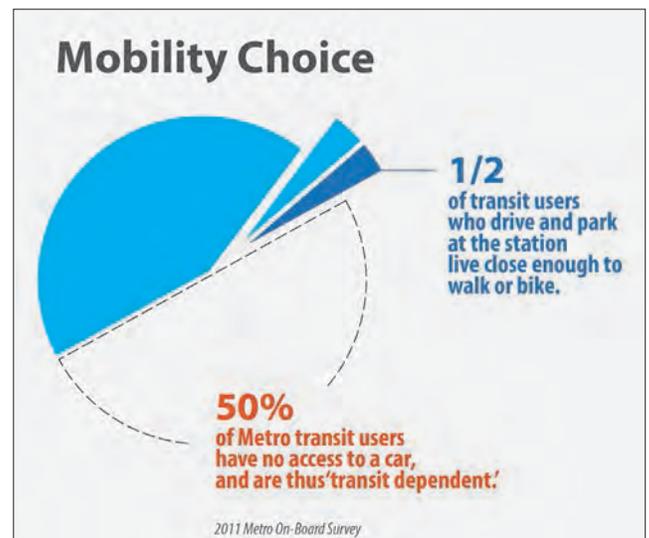
- **75% of transit riders belong to households earning less than \$25,000.**
- **Half of all transit riders are transit-dependent, i.e., they belong to households that do not own any vehicles.**

- **Transit dependency increases as age increases, and/or as income decreases.**
- **Active transportation modes (walking/biking/wheelchair/etc.) are the dominant access and egress modes for all riders; representing 85% of system access/egress at Rail/BRT stations and over 95% total system access.**
- **Nearly 64% of riders make at least one transfer to complete their one-way trip.**

One of the more surprising findings from the Metro survey data is the small number of transit riders parking at stations. Though highly visible in communities, parking facilities support only 6.2% of Metro Rail users, and only 3.8% of Metro BRT users. Of this relatively small user group half live close enough to walk or bike to stations.

Transfer Activity

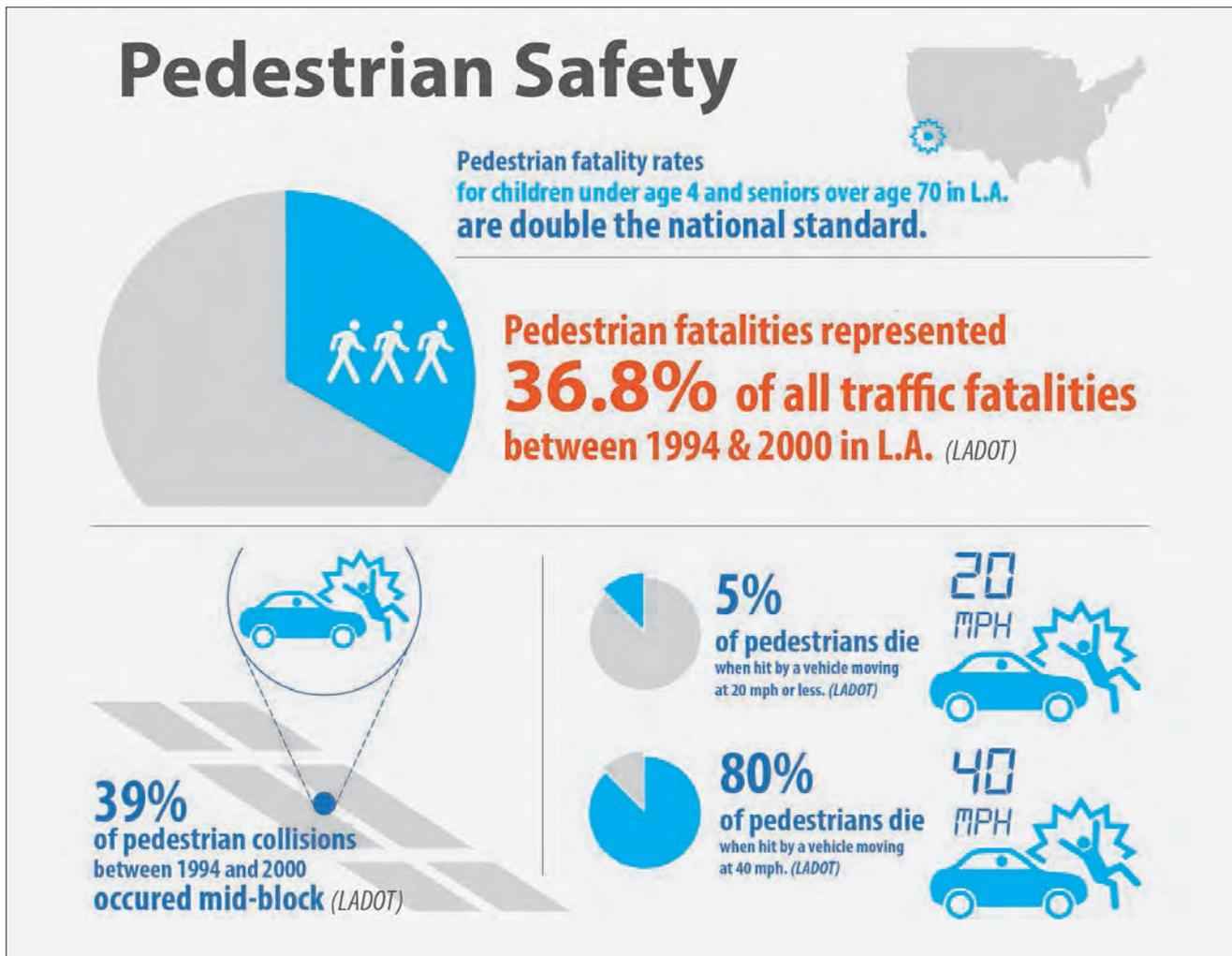
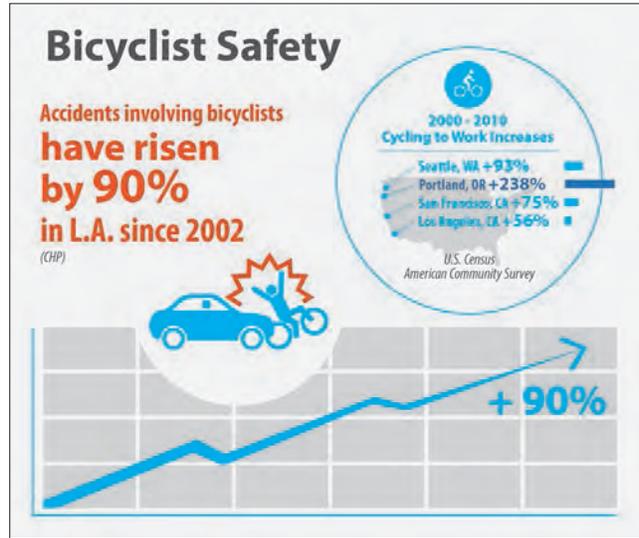
The Metro system is witness to a significant amount of transfer activity; nearly 64% of riders make at least one transfer to complete their one-way trip. Transfer activity, when not happening within a station is reliant on active transportation networks in the immediate vicinity of the subject stations. Active transportation networks are comprised of sidewalks, bike lanes (where existing), street crossings, signals, signs, curb returns, lighting, furnishings and landscaped elements. These networks support multi-modal access and transfer activity.



User Safety along Access Routes

Transit users depend on safe and efficient routes when accessing stations and while making multi-modal transfers. They rely on existing active transportation networks. A review of recent collision statistics for both pedestrians and bicyclists in LA County suggests there are significant challenges in terms of safety.

The provision of a safe transportation system is a cornerstone of Metro's Vision, and given the fact that most transit users are pedestrians during the first, last and transfer components of their trips, pedestrian safety is a major concern. Pedestrians are at risk within environments surrounding transit stations, primarily from automobile traffic. LA County has an alarming incidence of fatality rates, especially amongst some of the more transit dependent populations (the very young and very old). Risks can be significantly mitigated through design and vehicular speed control measures, and should be done so along prioritized access routes within station catchment areas.



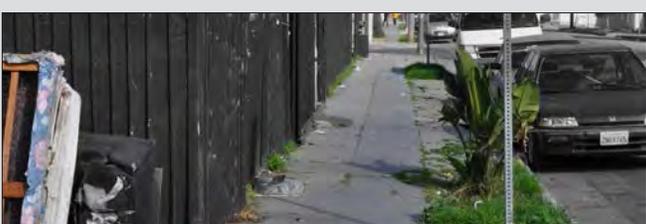
Existing Conditions

Knowing that active transportation networks play such a significant role in enabling transit access and transfer activity, a deeper understanding of existing active transportation networks is required to better understand challenges currently faced by users. As part of the First-Last Mile Strategic Plan Study, project team members selected 12 station sites throughout the County and reviewed the existing transit access conditions within these sites. It was observed that current active transportation networks serving access routes to Metro stations present a number of access challenges to transit riders.

In some cases sidewalks were physically constrained or literally broken and heaved, or even more surprisingly discontinuous. Long blocks and large parking lots create circuitous access routes for pedestrians. Lack of adequate lighting, dark freeway underpasses and general neglect all challenge user's sense of personal security. In some areas of the county, the existing right-of-way is severely constrained. Transit rider wayfinding is often challenged just a few blocks from transit stations due to the lack of, or in other areas the total overabundance of, street signage.

All of these noted existing conditions represent challenges to transit system access, system efficiency, user experience and safety. A strategy that addresses these issues directly will increase transit ridership, improve user experience, and work towards meeting Metro, regional and state policy goals relating to sustainability, clean air, and health.

Top 6 L.A. County Transit Access Barriers

	
<p>1 Long Blocks – Transit riders prefer direct routes to their destination – long blocks often equate to unnecessarily long routes, or unsafe crossing activity.</p>	<p>2 Freeways – Freeways carve our region into a number of ‘pedestrian islands’. Links between these islands are effectively broken by dark and unpleasant underpasses or equally challenging overpasses.</p>
	
<p>3 Maintenance – Many of our basic walking and rolling surfaces are buckled, broken and generally impassable to all but the nimble footed.</p>	<p>4 Safety and Security – Pedestrians in LA County are victim to some of the highest pedestrian fatality rates in the country. The neglect of infrastructure also adds to concerns over personal security.</p>
	
<p>5 Legibility – It is too easy to get lost in LA County. Effective transit systems utilize sophisticated yet simple signage and way-finding strategies. These strategies do not currently extend much beyond station boundaries</p>	<p>6 R.O.W Allocation & Design – Traffic congestion along some streets crowd out all but the most fearless bike riders – on other streets wide roads are underutilized, and all active modes are relegated to a 4 foot wide broken strip of concrete. A more holistic and integrated approach is needed to provide equitable mobility along access routes.</p>

Attachment I-1

1. City of Arcadia General Plan (Excerpt)
2. Foothill Extension Bus Interface Plan (Excerpt)



PROPOSED BUS/RAIL INTERFACE FACILITY IMPROVEMENTS

At each of the Pasadena to Azusa LRT stations, bus stops are proposed to be as close as reasonable to the station. In locating the proposed bus stops, consideration was also given to future development plans in the areas surrounding the stations. Where new construction will be involved and the bus stop will be adjacent to the proposed station, the proposed bus stop improvements should include a concrete bus pad in the street per Metro Design Criteria. All proposed bus stops adjacent to the stations are recommended to have a shelter or canopy for weather protection. The other nearby bus stops at a minimum should have bus route and wayfinding signage and seating.

Arcadia Station Bus Improvement Plan

As indicated in Figure 3-9, the eastern portion of the block to the south of the LRT station is designated for LRT transit station-related uses. The triangular corner piece is planned to be a future Transit Plaza. Next to it will be a large park-and-ride garage for Gold Line users. Three of the four bus lines that serve the Arcadia business district near the station are proposed to be re-routed to provide a stop convenient to LRT passengers westbound on Santa Clara Street next to these parcels. Metro Route 79 and Foothill Transit Routes 186 and 187 are proposed to be rerouted to circulate counterclockwise around Santa Anita Avenue, Huntington Drive, 1st Avenue, and Santa Clara Street at the LRT Station stop. Metro Route 487 would be rerouted to 1st Avenue with northbound and southbound stops just north of the tracks.

Bus layover space for buses terminating/originating at Arcadia Station are recommended to be located at these stops. Additionally, a designated ADA van stop is recommended to be located on 1st Avenue. To meet the predicted needs, three bus stop/layover positions are shown on Santa Clara Street. Two bus stops and one ADA van stop are shown on 1st Avenue in Figure 3-10.

Owing to re-routing of bus routes, two additional new bus stops are proposed to be located along nearby blocks and several others abandoned to continue service to the surrounding area from these bus lines. The new stops would occur southbound on Santa Anita Avenue and northbound on 1st Avenue, both just north of Huntington Drive.

The bus stops adjacent to the station on Santa Clara Street can include a concrete bus pad as recommended by Metro for bus stops adjacent to transit stations. The sidewalk and the parking garage are recommended to be recessed slightly from the existing property line to allow space for passenger waiting. Rather than a typical shelter, it is proposed to provide an overhead canopy to the face of the garage to shelter patrons. A bus pad is also proposed for the new stop shown on 1st Avenue just north of the tracks. The other new proposed stops on Santa Anita Avenue and on 1st Avenue just north of Huntington Drive could be provided with just the necessary signage and some seating. To accommodate the northbound stop on 1st Avenue, a portion of the existing planting islands would need to be removed.

Figure 3-11 is an artist's rendering of the proposed Arcadia Station as viewed from the southwest corner of 1st Avenue and Santa Clara Street. It shows a portion of the bus transfer area on Santa Clara Street adjacent to the proposed transit plaza.

TABLE 3-5 RECOMMENDED ARCADIA STATION BUS STOP IMPROVEMENTS

	A	B	C	D	E
Create area for bus loading and layover	●				
Designate 30' curb location for ADA vans		●			
Setback parking structure to provide an 8' sidewalk	●				
Sidewalk width at bus stop to be minimum 8'	●	●	●	●	●
Locate bus sign per City and bus operator requirements	●	●	●	●	●
Install bus shelter with seating	●	●	●		
Install seating/bench				●	●
Install concrete bus pad	●	●	●		
Remove curb side planter				●	
Remove curb side parking				●	

Note: Where possible, utilities such as fire hydrants, electrical cabinets, etc., and storm drain inlets at the new bus stops/turnouts will be avoided.



Foothill Transit staff had several suggestions related to bus routes, stops, and pedestrian access at the stations along the alignment. These comments included:

- At the Azusa Station, the layover of Route 185 is problematic at the north end
- In Duarte, there are pedestrian accessibility challenges on Duarte Road. There is need to provide a safe way for pedestrians to access City of Hope
- Route 488 is a candidate for realignment and connection to the light rail service at Glendora Station
- Foothill Transit has worked with the City of Monrovia in the past to provide a connection to the Monrovia Station
- Montclair Station is very close to the County boundary. Issues associated with the changes of jurisdiction need to be considered while proposing connectivity solutions to the station
- Route 492 may present a good opportunity to connect to the light rail service

These comments were incorporated into the development of the draft service plan.

RIDER SURVEYS

A series of surveys were prepared and administered to sample passengers of existing transit services and San Gabriel Valley residents who live or travel in close proximity to the new light rail stations proposed as part of the Gold Line Pasadena to Azusa Extension. Four surveys were conducted to reach different target markets within the study area:

- Bus Rider Survey – Targeting riders on bus routes (Metro, Foothill Transit, and Duarte Transit) that intersect or operate in close proximity to the proposed Pasadena to Azusa Extension
- Gold Line Rider Survey – Targeting riders of the existing Gold Line light rail between Pasadena and Downtown Los Angeles
- Telephone Survey – Targeting residents of the San Gabriel Valley living in varying degrees of proximity to the planned Pasadena to Azusa Extension
- Bicyclist Survey – Targeting bicyclists (recreational and commuter) who live in the San Gabriel Valley in varying degrees of proximity to the planned Pasadena to Azusa Extension

The purpose of these surveys is to help in estimating which existing transit riders, residents, and cyclists would use the Pasadena to Azusa Extension as part of their commute (regular or not), as well as to identify the service changes and/or attributes of the bus/rail interface that these passengers consider important.

Results and observations from the four surveys are summarized in this chapter. More detailed technical memoranda prepared by the survey consultant, Rea & Parker Research, are provided as an appendix to this report.

BUS RIDER SURVEY

The bus rider survey instrument was comprised of questions that sought to elicit the following types of information:

- transit behavior of current bus riders
- frequency of current bus use
- transfer patterns
- origin/destination information of current bus riders
- intended use of the Gold Line extension by current bus riders
- potential boarding and destination stations among current bus riders
- intentions to use the bus system after completion of the Gold Line extension
- intended frequency of use of the Gold Line Extension among current bus riders
- interest among bus riders in using further extensions of the Gold Line to Montclair and then on to the Ontario Airport

Trained surveyors, under the direction and supervision of Rea & Parker Research, distributed survey forms to passengers on board designated buses on the following routes:

- Metro
 - 79
 - 264
 - 270
 - 487
- Foothill Transit
 - 185 • 284
 - 187 • 488
 - 272 • 492
 - 280 • 494
 - 281 • 498
- Duarte Transit
 - Blue
 - Green
 - Commuter

Surveyors rode these bus routes within five miles of the Gold Line Extension route and to a point where catching the return bus was convenient, but never fewer than five miles from the Extension route. Surveyors collected completed survey forms before passengers alighted from the bus or as the passengers alighted from the bus. Survey respondents were also provided with a prepaid mail-back option in case they were unable to complete their survey while on board.



The survey was administered on weekdays. To complete this project and to collect an adequate number of completed surveys, surveyors were in the field six days in November 2010 and another four days in January 2011. The January dates were necessary to ensure that the designated bus routes each had an adequate number of completed surveys.

A total of 1,044 completed surveys were collected as the sample of on-board bus riders. This represents a margin of error of approximately +/- 3 percent at the 95 percent level of confidence. Sample sizes by bus route are as follows:

Three essential information components were obtained from a review of the bus rider survey data:

Bus Route	Sample Size
Metro 79	51
Metro 264	57
Metro 270	90
Metro 487	53
Foothill 185	51
Foothill 187	215
Foothill 272	47
Foothill 280	50
Foothill 281	47
Foothill 284	47
Foothill 492	48
Foothill 494	57
Foothill 488	99
Foothill 498	47
Duarte Transit	85
Total	1044

- Travel behavior of current bus riders
- Attitudes and anticipated transit behavior among current bus riders who intend to use the Gold Line Extension
- Interest among bus riders in using further Gold Line Extensions

The most noteworthy finding is that a very substantial portion of bus riders on the subject routes, who, for the most part, are not now using the existing Gold Line, plan to use the Gold Line Foothill Extension from Pasadena to Azusa, especially riders currently using Foothill Transit Route 187, Metro Route 264, and Duarte Transit buses.

Travel Behavior

Cross-streets at origins and at destinations for the one-way trip made by bus respondents at time of interview are provided in the appendix. This information was provided, at least in part, by 775 respondents or 74 percent of the sample. Table 1-8 shows the primary origination and destination cities associated with the one-way trip according to the bus route on which the respondent was interviewed. For Metro buses, the origination cities are predominantly Monrovia,

Arcadia, and El Monte while the destination cities are largely Pasadena, Monrovia, and Los Angeles. For Foothill Transit buses, origination cities are mostly Azusa, Covina, and West Covina. The predominant Foothill Transit destination cities also include West Covina and Covina, along with Glendora.

TABLE 1-8 Primary Originating and Destination Cities of Bus Riders for their One-Way Trip by Bus Route

Bus Route	Primary Origination Cities	Primary Destination Cities
Metro		
79	Arcadia, Azusa	Pasadena, Los Angeles
264	Pasadena, Monrovia	Arcadia, Duarte, Pasadena, Monrovia
270	El Monte, Monrovia	El Monte, Monrovia
487	Arcadia, El Monte, Monrovia	Los Angeles, Monrovia, Pasadena
Foothill Transit		
185	Azusa, Pomona, West Covina	La Puente, Pasadena
187	Pasadena, Azusa, Duarte	Pasadena, Monrovia, Los Angeles
272	Duarte, Pasadena, Baldwin Park	Duarte, Pasadena, West Covina
280	Azusa, La Puente, Pasadena	Azusa, West Covina
281	Azusa, Covina, West Covina	West Covina, Los Angeles, Glendora
284	Covina, El Monte	Glendora, Covina
487	Arcadia, El Monte, Monrovia	Los Angeles, Monrovia, Pasadena
488	Covina, La Puente, Azusa	Covina, Glendora, West Covina
492	Baldwin Park, Irwindale, Los Angeles, Montebello	El Monte, Irwindale, San Dimas
494	El Monte, Irwindale, Azusa	Los Angeles, El Monte, Arcadia, Azusa, Covina
498	Covina, Glendora	Covina, Baldwin Park, Glendora
Duarte Transit		
Blue, Green, Commuter	Duarte, Monrovia	Duarte, Pasadena, Azusa

The survey results indicate that bus respondents are frequent users of transit. That is, over 8 in 10 bus respondents (84 percent) currently use Metro and/or Foothill Transit or Duarte Transit buses at least 3 days per week (61 percent – 5 or more days per week and 23 percent – 3-4 days per week). Transit usage ranges from a low for bus passengers on Metro route 79 (52 percent—at least 3 days per week) and Foothill route 284 (62 percent -- at least 3 days per week) to a high on Foothill routes 272 (100 percent – at least 3 days per week) and 281 (95 percent).

Attitudes and Anticipated Travel Behavior

Survey results indicate that 70 percent of bus passengers intend to use the Gold Line Extension once it is constructed. This is a substantial percentage of bus riders especially in light of the fact that only 6 percent of bus respondents use the Gold Line currently at some point during their one-way trip. Bus riders on Foothill route 187 (88 percent) and Metro route 264 (85 percent) indicate the greatest interest in potentially using the Gold Line Extension, while bus respondents on Foothill route 284 (42 percent) and Metro route 79 (49 percent) express the least amount of interest in using the Extension.



The three most frequently cited boarding stations by bus riders who intend to use the Gold Line are the new stations at Azusa-Citrus College (23 percent), Monrovia (15 percent), and Duarte (14 percent). Bus passengers on the following Foothill Transit routes expect to use the Azusa-Citrus College station extensively to board the Gold Line:

- Route 498 (69 percent of respondents)
- Route 488 (56 percent of respondents)
- Route 281 (50 percent of respondents)
- Route 280 (48 percent of respondents)

Bus passengers on Metro routes identified the Monrovia and Arcadia stations as their most likely boarding stations. With regard to destinations, bus passengers expect most likely to use new stations at Azusa-Citrus, Monrovia, Duarte, and Arcadia. The Irwindale station was identified as the least likely station to be used among the new stations.

Approximately 7 in 10 (72 percent) of bus respondents who intend to use the Gold Line Extension also plan to continue using the bus system along with the Gold Line on their typical transit trip. This percentage rises to a high of 87 percent on Foothill Route 281 and 84 percent on Foothill Route 494. On the other hand, the percentage of riders who plan to continue using the bus falls to a low of 39 percent on Foothill Route 284.

Interest in Using Further Extensions of the Gold Line

There is relatively strong interest in using secondary Gold Line extensions. Seventy-two percent of bus survey respondents intend to use a secondary extension of the Gold Line ultimately planned to operate from Azusa to Montclair. Over three-fifths (61 percent) of bus passengers expressed interest in using the further extension of the Gold Line to the Ontario Airport.

GOLD LINE RIDER SURVEY

A key element of the survey effort was to gain an understanding about the extent to which current Gold Line riders plan to make use of the Gold Line Pasadena to Azusa Extension. It is equally important to understand how current rail riders may adjust their travel behavior when the Gold Line Foothill Extension from Pasadena to Azusa is operational. The results of an on-board survey of current Gold Line riders are summarized here. This survey was designed to identify the transit behavior of existing riders, as well as their attitudes, opinions, and intended use of the Gold Line after the Pasadena to Azusa Extension is constructed.

Method of Research

Trained surveyors, under the direction and supervision of Rea & Parker Research, distributed survey forms to passengers on board rail cars of the Gold Line at all rail stops between Sierra Madre Villa and Downtown Los Angeles Union Station and then collected completed survey forms before passengers alighted or as the passengers alighted from the rail car. A prepaid mail-back option was provided for those respondents unable to complete the survey while on board. The survey took place on weekdays. To complete this project and to collect an adequate number of completed surveys, surveyors were in the field four days. They started their day as early as 5:00 AM and ended it as late as past midnight. A total of 1,104 completed surveys were collected as the sample of current Gold Line riders.

Survey Results

Travel Behavior of Current Gold Line Riders

- Sierra Madre Villa is currently the most important boarding station during the AM Peak (before 9:00AM--35 percent) morning commute, and it is also very important as a departing station at midday (9:00AM-to-3:00PM--14 percent), PM Peak (3:00PM-to-7:00PM--15 percent), and at night (after 7:00PM--18 percent), when commuters return home.
- Nearly three-fourths (73 percent) of Gold Line riders depart the Gold Line at the Los Angeles or east Los Angeles stations in the AM Peak.
- Nearly three-fifths (56 percent) of current Gold Line riders board the Gold Line at the Los Angeles or east Los Angeles stations at night and two-fifths board at these stations during the PM Peak. This is consistent with a typical pattern of commutation where passengers who departed in the AM peak are returning home after their work day.
- Well over one-half (55 percent) of respondents walk from their point of origin to their first bus or train used for their current one-way trip. Walking is least common in the AM Peak period (45 percent). Over one-third (35 percent) of Gold Line riders during the AM Peak gained access to transit by driving alone to the station and parking there.
- Walking (34 percent), transferring from buses (21 percent) and rail transit (16 percent) and driving alone and parking (16 percent) are the primary transportation modes for accessing the Gold Line. Modes of egress from the Gold Line are also led by walking (37 percent), transfers to rail transit (32 percent) and buses (14 percent).
- Among those who identified their transit sequence, nearly three-fourths (73 percent) either made no transfers (36 percent) or made just one transfer (37 percent).
- Further, over three-fifths (63 percent) of respondents indicated that their use of the Gold Line was their first or only mode of their trip and 27 percent said that the Gold Line represented their second mode.

Attitudes and Anticipated Transit Behavior among Current Gold Line Riders Who Intend to Use the Gold Line Extension

- Over four-fifths (82 percent) of all respondents indicated they would use the Gold Line Foothill Extension.
- Once the Gold Line is extended, only 10 percent of respondents plan to board their first train of the day at Sierra Madre Villa (12 percent in the AM peak). What is particularly noteworthy is the fall-off of Sierra Madre Villa boardings from the AM Peak of 35 percent at present to 12 percent after construction of the Gold Line Foothill Extension. The difference is made up in large part by use of new stations—especially Azusa-Citrus College (9 percent), Monrovia (9 percent) and Arcadia (8 percent).
- Almost one-sixth (13 percent) of those respondents who intend to use the Gold Line Foothill Extension plan to depart their first trip on the Gold Line at Arcadia followed closely by the Azusa-Citrus station (11 percent), Downtown Azusa (9 percent), and Monrovia (8 percent). The new stations are clearly thought by existing riders to be important points of departure and destination.
- Irwindale is the newly planned station on the Gold Line Foothill Extension that is least intended as a boarding or a destination station by those who intend to use the extension.
- Nearly three-fifths (58 percent) anticipate using the Gold Line Foothill Extension five or more days per week (40 percent) or three to four days per week (18 percent) and seven of ten respondents plan to use the Gold Line Extension on weekends.



Interest in Using Further Extensions of the Gold Line

- Nearly four-fifths (79 percent) of respondents expressed interest in using the Azusa to Montclair extension of the Gold Line.
- Over seven in ten (71 percent) respondents are interested in using a further extension of the Gold Line to the Ontario Airport.

TELEPHONE SURVEY

It is important to determine if residents near the proposed Pasadena to Azusa Extension and throughout the San Gabriel Valley would consider using the light rail service for their transportation needs. To this end, Rea & Parker Research conducted a telephone survey among residents of the San Gabriel Valley who could reasonably make use of the Gold Line Foothill Extension.

This summary of survey results has been divided into eight essential information components as follows:

- Demographic Statistics/Respondent Characteristics
- Current Use of Public Transit
- Current Gold Line Riders Who Plan to Use the Gold Line Extension
- New Riders of the Gold Line (after proposed construction of the Gold Line Extension)
- Reasons for Not Using the Gold Line Extension and Features that Could Cause Respondents to Use it
- Long Term Plans to Extend the Gold Line
- Opinions Regarding the Use of Measure R Funds for Various Transportation Purposes
- Satisfaction with Transit Characteristics and Transit Systems in the San Gabriel Valley

In order to obtain a sample that represents a broad cross section of the population in the San Gabriel Valley who are likely to consider using the Gold Line Extension, the survey population base was stratified into 5 distinct areas and a specific sample size was ensured in each area. These areas or tiers and their respective sample sizes are as follows:

- Tier 1: Residents who live within a radius of one-half mile of the newly proposed Gold Line stations on the Pasadena to Azusa Extension
- Tier 2: Residents within a Primary Driving Area that could access one of the six proposed stations via car. The northern boundary of this area is the San Gabriel Mountains. The area runs one-half of the distance from the proposed alignment of Gold Line Foothill Extension to I-10 on the south but in no event to the south of the alignment for the Metrolink San Bernardino Line. The western boundary is Sierra Madre Villa and the eastern boundary is Glendora/Covina.
- Tier 3: Residents in western San Gabriel Valley. This area is outside the Primary Driving Area and west of Sierra Madre to the Los Angeles City limits and south to SR 60.
- Tier 4: Residents in central San Gabriel Valley. This area is outside the Primary Driving Area from Sierra Madre to Azusa and south to La Puente and South El Monte.
- Tier 5: Residents in eastern San Gabriel Valley. This area is outside the Primary Driving Area from Azusa to the Los Angeles County/San Bernardino County line – south to West Covina/Pomona/Walnut.

Current Use of Public Transit

- Transit usage among survey respondents is quite high. It is noteworthy that those who use either the bus or the rail range from nearly one-fifth (19 percent) in the Primary Driving Area to nearly one-half (48 percent) among western San Gabriel Valley respondents. The median percentage of those who use either the bus or rail, among the five geographic areas, is 26 percent.
- The existing Gold Line alignment between Pasadena and Los Angeles (32 percent) is clearly the dominant choice of rail users in the Western San Gabriel Valley followed by the use of Metrolink (11 percent).
- The existing Gold Line is used least among rail riders who reside in the Central San Gabriel Valley (2 percent) and in the Eastern San Gabriel Valley (1 percent).
- In the area within one-half mile of the proposed new Pasadena to Azusa Extension stations, in the Primary Driving Area, and in western San Gabriel Valley, about 60 percent of respondents are favorably inclined to use the Gold Line Foothill Extension. In the central San Gabriel Valley and in the eastern San Gabriel Valley, outside of the Primary Driving Area, respondents are less favorably inclined to use the Gold Line Foothill Extension.

Current Gold Line Riders Who Plan to Use the Gold Line Extension

- There is strong interest among current Gold Line riders to use the proposed Gold Line Pasadena to Azusa Extension.
- Among current Gold Line riders who live within one-half mile of the newly proposed Gold Line stations, 94 percent intend to board at one of the new stations. Their primary proposed boarding stations are Azusa-Citrus College (47 percent) and Arcadia (27 percent).
- Within the Primary Driving Area, 90 percent of current Gold Line riders plan to board at a new station – primarily Arcadia (45 percent) and Monrovia (33 percent).
- Among current riders who live within the Primary Driving Area and among current riders who reside in the western San Gabriel Valley, three-fifths plan to exit at one of the new Gold Line stations. For those in the Primary Driving Area, the new exit stations are Downtown Azusa and Monrovia (each 20 percent).
- For respondents who live within one-half mile of the newly proposed stations, just over two-fifths (44 percent) of current Gold Line riders intend to alight at a new station. The specific stations are as follows: Azusa-Citrus College, Arcadia, Monrovia, Irwindale, and Duarte.
- Current Gold Line riders largely use the Gold Line for commute (work or school trips). Of those who plan to use the Gold Line extension, most will do so for a purpose that is different from their current purpose. These new trips on the extension will be largely for social-recreation trips. The dominance of the social/recreation trip is consistent with the respondents' stated intention of increasing the use of the Gold Line on weekends.

New Riders of the Gold Line (after proposed construction of the Gold Line Extension)

- For those who intend to be new Gold Line riders, once the Gold Line Foothill Extension is in place, these new riders intend to board predominantly at Azusa -- residents within one-half mile of the proposed stations (65 percent), those who live in the primary driving area (41 percent), and those who live in the eastern San Gabriel Valley (28 percent).
- In the Primary Driving Area and in the eastern San Gabriel Valley, nearly three-fifths (58 percent and 56 percent respectively) of new riders plan to drive themselves to their specific boarding station.
- Respondents who live within one-half mile of the new stations and those who reside in the western San Gabriel Valley largely intend to walk to the boarding stations (38 percent and 24 percent respectively).



- In the western San Gabriel Valley and in central San Gabriel Valley, the bus would be the dominant mode used to get to boarding stations.
- Once the Gold Line is extended, new riders intend to use the Gold Line largely for social/recreational activities, especially among respondents in the Primary Driving Area (52 percent) and those in western San Gabriel Valley (50 percent).
- The shopping trip will become important for those new riders who reside within one mile of the new stations.

Reasons for not using the Gold Line Extension and Features that Could Cause Respondents to Use it

- For respondents who reside in closest proximity to the proposed new stations, safety at the rail stations is the most important feature in potentially causing them to use the Gold Line Foothill Extension. Respondents would also be influenced to use the extension by the availability of free parking at the stations.
- In four of the five areas (excluding Primary Driving Area), respondents would also be heavily influenced to use the extension by a comfortable train ride
- In the western San Gabriel Valley and in the eastern San Gabriel Valley, respondents would be particularly motivated to use the extension if the new rail trip is faster than their current trip.
- In each of the five geographic areas, making bicycle lockers available is the least important feature that would influence respondents to use the extension.

Long Term Plans to Extend the Gold Line

- There is considerable interest in using the proposed Gold Line Extension Azusa to Montclair project to all planned stations including Glendora, San Dimas, La Verne, Pomona, and Claremont.
- Interest is strongest in the area within one-half mile of the newly proposed stations and in the Primary Driving Area.
- Respondents exhibit a similar pattern of interest with regard to potential use of a Gold Line extension to access the Ontario Airport (within one-half mile – 82 percent) and (Primary Driving Area – 78 percent.)

Opinions Regarding the Use of Measure R Funds for Various Transportation Purposes

- For various transportation programs or facilities covered by Measure R, respondents indicated whether they believe Measure R funds are put to good use for such purposes. Respondents affirmed these uses of Measure R funds ranging from approximately 60 percent to 75 percent over the various programs and facilities.
- Those who believe that Measure R funds are being put to good use were further asked to rate the quality of provision of the program. Respondents (all geographic areas included) are most satisfied with the provision of carpool lanes. With regard to carpool lanes, satisfaction was highest in the Primary Driving Area and in the central San Gabriel Valley.
- Beyond carpool lanes, respondents are also satisfied with discounted transit fares. High ratings are recorded for discounted transit fares in three areas – within one-half mile of the proposed new station in the Primary Driving Area, and in the central San Gabriel Valley.
- Respondents are least satisfied with street resurfacing and pothole repairs, especially within one-half mile of the new stations.
- There is substantial support for other ballot initiatives similar to Measure R that are designed to raise funds to build or improve transit systems throughout Los Angeles County – ranging from 63 percent in the central San Gabriel Valley to 69 percent in the eastern San Gabriel Valley.

- Respondents who do not support other Measure R type ballot initiatives or are uncertain about their support do show some level of additional support for ballot initiatives that would assure that the San Gabriel Valley transit systems would receive their fair share of the funds. This additional support ranges from 11 percent in the western San Gabriel Valley to 16 percent in the Primary Driving Area.

Satisfaction with Transit Characteristics and Transit Systems in the San Gabriel Valley

- Respondents are most satisfied with transit characteristics involving the rail and least satisfied with those pertaining to the bus.
- For the times that trains operate, the means range from 1.96 (scale 1-5, where 1 is very satisfactory) in the western San Gabriel Valley to 2.37 in the eastern San Gabriel Valley. Similarly favorable means are recorded for Gold Line fares with means ranging from 1.99 in the area within one-half mile of the new stations to 2.46 in the eastern San Gabriel Valley.
- Respondents are least satisfied with the availability of express buses (2.57) and the times that buses operate (2.55). With regard to express buses, means range from 2.45 in the Primary Driving Area and in western San Gabriel Valley to 2.70 in the area within one-half mile of the new stations. For the times that buses operate, means range from 2.39 in the central San Gabriel Valley to 2.71 in the western San Gabriel Valley.
- The most important characteristic that would motivate non-users of transit to try rail or bus is the availability of more routes and stops. This characteristic is most prevalent in eastern San Gabriel Valley (38 percent) followed by western San Gabriel Valley (30 percent).

BICYCLIST SURVEY

Rea & Parker Research prepared a survey instrument for bicyclists comprised of questions that sought to elicit the following types of information:

- Potential use of the Gold Line Foothill Extension from Pasadena to Azusa in association with bicycle travel (regarding both near term and long range extensions of the Gold Line)
- Characteristics of respondent bicycle users
- Desired station features of bicycle users
- Surface street routes

Rea & Parker Research identified two primary sources of bicycle riders: bicycle clubs and bicycle shops in the Pasadena/San Gabriel Valley area. It was determined that contacting bicycle users through these sources was the most efficient way to access this population. Rea & Parker Research contacted several bicycle clubs, some of which agreed to distribute the survey form to their members. After the members completed the survey, they returned them to their central office or directly to Rea & Parker Research. From this source, 92 surveys were obtained. Rea & Parker Research also obtained the cooperation of several bicycle shops that agreed to place surveys on their counter so that customers could easily complete the survey while they were in the shop. From this source, 33 surveys were obtained and mailed back to Rea & Parker Research by the manager of the shops. Thus, a total of 125 completed surveys of bicycle users were obtained.

The results of the bicyclist survey are summarized below.



Bicycle Riders Use of the Gold Line

- Respondent bicyclists demonstrate that a large proportion of them use the Gold Line in conjunction with their bicycle travel and intend to continue using it when the Gold Line Foothill Extension becomes available.
 - Sixty percent of the respondents currently use the Gold Line in coordination with their bicycles, and 77 percent expect to use the extension with their bicycles.
 - More than one-half (52 percent) of the respondents use the Gold Line currently in association with their bicycles and also intend to coordinate bicycle use with the extension.
 - One-fourth of respondents do not currently use the Gold Line in conjunction with their bicycles but do plan to use the extension in coordination with their bicycles
 - The primary reason offered by respondents for not intending to use the extension with their bicycle is that they do not travel to the areas that will be served by the extension
- Respondents plan to use the extension in coordination with their bicycles predominantly for non-commuting trips. Only 15 percent of these potential trips would be used for commuting to and from work.
- Respondents plan to use the extension in conjunction with their bicycles somewhat infrequently. More than two-fifths (43 percent) plan to use the extension with their bicycles less than once per week and another 30 percent plan such trips 1-2 days per week.

Issues Associated with Coordinating Bicycle Travel with Use of the Gold Line Extension

- Nearly one-half (48 percent) of respondents always plan to take their bicycles on the train when they use the Gold Line Foothill Extension. Another 45 percent sometimes plan to take their bicycles on the train but other times they plan to park and lock their bicycle at the station.
- Safety and security of the respondent's bicycle is of paramount importance in the decision to take a bicycle on the train and/or leave it at the station.
 - Well over three-fifths of respondents (63 percent) would not be willing to leave their own bicycle locked at their home station and rent a bicycle at their destination station (assuming rentals would be available) to complete their trip.
 - A substantial proportion of respondents (79 percent) are influenced by the quality of bicycle storage facilities at the stations when they make a decision whether or not to take their bicycles with them during rail travel. Over two-fifths (41 percent) of the respondents prefer individual locker rentals and another 34 percent prefer secure storage rentals.
 - The availability of better and easier bicycle storage on the trains is the single most important feature (28 percent of all mentioned features) that would motivate respondents to use the extension in conjunction with their bicycles more frequently than they already do.
 - The second most cited feature that would motivate more use of the bicycle in association with the proposed extension is better bicycle storage at the stations (16 percent of all mentioned features).

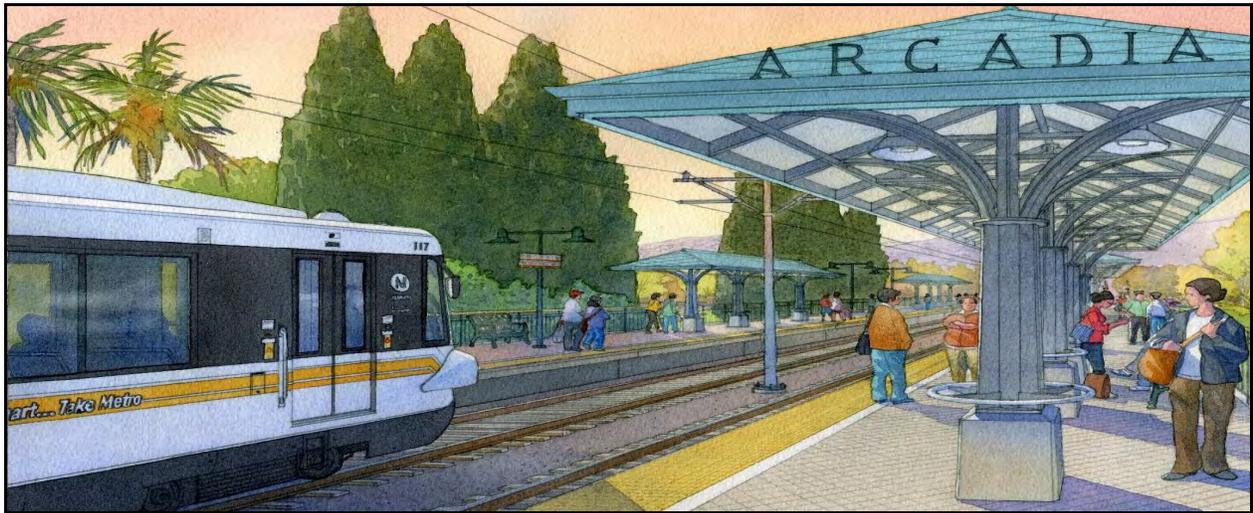
Origin and Destination Preferences on the Proposed Gold Line Extension

- When the Gold Line Foothill Extension becomes available, nearly half of the respondents (49 percent) would board the train at their home-based trip origin at one of the newly proposed extension stations. The largest proportion of respondents would board at Arcadia (12 percent) and Azusa-Citrus College (11 percent) while the smallest proportion would board at Irwindale (3 percent) and Duarte (5 percent). The remaining 51 percent would board at an existing station.
- Respondents intend to make more use of the new stations on the Gold Line Foothill Extension at the destination end of their trip than they intend at the origin. For example, over three-quarters (77 percent) of respondents plan to use the newly proposed stations at destination, while the remaining 23 percent plan to exit at one of the existing Gold Line stations. The largest proportion of respondents plan to exit at Duarte (21 percent) and Arcadia (17 percent). The smallest proportion of respondents would exit at Irwindale (4 percent).

Longer Range Plans for the Gold Line

- There is support for coordinating bicycle use with further extensions of the Gold Line beyond Azusa. Nearly four-fifths (78 percent) of respondents have an interest in coordinating bicycle use with an extension of the Gold Line to such places as Glendora, San Dimas, La Verne, Claremont, Pomona, and Montclair.
- Nearly three-fifths (59 percent) of the respondents would be interested in using their bicycle in coordination with the Gold Line if it were extended even farther to Ontario Airport.





CHAPTER 4: CIRCULATION AND INFRASTRUCTURE ELEMENT

Arcadia General Plan

Introduction

From streets to storm drains to water and sewer lines, development citywide requires well-developed and well-maintained circulation and infrastructure systems to support daily activities. This element addresses both the transportation network that allows people to move in and through Arcadia, and the utilities infrastructure that provides necessary urban services to residences, businesses, and institutions. This element sets forth objectives for the following systems that support the land use plan:

Circulation

- Street Network
- Transit
- Bikeways
- Pedestrian Ways
- Truck Routes

Infrastructure

- Water Storage and Distribution
- Recycled Water Distribution
- Sewage Collection and Disposal
- Storm Drains/Flood Control
- Solid Waste Management
- Telecommunications

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The circulation component addresses an integrated circulation system that will meet the current and future needs of all Arcadia residents, businesses, and visitors. That system will be multi-modal, efficient, and effective for all users, and focused on achieving the following key goals:

- Providing and maintaining an efficient roadway system serving all parts of the City and all transportation modes, that also balances with planned land uses
- Maximizing the efficiency of the street system
- Improving local and regional transit service
- Providing a connected, balanced, and integrated transportation system of bicycle and pedestrian networks that enable residents to walk and bike
- Minimizing adverse traffic effects, and protecting residential neighborhoods from traffic intrusion
- Coordinating with other jurisdictions on regional transportation issues

Similarly, the infrastructure systems are planned to support the land use types, intensities, and patterns citywide, and to allow Arcadia residents, businesses, and institutions to continue to enjoy the high level of City services that are a hallmark of Arcadia.

Achieving Our Vision

Arcadia's vision is a City with mobility choices—choices for getting to work, to school, to parks, to services, and to restaurants and shops. The City's transportation network will consist of a system of complete streets that provide for a balanced integration of all transportation modes. Traffic should flow smoothly and efficiently, and at safe speeds, and traffic impacts on residential neighborhoods will be minimized. Alternative modes—transit, bicycling, and walking—will be available and convenient for all.

Arcadia also understands that local infrastructure systems support the level of development appropriate for Arcadia. Arcadia envisions water, sewer, and solid waste management and services to be sustainable, environmentally sound, and capable of responding to modest growth. Arcadia will also look to adapt to new technology, and develop a telecommunications infrastructure can support the evolving needs of local business to stay competitive and residents to be connected. In addition, this plan strengthens the City's commitment to ongoing assessment and adjustments of existing infrastructure plans and services in order to maintain a high-quality infrastructure system. The following Guiding Principles promote this vision:

- **Balanced Growth and Development**
The General Plan establishes a balance and mix of land uses that promotes economic growth and maintains a high quality of life for Arcadia residents. Our development decisions reflect Smart Growth principles and strategies that move us toward enhanced

Attachment I-1

mobility, more efficient use of resources and infrastructure, and healthier lifestyles.

- **Connectivity**

Arcadia has a balanced, integrated, multi-modal circulation system –which includes streets, sidewalks, bikeways, and trails—that is efficient and safe, and that connects neighborhoods to jobs, shopping, services, parks, and open space areas.

- **City Services**

The high-quality services the City provides are a source of civic pride and bring us together as a community. We adjust service needs in response to demographic changes, and we take actions to provide funding to support these services.

Scope of this Element

State law (Government Code Section 65302[b]) requires that the General Plan include “a circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.”

As of January 2011, circulation elements are also required to include “a plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan. ‘Users of streets, roads, and highways’ means bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors.”¹

This element address the **complete streets** concept by identifying a hierarchy of travel corridors in the City, defining a citywide transit plan, setting the framework for a citywide bicycle network, and highlighting pedestrian enhancement zones. These multiple transportation modes will connect all parts of the City and all destinations: neighborhoods, schools, parks, employment centers, community and civic facilities, and retail and commercial centers.

Consistent with the objectives of SB 375, this element coordinates transportation planning with land use and resource sustainability strategies, toward broad statewide goals of reducing greenhouse gas emissions and local objectives of minimizing traffic congestion.



A complete street can accommodate more than one travel mode.

*Photo credit:
www.completestreets.org*

¹As of 2010, State guidelines for complete streets approaches had not been published. The City’s complete streets plan is based on best available information and the principle that streets should support all transportation modes where feasible and consistent with roadway type and surrounding land uses.

Attachment I-1

Policy CI-3.8: Encourage private efforts to connect Gold Line riders to local places of employment.

Policy CI-3.9: Require all new and substantially renovated office, retail, industrial, and multifamily developments to install and implement transit amenities, including bus turnouts, transit shelters, and other streetscape elements, as appropriate.

GOAL CI-4: **Connected, balanced, and integrated bicycle and pedestrian networks that provide viable alternatives to use of the car**

Policy CI-4.1: Develop and maintain the citywide bicycle network of off-street bike paths, on-street bike lanes, and bike streets identified in Figure CI-7. Development of this plan will include use of easements and flood control channel rights-of-way.

Policy CI-4.2: Establish bike hubs (centralized locations with convenient bike parking for trip destinations or transfer to other transportation modes) at key transit and commercial nodes.

Policy CI-4.3: Encourage the establishment of secure bike parking facilities throughout the City.

Policy CI-4.4: Support transit programs that provide bike racks on buses and trains.

Policy CI-4.5: Develop and implement a comprehensive pedestrian circulation plan that includes, among other components: 1) enhanced pedestrian crossings of streets, 2) sidewalk improvement plans, 3) pedestrian amenities on sidewalks on major streets that are key pedestrian routes, including the benches, street trees, trash cans, and pedestrian scaled lighting 4) ADA-compliant crossings, 5) convenient crossing of arterials with landscaped medians, particularly in the vicinity of schools, and 6) strategies to remove barriers to pedestrian movement (for example, news racks, utility poles and boxes).

Policy CI-4.6: Provide sidewalks on all arterial roadways.

Policy CI-4.7: Ensure that intersections and development at intersections are designed and maintained to provide for pedestrian safety.

Attachment I-1

- Policy CI-4.8:** Require that development projects within commercial districts provide pedestrian-focused access independent from vehicle entrances, as feasible.
- Policy CI-4.9:** Enhance pedestrian and bicycle access to local and regional transit, including connections to bus routes and the light rail station.
- Policy CI-4.10:** Coordinate the provision of the bicycle and pedestrian networks with adjacent jurisdictions to maximize connectivity.
- Policy CI-4.11:** Encourage walking, biking, and use of transit through a variety of supportive land use development and urban design measures, including site planning that promotes safety, pedestrian-friendly design, and access to transit facilities.
- Policy CI-4.12:** Require new and substantially renovated office, retail, industrial, and multifamily developments to include bicycle and pedestrian amenities in the vicinity of the development to facilitate bicycling and walking, including on-site bike paths where appropriate, sidewalk improvements, benches, and pedestrian signal push-buttons at nearby signals.
- Policy CI-4.13:** Require new and major renovations to office, industrial, and institutional developments to provide secure off-street bicycle parking, and encourage such developments to provide bicycle facilities, such as showers and changing rooms.

GOAL CI-5: Limited cut-through traffic in residential neighborhoods

- Policy CI-5.1:** Develop a process or program for developing neighborhood traffic management programs, where appropriate, in residential neighborhoods and around schools, parks, and community centers.
- Policy CI-5.2:** Develop and implement traffic-calming programs and management measures on local and collector streets, where determined to be necessary, to discourage traffic from diverting into or taking short-cuts through residential

Attachment I-2

1. Transportation Injury Mapping System (TIMS)
Collision from 1/1 2009 to 12/21/2012 for the
Project Location and Influence Area
2. Summary Tables of Injuries and Fatalities
3. U.S. Department of Transportation Federal Highway
Administration Factsheets on Safety
Countermeasures
4. FHWA's Pedestrian PEDSAFE Safety Guide and
Countermeasure Selection System (Excerpt)
5. FHWA's Pedestrian BIKESAFE Safety Guide and
Countermeasure Selection System (Excerpt)

Attachment I-2

CASEID	YEAR_	CRASH SEV	VIOLCAT	KILLED	INJURED	PEDCOL	BICCOL	CRASH TYP	INVOLVE	PED	PRIMARYRD	SECONDRD	INTERSECT_	DATE_	PEDKILL	PEDINJ	BICKILL	BICINJ	CITY
4041882	2009	3	11	0	1	Y		G	B	D	1ST AV	CHRISTINA ST	N	1/14/09	0	1	0	0	ARCADIA
4082868	2009	2	18	0	1	Y		G	B	F	SANTA CRUZ RD	COLORADO BL	N	1/20/09	0	1	0	0	ARCADIA
4085753	2009	4	0	0	1	Y		G	B	B	DUARTE RD	GOLDEN WEST AV	Y	1/11/09	0	1	0	0	ARCADIA
4106554	2009	4	0	0	1		Y	D	G	A	FOOTHILL BL	OAKWOOD DR	Y	2/14/09	0	0	0	0	ARCADIA
4175279	2009	4	5	0	1		Y	D	G	A	ARCADIA AV	BALDWIN AV	Y	3/29/09	0	0	0	0	ARCADIA
4186698	2009	4	5	0	1		Y	H	G	A	SUNSET BL	DUARTE RD	Y	4/1/09	0	0	0	0	ARCADIA
4189949	2009	4	17	0	1		Y	H	G	A	SANTA ANITA AV	LIVE OAK AV	N	4/7/09	0	0	0	0	ARCADIA
4190346	2009	4	8	0	1		Y	D	G	A	COLORADO PL	COLORADO BL	Y	4/9/09	0	0	0	0	ARCADIA
4298613	2009	3	9	0	1		Y	D	G	A	FOOTHILL BL	SANTA ANITA AV	N	7/5/09	0	0	0	0	ARCADIA
4308974	2009	3	5	0	1		Y	H	G	A	SYCAMORE AV	OAKGLEN AV	N	7/11/09	0	0	0	0	ARCADIA
4364971	2009	3	5	0	1		Y	H	G	A	PARK AV	DUARTE RD	N	8/20/09	0	0	0	0	ARCADIA
4364975	2009	4	3	0	1	Y		G	B	E	ARTHUR AV	1ST AV	N	8/20/09	0	1	0	0	ARCADIA
4399250	2009	4	17	0	1		Y	H	G	A	HUNTINGTON DR	SANTA ANITA AV	N	9/25/09	0	0	0	0	ARCADIA
4401030	2009	3	9	0	1		Y	-	G	A	HUNTINGTON DR	BALDWIN AV	Y	9/14/09	0	0	0	0	ARCADIA
4433499	2009	3	5	0	1		Y	D	G	A	HUNTINGTON DR	MICHILLINDA AV	N	10/8/09	0	0	0	0	ARCADIA
4439023	2009	3	10	0	1	Y		A	B	B	FAIRVIEW AV	GOLDEN WEST AV	N	10/15/09	0	1	0	0	ARCADIA
4474434	2009	4	5	0	1		Y	D	G	A	DUARTE RD	SANTA ANITA AV	N	10/6/09	0	0	0	0	ARCADIA
4477576	2009	3	5	0	1		Y	D	G	A	GENOA ST	1ST AV	N	11/27/09	0	0	0	0	ARCADIA
4505721	2009	3	8	0	1		Y	E	G	A	SANTA ANITA AV	FANO ST	Y	12/1/09	0	0	0	0	ARCADIA
4525215	2009	2	8	0	1	Y		B	B	E	COLORADO ST	BALDWIN	N	12/19/09	0	1	0	0	ARCADIA
4581402	2010	2	6	0	1	Y		G	B	C	HUNTINGTON DR	1ST AV	N	1/25/10	0	1	0	0	ARCADIA
4581406	2010	3	6	0	1		Y	-	G	A	COLORADO ST	MONTE VISTA RD	N	1/23/10	0	0	0	0	ARCADIA
4585054	2010	3	5	0	1		Y	D	G	A	PECK RD	CLARK ST	N	1/25/10	0	0	0	0	ARCADIA
4602445	2010	4	5	0	1		Y	D	G	A	4TH AV	DUARTE RD	Y	2/8/10	0	0	0	0	ARCADIA
4701539	2010	4	12	0	1	Y		-	B	E	LAS TUNAS DR	HOLLY AV	Y	5/9/10	0	1	0	0	ARCADIA
4710188	2010	4	11	0	1	Y		G	B	B	EL MONTE AV	CAMPUS DR	Y	5/19/10	0	1	0	0	ARCADIA
4727352	2010	3	10	0	1	Y		A	B	B	HOLLY AV	FAIRVIEW AV	Y	5/15/10	0	1	0	0	ARCADIA
4765417	2010	3	5	0	1		Y	H	G	A	EL MONTE AV	DUARTE RD	Y	6/30/10	0	0	0	0	ARCADIA
4767367	2010	4	5	0	1		Y	-	G	A	FAIRVIEW AV	BALDWIN AV	N	6/1/10	0	0	0	0	ARCADIA
4770177	2010	3	5	0	1		Y	H	G	A	DIAMOND ST	SANTA ANITA AV	Y	7/1/10	0	0	0	0	ARCADIA
4772523	2010	3	10	0	2	Y		G	B	B	2ND AV	BONITA ST	Y	6/19/10	0	2	0	0	ARCADIA
4789776	2010	4	10	0	1	Y		A	B	B	DUARTE RD	2ND AV	Y	6/26/10	0	1	0	0	ARCADIA
4803662	2010	3	10	0	1	Y		G	B	B	2ND AV	CALIFORNIA ST	Y	7/16/10	0	1	0	0	ARCADIA
4803670	2010	4	5	0	1		Y	G	G	A	DUARTE RD	2ND AV	N	7/18/10	0	0	0	0	ARCADIA
4876574	2010	3	9	0	1		Y	D	G	A	HAMPTON RD	SINGINGWOOD DR	Y	9/10/10	0	0	0	0	ARCADIA
4896000	2010	4	5	0	1		Y	H	G	A	SANTA ANITA AV	RT 210	Y	10/9/10	0	0	0	0	ARCADIA
4922550	2010	4	-	0	1	Y		G	B	D	DUARTE RD	DUARTE RD 160	N	10/14/10	0	1	0	0	ARCADIA
4935198	2010	3	9	0	1		Y	D	G	A	GOLDEN WEST AV	ENCANTO DR	N	10/26/10	0	0	0	0	ARCADIA
4944777	2010	3	10	0	1	Y		G	B	B	BALDWIN AV	FOOTHILL BL	N	10/20/10	0	1	0	0	ARCADIA
4977794	2010	3	5	0	1		Y	E	G	A	2ND AV	HUNTINGTON DR	N	12/1/10	0	0	0	0	ARCADIA
4990674	2011	1	12	1	0		Y	H	G	A	BALDWIN AV	LONGDEN AV	Y	1/17/11	0	0	1	0	ARCADIA
5008908	2010	4	17	0	1	Y		G	B	B	SANTA ANA AV	VIRGINIA RD	Y	12/8/10	0	1	0	0	ARCADIA
5008912	2010	4	5	0	1		Y	D	G	A	BALDWIN AV	LONGDEN AV	N	12/7/10	0	0	0	0	ARCADIA
5033129	2010	3	10	0	1	Y		G	B	B	1ST AV	WHEELER AV	N	12/30/10	0	1	0	0	ARCADIA
5033133	2010	3	10	0	1	Y		G	B	B	SANTA ANITA AV	FOOTHILL BL	Y	12/29/10	0	1	0	0	ARCADIA
5057978	2011	4	5	0	1		Y	H	G	A	SANTA ANITA AV	DUARTE RD	Y	1/21/11	0	0	0	0	ARCADIA
5070152	2011	3	-	0	1	Y		G	B	B	HUNTINGTON DR	LA CADENA AV	N	1/4/11	0	1	0	0	ARCADIA
5079280	2011	4	9	0	1		Y	D	G	A	LAS TUNAS DR	WINTHROP AV	Y	2/9/11	0	0	0	0	ARCADIA

Attachment I-2

CASEID	YEAR_	CRASH SEV	VIOLCAT	KILLED	INJURED	PEDCOL	BICCOL	CRASH TYP	INVOLVE	PED	PRIMARYRD	SECONDRD	INTERSECT_	DATE_	PEDKILL	PEDINJ	BICKILL	BICINJ	CITY
5083891	2011	3	9	0	1		Y	D	G	A	FAIRVIEW AV	SUNSET BL	Y	2/10/11	0	0	0	1	ARCADIA
5090516	2011	3	11	0	1	Y		G	B	B	DUARTE RD	BALDWIN AV	N	2/17/11	0	1	0	0	ARCADIA
5093973	2011	4	11	0	1	Y		G	B	D	BALDWIN AV	LEMON AV	N	3/17/11	0	1	0	0	ARCADIA
5112996	2011	4	11	0	1	Y		G	B	B	BALDWIN AV	NAOMI AV	N	3/12/11	0	1	0	0	ARCADIA
5113000	2011	4	10	0	1	Y		G	B	B	LONGDEN AV	S SANTA ANITA AV	Y	3/10/11	0	1	0	0	ARCADIA
5166332	2011	3	5	0	1		Y	D	G	A	HUNTINGTON DR	SANTA ANITA AV	N	4/16/11	0	0	0	1	ARCADIA
5179338	2011	4	10	0	1	Y		D	B	-	S SANTA ANITA AV	FANO ST	Y	5/19/11	0	1	0	0	ARCADIA
5179494	2011	3	17	0	1		Y	B	G	A	HUNTINGTON DR	BALDWIN AV	N	5/20/11	0	0	0	1	ARCADIA
5182203	2011	3	9	0	1		Y	D	G	A	DUARTE RD	BALDWIN AV	N	5/23/11	0	0	0	1	ARCADIA
5182211	2011	4	9	0	1		Y	D	G	A	2ND AV	GENOA ST	Y	5/25/11	0	0	0	1	ARCADIA
5194919	2011	4	10	0	1	Y		B	B	B	N SANTA ANITA AV	ORANGE GROVE AV	N	5/27/11	0	1	0	0	ARCADIA
5203241	2011	3	0	0	1		Y	B	G	A	COLORADO ST	BALDWIN AV	Y	6/6/11	0	0	0	1	ARCADIA
5214810	2011	3	5	0	1		Y	D	G	A	LA CADENA AV	DUARTE RD	N	6/20/11	0	0	0	1	ARCADIA
5254240	2011	3		0	1		Y	D	G	A	1ST AV	HUNTINGTON DR	N	7/25/11	0	0	0	1	ARCADIA
5256322	2011	4	8	0	1		Y	D	G	A	DUARTE RD	BALDWIN AV	Y	8/1/11	0	0	0	1	ARCADIA
5273207	2011	4	5	0	1		Y	A	G	A	W COLORADO BL	SANTA ANITA AV	N	8/17/11	0	0	0	1	ARCADIA
5291521	2011	1	10	1	1	Y		G	B	C	DUARTE RD	BALSDWIN AVENUE	N	4/10/11	1	1	0	0	ARCADIA
5309363	2011	4	9	0	1		Y	A	G	A	N SECOND AV	FOOTHILL BL	Y	9/9/11	0	0	0	1	ARCADIA
5309395	2011	3	17	0	1		Y	D	G	A	LAS TUNAS DR	EL MONTE AV	Y	9/9/11	0	0	0	1	ARCADIA
5319128	2011	4	10	0	1	Y		A	B	B	EL MONTE AV	LEROY AV	N	9/16/11	0	1	0	0	ARCADIA
5330506	2011	3	9	0	1		Y	H	G	A	EL MONTE AV	DELTA LN	N	10/2/11	0	0	0	1	ARCADIA
5330510	2011	3	10	0	1	Y		G	B	B	BALDWIN AV	NORMAN AV	Y	10/2/11	0	1	0	0	ARCADIA
5356350	2011	4	21	0	1	Y		G	B	D	FARNA AV	LIVE OAK AV	Y	9/17/11	0	1	0	0	ARCADIA
5357812	2011	3	8	0	1		Y	D	G	A	DUARTE RD	SANTA ANITA AV	N	10/11/11	0	0	0	1	ARCADIA
5367357	2011	3	10	0	1	Y		G	B	B	DUARTE RD	2ND AV	Y	11/4/11	0	1	0	0	ARCADIA
5367607	2011	3	10	0	1	Y		G	B	B	8TH AV	CAMINO GROVE AV	Y	10/10/11	0	1	0	0	ARCADIA
5367627	2011	3	10	0	1	Y		G	B	B	HUGO REID DR	MICHILLINDA AV	N	10/16/11	0	1	0	0	ARCADIA
5388419	2011	3	0	0	1		Y	B	G	A	LAS TUNAS DR	EL MONTE AV	N	11/4/11	0	0	0	1	ARCADIA
5393237	2011	2	9	0	1		Y	D	G	A	HOLLY AV	LONGDEN AV	Y	11/17/11	0	0	0	1	ARCADIA
5396733	2011	3	11	0	1	Y		G	B	B	FAIRVIEW AV	BALDWIN AV	Y	11/1/11	0	1	0	0	ARCADIA
5415765	2011	3	8	0	1		Y	D	G	A	SANTA ANITA AV	CAMPUS DR	Y	11/26/11	0	0	0	1	ARCADIA
5415769	2011	3	8	0	1		Y	B	G	A	HOLLY AV	HUNTINGTON DR	Y	11/25/11	0	0	0	1	ARCADIA
5416287	2011	4	5	0	1		Y	H	G	A	BALDWIN AV	COLORADO	N	11/20/11	0	0	0	1	ARCADIA
5418894	2011	3	10	0	1	Y		G	B	D	ALTA ST	SANTA ANITA AV	N	12/8/11	0	1	0	0	ARCADIA
5441230	2011	4	9	0	1		Y	D	G	A	SANTA ANITA AV	FANO ST	N	12/26/11	0	0	0	1	ARCADIA
5441234	2011	3	0	0	1	Y		G	B	B	2ND AV	CAMINO REAL AV	N	12/26/11	0	1	0	0	ARCADIA
5452921	2011	3	17	0	1	Y		G	B	B	W HUNTINGTON DR	GOLDEN WEST AV	Y	12/31/11	0	1	0	0	ARCADIA
5453491	2011	3	11	0	1	Y		G	B	B	SUNSET AV	BALBOA AV	Y	12/12/11	0	1	0	0	ARCADIA
5453507	2011	3	9	0	1		Y	D	G	A	FARNA AV	LIVE OAK AV	N	12/10/11	0	0	0	1	ARCADIA
5453519	2011	4	12	0	1		Y	D	G	A	1ST AV	COLORADO BL	Y	12/16/11	0	0	0	1	ARCADIA
5935874	2012	4	10	0	1	Y		G	B	B	GATEWAY AV	E HUNTINGTON DR	Y	11/24/12	0	1	0	0	ARCADIA
5935761	2012	3	9	0	1		Y	D	G	A	10TH AV	EL SUR AV	N	11/12/12	0	0	0	1	ARCADIA
5921210	2012	4	10	0	1	Y		G	B	B	SANTA ANITA AV	LE ROY AV	N	12/14/12	0	1	0	0	ARCADIA
5909375	2012	4	9	0	1	Y		G	B	F	DUARTE RD	BALDWIN AV	N	11/26/12	0	1	0	0	ARCADIA
5899315	2012	3	9	0	1		Y	D	G	A	2ND AV	MAGNA VISTA AV	Y	12/15/12	0	0	0	1	ARCADIA
5899311	2012	3	7	0	1	Y		G	B	E	GENOA AV	SANTA ANITA	N	12/18/12	0	1	0	0	ARCADIA
5855466	2012	4	9	0	1		Y	D	G	A	LA PORTE ST	SANTA ANITA AV	Y	10/22/12	0	0	0	1	ARCADIA
5855465	2012	4	5	0	2		Y	D	G	A	1ST ST	GENOA ST	N	10/22/12	0	0	0	2	ARCADIA

Attachment I-2

CASEID	YEAR_	CRASH SEV	VIOLCAT	KILLED	INJURED	PEDCOL	BICCOL	CRASH TYP	INVOLVE	PED	PRIMARYRD	SECONDRD	INTERSECT_	DATE_	PEDKILL	PEDINJ	BICKILL	BICINJ	CITY
5852877	2012	4	9	0	1		Y	B	G	A	VAQUERO RD	MURIETTA DR	Y	10/15/12	0	0	0	1	ARCADIA
5824463	2012	3	11	0	1	Y		G	B	D	FOOTHILL BL	NORTHVIEW AV	N	9/1/12	0	1	0	0	ARCADIA
5801334	2012	3	8	0	1		Y	D	G	A	HUNTINGTON DR	GOLDEN WEST AV	N	9/18/12	0	0	0	1	ARCADIA
5797194	2012	3	11	0	1	Y		G	B	D	LIVE OAK AV	6TH AV	N	8/14/12	0	1	0	0	ARCADIA
5783687	2012	4	8	0	1		Y	D	G	A	HUNTINGTON DR	1ST AV	N	8/7/12	0	0	0	1	ARCADIA
5755316	2012	3		0	1		Y	D	G	A	HIGHLAND OAKS DR	SYCAMORE AV	Y	7/31/12	0	0	0	1	ARCADIA
5668573	2012	3	10	0	1	Y		G	B	B	SANTA ANITA AV	COLORADO BL	Y	6/5/12	0	1	0	0	ARCADIA
5639381	2012	1	0	1	0		Y	H	G	A	SANTA ANITA AV	DUARTE RD	Y	10/20/12	0	0	1	0	ARCADIA
5636025	2012	4	9	0	1	Y		D	B	B	HUNTINGTON DR	GATEWAY DR	Y	6/1/12	0	1	0	0	ARCADIA
5526704	2012	3	12	0	1		Y	D	G	A	SANTA ANITA AV	DUARTE RD	Y	2/29/12	0	0	0	1	ARCADIA
5526217	2012	3	21	0	1	Y		G	B	F	FAIRVIEW AV	SUNSET BL	N	3/9/12	0	1	0	0	ARCADIA
5511271	2012	4	9	0	1		Y	D	G	A	SANTA ANITA AV	ALTA ST	N	2/20/12	0	0	0	1	ARCADIA
5467589	2012	3	12	0	1		Y	D	G	A	2ND AV	CALIFORNIA AV	Y	1/8/12	0	0	0	1	ARCADIA

Attachment I-2

Summary of Injuries and Fatalies Within the Project Limits and/or Project Influence Area

Motor Vehicle Collision With	Within Project Limits				Total	Within 2 Mile Influence Area				Total
	Fatalities	Injuries				Fatalities	Injuries			
AIS Severity Level	1	2	3	4		1	2	3	4	
Pedestrian	0	1	5	1	7	1	2	21	17	41
Bicyclist	1	0	8	8	17	1	1	26	19	47
Total	1	1	13	9	24	2	3	47	36	88

1 - Fatal
 2 - Injury (Severe)
 3 - Injury (Other Visible)
 4 - Injury (Complaint of Pain)

Summary of Most Common Traffic Violations Causing Injuries and/or Fatalities

Within Project Limits		Within Influence Area		Violation Type
Incident Count	%	Incident Count	%	
0		0	0%	Hit-run, injury or death, immediate report of fatal.
0		0	0%	Riding a bicycle while under the influence of alcohol
1	4%	4	5%	Bicyclist, failure to use right edge of roadway.
1	4%	1	1%	Driver facing green arrow, failure to yield the right-of-way to other traffic and to pedestrians lawfully within the intersection or an adjacent crosswalk
2	9%	2	2%	Red light or Stop sign, vehicle failure to stop at limit line or crosswalk
0		1	1%	Pedestrian failure to yield to vehicles already in crosswalk
0		1	1%	Traffic control sign, failure to obey regulatory provisions.
4	17%	13	16%	Bicycle on roadway or shoulder required to be operated in same direction as motor vehicles.
0		1	1%	Laned roadways (2 or more lanes in direction of travel), straddling or changing when unsafe.
0		4	5%	Left turns or U-turns yield until reasonably safe.
0		6	7%	Yield signs, yield until reasonably safe
1	4%	7	9%	Driver failure to yield right-of-way to approaching traffic so close as to constitute an immediate hazard
2	9%	22	27%	Crosswalks, failure to yield to pedestrians within.
1	4%	0	0%	Crosswalk, overtaking and passing vehicle stopped for pedestrian within.
0		0	0%	Sidewalk, failure to yield to pedestrian on.
1	4%	2	2%	Pedestrian yield, upon roadway outside crosswalk (ie. jaywalking).
0		0	0%	Walking on roadway, other than pedestrian's left edge.
0		1	1%	Turn at intersection, improper position
0		2	2%	Starting or backing when unsafe.
4	17%	4	5%	Unsafe turn, and/or without signalling.
0		1	1%	Unsafe speed for prevailing conditions (use for all prima facie limits).
0		1	1%	Stop sign, failure to stop at limit line, crosswalk, or entrance to intersection.
1	4%	2	2%	Vehicle doors, opening to traffic when unsafe, leaving open.
0		0	0%	Under the influence of alcohol while driving a vehicle
5	22%	7	9%	Violation Not Reported/Unknown
23		82		
23		87		
0		5		

U.S. Department of Transportation

Federal Highway Administration

1200 New Jersey Avenue, SE
Washington, DC 20590
202-366-4000

Safety

Road Diets (Roadway Reconfiguration)

A roadway reconfiguration known as a Road Diet offers several high-value improvements at a low cost when applied to traditional four-lane undivided highways. In addition to low cost, the primary benefits of a Road Diet include enhanced safety, mobility and access for all road users and a "complete streets" environment to accommodate a variety of transportation modes.

A classic Road Diet typically involves converting an existing four-lane, undivided roadway segment to a three-lane segment consisting of two through lanes and a center, two-way left-turn lane.



Road Diet on Edgewater Drive, Orlando, Florida

The resulting benefits include a crash reduction of 19 to 47 percent, reduced vehicle speed differential, improved mobility and access by all road users, and integration of the roadway into surrounding uses that results in an enhanced quality of life. A key feature of a Road Diet is that it allows reclaimed space to be allocated for other uses, such as turn lanes, bus lanes, pedestrian refuge islands, bike lanes, sidewalks, bus shelters, parking or landscaping.

Why consider a Road Diet? Four-lane undivided highways experience relatively high crash frequencies — especially as traffic volumes and turning movements increase over time — resulting in conflicts between high-speed through traffic, left-turning vehicles and other road users. FHWA has deemed Road Diets a proven safety countermeasure and promotes them as a safety-focused design alternative to a traditional four-lane, undivided roadway. Road Diet-related crash modification factors are also available for use in safety countermeasure benefit-cost analysis.

Attachment I-2

As more communities desire "complete streets" and more livable spaces, they look to agencies to find opportunities to better integrate pedestrian and bicycle facilities and transit options along their corridors. When a Road Diet is planned in conjunction with reconstruction or simple overlay projects, the safety and operational benefits are achieved essentially for the cost of restriping. A Road Diet is a low-cost solution that addresses safety concerns and benefits all road users — a win-win for quality of life.

Road Diets stand the test of time, having been implemented by transportation agencies for more than three decades. One of the first installations of a Road Diet was in 1979 in Billings, Montana. Road Diets increased in popularity in the 1990s. Cities, including Charlotte, Chicago, New York, Palo Alto, San Francisco and Seattle, have also opted for the positive impact Road Diets bring to their communities.

FHWA is developing a Road Diet Informational Guide to help communities understand the safety and operational benefits and determine if Road Diets may be helpful in their location.

Resources

[Comparison of empirical Bayes and full Bayes approaches for before-after road safety evaluations](#) NEW

[Crash Reduction Factors for Traffic Engineering and ITS Improvements](#) NEW

[The Safety and Operational Effects of Road Diet Conversion in Minnesota](#) NEW

[Road Diets Presentation](#) NEW

- [Webinar Recording](#)

[Road Diets Brochure](#) NEW

[Road Diet Informational Guide](#)

"[Going on a Road Diet](#)," article in September/October 2011 *Public Roads* magazine

Page last modified on January 29, 2015.





Bicycle Lanes

Bicycle facilities provide a shared or exclusive space to indicate where bicyclists can predictably travel along streets. Shared bicycle and motor vehicle travel lanes, as well as bicycle lanes, are typically designated by striping, symbols, and/or signage. Physically separated facilities such as cycle tracks (facilities for bicycle use only) or a shared use path for pedestrians and bicyclists are a great way to encourage more bicycling and often follow former railroad rights-of-way or may be desirable as sidepaths along high-speed, high-volume roads. Design and countermeasure details for bicyclist travel are provided in the AASHTO Bicycle Design Guide,¹ the BIKESAFE Guide,² the FHWA MUTCD,³ and the NACTO Guide.⁴

Purpose

Designing streets for bicycle use helps create a more predictable traffic environment by reducing conflicts between all modes of travel, whether the conflict is between bicyclists and motor vehicles or pedestrians and bicyclists. Dedicated bicycle facilities (e.g. bicycle lanes) on the roadway also help provide a buffer between pedestrians and motor vehicle traffic, encourage lower motor vehicle speeds, and reduce pedestrian exposure to motor vehicles at crossings.

Considerations

- Sidewalks may be appropriate for low-speed (less than 5 mph) bicyclists such as children while providing on-street bicycle facilities such as bike lanes may encourage higher speed bicyclists to not ride on sidewalks, thus reducing conflicts between pedestrians and bicyclists on sidewalks.
- Marked crosswalks should be extended across the bicycle lanes to let bicyclists know they must yield to pedestrians. Dashed bicycle lane markings may be continued through intersections or across turning lanes to indicate to drivers that vehicles must cross bicyclists' path.
- When designing facilities such as contra-flow bicycle lanes and cycle tracks, consideration should be given to alert pedestrians and motorists of where to expect bicyclists.
- When a cycle track is located on the same side of the road as transit stops, cycle tracks may be routed behind the stop; pedestrian waiting areas should be provided between the cycle track and the roadway; and crosswalks should be installed across the cycle track to reduce conflicts between bicyclist and pedestrians accessing the transit stop.

[View Other Roadway Design Treatments](#)



Bicycle lane placed between curb and transit stop platform, Seattle, Washington Source: Michael Hintze, Toole Design Group



Bike lane provides a buffer for pedestrians.

Attachment I-2

- For off-street facilities such as shared use paths and sidepaths all users should be encouraged to stay right. An exception may be paths along waterways or other features that draw pedestrians-in such cases markings and/or signage may be used to indicate pedestrians to stay on the side of the path closest to the attraction to reduce conflicts associated with pedestrians crossing the pathway.
- Placing the bicycle facility between the curb and bus stop waiting area, and providing clear messaging to for pedestrian crossings (e.g. marked crosswalks and pedestrian crossing warning signs) reduces conflicts between bicycles and pedestrians and improves transit operations.

Estimated Cost

The cost of installing bicycle facilities depends on the type and scope of a project, whether it be restriping, resurfacing, or reconstruction. The cost of striping a bike lane and markings on existing shoulders costs approximately \$1,000-11,000 per mile. Retrofitting bicycle lanes by restriping pavement markings, using techniques such as lane diets or road diets (See Countermeasures 9. Roadway Narrowing, or 10. Lane Reduction for more information) can range from approximately \$5,000 to \$50,000 per mile, depending on the condition of the pavement; the need to eradicate and install new pavement markings, adjust signal timing, and add bicycle signal heads; as well as other site-specific factors.

Moving curb lines to create bicycle lanes or cycle tracks can be much more expensive than restriping. If shoulders must be added, the cost can be approximately \$150,000-500,000 per mile (for both shoulders). Many times there are opportunities to “piggy-back” bicycle facility projects with resurfacing or reconstruction projects in order to optimize funds; bicycle lanes should be considered for all projects, especially during street reconstruction, street resurfacing, or during new developments.

Case Studies

Allegheny County, PA

Tempe, AZ

University Place, WA

Arlington County, VA

Cleveland Heights, Ohio

New York, New York

Tampa, Florida

Seattle, Washington



Bike-Activated Signal Detection

At signalized intersections that require users to be detected to call a green light, detection should be designed to accommodate bicyclists. Properly designed detection can help deter red light running and unsafe behaviors by reducing delay at signalized intersections.

There are two categories of detection: active or passive. Active detection requires the user to activate the signal phase through a pushbutton. While existing sidewalk-based pedestrian pushbutton detection may adequately serve bicyclists that ride on the sidewalk, it should not be expected that on-road cyclists would leave the roadway to actuate a signal. As such, passive detection (i.e., when the signal system automatically detects the presence of the user) is preferred. The most common motor vehicle detection technology, the loop detector, can also be used to service bicyclists. Additional passive detection devices may include video detection and microwave detection. Passive technologies are continuously being updated, and new innovations in detection should be considered and tested as they are developed.

Bicycle detection devices can be used to call a phase or to prolong the phase to allow a bicyclist to clear an intersection. For bicyclists to prompt the phase at a signalized intersection, bicycle detection devices should be located in the most conspicuous location and supplemented by appropriate signing and pavement markings to inform bicyclists of where to wait.

Purpose

Signalized intersections should include detection for bicyclists to facilitate safe, comfortable, and convenient crossings at intersections for bicyclists while also minimizing delay.

Considerations

- Detection devices should be placed in the expected path of the bicyclists, and aimed to maximize efficiency and responsiveness.
- It may be desirable to install advanced bicycle detection on the approach to the intersection to extend the phase, or to

View Related Treatments



Signal detection for bicyclists using the bike lane. *Photo by Carl Sundstrom*

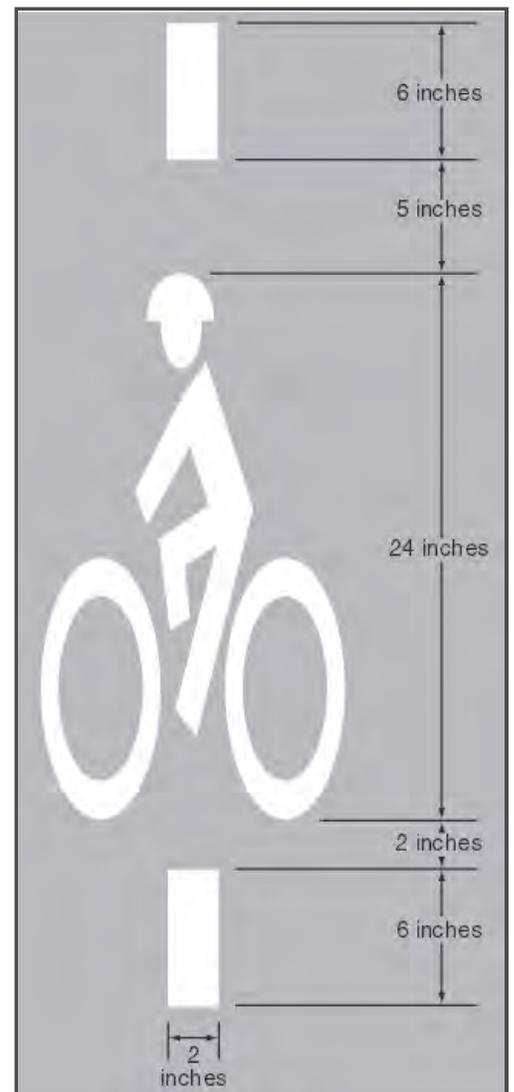


Example of pavement marking at traffic signal which shows bicycles where to stop to activate the signal. <http://www.pedbikeimages.org/> - Marie Stake

Attachment I-2

prompt the phase and allow for continuous bicycle through movements.

- If a pushbutton is used, the location of the device should not require bicyclists to dismount or be rerouted out of the way or onto the sidewalk to activate the phase. Signage should supplement the signal to alert bicyclists of the required activation to prompt the green phase.
- Signal timings should be adjusted to account for the unique operating characteristics of bicycles. For additional details, see the countermeasure **optimizing signal timing** for bicycles.
- It is important that the design of loop detectors consider the amount of metal in typical bicycles. Certain types of loop configurations are better at detecting bicyclists than others and settings for loop detectors should be adjusted to properly detect bicycles.



This symbol may be placed in the travel lane to indicate the optimum position for a bicyclist to actuate the signal.
Manual on Uniform Traffic Control Devices

Estimated Cost

Detection devices are used to determine if a pedestrian or bicyclist is waiting for the signal. There are many different ways that these devices detect pedestrians and bicyclists. For instance, bicycle detectors (\$1,920 on average per intersection approach, \$1,070 to \$2,680 range) are usually loop detectors embedded in the pavement, while pedestrian detectors use pushbuttons to detect the presence of pedestrians waiting to cross.

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Pedestrian/Bike Detection	Furnish and Install Pedestrian Detector	\$180	\$390	\$68	\$1,330	Each	7(14)
Pedestrian/Bike Detection	Push Button	\$230	\$350	\$61	\$2,510	Each	22(34)

References

To view references for this countermeasure group [click here](#).

Case Studies

Portland, Oregon

Santa Cruz, California

Attachment I-3

1. City of Arcadia General Plan: Public Involvement
(Excerpt)

A Community Effort

The Arcadia General Plan reflects the ideas and inspirations of City leaders, staff, residents, and the business community. In developing this Plan, the City undertook an extensive community engagement process to understand the community's aspirations and to establish a foundation based on the vision for the future. The outreach program included the components described below.

Stakeholder Interviews

The General Plan team conducted a series of interviews with all members of the City Council and Planning Commission and representatives from many community organizations and interest groups. The interviews consisted of one-on-one discussions and group meetings to identify issues of concern to policy makers, residents, and the business community. Groups invited to and participating in the discussions included:

- Arcadia Association of Realtors
- Arcadia Chamber of Commerce Board of Directors
- Arcadia Chamber of Commerce Executive Committee
- Downtown Merchants
- Arcadia Wins!
- Arcadia High School Student Council and Student Body
- Arcadia School District Board
- Arcadia School District PTA (Elementary, Junior High, and High School)
- Arcadia School District PTA subgroups: Chinese, Hispanic
- Arcadia Interfaith Group
- American Red Cross
- Alpha Auxiliary (Methodist Hospital Foundation)
- Arcadia Host Lion Club
- Arcadia Masons
- Arcadia Women's Club
- Assistance League of Arcadia - Headquarters
- Elks Lodge
- Knights of Columbus - Council 3073
- Rotary Club of Arcadia
- Sunrise Rotary Club
- Arcadia Chinese Association
- Chinese Lions Club
- Chinese American booster club (schools)
- Arcadia Historical Society
- City of Arcadia Beautiful Commission
- Arcadia First!
- City of Arcadia Historical Museum Commission
- City of Arcadia Planning Commission
- City of Arcadia Human Resources Commission
- City of Arcadia Library Board of Trustees
- City of Arcadia Recreation and Parks Commission

Attachment I-3

- City of Arcadia Senior Citizen's Commission
- Anoakia Estate Homeowners Association
- Highland Oaks Homeowners Association
- Lower Rancho Homeowners Association
- Santa Anita Oaks Homeowners Association
- Santa Anita Village Homeowners Association
- Upper Rancho Homeowners Association
- Whispering Pines Homeowners Association

Community Workshops and Events

The community participated in several educational, informational, and interactive General Plan events to learn about existing and proposed development projects, redevelopment efforts, traffic, housing, and conservation. The City conducted a number of General Plan workshops:

- 1) an introductory workshop on May 31, 2008,
- 2) a focused workshop on Downtown Arcadia on October 11, 2008,
- 3) a joint workshop with the Chamber of Commerce for the Business Community on August 4, 2009
- 4) two community workshops to present the Draft General Plan to the public during the summer of 2010, and
- 5) workshops with the Planning Commission and City Council in the fall of 2010 prior to formal public hearings.
- 6) zoning code amendments with the Planning Commission on September 14, 2010.



In addition, in August of 2008 the General Plan team directed a workshop with the Arcadia Chinese Association, and the team presented or participated in events sponsored by the Chamber of Commerce, including a business expo focused on local Chinese-American businesses, a Governmental Affairs Forum, and the annual Business Expo.

General Plan Advisory Committee

The General Plan Advisory Committee, or GPAC, comprised of 13 residents and members of the business community, held many meetings over a nearly two-year period to establish the General Plan framework and review draft elements prior to release of the draft General Plan to the public. The focus of the GPAC was to provide the varied perspectives of the community and represent opinions and concerns of residents, landowners, interest groups, homeowners' associations, and others interested in the General Plan

Attachment I-3

Update effort. The GPAC also made recommendations to staff prior to Planning Commission and City Council consideration.

Accomplishments of the GPAC included:

- Development of the Guiding Principles (see below)
- Participation in community workshops and joint City Council and Planning Commission workshops
- Definition and refinement of recommended land use focus areas
- Development of policies for focus areas
- Input on draft elements

City Council and Planning Commission

The City Council and Planning Commission held a series of study sessions throughout the General Plan process to review draft land use proposals. Land Use workshops were held with the Planning Commission on May 12 and June 9, 2009; land use workshops were also held with the City Council on July 7 and July 21, 2009. Additionally, the two bodies met in a joint session on February 24, 2009.

General Plan Website

The City maintained a General Plan website throughout the process to keep the public informed. Visitors could review summaries of interviews and workshops, comment on the Guiding Principles, read background reports, and review the draft General Plan.

Attachment I-4

1. CHIS Public Health Statistics for Project Location and Influence Area
2. County of Los Angeles Department of Public Health Strategic Plan 2013-2017
3. County of Los Angeles Department of Public Health LA Health Data Snapshot
4. County of Los Angeles Department of Public Health Mortality in Los Angeles County 2011
5. Centers for Disease Control and Prevention CDC Recommendations for Improving Health through Transportation Policy
6. Pedestrian & Bicycle Information Center Health Benefits Fact Sheet
7. Active Living Research “The Role of Transportation in Promoting Physical Activity” Infographic

Attachment I-4

	State	Counties	Zip Codes	
	California	Los Angeles County	91006	91007
Ever diagnosed with asthma (18+)	13.7% (13.1% - 14.3%) 27,796,500	12.2% (11.3% - 13.2%) 7,402,100	14.6% (12.3% - 17.0%) 24,100	14.2% (11.9% - 16.5%) 24,800
Ever diagnosed with asthma (1-17)	15.4% (14.0% - 16.7%) 8,629,700	15.0% (13.3% - 16.7%) 2,204,000	NA -	NA -
Ever diagnosed with diabetes (18+)	8.4% (7.9% - 8.8%) 27,796,500	8.8% (8.0% - 9.5%) 7,402,100	7.7% (6.4% - 9.1%) 24,100	7.8% (6.3% - 9.2%) 24,800
Fair or poor health (18-64)	17.9% (17.2% - 18.6%) 23,392,900	21.4% (20.2% - 22.7%) 6,305,200	16.7% (14.3% - 19.1%) 19,200	19.3% (16.6% - 22.0%) 19,400
Fair or poor health (65+)	27.4% (26.1% - 28.7%) 4,403,600	33.0% (31.2% - 34.8%) 1,096,900	NA -	NA -
Fair or poor health (0-17)	6.0% (5.1% - 6.8%) 9,134,500	6.0% (4.9% - 7.0%) 2,334,000	NA -	NA -
Ever diagnosed with heart disease (18+)	6.3% (6.0% - 6.7%) 27,796,500	5.9% (5.4% - 6.3%) 7,402,100	6.2% (5.3% - 7.1%) 24,100	6.7% (5.7% - 7.7%) 24,800
Obese (BMI ≥ 30) (18+)	24.8% (24.1% - 25.5%) 27,796,500	24.7% (23.5% - 26.0%) 7,402,100	16.2% (13.9% - 18.5%) 24,100	16.4% (14.0% - 18.8%) 24,800
Overweight for age (weight ≥ 95th percentile) (2-11)	13.6% (11.8% - 15.3%) 4,997,900	14.4% (12.0% - 16.8%) 1,262,600	NA -	NA -
Overweight or obese (BMI ≥ 85th percentile) (12-17)	32.4% (29.5% - 35.3%) 3,127,100	36.6% (33.3% - 39.9%) 811,500	NA -	NA -
Regular physical activity (5-17)	20.8% (19.1% - 22.5%) 6,610,500	19.9% (17.7% - 22.0%) 1,684,100	NA -	NA -
Walked at least 150 minutes (18+)	33.3% (32.5% - 34.1%) 27,796,500	35.0% (33.5% - 36.4%) 7,402,100	32.6% (28.6% - 36.6%) 24,100	32.0% (28.0% - 36.1%) 24,800

Attachment I-4

	Counties		Zip Codes			
	Los Angeles County	91016	91731	91775	91700	
Ever diagnosed with asthma (18+)	12.2% (11.3% - 13.2%) 7,402,100	16.2% (13.7% - 18.8%) 31,300	11.8% (9.7% - 13.9%) 22,800	14.3% (11.9% - 16.6%) 18,700	13.7% (11.3% - 16.1%) 26,600	
Ever diagnosed with asthma (1-17)	15.0% (13.3% - 16.7%) 2,204,000	NA -	NA -	NA -	NA -	
Ever diagnosed with diabetes (18+)	8.8% (8.0% - 9.5%) 7,402,100	7.1% (6.0% - 8.2%) 31,300	9.9% (8.0% - 11.7%) 22,800	8.1% (6.7% - 9.4%) 18,700	8.4% (6.7% - 10.1%) 26,600	
Fair or poor health (18-64)	21.4% (20.2% - 22.7%) 6,305,200	19.2% (16.5% - 22.0%) 26,400	29.6% (26.1% - 33.0%) 19,200	21.2% (18.2% - 24.2%) 15,100	23.6% (20.3% - 26.9%) 21,700	
Fair or poor health (65+)	33.0% (31.2% - 34.8%) 1,096,900	NA -	NA -	NA -	NA -	
Fair or poor health (0-17)	6.0% (4.9% - 7.0%) 2,334,000	NA -	NA -	NA -	NA -	
Ever diagnosed with heart disease (18+)	5.9% (5.4% - 6.3%) 7,402,100	5.8% (5.1% - 6.5%) 31,300	5.7% (4.8% - 6.6%) 22,800	6.2% (5.3% - 7.1%) 18,700	6.7% (5.5% - 7.9%) 26,600	
Obese (BMI ≥ 30) (18+)	24.7% (23.5% - 26.0%) 7,402,100	24.3% (21.5% - 27.2%) 31,300	25.4% (22.4% - 28.5%) 22,800	18.1% (15.7% - 20.6%) 18,700	18.0% (15.3% - 20.6%) 26,600	
Overweight for age (weight ≥ 95th percentile) (2-11)	14.4% (12.0% - 16.8%) 1,262,600	NA -	NA -	NA -	NA -	
Overweight or obese (BMI ≥ 85th percentile) (12-17)	36.6% (33.3% - 39.9%) 811,500	NA -	NA -	NA -	NA -	
Regular physical activity (5-17)	19.9% (17.7% - 22.0%) 1,684,100	NA -	NA -	NA -	NA -	
Walked at least 150 minutes (18+)	35.0% (33.5% - 36.4%) 7,402,100	32.6% (28.7% - 36.4%) 31,300	33.4% (29.0% - 37.7%) 22,800	32.7% (28.7% - 36.8%) 18,700	31.8% (27.4% - 36.2%) 26,600	

County of Los Angeles Department of Public Health

Strategic Plan

2013-2017



Strategic Priority 1

Healthy and Safe Community Environments

Support and develop neighborhoods and institutions that support healthy lifestyles.

Goal 1.1: Increase the capacity of community environments to support active living and healthy eating.

- Obj.1.1.a Increase the number of local jurisdictions that implement transit-oriented districts and other land use planning policies that promote walkable, bikeable, and safe communities and use of mass transit while avoiding displacement of affordable housing.
- Obj.1.1.b Increase hospital and other institutional support for and promotion of breastfeeding.
- Obj.1.1.c Implement policies and practices to improve nutrition and physical activity in schools and child care settings.
- Obj.1.1.d Increase engagement with cities, public institutions, businesses, and community-based organizations to increase access to and demand for healthy food and beverage options, and reduce access to and demand for less healthy options.
- Obj.1.1.e Implement media and other public education efforts to promote increased fruit and vegetable consumption, increased tap water consumption, reduced consumption of beverages with added sugar, reduced salt intake, and reduced food and beverage portion sizes.
- Obj.1.1.f Promote smaller portion options through restaurant industry engagement and consumer education.
- Obj.1.1.g Develop strategies to increase participation in the Supplemental Nutrition Assistance Program (SNAP) and increase healthy food and beverage purchases among SNAP participants, including incentives for purchasing fresh produce.
- Obj.1.1.h Increase the capacity of community-based agencies to improve preconception health through the use of web-based platforms.

Goal 1.2: Increase the capacity of community environments to support tobacco-free living.

- Obj.1.2.a Assist cities with adopting evidence-based strategies to reduce exposure to secondhand smoke in multi-unit housing and outdoor areas.
- Obj.1.2.b Engage with cities and unincorporated areas to reduce youth access to tobacco products.
- Obj.1.2.c Work with businesses to reduce employee exposure to secondhand smoke and increase access to and utilization of effective tobacco cessation services.
- Obj.1.2.d Implement communication campaigns to increase utilization of effective tobacco cessation services.

Attachment I-4

- Obj.1.2.e Work with health care organizations to adopt and implement a standard protocol for tobacco use screening and referral to cessation services.
- Obj.1.2.f Engage with school districts, schools and teachers to provide tobacco-use prevention education and cessation resources at schools with high rates of tobacco use.

Goal 1.3: Increase community safety and decrease potential for injuries.

- Obj.1.3.a Support efforts to reduce gang violence among youth, including the County's Parks After Dark Program and other support services and policy interventions for high-risk youth.
- Obj.1.3.b Expand partnerships and pursue funding to increase injury and violence prevention efforts, including prevention of traffic collisions, fall injuries among seniors, drug-related poisonings, suicide, homicide, intimate partner violence, and trauma and abuse across the lifespan.
- Obj.1.3.c Implement evidence-based strategies to prevent motor vehicle, pedestrian and bicyclist injuries.

Goal 1.4: Reduce community environmental hazards.

- Obj.1.4.a Work with community organizations to educate residents on strategies to improve healthy conditions in multi-unit housing.
- Obj.1.4.b Quantify the potential short and long-term impacts of environmental hazards by modeling linkages between exposures and diseases and injuries.
- Obj.1.4.c Identify potential interventions to reduce the exposure to and impact of environmental hazards, and quantify the impacts and value of those interventions.
- Obj.1.4.d Address illegal food operations that pose a public health risk through public education and enforcement.
- Obj.1.4.e Improve data reporting, analysis, interpretation, and notification of environmental hazards to the public and affected industry.
- Obj.1.4.f Inform the general public on the nature of climate change, its potential effects, and actions they can take to reduce greenhouse emissions and minimize impacts on health.

Goal 1.5: Reduce the impact of substance abuse and addiction.

- Obj.1.5.a Implement and evaluate evidence-based prevention services that respond to locally identified alcohol and drug problems.
- Obj.1.5.b Improve treatment outcomes by expanding use of evidence based practices, including use of MAT (medication-assisted treatment).
- Obj.1.5.c Develop and begin implementation of a strategic action plan to address the growing public health problem of prescription drug use and abuse.
- Obj.1.5.d Assist cities and communities with adopting evidence-based strategies to reduce youth access and availability to alcohol and other drugs (AOD), and minimize the related health and social consequences.



BUILT ENVIRONMENT FOR PHYSICAL ACTIVITY

The built environment includes the settings and structures around us, the spaces where we live, play, learn, and work. Growing evidence demonstrates the relationship between features of the built environment and health; the built environment can contribute to disease and injury or promote good health and habits.^{1,2}

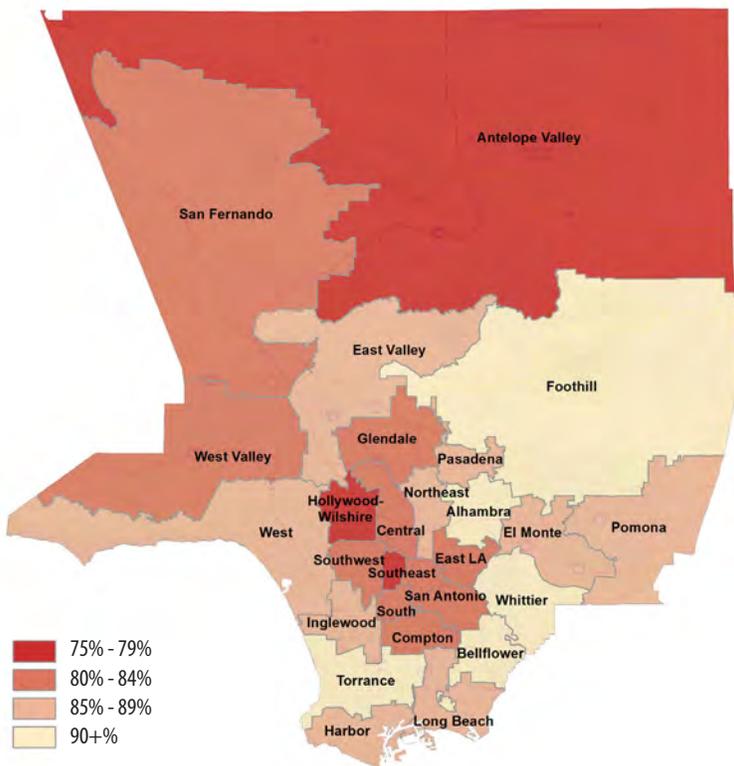
Characteristics of the community or neighborhood that discourage physical activity, such as unsafe walking paths or lack of parks, can increase the risk for obesity, diabetes, and other chronic health conditions.^{3,4,5} Conversely, built environments that allow people to engage in physical activity, including walkable sidewalks, safe bike paths, parks, and open space, improve health and well-being.⁶

To assess perceptions of the built environment among our local population, the 2011 Los Angeles County Health Survey asked adults (18+ years old) about the environments in which they live, walk, and exercise.

Neighborhood Resources for Physical Activity

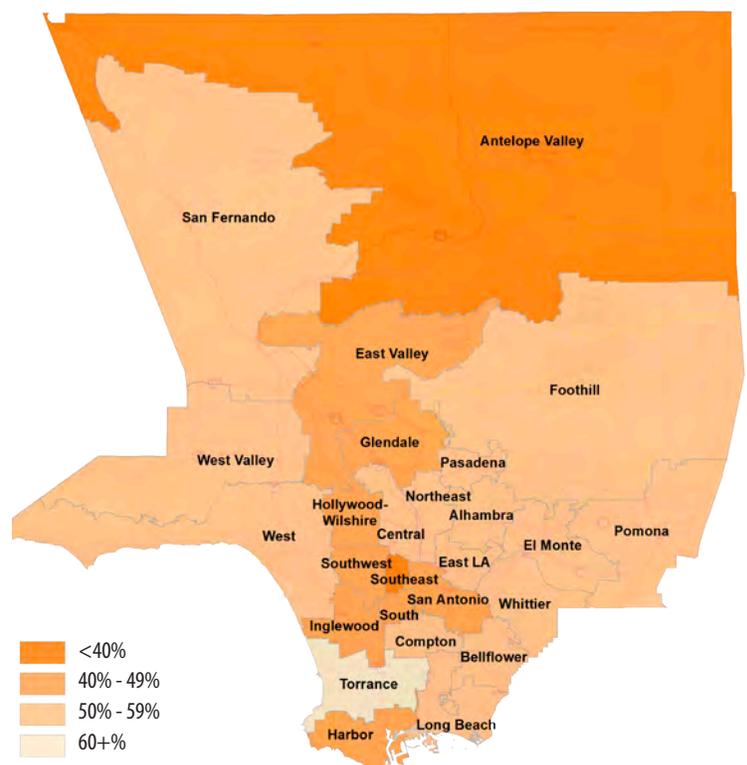
- 52% percent of adults in the County reported they use walking paths, parks, playgrounds or sports fields in their neighborhood, 34% of adults do not use these resources, and 14% reported that their neighborhood does not have these facilities.

Figure 1: Percent of Adults Who Reported That They Have Parks, Playgrounds, or Sports Fields in Their Neighborhood, by Health District, LACHS 2011



- The presence of walking paths, parks, playgrounds, or sports fields varied geographically, with Antelope Valley, Hollywood/Wilshire, and Southeast Health Districts having the lowest percent of residents reporting resources for outdoor physical activity (Figure 1).
- Use of walking paths, parks, playgrounds or sports fields varied by Health District, with the Torrance Health District having the highest use of these facilities, and the Southeast and Antelope Valley Health Districts having the lowest use (Figure 2).

Figure 2: Percent of Adults Who Used Walking Paths, Parks, Playgrounds, or Sports Fields in Their Neighborhood, by Health District, LACHS 2011



LA Health

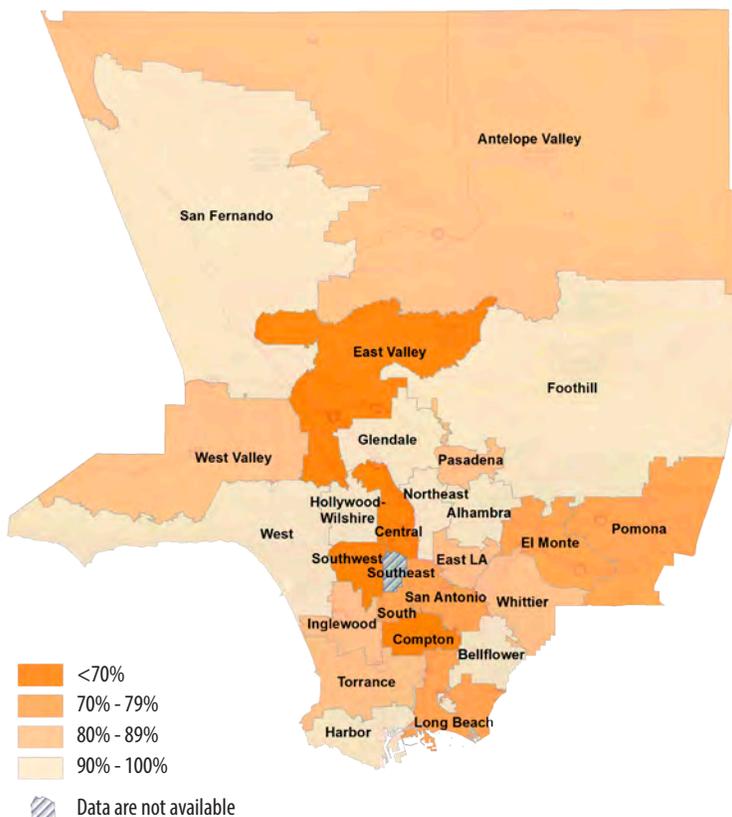
DATA SNAPSHOT



Perceived Safety of Neighborhood

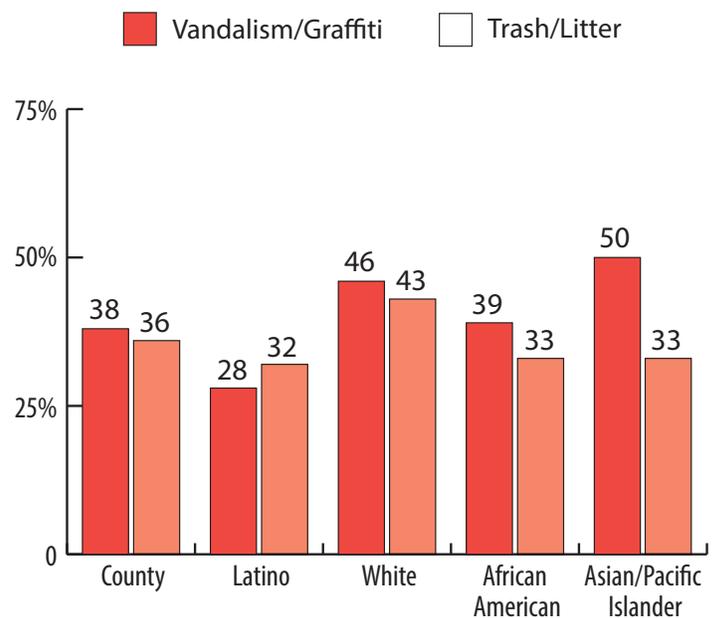
- Among those who reported using walking paths, parks, playgrounds, or sports fields in their neighborhood, 91% reported they were safe to use. However, among those who did not use these places, 81% reported they were safe, while 9% did not know if they were safe.
- Overall, 84% of adults in the County reported that they perceived their neighborhood to be safe from crime. Perceived neighborhood safety from crime varied geographically by Health District (Figure 3).
- 69% of adults reported that there was adequate lighting around buildings and on streets, and that the streets and sidewalks were well-maintained in their neighborhood.
- Only 62% of residents living in poverty reported having well-maintained streets and sidewalks, and adequate lighting in their neighborhood, compared to 71% of residents with higher household incomes.

Figure 3: Percent of Adults Who Perceived Their Neighborhood to be Safe from Crime, by Health District, LACHS 2011

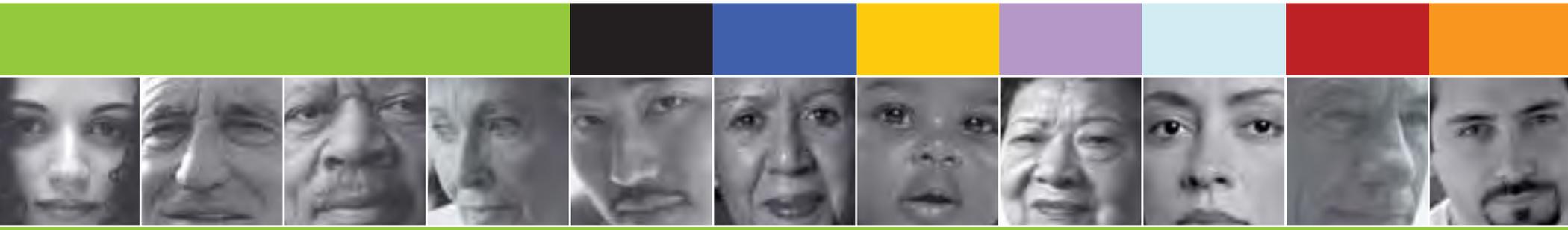


- Graffiti, vandalism, trash or litter on the streets can deter residents from walking and engaging in other healthy forms of exercise.
 - A higher percentage of Asians/Pacific Islanders (50%) and whites (46%) reported no vandalism or graffiti in their neighborhood compared to 39% of African Americans and 28% of Latinos (Figure 4).
 - More whites (43%) reported that their neighborhood did not have trash and litter on the streets or properties compared to 33% of Asians/Pacific Islanders, 33% of African Americans, and 32% of Latinos.

Figure 4: Percent of Adults Who Reported No Vandalism/ Graffiti or Trash/Litter in their Neighborhood, by Race/Ethnicity, LACHS 2011



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MORTALITY IN LOS ANGELES COUNTY 2009

Leading Causes of Death and Premature Death with Trends for 2000-2009

A PUBLICATION OF THE LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH



Figure 10. Leading causes of death and premature death, by service planning area (SPA) of residence

Attachment I-4

Antelope Valley (SPA 1)

2,230 deaths

21,576 years of life lost

Leading causes of death				Leading causes of premature** death			
Rank	Cause of death	No. of deaths	Premature death rank	Rank	Cause of death	Years of life lost*	Death rank
1.	Coronary heart disease	476	1.	1.	Coronary heart disease	2,821	1.
2.	Emphysema/COPD	202	6.	2.	Motor vehicle crash	1,522	10.
3.	Lung cancer	118	7.	3.	Homicide	1,236	15.
4.	Diabetes	113	4.	4.	Diabetes	1,101	4.
5.	Stroke	94	13.	5.	Liver disease	963	8.

San Fernando (SPA 2)

12,132 deaths

84,124 years of life lost

Leading causes of death				Leading causes of premature** death			
Rank	Cause of death	No. of deaths	Premature death rank	Rank	Cause of death	Years of life lost*	Death rank
1.	Coronary heart disease	2,828	1.	1.	Coronary heart disease	11,516	1.
2.	Stroke	690	9.	2.	Suicide	5,131	12.
3.	Lung cancer	664	6.	3.	Drug overdose	4,736	17.
4.	Emphysema/COPD	572	14.	4.	Motor vehicle crash	4,203	18.
5.	Alzheimer's disease	568	42.	5.	Liver disease	3,609	11.

San Gabriel (SPA 3)

10,636 deaths

71,001 years of life lost

Leading causes of death				Leading causes of premature** death			
Rank	Cause of death	No. of deaths	Premature death rank	Rank	Cause of death	Years of life lost*	Death rank
1.	Coronary heart disease	2,304	1.	1.	Coronary heart disease	8,974	1.
2.	Stroke	694	7.	2.	Motor vehicle crash	3,906	18.
3.	Emphysema/COPD	631	12.	3.	Suicide	3,461	16.
4.	Lung cancer	573	5.	4.	Liver disease	3,424	10.
5.	Pneumonia/influenza	404	13.	5.	Lung cancer	3,324	4.

Metro (SPA 4)

6,032 deaths

49,573 years of life lost

Leading causes of death				Leading causes of premature** death			
Rank	Cause of death	No. of deaths	Premature death rank	Rank	Cause of death	Years of life lost*	Death rank
1.	Coronary heart disease	1,414	1.	1.	Coronary heart disease	5,993	1.
2.	Stroke	344	8.	2.	Homicide	3,207	17.
3.	Lung cancer	265	10.	3.	Liver disease	2,843	8.
4.	Pneumonia/influenza	256	12.	4.	Suicide	2,831	13.
5.	Emphysema/COPD	251	17.	5.	Drug overdose	2,650	16.

Figure 11. Comparison of the leading causes of death and premature death, by service planning area (SPA) of residence

Attachment I-4

Leading causes of death

Service Planning Area Number of deaths Age-adjusted death rate	#1 cause Number of deaths Age-adjusted death rate	#2 cause Number of deaths Age-adjusted death rate	#3 cause Number of deaths Age-adjusted death rate	#4 cause Number of deaths Age-adjusted death rate	#5 cause Number of deaths Age-adjusted death rate
SPA 1: Antelope Valley 2,230 815 per 100,000	Coronary heart disease 476 183 per 100,000	Emphysema/COPD 202 79 per 100,000	Lung cancer 118 43 per 100,000	Diabetes 113 41 per 100,000	Stroke 94 37 per 100,000
SPA 2: San Fernando 12,132 559 per 100,000	Coronary heart disease 2,828 130 per 100,000	Stroke 690 32 per 100,000	Lung cancer 664 32 per 100,000	Emphysema/COPD 572 27 per 100,000	Alzheimer's disease 568 26 per 100,000
SPA 3: San Gabriel 10,636 553 per 100,000	Coronary heart disease 2,304 118 per 100,000	Stroke 694 36 per 100,000	Emphysema/COPD 631 33 per 100,000	Lung cancer 573 31 per 100,000	Pneumonia/influenza 404 21 per 100,000
SPA 4: Metro 6,032 505 per 100,000	Coronary heart disease 1,414 119 per 100,000	Stroke 344 29 per 100,000	Lung cancer 265 24 per 100,000	Pneumonia/influenza 256 21 per 100,000	Emphysema/COPD 251 21 per 100,000
SPA 5: West 3,967 487 per 100,000	Coronary heart disease 854 101 per 100,000	Stroke 232 28 per 100,000	Lung cancer 216 28 per 100,000	Alzheimer's disease 216 24 per 100,000	Emphysema/COPD 182 22 per 100,000
SPA 6: South 5,638 754 per 100,000	Coronary heart disease 1,271 178 per 100,000	Stroke 323 46 per 100,000	Lung cancer 275 40 per 100,000	Diabetes 247 34 per 100,000	Emphysema/COPD 216 31 per 100,000
SPA 7: East 7,184 590 per 100,000	Coronary heart disease 1,488 122 per 100,000	Stroke 411 34 per 100,000	Emphysema/COPD 359 31 per 100,000	Diabetes 323 27 per 100,000	Lung cancer 300 26 per 100,000
SPA 8: South Bay 9,455 611 per 100,000	Coronary heart disease 2,029 131 per 100,000	Lung cancer 541 36 per 100,000	Stroke 510 33 per 100,000	Emphysema/COPD 488 32 per 100,000	Pneumonia/influenza 360 24 per 100,000
Los Angeles County Total 57,620 583 per 100,000	Coronary heart disease 12,725 129 per 100,000	Stroke 3,301 34 per 100,000	Lung cancer 2,958 31 per 100,000	Emphysema/COPD 2,904 30 per 100,000	Alzheimer's disease 2,125 21 per 100,000

Notes: Los Angeles County Total includes persons of unknown residence.

Attachment I-4

Leading causes of premature death (before age 75 years)

Service Planning Area	#1 cause	#2 cause	#3 cause	#4 cause	#5 cause
SPA 1: Antelope Valley	Coronary heart disease	Motor vehicle crash	Homicide	Diabetes	Liver disease
SPA 2: San Fernando	Coronary heart disease	Suicide	Drug overdose	Motor vehicle crash	Liver disease
SPA 3: San Gabriel	Coronary heart disease	Motor vehicle crash	Suicide	Liver disease	Lung cancer
SPA 4: Metro	Coronary heart disease	Homicide	Liver disease	Suicide	Drug overdose
SPA 5: West	Coronary heart disease	Suicide	Drug overdose	Liver disease	Breast cancer
SPA 6: South	Coronary heart disease	Homicide	Motor vehicle crash	Diabetes	Stroke
SPA 7: East	Coronary heart disease	Homicide	Liver disease	Motor vehicle crash	Suicide
SPA 8: South Bay	Coronary heart disease	Homicide	Lung cancer	Drug overdose	Liver disease
Los Angeles County Total	Coronary heart disease	Homicide	Motor vehicle crash	Liver disease	Suicide

Notes: Los Angeles County Total includes persons of unknown residence.

Attachment I-4

CDC Recommendations for Improving Health through Transportation Policy

Centers for Disease Control and Prevention

The U.S. transportation system has been shaped by multiple policy inputs and concrete actions which have arisen from transportation and community planners, funding agencies and others at Federal, state and local levels. Today, the system is designed to move people and goods efficiently; however, there is a growing awareness across communities that transportation systems impact quality of life and health. Government and non-government agencies are seeking innovative policies and programs that protect and promote health while accomplishing the primary transportation objectives.

The Opportunity

Expanding the availability of, safety for, and access to a variety of transportation options and integrating health-enhancing choices into transportation policy has the potential to save lives by preventing chronic diseases, reducing and preventing motor-vehicle-related injury and deaths, improving environmental health, while stimulating economic development, and ensuring access for all people.

With this goal in mind, the Centers for Disease Control and Prevention (CDC) has identified transportation policies that can have profound positive impact on health. CDC supports strategies that can provide a balanced portfolio of transportation choices that supports health and reduces health care costs. Transportation policy can:

- Reduce injuries associated with motor vehicle crashes
- Encourage healthy community design
- Promote safe and convenient opportunities for physical activity by supporting active transportation infrastructure
- Reduce human exposure to air pollution and adverse health impacts associated with these pollutants
- Ensure that all people have access to safe, healthy, convenient, and affordable transportation

Rationale

The current U.S. transportation infrastructure focuses on motor vehicle travel and provides limited support for other transportation options for most Americans.

- Physical activity and active transportation have declined compared to previous generations. The lack of physical activity is a major contributor to the steady rise in rates of obesity, diabetes, heart disease, stroke and other chronic health conditions in the United States.
- Motor vehicle crashes continue to be the leading cause of injury-related death for many age groups. Pedestrians and bicyclists are at an even greater risk of death from crashes than those who travel by motor vehicles.
- Many Americans view walking and bicycling within their communities as unsafe because of traffic and the lack of sidewalks, crosswalks, and bicycle facilities.

Attachment I-4

CDC Recommendations for Improving Health through Transportation Policy Centers for Disease Control and Prevention

- Although using public transportation has historically been safer than highway travel in light duty vehicles, highway travel has grown more quickly than other modes of travel.
- A lack of efficient alternatives to automobile travel disproportionately affects vulnerable populations such as the poor, the elderly, people who have disabilities and children by limiting access to jobs, health care, social interaction, and healthy foods.
- Although motor vehicle emissions have decreased significantly over the past three decades, air pollution from motor vehicles continues to contribute to the degradation of our environment and adverse respiratory and cardiovascular health effects.
- Transportation accounts for approximately one-third of all U.S. greenhouse gas emissions contributing to climate change.

Recommendations

The following are key recommendations for bringing public health considerations into transportation issues.

Reduce injuries associated with motor vehicle crashes

Motor vehicle travel has become safer over time, but motor vehicle crashes are still the leading cause of death for people ages 1–34. Improving the safety and efficiency of motor vehicles and their occupants is critical to improving transportation policy and the public’s health.

Transportation policies are needed to improve the safety of motor vehicles and their occupants to prevent crashes, and advances in medical care are needed to increase the survivability of victims of crashes that do occur.

Recommendations:

- Provide incentives to states that implement, strengthen, and/or continue to use effective interventions that improve road traffic safety. Examples of interventions include:
 - Primary seatbelt laws
 - Child safety seat and booster seat laws
 - Alcohol-impaired driving countermeasures
 - Motorcycle and bicycle helmet laws
 - Distracted driving laws
 - Lower speed limits and other efforts to reduce speeding within communities.
 - Comprehensive graduated driver licensing systems
 - Roadway design measures such as installation of centerline rumble strips
 - Education on safe driving, bicycling, and walking
 - Community designs that promote reduced traffic speeds in neighborhoods
- Increase support for new and existing technologies to improve the safety of motor vehicles. Examples include:
- Technologies that enable vehicles to withstand crashes with lower risk of injuries to occupants
- Vehicle designs and technologies that lower risk for non-occupants

CDC Recommendations for Improving Health through Transportation Policy Centers for Disease Control and Prevention

- Technologies to prevent alcohol impaired driving
- Study the effectiveness of providing incentives for Americans to reduce vehicle miles traveled by using alternatives to single occupancy vehicle travel. Examples of strategies include:
 - High occupancy vehicle lanes
 - Congestion pricing
 - Parking pricing
 - Carpools, vanpools, and improved public transportation
- Bring health, transportation and community planners together to address roadway safety issues through community design.
- Ensure access to trauma care for victims of motor vehicle crashes in order to improve survival outcomes after a crash.

Improve Air Quality

Transportation-related air pollutants are one of the largest contributors to unhealthy air quality. Exposure to traffic emissions has been linked to many adverse health effects including: premature mortality, cardiac symptoms, exacerbation of asthma symptoms, diminished lung function, increased hospitalization and others. Motor vehicles are a significant source of air pollution in urban areas.

Recommendations:

- Reduce human exposure to transportation-related air pollution and the adverse health impacts associated with air pollutants by:
 - Retrofitting existing diesel vehicles with current pollution control measures to reduce emissions.
 - Requiring effective inspection and maintenance programs for medium- and heavy-duty vehicles.
 - Providing incentives for motor vehicle drivers to purchase vehicles with technologies designed to control pollution and reduce emissions.
 - Strengthening congestion mitigation and air quality programs.
 - Seeking solutions to reduce pollution generated by ports, high-volume roadways and railroads
- Improve the respiratory and cardiovascular health of the U.S. population by improving air quality. Possible strategies include:
 - Promoting transportation choices and innovative transportation measures that reduce emissions
 - Shifting to active transportation and public transportation modes
 - Reducing vehicle miles traveled per capita
- Support policies that reduce environmental pollution (including greenhouse gas emissions) by changing to renewable energy sources, strengthening fuel efficiency

CDC Recommendations for Improving Health through Transportation Policy
Centers for Disease Control and Prevention

policies, and expanding programs that reduce the number of vehicles in the fleet with poor fuel economy.

Expand Public Transportation

Public transportation systems reduce the necessity for single occupancy vehicle trips, reduce the production of automobile emissions, increase incidental physical activity, and provide necessary transportation access for people with physical, economic, or other limitations that impede their access to and use of a single occupancy motor vehicle. Policies that encourage public transportation infrastructure are needed to improve access for all people.

Recommendations:

- Explore opportunities to increase funding to strengthen the positive health impacts associated with expanded public transportation options. For example:
 - Encourage funding decisions that strengthen public transportation
 - Encourage states to increase investments in public transportation, congestion relief, air quality improvements, and other options, and to remove barriers to use of gas tax revenues for public transportation and bicycle-pedestrian improvements
 - Give state, regional, and local governments more flexibility to choose from transportation funding categories to meet local transportation needs
 - Explore the extent to which program requirements and resources can be made to be more comparable for public transportation, highways, non-motorized and rail travel alternatives to encourage investments in all modes of transportation
 - Provide incentives to support a strong network of public transportation options, including bus rapid transit and light rail, which connect housing and jobs as well as improve access to healthy foods, medical care, and other services
- Work with government and non-government organizations to develop and implement model transportation planning policies that encourage transit-oriented developments and other mixed-use development, and increase connectivity among neighborhoods and communities for all transportation modes.
- Work with federal agencies and non-governmental organizations to establish a federal policy that would promote bicycling and walking to public transportation stations by making these connecting trips easier, faster, and safer by:
 - Providing bicycle storage at public transportation stations, bus stops, and city car-share point of departure locations
 - Assessing and addressing safety hazards for pedestrians and bicyclists through safety measures such as well-lighted crosswalks and signal timing, and integrating those safety enhancements for pedestrian and bicycle access to public transportation stations, bus stops, and city car-share locations
 - Removing barriers to pedestrians and bicyclists on roads and intersections near public transportation stations and bus stops
 - Enhancing the public transportation system to accommodate bicyclists and pedestrians

CDC Recommendations for Improving Health through Transportation Policy

Centers for Disease Control and Prevention

Promote Active Transportation

Active transportation systems should connect the places where people live, learn, work, shop, and play by providing safe and convenient walking and bicycling facilities. The safety of all road users can increase as more people choose active transportation.

Recommendations:

- Promote safe and convenient opportunities for physical activity by supporting active transportation infrastructure, such as:
 - Well-lit sidewalks, shared-use paths, and recreational trails
 - Safe roadway crossings
 - Creation of bicycle-supporting infrastructure including shared-use paths and interventions that reduce motor vehicle traffic and vehicle speed on neighborhood streets (e.g. bicycle boulevards)
 - Safe pedestrian and bicycling connections to public transportation
 - Safe and convenient pedestrian and bicycling connections to public park and recreation areas
- Increase opportunities for physical activity by devoting increased resources to non-motorized transportation options.
- Consider incentives for states and regions that reduce vehicle miles traveled per capita and implement active living environments that promote walking and bicycling, using public transportation, and reducing air pollution (including greenhouse gas emissions).
- Provide states with tools necessary to evaluate and effectively increase investments in bicycle and pedestrian infrastructure and programming. Activities to be evaluated could include:
 - Comprehensive street design measures, such as “complete streets,” which provide safe and convenient travel for all users of the street, such as expanding space for bicycle lanes and sidewalks, placing bus stops in safe and convenient locations, and making improvements accessible for disabled users
 - Complementary systems of shared-use paths connected to roadways that provide safe places to walk and bicycle for children, the elderly, and the general public
 - Bicycle-supporting infrastructure including shared use paths and interventions that reduce motor vehicle traffic and speed on neighborhood streets to provide direct, safe routes for bicyclists
 - “Safe Routes to School” initiatives including the development of sidewalks, shared-use paths and bicycle infrastructure to ensure that children can walk and bicycle safely to school. Safe Routes to School programs also include support activities, such as education, encouragement, enforcement, and evaluation
- Bring health, transportation and community planners together to develop safe, convenient, and complete pedestrian and bicycle master plans, including an inventory of current sidewalks, bicycle facilities, recreational trails, and shared-use paths, which can be incorporated into city general plans and capital improvement programs.

CDC Recommendations for Improving Health through Transportation Policy Centers for Disease Control and Prevention

- Work with state and local transportation and planning officials to integrate and enforce use of pedestrian and bicycle design guidelines and evidence-based safety standards into transportation planning practice and support evaluation of innovative designs.
- Bring together specialists in transportation, energy, community planning and health to establish federally recommended guidelines for the inclusion of active transportation infrastructure in building and development efforts.
- Explore opportunities for increasing availability of funds for establishing active transportation initiatives.

Encourage Healthy Community Design

Healthy community design incorporates elements (such as transportation networks, street designs, and zoning/land use policies) that work synergistically to promote health and safety.

Recommendations:

- Work with government and non-government organizations to develop and implement model transportation and land use planning policies that encourage transit-oriented and mixed-use developments. Encourage:
 - Dense networks of connected streets which serve the needs of all transportation modes; for example, adopting measures such as “complete streets”
 - Roads that include robust infrastructure for bicycling and walking while mitigating the potential adverse effects of motor vehicle travel
- Enable state and local planners to protect residents from local air pollution and noise from high-volume roadways, ports, and airports by discouraging development (including schools) near these air pollution and noise pollution sources and, where possible, constructing barriers to reduce nearby residents’ exposure.
- Support research to assist transportation agencies to develop street networks that facilitate active transportation and public transportation by increasing connectivity and limiting block size.
- Provide assistance to local planners to design and locate destinations for children (such as schools, parks, and libraries) within neighborhoods so that children can reach destinations without having to cross busy streets.
- Work with federal, state, and local transportation officials to ensure that all people have access to safe, healthy, convenient, and affordable transportation options regardless of age, income and other socioeconomic factors.
- Support policies that reduce vehicle miles traveled per capita, including land use policies that reduce vehicular travel, increase public transportation service, and increase active transportation infrastructure.

Design to Minimize Adverse Health and Safety Consequences

DATA & RESOURCES

Library

Case Studies

White Paper Series

Frequently Asked Questions

State by State Information

International Information

Fact Sheets

Who's Walking and Bicycling

Safety Guide

Crash Statistics

Health Benefits

Economic Benefits

Environmental Benefits

Social Justice Issues

Health Benefits of Biking and Walking



The health benefits of regular physical activity are far-reaching: reduced risk of coronary heart disease, stroke, diabetes, and other chronic diseases; lower health care costs; and improved quality of life for people of all ages. Regular exercise provides the opportunity for health benefits for older adults such as a stronger heart, a more positive mental outlook, and an increased chance of remaining indefinitely independent—a benefit that will become increasingly important as our population ages in the coming years.

Physical activity doesn't need to be very strenuous for an individual to reap significant health benefits. Even small increases in light to moderate activity, equivalent to walking for about 30 minutes a day, will produce measurable

benefits among those who are least active.

Health Facts

- According to the Center for Disease Control and Prevention (CDC), [more than 2,600 Americans die every day from some form of cardiovascular disease](#), costing over \$300 billion in health expenditures and lost productivity. Cardiovascular disease is the leading cause of death in the U.S., with diabetes ranking 7th.
- According to a CDC report, regular moderate intensity exercise with a healthy diet may reduce one's risk of developing Type 2 diabetes by 40 to 60 percent. Recent data suggest that over 23.6 million people in the U.S. have diabetes, with more than 5.7 cases undiagnosed.
- Physical activity also helps you stay at a healthy weight, reduce stress, sleep better, and feel better overall, according to U.S. Health and Human Services guidelines. This is important because the National Health Interview Survey indicates that 53 percent of adult men and 64 percent of adult women never get more than 10 minutes of vigorous physical activity per week.
- Physical activity can help prevent:
 - Heart disease
 - Obesity
 - High blood pressure

Less than 10 minutes per week

53 percent of adult men and 64 percent of adult women never get more than 10 minutes of vigorous physical activity per week.

Attachment I-4

- Type 2 diabetes
- Osteoporosis (thinning bones)
- Mental health problems such as depression

A study commissioned by the [American Lung Association](#) quantified the clean air and societal benefits that Southern Californians will experience through smart growth strategies that reduce the need to drive (by encouraging greater use of public transit, walking and bicycling). The annual benefits in California alone include reductions of:



- 60–140 premature deaths
- 110–260 heart attacks
- 1,025–2,370 asthma attacks
- 44,000–101,960 other respiratory symptoms
- 95–215 chronic and acute bronchitis cases
- 45–105 respiratory-related ER visits
- 7,145–16,550 lost work days

No matter what your experience with cycling is, riding a bike can be a great way to get healthy exercise.

The issue of physical activity has never been more important than now. An alarming number of Americans are becoming more sedentary and obese and, consequently, are putting their lives at risk, reports the [Center for Disease Control and Prevention](#). Even small increases in light to moderate activity will produce measurable benefits among those who are least active. Engaging in light to moderate physical activity reduces the risk of coronary heart disease, stroke, and other chronic and life-threatening illnesses.

Health and Fitness Research Links

Medline Plus Health Information from the National Library of Medicine:

- [Exercise and Physical Fitness](#)
- [Wellness and Lifestyle](#)

American College of Sports Medicine:

- [Medicine & Science in Sports & Exercise Journal](#)
- [Health & Fitness Journal](#)

[Active Aging Partnership \(AAP\)](#)

Health Statistics

- [Data from Healthy People 2020](#)—This site tracks the success of the Healthy People 2020 objectives developed to improve the health of Americans by the year 2020, including the 10 leading health indicators, and major data sources: DATA2010 from the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention. The data are updated quarterly.
- [The Kaiser Family Foundation's State Health Facts Online](#)—This site contains the latest state-level data on demographics, health, and health policy, including health coverage, access, financing, and state legislation. Visitors can compare data for all the states on topics including health status (look here for statistics on obesity), health costs, women's health, minority health, and more.

THE ROLE OF Transportation

IN PROMOTING PHYSICAL ACTIVITY



SIDEWALKS

People who live in neighborhoods with sidewalks on most streets are

47%

more likely to be active at least 30 minutes a day.

TRAFFIC CALMING

Medians, speed bumps and other traffic-calming efforts can reduce the number of automobile crashes with pedestrian injuries by up to

15%

PUBLIC TRANSPORTATION

Public transit users take

30%

more steps per day than people who rely on cars.

BIKE FACILITIES

In Portland, Ore., bicycle commuters ride

49% of their miles

on roads with bike facilities, even though these are only 8% of road miles.

Active Living Research

www.activelivingresearch.org

Sources: SIDEWALKS: Sallis J, Bowles H, Bauman A, et al. "Neighborhood Environments and Physical Activity among Adults in 11 Countries." *American Journal of Preventive Medicine*, 36(6): 484-490, June 2009. BIKE LANES: Dill J et al. Bicycling for Transportation and Health: The Role of Infrastructure. *Journal of Public Health Policy* (2009) 30, 595-5110. doi:10.1057/jphp.2008.56). TRAFFIC CALMING: Bunn F, Collier T, Frost C, et al. "Area-Wide Traffic Calming for Preventing Traffic Related Injuries." *Cochrane Database of Systematic Reviews* (1), January 2003; Elvik R. "Area-Wide Urban Traffic Calming Schemes: A Meta-Analysis of Safety Effects." *Accident Analysis and Prevention*, 33(3): 327-336, May 2001. PUBLIC TRANSPORTATION: Edwards R. "Public Transit, Obesity, and Medical Costs: Assessing the Magnitudes." *Preventive Medicine*, 46(1): 14-21, January 2008.

Attachment I-6

BC Tool: City of Arcadia Bicycle Facility Improvements

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Figure 2-17. Discounted Benefits scaled up over Life of Project.....20

1 Results Overview for Project

Table 1. Results by Benefits Category

Result Category	Result Value
Total Mobility Benefits	\$10,601,860
Health Benefits	\$174,245
Recreational Benefits	\$5,802,795
Safety Benefits	\$30,760,632
Gas & Emission Benefits	\$54,741
Sum Total Benefits	\$47,394,273
Sum Present Value Benefits	\$31,388,256
Sum Total Project Cost	\$1,457,000
Sum Present Value Cost	\$1,400,962
Net Present Value	\$29,987,295
BCA Ratio	22.40
Net Present Cost of Funds Requested	\$980,769
Benefits to Funds Requested Ratio	32.00

The table above includes the breakdown of results for the Project. The present value of net benefits is \$29.99 million, and the benefit to cost ratio is 22.40. This means that the value of benefits generated by the project will outweigh the costs by more than 22 times. With such strong net benefits, any funds invested in this Project will be well-leveraged. Total funding requested from the State for this project is \$1.02 million (or present value of \$980,769), which equates to a benefit-to-funds requested ratio of 32.00.

The largest benefit of the Project is improved safety. This benefit is driven by the projected reduction in crashes that result in injuries and fatalities. The reduction of fatalities in particular is the main driver of safety benefits for this project. The second largest benefit is improved mobility. These two categories of benefits make sense given the Project objectives: to construct class II and III bike lanes that connect people to the regional bike path network and to public transit. With a well-defined bike path, cyclists can feel safer riding alongside cars. And with improved access to the bike network and transit, cyclists are able to access more opportunities.

2 Screenshots of Model Results for Project

The following sections illustrate the results from the B/C Tool for Project 7517. Each section provides a screen shot of a worksheet in the B/C Tool with results of the Project.

2.1 Parameters

This screenshot illustrates the parameter values assumed in the model.

Figure 2-1. Parameters in the Tool

PARAMETERS		
Mobility Parameters		
CA Statewide Hourly Wage (2014)	\$26.07	
Value of Time (VOT)- adult	\$13.03	
Value of Time (VOT)- child	\$5.42	
Bike Path (Class I)	20.38	min/trip
Bike Lane (Class II)	18.02	min/trip
Bike Route (Class III)	15.83	min/trip
Health Parameters		
Cycling	\$146	annual\$/person
Walking	\$146	annual\$/person
Accident Cost Parameters		
Cost of a Fatality (K)	\$4,130,347	\$/crash
Cost of an Injury	\$81,393	\$/crash
Cost of Property Damage (PDO)	\$7,624	\$/crash
Source: Appendix D, Local Roadway Safety: A manual for CA's Local Road Owners Caltrans. April 2013.		
Recreational Values Parameters		
Biking		
New Users	\$10	per trip
Existing Users	\$4	per trip
Walking		
All Users	\$1	per trip
VMT Reduction		
Price of gasoline (per gallon incl. tax)	\$3.41	Average fuel price (November 2013-November 2014) based on EIA's Table 9.4: Retail Motor Gasoline and On-Highway Diesel Fuel Prices http://www.eia.gov/totalenergy/data/monthly/pdf/sec9_6.pdf
Price of CO2 (per ton)-adj to 2014\$	\$25	Interagency Working Group on Social Cost of Carbon, United States
Price of Co2 (per lb)	\$0.01	Government, Technical Support Document: Social Cost of Carbon for
Working days	250	Regulatory Impact Analysis Under Executive Order 12866, February 2010.
2%	Average CA Annual Growth of Population (1955-2011)	
4%	Discount Rate used (same as Cal B/C Model)	

2.3 Infrastructure Inputs

This screenshot illustrates the data inputs in the case of an infrastructure project.

Figure 2-3. Infrastructure Inputs

Project Name:	F7517 v2		INFRASTRUCTURE
Project Location:			

Bike Projects (Daily Person Trips for All Users) (Box 1A)														
	Without P roject	With P roject												
Existing	680													
Forecast (1 Yr after completion)	730	828												
<table border="1"> <thead> <tr> <th></th> <th>Commuters</th> <th>Recreational Users</th> </tr> </thead> <tbody> <tr> <td>Existing Trips</td> <td>187</td> <td>241</td> </tr> <tr> <td>New Daily Trips (estimate)</td> <td>36</td> <td>32</td> </tr> <tr> <td>(1 YR after completion) (actual)</td> <td>36</td> <td>32</td> </tr> </tbody> </table>				Commuters	Recreational Users	Existing Trips	187	241	New Daily Trips (estimate)	36	32	(1 YR after completion) (actual)	36	32
	Commuters	Recreational Users												
Existing Trips	187	241												
New Daily Trips (estimate)	36	32												
(1 YR after completion) (actual)	36	32												
Project Information- Non SR2S Infrastructure														
Bike Class Type	Bike Class II													
Average Annual Daily Traffic (AADT)	15592													

Project Costs (Box 1D)		
Non-SR2S Infrastructure Project Cost	\$1,457,000	
SR2S Infrastructure Project Cost	\$0	

ATP Requested Funds (Box 1E)		
Non-SR2S Infrastructure	\$1,020,000	
SR2S Infrastructure	\$0	

CRASH DATA (Box 1F)		
	Last 5 Yrs	Annual Average
Fatal Crashes	3	0.6
Injury Crashes	107	21.4
PDO	0	0

Pedestrian Projects (Daily Person Trips for All Users) (Box 1B)											
	Without P roject	With P roject									
Existing	0										
Forecast (1 YR after project completion)	0	0									
<table border="1"> <thead> <tr> <th></th> <th>Without Project</th> <th>With Project</th> </tr> </thead> <tbody> <tr> <td>Existing step counts (600 steps = 0.3mi = 1trip)</td> <td>0</td> <td>0</td> </tr> <tr> <td>Existing miles walked</td> <td>0</td> <td>0</td> </tr> </tbody> </table>				Without Project	With Project	Existing step counts (600 steps = 0.3mi = 1trip)	0	0	Existing miles walked	0	0
	Without Project	With Project									
Existing step counts (600 steps = 0.3mi = 1trip)	0	0									
Existing miles walked	0	0									

Safe Routes to School (SR2S) (Box 1C)		
	Total	
Number of student enrollment	0	
Approximate no. of students living along school route proposed for improvement	0	
Percentage of students that currently walk or bike to school	0%	
Projected percentage of students that will walk or bike to school after the project	0.00%	

SAFETY COUNTERMEASURES (improvements) (Box 1G)		Y or N (Capitalized)
Signalized Intersection	Pedestrian countdown signal heads	N
	Pedestrian crossing	N
	Advance stop bar before crosswalk	N
	Install overpass/underpass	N
Unsignalized Intersection	Raised medians/refuge islands	N
	Pedestrian crossing (new signs and markings only)	N
	Pedestrian crossing (safety features/curb extensions)	N
Roadways	Pedestrian signals	N
	Bike lanes	Y
	Sidewalk/pathway (to avoid walking along roadway)	N
	Pedestrian crossing (with enhanced safety features)	N
	Pedestrian crossing	N
Other reduction factor countermeasures		Y

2.4 Non-Infrastructure Inputs

This screenshot illustrates the data inputs in the case of a non-infrastructure project.

Figure 2-4. Non-Infrastructure Inputs

Project Name:			NON-INFRASTRUCTURE
Project Location:			

Outreach (SR2S)- (Box 2A)		
Participants (School Enrollment)	<input type="text" value="0"/>	
Current Active Trans Walker/Bicyclist Users	<input type="text" value="0"/>	
Percentage of Current Active Trans Walkers/Bicyclists	<input type="text" value="0%"/>	
Project Cost	<input type="text" value="\$0"/>	
ATP Requested Funds	<input type="text" value="\$0"/>	
Duration of Outreach (months)	<input type="text" value="0"/>	
Outreach to new users	<input type="text" value="0"/>	

Outreach (Non SR2S)- (Box 2B)		
Participants	<input type="text" value="0"/>	
Current Active Trans Walker/Bicyclist Users	<input type="text" value="0"/>	
Percentage of Current Active Trans Walkers/Bicyclists	<input type="text" value="0%"/>	
Project Cost	<input type="text" value="\$0"/>	
ATP Requested Funds	<input type="text" value="\$0"/>	
Duration of Outreach (months)	<input type="text" value="0"/>	
Outreach to new users	<input type="text" value="0"/>	

Perception (must be marked with an "x")- (Box 2C) <i>Mark all applicable categories with an "x"</i>		
Outreach is Hands-on (self-efficacy)	<input type="checkbox"/>	
Overcome Barriers (e.g., dist, time, etc.)	<input type="checkbox"/>	
Eliminates Hazards/Threats (speed, crime, etc.)	<input type="checkbox"/>	
Connected or Addresses Connectivity Challenge	<input type="checkbox"/>	
Creating Value in Using Active Transportation	<input type="checkbox"/>	
Weighted Score	<input type="text" value="0"/>	

Promotional Effort (must be marked with an "x")- (Box 2D) <i>Mark all applicable categories with an "x"</i>		
Effort Targets 5 E's or 5 P's	<input type="checkbox"/>	
Knowledgeable Staff/Educator	<input type="checkbox"/>	
Partnership/Volunteers	<input type="checkbox"/>	
Creates Community Ownership/Relationship	<input type="checkbox"/>	
Part of Bigger Effort (e.g., political support)	<input type="checkbox"/>	
Weighted Score	<input type="text" value="0"/>	

Age (must be marked with an "x")- (Box 2E) <i>Mark only one category with an "x"</i>		
Younger than 10	<input type="checkbox"/>	
10-12	<input type="checkbox"/>	
13-24	<input type="checkbox"/>	
25-55	<input type="checkbox"/>	
55+	<input type="checkbox"/>	
Weighted Score	<input type="text" value="FALSE"/>	

Duration (must be marked with an "x")- (Box 2F) <i>Mark only one category with an "x"</i>		
One Day	<input type="checkbox"/>	
One Month	<input type="checkbox"/>	
One Year	<input type="checkbox"/>	
Multiple Years	<input type="checkbox"/>	
Continuous Effort	<input type="checkbox"/>	
Weighted Score	<input type="text" value="FALSE"/>	

Projected New Active Trans Riders		
Outreach to New Users	<input type="text" value="0"/>	
Weighted Value of Outreach	<input type="text" value="0.00"/>	
Longitudinal New Users	<input type="text" value="0.00"/>	

Projected New Active Trans Riders		
Outreach to New Users	<input type="text" value="0"/>	
Weighted Value of Outreach	<input type="text" value="0.00"/>	
Longitudinal New Users	<input type="text" value="0.00"/>	

CRASH DATA - (Box 2G)		
	Last 5 Yrs	Annual
Fatal Crashes	<input type="text" value="0"/>	<input type="text" value="0"/>
Injury Crashes	<input type="text" value="0"/>	<input type="text" value="0"/>
PDO	<input type="text" value="0"/>	<input type="text" value="0"/>

Assumption:	
Benefits only accrue for five years, unless the project is ongoing.	

2.5 Non-Infrastructure—All

This screenshot illustrates calculations and benefit results in the case of a non-infrastructure project.

Figure 2-5. Non-Infrastructure Benefits—All

Non Infrastructure- All				
Projected New ATP Users				0.00
Annual Mobility Benefits		\$0		Did not quantify mobility benefits.
Annual Health Benefits		\$0		
Annual Recreational Benefits		\$0		Did not quantify recreational benefits.
Annual Safety Benefits		\$0		reduction in Other Reduction Factor Countermeasures.
Fuel saved		\$0		
Emissions Saved		\$0		
Fuel and Emissions Saved		\$0		
Underlying assumptions for calculations:				
1) 1 mile driven is ~ 0.05 gal ~ 1 lb of CO2 based on US average 20mpg. Source: Active Transportation for America: The Case for Increased Federal Investment in Bicycling and Walking. Rails to Trails Conservancy, page 22. http://www.railstotrails.org/resourcehandler.ashx?id=2948				
2) Assume users divert 1040 miles (4 miles (bike 3 mi, walk .6 mi) * 5days *52 weeks)				
3) Gasoline price per gallon is \$3.41 (incl. tax)				
4) Carbon price is \$25 per ton (updated \$2014 value)				
5) 2,000 lbs = 1 ton				
ESTIMATED SAFETY BENEFITS FROM POTENTIAL CRASH REDUCTION				
Countermeasures				OTHER REDUCTION FACTOR
Crash Reduction Factors (CRFs)				10%
Service Life				5
1st year				\$0
	Fatal	Injury	PDO	Total
Frequency	0	0	0	0
Cost/crash	\$3,750,837	\$80,000	\$6,924	

2.6 SR2S Infrastructure

This screenshot illustrates calculations and benefit results in the case of a safe-route-to-school (SR2S) infrastructure project.

Figure 2-6. SR2S Infrastructure Project Benefits

SAFE ROUTES TO SCHOOL			
Infrastructure			
Before Project			
No. of students enrollment	0		
Approximate no. of students living along school route proposed for improvement	0		
Percent that currently walks/bikes to school	0%		
Number of students that walk/bike to school	0		
Assumptions:			
		1) 180 school days	
		2) 2 miles distance to school = 1 hour walk	
		3) Takes 1 hour back and forth to school grounds, used distance of 1 mile (composite for bike and walk)	
		4) Approximate no. of students living along school route proposed for improvement- we used this number for before and after to get an actual increase number of ATP users or corresponding percentage.	
		5) We used the value of time for adults for SR2S since we did not quantify parents' time, and the community in general. Value of time for adults \$13.03 vs. \$5.42 for kids.	
		6) Safety benefits are assumed to be the same as non-SRTS infrastructure projects.	
After Project			
No. of students enrollment	0		
Approximate no. of students living along school route proposed for improvement	0		
Projected percentage of students that will walk or bike because of the project	0%		
Number of students that will walk/bike to school after the project	0		
ATP Shift			
Fuels Saved	\$0.00		
Emissions Saved	\$0.00		
Annual Mobility Benefits			
Annual Mobility Benefits	\$0		
Annual Health Benefits			
Annual Health Benefits	\$0		
Annual Safety Benefits			
Annual Safety Benefits	\$633,003		
Fuel and Emissions Saved			
Fuel and Emissions Saved	\$0		
Recreational Benefits			
Recreational Benefits	\$0		

Note that annual safety benefits are calculated here in the Tool even though the Project does not include SR2S data inputs. We believe this calculation should read zero.

2.7 Results

This screenshot illustrates the results of the project, including project costs, total benefits, and benefits by category.

Figure 2-7. Results

20 Year Invest Summary Analysis	
Total Costs	\$1,457,000
Net Present Cost	\$1,400,962
Total Benefits	\$47,394,273
Net Present Benefit	\$31,388,256
Benefit-Cost Ratio	22.40
<i>20 Year Itemized Savings</i>	
Mobility	\$10,601,860
Health	\$174,245
Recreational	\$5,802,795
Gas & Emissions	\$54,741
Safety	\$30,760,632
Funds Requested	\$1,020,000
Net Present Cost of Funds Requested	\$980,769
Benefit Cost Ratio	32

2.8 Mobility

This screenshot illustrates the calculations and results of mobility benefits in the case of a non-SR2S infrastructure project.

Figure 2-8. Mobility Benefits for non-SR2S Infrastructure Projects

ESTIMATED DAILY MOBILITY BENEFITS FROM THE PROJECT					
Current Walk Counts		Project Types			
Total miles walked	0.00	For M values:			
Total person Trips walked	0.00	20.38 min/trip	OFF STREET		Bike Class I
Total Steps walked	0.00	18.02 min/trip	ON STREET w/o parking benefit		Bike Class II
		15.83 min/trip	ON STREET w/ parking benefit		Bike Class III
After the Project is Completed					
Total miles walked	0.00	\$13.03	Value of Time		
Total person trips walked	0.00				
Total Steps walked	0.00	600 steps=0.3mi=1 trip			
Converted miles walked to trips	0	\$1	Value of Total Pedestrian Environmental Impacts per trip		
Difference of person trips walked	0				
Converted steps walked to trips	0				
Current Bike Counts					
Existing Commuters	187				
New Commuters	36				
Benefits, 2014 values					
Annual Mobility Benefit (Walking)	\$0				
Annual Mobility Benefit (Biking)	\$436,338				
Total Annual Mobility Benefits	\$436,338				
Sources:					
NCHRP 552 Methodology (Biking)					
Heuman (2006) as reported by UK Dept of Transport and Guidance (walking)					

2.9 Health

This screenshot illustrates the calculations and results of health benefits in the case of a non-SR2S infrastructure project

Figure 2-9. Health Benefits for non-SR2S Infrastructure Projects

YEARLY ESTIMATED HEALTH BENEFITS FROM THE PROJECT			
INFRASTRUCTURE			
Cycling:			
New Cyclists	49		
		GDP Deflator	
Value of Health (ave.annual)	\$146	2006	0.9429
		2014	1.0781
Annual Health Benefits	\$7,171.34		
Walking:			
New Walkers	0		
Value of Health	\$146		
Annual Health Benefits	\$0.00		
Total Annual Health Benefits	\$7,171		
Source: NCHRP 552- Guidelines for Analysis of Investments in Bicycle Facilities, Appendix G. (Estimated annual per capita cost savings of direct and/indirect of physical activity)			

2.10 Reduced Gas & Emissions Benefits

This screenshot illustrates the calculations and results of benefits from reduced gas and greenhouse gas emissions in the case of a non-SR2S infrastructure project

Figure 2-10. Reduced Gas & Emissions Benefits for non-SR2S Infrastructure Projects

YEARLY ESTIMATED GAS AND EMISSION SAVINGS FROM THE PROJECT	
INFRASTRUCTURE	
New Pedestrians	0
New Bicyclists	49
Avoided VMT due to Walking	0
Avoided VMT due to Biking	12,311
Fuel Saved	2,099
Emissions Saved	154
Fuel and Emissions saved	\$2,253
Underlying assumptions for calculations:	
1) Bike miles traveled= 1.5 mi, walk miles traveled= .3 (CHTS)	
2) Assume 50% of new walkers and cyclists choose not to drive their cars	
3) 1 mile driven is ~ 0.05 gal ~ 1 lb of CO2 based on US average 20mpg.	
Source: Active Transportation for America: The Case for Increased Federal Investment in Bicycling and Walking. Rails to Trails Conservancy, page 22.	
http://www.railstotrails.org/resourcehandler.ashx?id=2948	
4) Gasoline price per gallon is \$3.41 (incl. tax)	
5) Carbon price is \$25 per ton	
6) 250 working days	
7) 2,000 lbs = 1 ton	

2.11 Recreational Benefits

This screenshot illustrates the calculations and results of recreational benefits in the case of a non-SR2S infrastructure project

Figure 2-11. Recreational Benefits for non-SR2S Infrastructure Projects

YEARLY ESTIMATED RECREATIONAL BENEFITS FROM THE PROJECT		
Biking		
New Recreational Users	32	\$10 per trip
New Commuters	36	
Existing Recreational Users	241	\$4 per trip
Value of Spending Recreational Time for New Recreational Users	\$39,680	
Value of Spending Recreational Time for Existing Recreational Users	\$119,536	
Potential number of recreational time outdoors	124	
Annual Biking Recreational Benefits	\$159,216	
Sources: NCHRP 552 for New Users and Commuters, TAG (January 2010 UK's Department of Transport Guidance on the Appraisal of Walking and Cycling Schemes) for Existing Users, World Health Organization's HEAT for cycling (124 days- the observed number of days cycled in Stockholm)		
Walking		
Total Recreational pedestrians	0	15%- See Misc. Tab
Value of Spending Recreational time for all pedestrians	\$0	\$1 per trip
Potential number of recreational time outdoors	365	
Annual Walking Recreational Benefits	\$0	
Sources: Pedestrian and Bicycle Information Center. TAG (January 2010 UK's Department of Transport Guidance on the Appraisal of Walking and Cycling Schemes) for Existing Users.		
Total Annual Recreational Benefits	\$159,216	

2.12 Safety Benefits

This screenshot illustrates the calculations and results of safety benefits in the case of a non-SR2S infrastructure project

Figure 2-12. Safety Benefits for non-SR2S Infrastructure Projects

ESTIMATED SAFETY BENEFITS FROM POTENTIAL CRASH REDUCTION															
Countermeasures	SIGNALIZED INTERSECTION COUNTERMEASURES				UNSIGNALIZED INTERSECTION COUNTERMEASURES				ROADWAY COUNTERMEASURES				OTHER REDUCTION FACTOR	Average of 3 highest countermeasures	Annual Benefits
	Install pedestrian countdown signal heads	Install pedestrian crossing	Install advance stop bar before crosswalk (bicycle box)	Install pedestrian overpass/underpass	Install raised medians/refuge islands	Install pedestrian crossings (new signs and markings only)	Install pedestrian crossing (with enhanced safety measures/curb extensions)	Install pedestrian signal	Install bike lanes	Install sidewalk/pathway (to avoid walking along roadways)	Install pedestrian crossing (with enhanced safety measures)	Install Pedestrian crossing			
Applicable Countermeasures	N	N	N	N	N	N	N	N	Y	N	N	N	Y		
Crash Reduction Factors (CRFs)	25%	25%	15%	75%	45%	25%	35%	55%	35%	80%	30%	35%	10%		
Service Life	20	20	10	20	20	10	20	20	20	20	10	10	20		
	\$1,055,006	\$1,055,006	\$633,004	\$3,165,018	\$1,899,011	\$1,055,006	\$1,477,008	\$2,321,013	\$1,477,008	\$3,376,019	\$1,266,007	\$1,477,008	\$422,002		
	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	\$1,477,008	FALSE	FALSE	FALSE	\$422,002		
1st year	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,477,008	\$0	\$0	\$0	\$422,002	\$633,003	\$633,003

	Fatal	Injury	PDO	Total
Frequency	0.6	21.4	0	22
Cost/crash	\$4,130,347	\$81,393	\$7,624	

Assumption:
For Other Reduction Factor countermeasure, EAB assumes 20 years service life.

Figure 2-14. Undiscounted Benefits scaled up over Life of Project—Image 2 of 4

NON-INFRASTRUCTURE-Non-SR2S and SR2S									INFRASTRUCTURE- SR2S								
Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Total Project Cost	Growth Factor	Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Total Project Cost	Growth Factor
PROJECT OPEN									PROJECT OPEN								
1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.02	1	\$0	\$0	\$0	\$633,003	\$0	\$633,003	\$0	1.02
2	\$0	\$0	\$0	\$0	\$0	\$0	\$0		2	\$0	\$0	\$0	\$645,663	\$0	\$645,663	\$0	
3	\$0	\$0	\$0	\$0	\$0	\$0	\$0		3	\$0	\$0	\$0	\$658,577	\$0	\$658,577	\$0	
4	\$0	\$0	\$0	\$0	\$0	\$0	\$0		4	\$0	\$0	\$0	\$671,748	\$0	\$671,748	\$0	
5	\$0	\$0	\$0	\$0	\$0	\$0	\$0		5	\$0	\$0	\$0	\$685,183	\$0	\$685,183	\$0	
6									6	\$0	\$0	\$0	\$698,887	\$0	\$698,887	\$0	
7									7	\$0	\$0	\$0	\$712,865	\$0	\$712,865	\$0	
8									8	\$0	\$0	\$0	\$727,122	\$0	\$727,122	\$0	
9									9	\$0	\$0	\$0	\$741,664	\$0	\$741,664	\$0	
10									10	\$0	\$0	\$0	\$756,498	\$0	\$756,498	\$0	
11									11	\$0	\$0	\$0	\$771,628	\$0	\$771,628	\$0	
12									12	\$0	\$0	\$0	\$787,060	\$0	\$787,060	\$0	
13									13	\$0	\$0	\$0	\$802,801	\$0	\$802,801	\$0	
14									14	\$0	\$0	\$0	\$818,857	\$0	\$818,857	\$0	
15									15	\$0	\$0	\$0	\$835,234	\$0	\$835,234	\$0	
16									16	\$0	\$0	\$0	\$851,939	\$0	\$851,939	\$0	
17									17	\$0	\$0	\$0	\$868,978	\$0	\$868,978	\$0	
18									18	\$0	\$0	\$0	\$886,357	\$0	\$886,357	\$0	
19									19	\$0	\$0	\$0	\$904,085	\$0	\$904,085	\$0	
20									20	\$0	\$0	\$0	\$922,166	\$0	\$922,166	\$0	
							Sum Total Benefits	Total Project Cost								Sum Total Benefits	Total Project Cost
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	Total	\$0	\$0	\$0	\$15,380,316	\$0	\$15,380,316	\$0	\$0

Figure 2-15. Undiscounted Benefits scaled up over Life of Project—Image 3 of 4

COMBO PROJECTS- Non SR2s Infrastructure and NonInfrastructure							COMBO PROJECTS- NonSR2S & SR2S Infrastructure								
Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Total Project Cost	Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Total Project Cost
PROJECT OPEN								PROJECT OPEN							
1	\$436,338	\$7,171	\$159,216	\$316,502	\$2,253	\$921,480	\$1,457,000	1	\$218,169	\$3,586	\$159,216	\$633,003	\$1,126	\$1,015,100	\$1,457,000
2	\$445,065	\$7,315	\$162,400	\$322,832	\$2,298	\$939,909		2	\$222,532	\$3,657	\$162,400	\$645,663	\$1,149	\$1,035,402	
3	\$453,966	\$7,461	\$165,648	\$329,288	\$2,344	\$958,708		3	\$226,983	\$3,731	\$165,648	\$658,577	\$1,172	\$1,056,110	
4	\$463,045	\$7,610	\$168,961	\$335,874	\$2,391	\$977,882		4	\$231,523	\$3,805	\$168,961	\$671,748	\$1,195	\$1,077,233	
5	\$472,306	\$7,762	\$172,341	\$342,592	\$2,439	\$997,439		5	\$236,153	\$3,881	\$172,341	\$685,183	\$1,219	\$1,098,777	
6	\$481,752	\$7,918	\$175,787	\$349,443	\$2,487	\$1,017,388		6	\$240,876	\$3,959	\$175,787	\$698,887	\$1,244	\$1,120,753	
7	\$491,387	\$8,076	\$179,303	\$356,432	\$2,537	\$1,037,736		7	\$245,694	\$4,038	\$179,303	\$712,865	\$1,269	\$1,143,168	
8	\$501,215	\$8,238	\$182,889	\$363,561	\$2,588	\$1,058,491		8	\$250,607	\$4,119	\$182,889	\$727,122	\$1,294	\$1,166,031	
9	\$511,239	\$8,402	\$186,547	\$370,832	\$2,640	\$1,079,660		9	\$255,620	\$4,201	\$186,547	\$741,664	\$1,320	\$1,189,352	
10	\$521,464	\$8,570	\$190,278	\$378,249	\$2,692	\$1,101,254		10	\$260,732	\$4,285	\$190,278	\$756,498	\$1,346	\$1,213,139	
11	\$531,893	\$8,742	\$194,083	\$385,814	\$2,746	\$1,123,279		11	\$265,947	\$4,371	\$194,083	\$771,628	\$1,373	\$1,237,402	
12	\$542,531	\$8,917	\$197,965	\$393,530	\$2,801	\$1,145,744		12	\$271,266	\$4,458	\$197,965	\$787,060	\$1,401	\$1,262,150	
13	\$553,382	\$9,095	\$201,924	\$401,401	\$2,857	\$1,168,659		13	\$276,691	\$4,547	\$201,924	\$802,801	\$1,429	\$1,287,393	
14	\$564,449	\$9,277	\$205,963	\$409,429	\$2,914	\$1,192,032		14	\$282,225	\$4,638	\$205,963	\$818,857	\$1,457	\$1,313,141	
15	\$575,738	\$9,462	\$210,082	\$417,617	\$2,973	\$1,215,873		15	\$287,869	\$4,731	\$210,082	\$835,234	\$1,486	\$1,339,403	
16	\$587,253	\$9,652	\$214,284	\$425,970	\$3,032	\$1,240,190		16	\$293,627	\$4,826	\$214,284	\$851,939	\$1,516	\$1,366,191	
17	\$598,998	\$9,845	\$218,569	\$434,489	\$3,093	\$1,264,994		17	\$299,499	\$4,922	\$218,569	\$868,978	\$1,546	\$1,393,515	
18	\$610,978	\$10,042	\$222,941	\$443,179	\$3,155	\$1,290,294		18	\$305,489	\$5,021	\$222,941	\$886,357	\$1,577	\$1,421,386	
19	\$623,198	\$10,242	\$227,400	\$452,042	\$3,218	\$1,316,100		19	\$311,599	\$5,121	\$227,400	\$904,085	\$1,609	\$1,449,813	
20	\$635,662	\$10,447	\$231,948	\$461,083	\$3,282	\$1,342,422		20	\$317,831	\$5,224	\$231,948	\$922,166	\$1,641	\$1,478,810	
Sum Total Benefits								Sum Total Benefits							
Total Project Cost								Total Project Cost							
Total	\$10,601,860	\$174,245	\$3,868,530	\$7,690,158	\$54,741	\$22,389,534	\$1,457,000	Total	\$5,300,930	\$87,122	\$3,868,530	\$15,380,316	\$27,370	\$24,664,269	\$1,457,000

Figure 2-16. Undiscounted Benefits scaled up over Life of Project—Image 4 of 4

COMBO PROJECTS- SR2S Infrastructure and NonInfrastructure									SUMMARY OF QUANTIFIABLE BENEFITS AND COSTS								
Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Total Project Cost	Growth Factor	Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Total Project Cost	Benefit Cost Ratio
PROJECT OPEN									PROJECT OPEN								
1	\$0	\$0	\$0	\$316,502	\$0	\$316,502	\$0	1.02	1	436337.7817	\$7,171	\$238,824	\$1,266,007	\$2,253	\$1,950,593	\$1,457,000	32.53
2	\$0	\$0	\$0	\$322,832	\$0	\$322,832			2	\$445,065	\$7,315	\$243,600	\$1,291,327	\$2,298	\$1,989,605		
3	\$0	\$0	\$0	\$329,288	\$0	\$329,288			3	\$453,966	\$7,461	\$248,472	\$1,317,153	\$2,344	\$2,029,397		
4	\$0	\$0	\$0	\$335,874	\$0	\$335,874			4	\$463,045	\$7,610	\$253,442	\$1,343,496	\$2,391	\$2,069,985		
5	\$0	\$0	\$0	\$342,592	\$0	\$342,592			5	\$472,306	\$7,762	\$258,511	\$1,370,366	\$2,439	\$2,111,384		
6	\$0	\$0	\$0	\$349,443	\$0	\$349,443			6	\$481,752	\$7,918	\$263,681	\$1,397,774	\$2,487	\$2,153,612		
7	\$0	\$0	\$0	\$356,432	\$0	\$356,432			7	\$491,387	\$8,076	\$268,955	\$1,425,729	\$2,537	\$2,196,684		
8	\$0	\$0	\$0	\$363,561	\$0	\$363,561			8	\$501,215	\$8,238	\$274,334	\$1,454,244	\$2,588	\$2,240,618		
9	\$0	\$0	\$0	\$370,832	\$0	\$370,832			9	\$511,239	\$8,402	\$279,820	\$1,483,329	\$2,640	\$2,285,430		
10	\$0	\$0	\$0	\$378,249	\$0	\$378,249			10	\$521,464	\$8,570	\$285,417	\$1,512,995	\$2,692	\$2,331,139		
11	\$0	\$0	\$0	\$385,814	\$0	\$385,814			11	\$531,893	\$8,742	\$291,125	\$1,543,255	\$2,746	\$2,377,762		
12	\$0	\$0	\$0	\$393,530	\$0	\$393,530			12	\$542,531	\$8,917	\$296,948	\$1,574,120	\$2,801	\$2,425,317		
13	\$0	\$0	\$0	\$401,401	\$0	\$401,401			13	\$553,382	\$9,095	\$302,887	\$1,605,603	\$2,857	\$2,473,823		
14	\$0	\$0	\$0	\$409,429	\$0	\$409,429			14	\$564,449	\$9,277	\$308,944	\$1,637,715	\$2,914	\$2,523,300		
15	\$0	\$0	\$0	\$417,617	\$0	\$417,617			15	\$575,738	\$9,462	\$315,123	\$1,670,469	\$2,973	\$2,573,766		
16	\$0	\$0	\$0	\$425,970	\$0	\$425,970			16	\$587,253	\$9,652	\$321,426	\$1,703,878	\$3,032	\$2,625,241		
17	\$0	\$0	\$0	\$434,489	\$0	\$434,489			17	\$598,998	\$9,845	\$327,854	\$1,737,956	\$3,093	\$2,677,746		
18	\$0	\$0	\$0	\$443,179	\$0	\$443,179			18	\$610,978	\$10,042	\$334,411	\$1,772,715	\$3,155	\$2,731,301		
19	\$0	\$0	\$0	\$452,042	\$0	\$452,042			19	\$623,198	\$10,242	\$341,099	\$1,808,169	\$3,218	\$2,785,927		
20	\$0	\$0	\$0	\$461,083	\$0	\$461,083			20	\$635,662	\$10,447	\$347,921	\$1,844,333	\$3,282	\$2,841,645		
						Sum Total Benefits	Total Project Cost								Sum Total Benefits	Total Project Cost	Benefit Cost Ratio
Total	\$0	\$0	\$0	\$7,690,158	\$0	\$7,690,158	\$0		Total	\$10,601,860	\$174,245	\$5,802,795	\$30,760,632	\$54,741	\$47,394,273	\$1,457,000	32.53

2.14 Discounted Benefits

This screenshot illustrates the calculations of benefits over the life of the project, and then discounted into present value terms. Discounted benefits are calculated on this sheet regardless of the type of project (non-infrastructure SR2S, non-infrastructure non-SR2S, infrastructure SR2S, and infrastructure non-SR2S).

Figure 2-17. Discounted Benefits scaled up over Life of Project

SUMMARY OF QUANTIFIABLE BENEFITS AND COSTS														
Year	Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Total Benefits	Present Value Benefit	Total Project Cost	Present Value Cost	Discount Rate	Net Present Value	BCA Ratio	Funds Requested	PV of Funds Requested
PROJECT OPEN										4.00%	\$88,015,076.04	59.37		
1	\$431,281	\$56,496	\$141,029	\$4,922,404	\$12,111	\$5,563,320	\$5,349,346	\$1,568,244	\$1,507,927				784,122	753,963
2	\$439,906	\$57,625	\$143,850	\$5,020,852	\$12,353	\$5,674,587	\$5,246,474		\$0					
3	\$448,705	\$58,778	\$146,727	\$5,121,269	\$12,600	\$5,788,078	\$5,145,581		\$0					
4	\$457,679	\$59,954	\$149,661	\$5,223,695	\$12,852	\$5,903,840	\$5,046,627		\$0					
5	\$466,832	\$61,153	\$152,655	\$5,328,168	\$13,109	\$6,021,917	\$4,949,577		\$0					
6	\$476,169	\$62,376	\$155,708	\$5,434,732	\$13,371	\$6,142,355	\$4,854,392		\$0					
7	\$485,692	\$63,623	\$158,822	\$5,543,426	\$13,638	\$6,265,202	\$4,761,039		\$0					
8	\$495,406	\$64,896	\$161,998	\$5,654,295	\$13,911	\$6,390,506	\$4,669,480		\$0					
9	\$505,314	\$66,194	\$165,238	\$5,767,381	\$14,189	\$6,518,316	\$4,579,683		\$0					
10	\$515,421	\$67,517	\$168,543	\$5,882,728	\$14,473	\$6,648,683	\$4,491,612		\$0					
11	\$525,729	\$68,868	\$171,914	\$6,000,383	\$14,763	\$6,781,656	\$4,405,235		\$0					
12	\$536,244	\$70,245	\$175,352	\$6,120,391	\$15,058	\$6,917,289	\$4,320,519		\$0					
13	\$546,968	\$71,650	\$178,859	\$6,242,798	\$15,359	\$7,055,635	\$4,237,432		\$0					
14	\$557,908	\$73,083	\$182,436	\$6,367,654	\$15,666	\$7,196,748	\$4,155,943		\$0					
15	\$569,066	\$74,545	\$186,085	\$6,495,008	\$15,980	\$7,340,683	\$4,076,021		\$0					
16	\$580,447	\$76,036	\$189,807	\$6,624,908	\$16,299	\$7,487,497	\$3,997,636		\$0					
17	\$592,056	\$77,556	\$193,603	\$6,757,406	\$16,625	\$7,637,246	\$3,920,758		\$0					
18	\$603,897	\$79,107	\$197,475	\$6,892,554	\$16,958	\$7,789,991	\$3,845,359		\$0					
19	\$615,975	\$80,690	\$201,424	\$7,030,405	\$17,297	\$7,945,791	\$3,771,410		\$0					
20	\$628,295	\$82,303	\$205,453	\$7,171,013	\$17,643	\$8,104,707	\$3,698,882		\$0					
	Total Mobility Benefits	Health Benefits	Recreational Benefits	Safety Benefits	Gas & Emission Benefits	Sum Total Benefits	Sum Present Value Benefit	Sum Total Project Cost	Sum Present Value Cost				Sum Funds Requested	Sum PV Funds Requested
	\$10,478,991	\$1,372,693	\$3,426,640	\$119,601,470	\$294,254	\$135,174,048	\$89,523,003	\$1,568,244	\$1,507,927				\$784,122	\$753,963

3 Potential for Model Enhancements

Below we provide Caltrans with some feedback on the Benefit/Cost Tool as requested in Question 6B of this application. Feedback is divided by category, as described in Question 6B:

Types of Inputs

- **Applicability of mobility parameters**—we note that several of the parameters used in the model come from the National Cooperative Highway Research Program (NCHRP) 552 report. While this source provides good data, some of the assumptions may not be well-suited to the types of projects proposed by LA Metro. For instance, the bike path projects proposed by LA Metro are mostly small (.25 to 5 miles). The value of mobility benefits provided in the NCHRP report range from 15.83 minutes per trip to 20.38 minutes per trip, depending on the class of the bike lane. But in the case of LA Metro's bike projects, it may not make sense to assume a person would be willing to spend an additional 20.38 minutes per trip just to take a 5 mile bike path. Another difference to consider is location—the NCHRP study was conducted in Minnesota. Thus the value of having access to a bike path might be greater in a city like Los Angeles where there are more days each year of suitable weather for biking.
- **City-specific parameters**—we understand that this first version of the B/C Tool was kept general so that it could be used by different cities throughout California. However, this means that some of the parameters used may not be appropriate for a particular city. For example, the two percent population growth rate assumed in the model is an average for California from 1955 to 2011. However, currently the population growth rate in Los Angeles is closer to 0.5 percent¹, much smaller than the California average.
- **Construction start and end dates**—allowing the B/C Tool to adapt to different construction start and end dates depending on the project will provide a more precise estimate of net benefits.

Calculation Logic

- **Discount methodology**—the B/C Tool currently discounts the project costs and benefits starting the same year, implying that benefits and costs begin at the same time. Benefits generally start accruing after the project is complete, while costs are experienced at the beginning. Caltrans may want to consider adapting the discounting formulas so that benefits start after construction is complete.
- **Forecast methodology**—currently the BC Tool grows each benefit category by the population growth rate. Caltrans may want to consider adapting the B/C Tool to allow for different growth factors for each benefit category, as the future growth of these benefit categories may differ. For instance, generally a person's value of time is expected to

¹ Average annual growth rate for population of Los Angeles. Retrieved from Southern California Association of Governments, Draft , 2016 RTP/SCS Growth Forecast by Jurisdictions

grow at approximately 1.2 percent per year². Thus benefit categories that depend on a person's value of time will be affected by this growth rate.

- **SR2S Safety Benefits**—it appears the B/C Tool includes safety benefits for SR2S infrastructure projects into the project's total benefits even when data is only entered for non-SR2S infrastructure projects. Because the SR2S safety data is linked directly to the result for safety benefits of non-SR2S infrastructure projects, this benefit is counted in two places. Thus safety benefits are likely over-estimated for all non-SR2S projects.
- **Non-infrastructure project crash rate data**—the B/C Tool uses the five-year crash rate data provided (rather than the annual data) to calculate safety benefits for non-infrastructure projects. This methodology differs from that of the infrastructure projects, where the B/C Tool uses the annual crash rate data. We wanted to point out this inconsistency.

Other Recommendations

- **Discounting benefit categories**—Caltrans may want to consider discounting by benefit category, rather than only discounting total benefits. This allows the user to compare the present value of each type of benefit.
- **Potential time savings benefits**—the B/C Tool could also consider the potential benefits of travel time savings. For instance, if an ATP project improves bicycle access on a commute route, it may in fact be quicker to bicycle to work rather than drive depending on the level of traffic congestion, and the distance of the trip. Several streets in Los Angeles currently suffer from gridlock congestion during certain hours of the day. Another instance of time savings might occur for long-distance commuters when transferring from Metrolink rail to the bus. Installing a bike path that improves the connection from rail to bus could result in time-savings for public transit users

User Interface

- **Format of model parameters**—many of the parameters assumed in the B/C Tool are currently hard-coded into the cell formulas. To allow for a more adaptable and error-free model, it is considered good practice to list all parameters on one sheet in the model, and link formulas to this sheet. This way if the user wants to change an assumption, the edit is only required in one location, and the change is automatically made throughout the model.

² U.S. DOT. The Value of Travel Time Savings: Departmental Guidance for Conducting Economic Evaluations Revision 2 (2014 Update). July, 2014. Please refer to page 14.
<http://www.dot.gov/sites/dot.gov/files/docs/USDOT%20VOT%20Guidance%202014.pdf>

Attachment I-8

1. Email Correspondence with the California Conservation Corps
2. Email Correspondence with the Community Conservation Corps

Attachment I-8

Wednesday, May 6, 2015 at 1:36:40 PM Pacific Daylight Time

From: Hsieh, Wei@CCC [mailto:Wei.Hsieh@CCC.CA.GOV] On Behalf Of ATP@CCC
Sent: Wednesday, May 06, 2015 8:41 AM
To: Linda Hui; 'inquiry@atpcommunitycorps.org'
Cc: Hsieh, Wei@CCC; Rochte, Christie@CCC; Lino, Edgar@CCC
Subject: RE: 2015 ATP Application

Hi Linda,

Edgar Lino, the Conservation Supervisor at our CCC Los Angeles location has accepted the partnership for your project: City's Bicycle Facility Improvements project.

Please include this email with your application as proof that you reached out to the CCC. Feel free to contact Edgar Lino Edgar.Lino@ccc.ca.gov directly if your project receives funding.

Thank you,

Wei Hsieh, Manager
Programs & Operations Division
California Conservation Corps

1719 24th Street
Sacramento, CA 95816
(916) 341-3154
Wei.Hsieh@ccc.ca.gov

From: Linda Hui [<mailto:lhui@ci.arcadia.ca.us>]
Sent: Tuesday, May 05, 2015 12:50 PM
To: ATP@CCC; 'inquiry@atpcommunitycorps.org'
Subject: 2015 ATP Application

The City of Arcadia is in the process of submitting a 2015 ATP application for the City's Bicycle Facility Improvements project. Please review the attached project information and provide your decision on whether the use of CCC and CALCC is required for the implementation of the proposed project. Thank you for your timely attention.

Linda Hui
Transportation Services Manager
City of Arcadia
626.574.5435 | 626.447.3309 FAX
www.ci.arcadia.ca.us

From: Active Transportation Program [mailto:inquiry@atpcommunitycorps.org]
Sent: Wednesday, May 06, 2015 9:29 AM
To: Linda Hui
Cc: atp@ccc.ca.gov
Subject: Re: 2015 ATP Application

Hi Linda,

Thank you for your inquiry. I will contact the local conservation corps to see if they are able to partner and will give you a response by May 11th.

Thank you

Monica

On Tue, May 5, 2015 at 12:49 PM, Linda Hui <lhui@ci.arcadia.ca.us> wrote:
The City of Arcadia is in the process of submitting a 2015 ATP application for the City's Bicycle Facility Improvements project. Please review the attached project information and provide your decision on whether the use of CCC and CALCC is required for the implementation of the proposed project. Thank you for your timely attention.

Linda Hui

Transportation Services Manager
City of Arcadia
[626.574.5435](tel:626.574.5435) | [626.447.3309](tel:626.447.3309) FAX
www.ci.arcadia.ca.us

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Monica Davalos | Legislative Policy Intern
Active Transportation Program
California Association of Local Conservation Corps
1121 L Street, Suite 400
Sacramento, CA 95814
[916.426.9170](tel:916.426.9170) | inquiry@atpcommunitycorps.org

Letters of Support
Attachment J



Metro[®]

Attachment J - Letters of Support

May 19, 2015

Malcolm Dougherty
Director
California Department of Transportation
P.O. Box 942873
Sacramento, CA 94273-0001

Re: Letter of Support for Bicycle Facility Improvements Project Active Transportation Program (ATP) Application

Dear Director Dougherty:

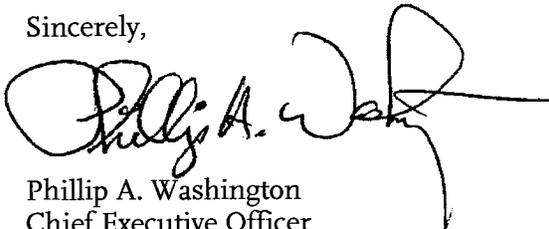
The Los Angeles County Metropolitan Transportation Authority (Metro) is pleased to support the Active Transportation Program (ATP) funding request for the Bicycle Facility Improvements Project in the City of Arcadia. This project will connect different parts of the City and also neighboring jurisdictions with the Metro Gold Line light rail line, and will link up with the County's planned bike facilities in the west and south of the City.

Metro is committed to promoting sustainability through the implementation of policies, programs, and projects that increase safety and mobility, enhance public health, and help achieve greenhouse gas reduction goals across all of our communities. To this end, active transportation is a key planning priority for Metro.

The 2012-2035 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) adopted by the Southern California Association of Governments (SCAG) identifies active transportation as a key component. In furthering regional goals, Metro has developed multiple initiatives and programs to address the challenges associated with bicycling and walking trips, including the Bicycle Transportation Strategic Plan, Complete Streets Policy, the Countywide Sustainability Planning Policy, the First/Last Mile Strategic Plan, the Safe Routes to School Pilot Program, and financial commitments as part of the Long Range Transportation Plan (LRTP) and the biannual Call for Projects.

This project is consistent with the SCAG RTP/SCS and the LRTP, as well as the shared priorities and goals of our agency and the ATP. We endorse the City of Arcadia's efforts and contribution towards a sustainable transportation future, and respectfully request a favorable consideration of the Bicycle Facility Improvements Project for the ATP grant.

Sincerely,



Phillip A. Washington
Chief Executive Officer



CYNTHIA A. HARDING, M.P.H.
Interim Director

JEFFREY D. GUNZENHAUSER, M.D., M.P.H.
Interim Health Officer

Policies for Livable, Active Communities and Environments
Jean Armbruster, M.A.
Director

695 South Vermont Avenue, South Tower, Suite 1400
Los Angeles, California 90005
TEL (213) 351-1907 – FAX (213) 637-4879

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May 18, 2015

April Nitsos
Transportation Enhancements Program Coordinator
Division of Local Assistance
California Department of Transportation
1120 N St., MS-1
Sacramento, CA 9581

Re: Letter of Support for ATP Application – Arcadia Bicycle Facility Improvements

Dear Ms. Nitsos:

The Los Angeles County Department of Public Health (DPH) is pleased to support the Caltrans ATP proposal submitted by the City of Arcadia for Bicycle Facility Improvements. This project will create Class II and Class III bicycle facilities along multiple corridors in the cities of Arcadia and Sierra Madre to connect with the future Metro Gold Line Arcadia Station.

DPH recognizes the importance and benefits of enhancing safety and access for people bicycling as a way increase opportunities for physical activity, decrease the occurrence and severity of collisions, and promote a cleaner environment as fewer people drive. This project's 15.5 miles of bike facilities will make it safer and easier for cyclists to connect with the Metro Gold Line Arcadia Station, reach local destinations like Santa Anita Park and Westfield Mall Santa Anita, employers, and connect with the surrounding cities of Pasadena, Temple City, Monrovia, and Sierra Madre and unincorporated County communities.

The proposed project is consistent with the Southern California Association of Government's Regional Transportation Plan, DPH goals, and local policies. We respectfully request that you give favorable consideration to this funding application, which will allow the City of Arcadia to work towards the goals of safe, sustainable, active transportation.

Sincerely,



Jean Armbruster
Director, PLACE Program

Attachment J - Letters of Support



Foothill Gold Line

Metro Gold Line Foothill Extension Construction Authority

406 East Huntington Drive, Suite 202
Monrovia, CA 91016-3640

p 626.471.9050 f 626.471.9049
www.foothillgoldline.org

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May 12, 2015

BLCA-CALT-082

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City of Ontario
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April Nitsos
Transportation Enhancements Program Coordinator
Division of Local Assistance
California Department of Transportation
1120 N St., MS-1
Sacramento, CA 9581

RE: Letter of Support for the City of Arcadia Bicycle Facility Improvements Project
Active Transportation Program Application

Dear Ms. Nitsos:

I am writing to express the Metro Gold Line Foothill Extension Construction Authority's support for the City of Arcadia's 2015 Active Transportation Program (ATP) application for the Bicycle Facility Improvements Project. It is my understanding that the proposed project will include a network of bicycle lanes and routes, bicycle actuated signals, and other bicycle related improvements and amenities throughout the City of Arcadia and part of the City of Sierra Madre.

The proposed bike network will connect not only different parts of the City of Arcadia, but also neighboring jurisdictions including the cities of Sierra Madre, Monrovia, Temple City and Pasadena, and unincorporated County areas with the Metro Gold Line light rail line. I'd like to emphasize that the City's proposed network will add many miles of bike lanes and routes to the countywide bike network, extending the reach of our regional light rail and transit system.

Thank you in advance for your consideration and support of this regionally significant project.

Sincerely,

Habib F Balian
Chief Executive Office

Executive Officer:

Habib F. Balian
Chief Executive Officer

Attachment J- Letters of Support



DEPARTMENT OF TRANSPORTATION

May 8, 2015

April Nitsos
Transportation Enhancements Program Coordinator
Division of Local Assistance
California Department of Transportation
1120 N St., MS-1
Sacramento, CA 9581

RE: Letter of Support for the City of Arcadia Bicycle Facility Improvements Project
Active Transportation Program Application

Dear Ms. Nitsos:

I am writing to express the City of Pasadena's support for the City of Arcadia's 2015 Active Transportation Program (ATP) application for the Bicycle Facility Improvements Project. It is my understanding that the proposed project will include a network of bicycle lanes and routes, bicycle actuated signals, and other bicycle related improvements and amenities throughout the City of Arcadia and part of the City of Sierra Madre.

The proposed bike network will connect not only different parts of the City of Arcadia, but also neighboring jurisdictions including the cities of Sierra Madre, Monrovia, Temple City and Pasadena, and unincorporated County areas with the Metro Gold Line light rail line. I'd like to emphasize that the City's proposed network will add many miles of bike lanes and routes to the countywide bike network, extending the reach of our regional light rail and transit system.

Thank you in advance for your consideration and support of this regionally significant project.

Sincerely,

A handwritten signature in blue ink, appearing to read "R. W. Dilluvio".

Richard W. Dilluvio
Pedestrian and Bicycle Coordinator
Department of Transportation



City of Sierra Madre Public Works Department

May 27, 2015

Mr. Malcolm Dougherty, Director
California Department of Transportation
P.O. Box 942873
Sacramento, CA 94273-0001

RE: 2015 Active Transportation Program – Support for the Cities of Arcadia/Sierra Madre
Bicycle Facility Improvements Project

Dear Mr. Dougherty:

I am writing to express the City of Sierra Madre's support for the City of Arcadia's 2015 ATP application for the Bicycle Facility Improvements Project. The proposed project will include a network of bicycle lanes and routes, bicycle actuated signals, and other bicycle related improvements and amenities throughout the City of Arcadia and part of the City of Sierra Madre. This application is a joint effort between the Cities of Arcadia and Sierra Madre with Arcadia being the lead applicant. In addition, the City of Sierra Madre is committed to contribute our share of local match in the form of staff support to this project.

The proposed bike network will connect not only different parts of the Cities of Arcadia and Sierra Madre, but also neighboring jurisdictions including the cities of Monrovia, Temple City and Pasadena, and unincorporated County areas, with the Metro Gold Line light rail line. I'd like to specifically mention that the proposed network will include bike facilities along Sierra Madre Boulevard and Orange Grove Avenue both of which run through the City of Sierra Madre, expanding the countywide bike network, and extending the reach of the regional transit system.

Thank you in advance for your consideration and support of this regionally significant project.

Sincerely,

Bruce Inman
Director of Public Works