MERCED COUNTY

PLANADA
PEDESTRIAN IMPROVEMENT PLAN

Funded by:

Caltrans

Transportation Planning
Grant Program

Prepared by:

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Local Government Commission

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Prepared for: MERCED COUNTY

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Contents

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1. Introduction

Purpose

Many residents of Planada rely on walking for utilitarian and recreational trips to schools, churches, local businesses, and parks. Building off of the *Planada Community Plan* (2014) update, the Planada *Pedestrian Improvement Plan* provides a five to ten-year framework for how to implement the highest priority projects for walking within the community. The ultimate goal of the plan is to improve pedestrian safety throughout the community, with a specific focus on enhancing safety and access near schools, across State Route (SR) 140, and across the active Burlington Northern Santa Fe (BNSF) railroad.

The community of Planada has engaged in a variety of planning exercises in recent years through the *Community Plan* update process and the *Pedestrian Improvement Plan* process. As a result, the vision for walking improvements in Planada is well-documented, and the next steps are to secure funding for implementable projects within the community.

Development

The Planada *Pedestrian Improvement Plan* (Plan) was funded through a Fiscal Year 2012-2013 Caltrans Environmental Justice Transportation Planning Grant awarded to Merced County. The Plan process engaged local residents through a two-way public workshop held in November 2013 and a follow up workshop held in April 2014.

Setting

Planada is an unincorporated community and census-designated place in Merced County, located approximately 7 miles east of the City of Merced on SR 140. **Figure 1** shows the study area. SR 140 serves as one of the primary access points to Yosemite National Park, and, as a result, traffic on SR 140, which runs through the town, has seasonal peaking in the summer months. Many residents of Planada are employed in agriculture and related industries. Two large farm worker housing facilities, the Felix Torres Center and Bear Creek Housing, are located north of SR 140, and children in the area attend Planada schools. High school age students typically attend Le Grand High School. Approximately 4,900 people live in Planada according to the 2012 American Community Survey; though this number may not account for seasonal agricultural employment.

SR 140, Childs Avenue, Plainburg Road, and Santa Fe Avenue provide access to Planada from adjacent communities. Several businesses and retail spaces are located on SR 140 in addition to a bus stop. The BNSF railroad tracks run at a diagonal through the town, with at-grade crossings at Plainsburg Road and Childs Avenue. There are currently plans to doubletrack this portion of railway, which would mitigate the effects of trains stopping on the tracks, particularly near school bell times. No crosswalks are marked across SR 140. Childs Avenue is a primary walking route for students from the eastern neighborhoods of Planada to Cesar Chavez Middle School.

SR 140 (top) is a state highway that runs through Planada and presents a barrier to pedestrian crossings.

Freight trains frequently stop across Plainsburg Road and Childs Avenue, preventing pedestrian, bicycle, and auto access

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Planada Study Area
Figure 1

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2. Existing Conditions

This chapter documents the existing land use and transportation facilities in the community of Planada.

Demographics

Approximately 4,900 people live in Planada, not accounting for seasonal employment. According to the 2012 American Community Survey (ACS)[1] Five-Year Estimates, approximately 40 percent of the population is school-aged. While specific safe routes to school data on school mode split does not exist, anecdotally, many students walk to school, particularly to Cesar Chavez Middle School, located in the southwest corner of Planada, and Planada Elementary School located on Brodrick Avenue. 79 percent of Planada residents have access to two or more vehicles. Approximately 69 percent of Planada residents earn $50,000 or less annually, and the median family income is approximately $36,000.

[1] The American Community Survey is an ongoing survey operated by the US Census Bureau that provides demographic data in the intervening years between the decennial census data collection periods.

Land Use

Planada is a primarily residential community, with a limited number of commercial land uses located on Broadway and SR 140. Agricultural land surrounds the residential development of Planada.

Small retail and light industrial uses are located on SR 140 through the community. A market is located on the southwest corner at SR 140/Plainsburg Road. Near the intersection at SR 140/Sutter Street are a restaurant, market, and pharmacy. The other commercial area is located on the south side of Broadway, where the medical clinic, Post Office, and another market are located. A park and the community center are located nearby between Gage Street and Sutter Street.

The elementary and preschools are primarily located in the eastern portion of Planada. A preschool is located on Haskell Avenue, and Planada Elementary School is located along Brodrick Avenue and Freemont Street. Cesar Chavez Middle School is located west of the railroad tracks, along Topeka Avenue and Plainsburg Road. There is no high school in Planada. Students are instead bussed to Le Grand High School south of the community.

Most residential units are single-family houses. Some multi-family units are located in the single-family residential neighborhoods. Two farmworker housing facilities are located north of SR 140: the Felix Torres Center is approximately a half mile north and Bear Creek Housing is approximately one mile north. Approximately half of the Felix Torres Center is permitted for year round residential use, and the majority of the Bear Creek housing is year round.

Two commercial developments are planned for SR 140. Both are discount stores. In addition, there are two larger proposed residential developments in Planada; however, neither has received preliminary approval from the County. One is located on the southwest corner of Childs Avenue/Sante Fe Avenue, which would primarily be residential. A development has also been proposed on the northwest corner of Childs Avenue/Plainsburg Road. However, as the sewer capacity of Planada is currently at or near capacity, these developments will likely occur further in the future once capacity upgrades are made.

Infrastructure Overview

East of the BNSF railroad tracks, Planada has a connected roadway network, with several different grids that intersect each other. West of the railroad tracks, connectivity is limited by long cul-de-sacs and leap-frogged development. The following transportation facilities provide primary access through the community:

- **SR 140** is a two-lane state highway that extends between the City of Merced and destinations to the west and connects to Yosemite National Park to the east. This is a major access point to Yosemite from SR 99. Through town, the road widens to accommodate a two-way left-turn lane and bicycle lanes. SR 140 accommodates on-street parking on the south side of the roadway through Planada. The posted speed limit is 45 MPH through Planada. Sidewalks are provided on the south side of the street through town.
- The **Burlington Northern Santa Fe Railroad tracks** extend diagonally through Planada and bisect it. Childs Avenue and Plainsburg Road are the only roadways that cross the railroad tracks. Both crossings are at-grade and provide crossing arms for vehicles but none for

pedestrians. The railway serves active freight transportation through the Central Valley. The railroad is single-tracked through Planada, which sometimes causes trains to be stopped on the tracks, often across either Plainsburg Road or Childs Avenue.

- **Plainsburg Road** is a two-lane north-south roadway extending between South Bear Creek Drive and Silveira Way, south of Le Grand. The roadway provides a continuous connection through Planada. There is no posted speed limit; however, the speed limit is 55 MPH per California Vehicle Code Section 22349.
- **Broadway Avenue** consists of two two-lane roadways separated by a 40-foot wide linear park. On-street parking is allowed on both roadways. The posted speed limit is 25 MPH.
- **Childs Avenue** is a two-lane east-west roadway that crosses over the railroad tracks and connects the two parts of Planada. The speed limit is 35 mph. On-street parking is allowed through residential areas. Childs Avenue connects the City of Merced and SR 99 with Planada and Cunningham Road to the east.
- **Santa Fe Avenue** is a two-lane roadway extending between Plainsburg Road and Avenue 24 in Chowchilla, paralleling the railroad tracks. Santa Fe Avenue provides access to Le Grand. The posted speed limit is 55 MPH.

Figure 2 presents average daily auto volumes and peak hour volumes.

Speeds

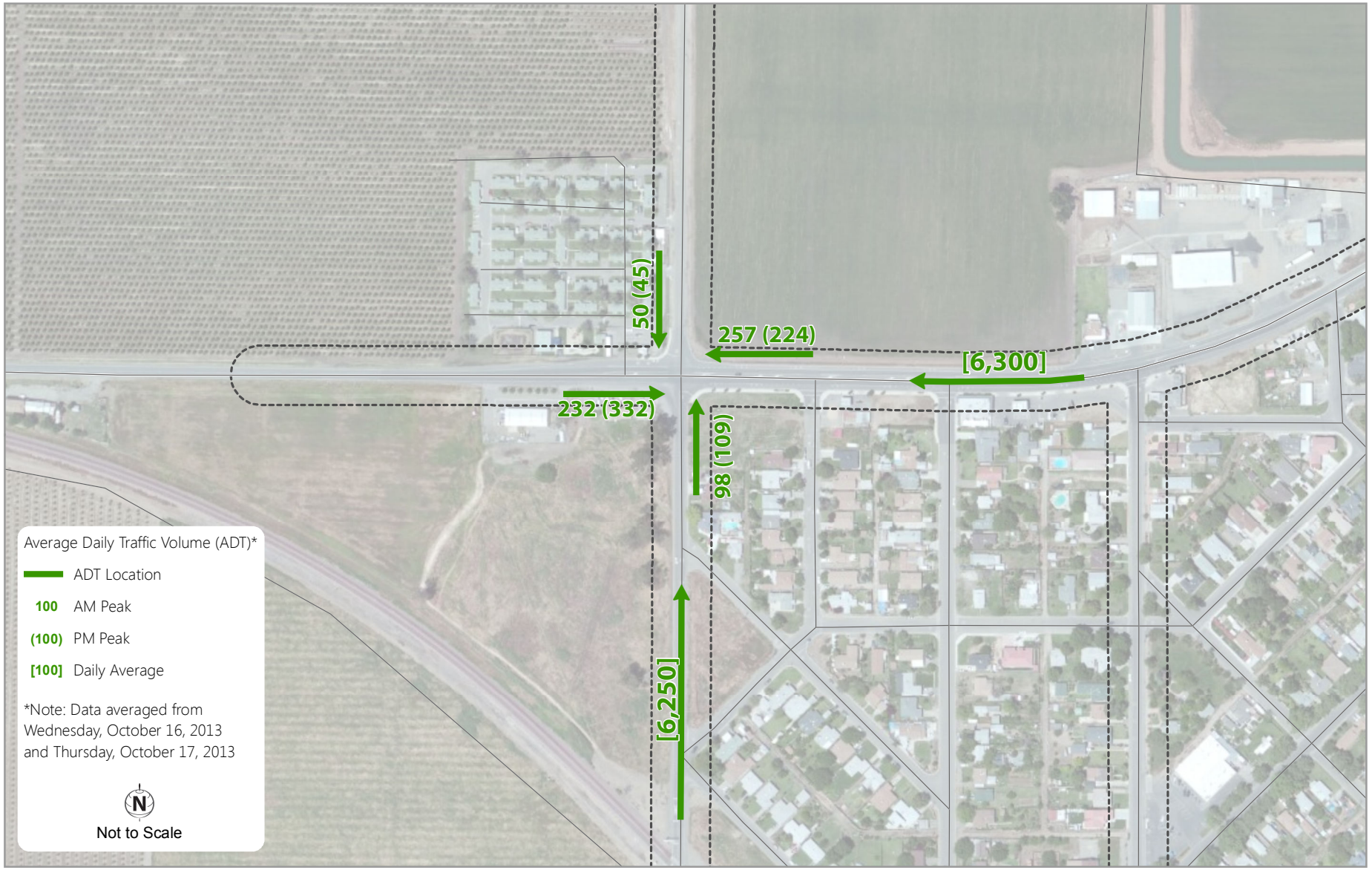
Prevailing and posted speeds are frequently high on many major roadways in Planada, particularly SR 140 and Plainsburg Road. Posted speed limits and areas of perceived speeding issues are presented on **Figure 3**.

In several areas, speed humps have been installed to calm traffic. Speed humps were installed on Stanford Avenue between Cabrillo Street and Mills Street, with approximately one speed hump per block. Single speed humps are also found on Live Oak Street and Topeka Street.

At the public workshops, residents of Planada identified additional areas where speeds are perceived to be high and where additional traffic calming features are desired. These roadways include:

- SR 140

- Plainsburg Road
- Sutter Street
- Broadway Avenue
- Childs Avenue
- Haskell Avenue



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Average Daily Traffic Volumes
Figure 2

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Posted Speed Limit and Areas of Percieved Speeding

Figure 3

Sidewalks

Sidewalks are provided on some roadways in Planada. Existing sidewalks and walkways are mapped on **Figure 4**. They are typically five feet in width and some are separated from the curb by a landscaped strip (bifurcated sidewalk). The southwest portion of the town, near Cesar Chavez Middle School has more sidewalks but still has several critical gaps. Two important routes to the Middle School are missing sidewalks: Childs Avenue east of Benicia Court and Plainsburg Road north of Topeka Street. An informal dirt cut-through path is also used by middle school students, connecting the intersections of Childs Avenue/Santa Fe Avenue and Topeka Street/Crispi Drive.

East of the railroad tracks, sidewalks are located sporadically throughout the residential neighborhoods and do not provide a continuous network. Sidewalks are located around Planada Elementary School on Brodrick Avenue, Freemont Street, Cabrillo Street, and Broadway.

Sidewalks are provided discontinuously in Planada, which causes many pedestrians to walk on the shoulder or in the roadway.

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Existing Sidewalks, Crosswalks and Traffic Control Devices in Planada

Figure 4

Crosswalks and Traffic Control

Marked crosswalks are located at some intersections in Planada, particularly around the two schools. **Figure 4** presents marked crosswalks and traffic control devices in Planada. Most marked crosswalks are uncontrolled. The marked crosswalks at Broadway/Freemont Street, Brodrick Avenue/Freemont Street, and Childs Avenue/Freemont Street are stop-controlled. No traffic signals are presently located within the Planada community boundary.

Several locations have a high pedestrian demand with limited crossing support for pedestrians. The high speeds, high volumes, and uncontrolled intersections of SR 140 create difficult crossings for pedestrians. Demand for crossing SR 140 is high given several retail uses on the north side of SR 140 as well as the farm worker housing facilities further north along Plainsburg Road. Children living in the farmworker housing may be required to walk to school if they miss the school bus.

In addition to intersection traffic control and crossings, two key at-grade railroad crossings are located in Planada – at Plainsburg Road and Childs Avenue. Both railroad crossing are routes to school and have high pedestrian traffic near to school bell times. Neither crossing has pedestrian barricades at the at-grade crossings. Additionally, pedestrians cross along the length of the railroad tracks, as no other barriers or fencing exist to channelize pedestrians.

Several key routes to school, including portions of Plainsburg Road, do not have sidewalks.

Bicycle Facilities

Class II bicycle lanes are striped on SR 140 between Plainsburg Road and Sutter Street. No other designated bicycle facilities exist in Planada. **Figure 5** presents the existing bicycle network.

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Existing Bicycle Network
Figure 5

Collisions and Perceived Safety

Between 2007 and 2012, three reported bicycle-involved collisions and three reported pedestrian-involved collisions occurred in Planada, according to the California Highway Patrol's (CHP) Statewide Integrated Traffic Records System (SWITRS). The collisions included in the database only consist of those collisions for which CHP officers took reports. As a result, less severe collisions are likely to be unreported or underreported, as are collisions involving those who may not feel comfortable reporting collisions due to issues such as language barriers or immigration status. **Figure 6** shows the reported bicycle and pedestrian collisions between 2007 and 2012.

Pedestrian Collisions

Table 1 presents the three reported pedestrian collisions between 2007 and 2012. Two of the collisions were located in close proximity to schools. While one collision does not include information regarding the collision violation type, a driver travelling at excessive speeds and a driver failing to yield to a pedestrian in a crosswalk were the cause of the other two collisions. Two of the collisions occurred while pedestrians were crossing in a crosswalk. In each collision, the driver of a passenger car or truck was at fault.

TABLE 1 PEDESTRIAN COLLISIONS, 2007-2012

Location	Severity	Year	Violation[1]
Market Street 400' east of Plainsburg Road	Complaint of Pain	2011	22350 – Excessive Speed
Plainsburg Road/Topeka Avenue	Complaint of Pain	2008	Not Stated
Broadway/Freemont Street	Severe Injury	2007	21950 (A) – Failure to Yield to Pedestrian at Crosswalk

1. Violation refers to the violation code recorded at the time of the collision. Numerical references are to the California Vehicle Code.

Source: SWITRS Data, 2007-2012.

During the public workshops, community members identified several areas where there are perceived pedestrian safety issues. Key areas with perceptions of safety issues include:

- Crossing SR 140, particularly at Plainsburg Road and Sutter Street
- Railroad crossings at Childs Avenue and Plainsburg Road

- Plainsburg Road leading to the Middle School
- Crossing the five-way intersection at Sutter Street/Stanford Avenue/De La Guerra Street

Bicycle Collisions

Table 2 presents the three reported bicycle/vehicle collisions between 2007 and 2012. Each collision stated that the bicyclist was at fault. As a result, each violation category refers to a failure by the bicyclists. Violations include wrong-way riding, failure to yield when entering an intersection, and excessive speed.

TABLE 2 BICYCLE COLLISIONS, 2007-2012

Location	Severity	Year	Violation
Plainsburg/BNSF Railroad Tracks	Other Visible Injury	2011	21650 – Driving on the Wrong Side of the Road
Stanford Avenue/Cabrillo Street	Other Visible Injury	2009	21800 (A) – Failure to Yield to Oncoming Vehicle When Entering an Intersection
Haskell Street/Merced Street	Other Visible Injury	2012	22350 – Excessive Speed

1. Violation refers to the violation code recorded at the time of the collision. Numerical references are to the California Vehicle Code.

Source: SWITRS Data, 2007-2012.

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Bicycle and Pedestrian Collisions, 2007-2012

Figure 6

3. Public Outreach

A key component of the Pedestrian Improvement Plan involved public meetings and workshops to help guide the direction of the Plan and to gain valuable insight from the community. Three major outreach events occurred in Planada:

- September 2013 Municipal Advisory Committee (MAC) Meeting
- Two public workshops in November 2013
- One public workshop in April 2014

September 2013 MAC Meeting

In September 2013, the consultant team attended a meeting of the Municipal Advisory Committee (MAC). The meeting was attended by over 30 community members. The consultant team presented an overview of the project. The meeting primarily provided an opportunity for the public to share informal feedback and identify critical issues for further study.

November 2013 Public Workshops

The project team hosted a two-day charrette on November 20 and 21, 2013. The charrette included two public workshops and project team field observations. Together, these events served to review recommendations made in the Community Plan charrette and update process, identify and prioritize projects, and develop initial concepts for the highest priority projects

November 2013 Opening Workshop

The opening public workshop was held on November 20, 2013 and approximately 15 community residents and stakeholders attended. The workshop and all materials were presented in both Spanish and English. The opening presentation of the workshop presented concepts developed in the previous Community Plan update, which identified projects through a community charrette process that occurred in 2011.

The primary workshop activity was a map exercise in which people were asked:

- Where do you currently walk? What improvements are needed?
- Where do you feel safe crossing? Where are crosswalk improvements needed?
- Where are vehicle speeds a concern in Planada? Where are traffic calming treatments needed?

- Where do you ride your bike? What improvements are needed for biking?
- What are the four most important criteria for prioritizing walking and biking improvement projects in Planada?
- What are the three highest priority projects in Planada?

Participants were instructed to draw on and markup the maps. To gather feedback on project prioritization, participants were asked to vote using stickers to identify prioritization criteria and the highest priority projects. Concerns and suggestions heard at the workshop are summarized below in addition to the outcomes of the priority voting exercises.

Concerns

- Families cross Plainsburg Road at SR 140 coming from the farm worker housing facilities to the north
- High vehicle speeds throughout the community, but particularly on SR 140, Plainsburg Road, Sutter Street, Broadway Avenue, Childs Avenue, and Haskell Avenue
- Student safety walking to Cesar Chavez Middle School via Childs Avenue across the railroad tracks
- Student safety walking to Cesar Chavez Middle School via Plainsburg Road
- Pedestrian safety at Santa Fe Avenue/Childs Avenue intersection
- Unsafe crossings of SR 140 at Sutter Street and Plainsburg Road
- Unsafe crossing at five-way intersection at Sutter Street/Stanford Avenue/De La Guerra Street

Suggestions

- Construct sidewalk on Plainsburg Road north of SR 140 and near Cesar Chavez Middle School
- Improve pedestrian safety at railroad crossing on Childs Avenue and consider grade separation
- Improve pedestrian safety at railroad crossing on Plainsburg Road and consider grade separation
- Constructing a trail along Planada Canal for recreation and as alternate pedestrian route
- Construct sidewalks on Freemont Street
- Construct sidewalks on Brodrick Avenue, Division Street, Childs Avenue, and Plainsburg Road to provide safe routes to school
- Construct sidewalks on Santa Fe Avenue north of Childs Avenue

- Construct pedestrian improvements on Haskell Avenue, which provides access to the preschool

Table map from the public workshops indicating where residents want sidewalks and common routes to local schools.

Prioritization

For the priority project exercise, participants were given three votes and asked to rank them according to first-, second-, and third-choice projects. The following projects were prioritized and are presented in weighted and ranked order:

1. Railroad crossing improvements for pedestrians
2. Crossing improvements at other locations along SR 140
3. Street lighting
4. Crossing improvements at SR 140/Plainsburg Road
5. Sidewalk construction
6. Bikeway improvements

Additionally, the following criteria were identified as the highest priority for the community:

1. Personal security
2. Safety
3. Access to schools
4. Access to parks
5. Project cost

November 2013 Follow-Up Workshop

The second public workshop was held on November 21, 2013 and approximately 20 community residents and stakeholders attended. The map exercises from the opening workshop were available for additional input and voting. The focus of the second workshop was a presentation that summarized issues

heard at the first workshop and showed proposed initial concepts. Photo simulations for each of the following potential improvements were presented:

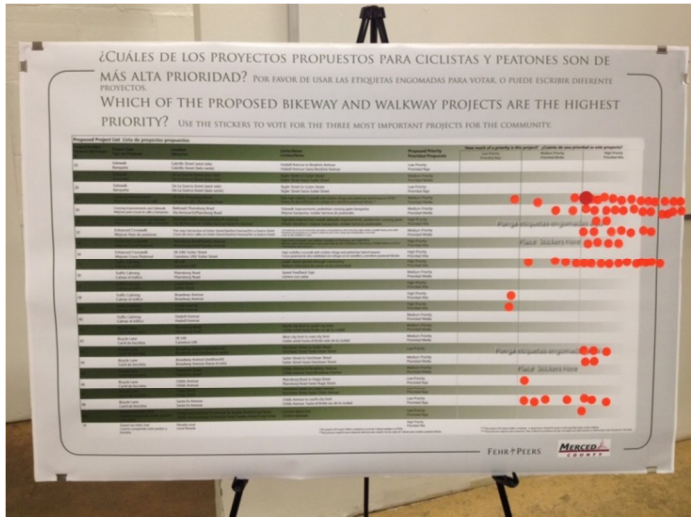
- **SR 140 Gateway Treatment** – Gateway sign, median, and colored bicycle lanes along SR 140
- **SR 140/Sutter Street Crosswalk** – Marked crosswalk on the west side of Sutter Street with a pedestrian hybrid beacon
- **Childs Avenue BNSF Railroad Crossing** – Sidewalk on both sides of Childs Avenue with pedestrian crossing arms and fencing along railroad tracks

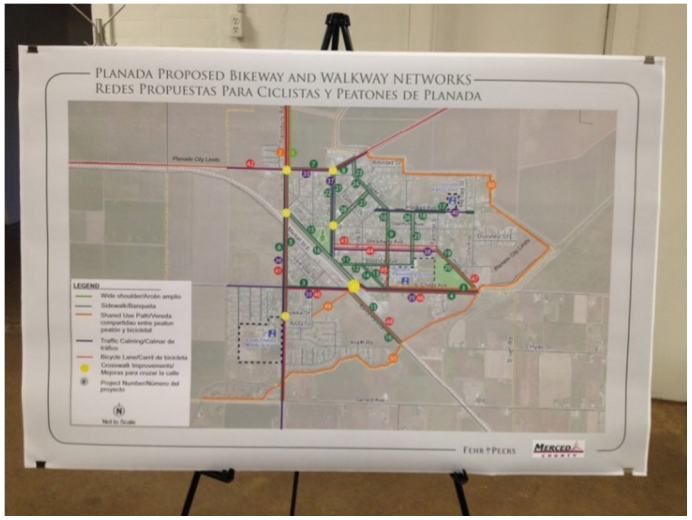
Before and after photosimulations showing initial concepts for a crosswalk with pedestrian hybrid beacon across SR 140 at Sutter Street.

April 2014 Public Meeting

In April 2014, the consultant team hosted a public workshop to present an overview of the project, present feedback heard to-date through the previous outreach events, and to solicit feedback on a draft proposed project list and project prioritization.

The community feedback from this meeting, in the form of votes on particular projects, provided a sense of the proposed projects that are of the greatest priority to residents. Improvements on Plainsburg Road, both north and south of SR 140, received a high number of votes. Attendees also highly prioritized improvements to Childs Avenue, SR 140 and Freemont Street. Improvements to the crossing at Childs Avenue/Santa Fe Avenue/BNSF Railroad, the crossing at Plainsburg Road/BNSF Railroad, and SR 140/Plainsburg Road also ranked highly.





Board from the public workshop of proposed bikeway and walkway projects for attendees to identify which projects are of the highest

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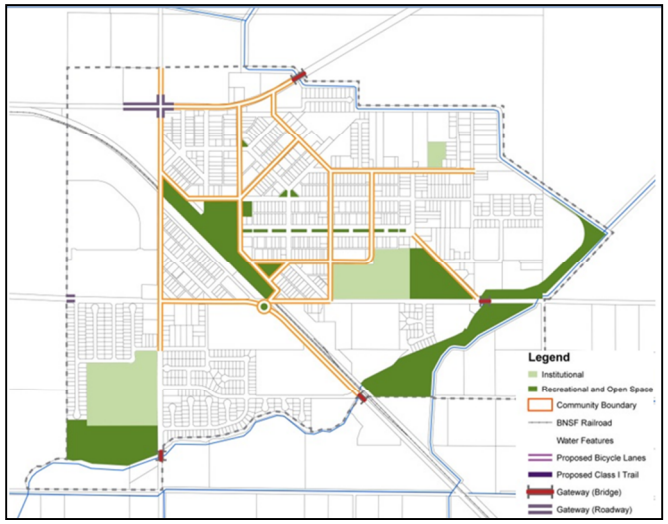
4. Proposed Projects

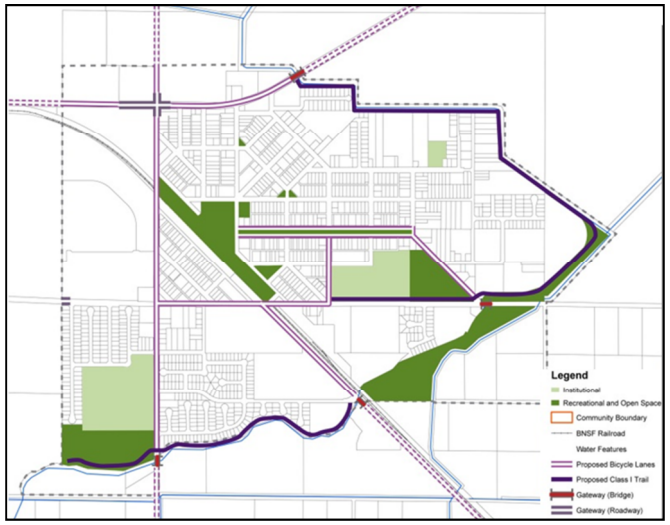
This section describes the proposed improvement projects in Planada.

Planada Community Plan Update

Merced County is currently in the process of updating the *Planada Community Plan*. Through the Plan update process, the County engaged the community in various public outreach activities, including a design charrette in 2011. The charrette process identified numerous projects throughout the community and preliminary concepts were developed for those improvements. Projects identified through that process are incorporated into this document to ensure consistency.

These outreach efforts have allowed the community to identify a clear priority vision of desired sidewalks, gateway treatments, and improvements for bicycle travel.





Proposed Planada Pedestrian Network

The Planada vision network recommends bicycle and pedestrian facilities that will fill in important gaps in the existing network, provide access to schools, provide access to other key destinations, and improve corridors and crossings with real and perceived safety issues. **Table 3** includes a brief description of each individual project. The **Implementation Chapter**, which includes design guidelines, discusses in greater detail each of the facilities recommended.

Pedestrian Facilities

Figure 7 presents existing and proposed sidewalks and crosswalks in Planada. Sidewalks have been proposed on streets with high pedestrian demand, large traffic volumes and fast moving vehicles, including SR 140, Plainsburg Road, and Childs Avenue. Sidewalks are proposed on both sides of the street where there is not an existing sidewalk.

Difficult crossings identified by the community are proposed as enhanced crosswalks. Additionally, several new, high-visibility marked crosswalks are proposed.

Bicycle Facilities

Figure 8 presents existing and proposed bicycle facilities in Planada. Bicycle lanes and paths are proposed throughout the community.

Traffic Calming

Traffic calming devices, such as speed humps and speed feedback signs, are recommended on key connections including Plainsburg Road, Sutter Street, Broadway, and Haskell Avenue.

TABLE 3 PROJECT LIST

Proj. #	Project Type	Location	Limits/Notes
1	Wide shoulder	Plainsburg Road (east side)	north of SR 140
2	Class I Bike Path	Plainsburg Road (west side)	north of SR 140
3	Sidewalk	Childs Avenue (north side)	Plainsburg Road to Santa Fe Avenue, Freemont Street to Hupp Street

4	Sidewalk	Childs Avenue (south side)	Benicia Court to Hupp Street
5	Sidewalk	Plainsburg Road (east side)	SR 140 to Topeka Street
6	Sidewalk	Plainsburg Road (west side)	SR 140 to 150' north of Topeka Street
7	Sidewalk	SR 140 (north side)	Plainsburg Road to Watt Street
8	Sidewalk	SR 140 (south side)	Sutter Street to Watt Street
9	Sidewalk	Freemont Street (east side)	Haskell Avenue to Childs Avenue
10	Sidewalk	Freemont Street (west side)	Haskell Avenue to Brodrick Avenue
11	Sidewalk	Brodrick Avenue (north side)	Santa Fe Avenue to Cabrillo Street
12	Sidewalk	Brodrick Avenue (south side)	Santa Fe Avenue to Freemont Street
13	Sidewalk	Division Street (north side)	Brodrick Ave to Childs Avenue
14	Sidewalk	Division Street (south side)	Brodrick Ave to 200' north of Childs Avenue
15	Sidewalk	Santa Fe Avenue (north side)	Kraft Road to Plainsburg Road
16	Sidewalk	Santa Fe Avenue (south side)	Kraft Road to Plainsburg Road
17	Sidewalk	Haskell Avenue (north side)	Vallejo Avenue to 200' east of Fancher Street, Merced Street to Cody Avenue
18	Sidewalk	Haskell Avenue (south side)	Vallejo Avenue to 200' east of Fancher Street, Merced Street to Cody Avenue
19	Sidewalk	Hupp Street (north side)	Childs Avenue to Fancher Street
20	Sidewalk	Hupp Street (south side)	Childs Avenue to Fancher Street
21	Sidewalk	Sutter Street (east side)	SR 140 to Santa Fe Avenue
22	Sidewalk	Sutter Street (west side)	SR 140 to Santa Fe Avenue
23	Sidewalk	Bigler Street (north side)	SR 140 to Haskell Avenue

24	Sidewalk	Bigler Street (south side)	SR 140 to Haskell Avenue
25	Sidewalk	Cabrillo Street (east side)	Haskell Avenue to Brodrick Avenue
26	Sidewalk	Cabrillo Street (west side)	Haskell Avenue to Brodrick Avenue
27	Sidewalk	De La Guerra Street (east side)	Bigler Street to Sutter Street
28	Sidewalk	De La Guerra Street (west side)	Bigler Street to Sutter Street
29	Crosswalk Improvements	SR 140/Plainsburg Road	New crosswalk; high-visibility crosswalk with median refuge and pedestrian hybrid beacon[2]
30	Crosswalk Improvements	BNSF Railroad/Plainsburg Road	New crosswalk, sidewalk improvements, pedestrian crossing gates2
31	Crosswalk Improvements	BNSF Railroad/Childs Avenue/Santa Fe Avenue	Signalize intersection; install sidewalk improvements, pedestrian crossing gates, new crosswalk2
32	Crosswalk Improvements	Five-way intersection at Sutter Street/Stanford Avenue/De La Guerra Street	Curb extensions to narrow intersection and reduce crossing distances, ADA curb ramps, high-visibility crosswalk striping across Sutter2
33	Crosswalk Improvements	Plainsburg Road/Topeka Avenue	Mark fourth crosswalk, high visibility crosswalks on Plainsburg, and install RRFBs2
34	Crosswalk Improvements	SR 140/Sutter Street	High-visibility crosswalk with median refuge and pedestrian hybrid beacon[3]

[2] Requires further evaluation.

[3] Requires further evaluation

35	Traffic Calming	SR 140	Lower travel speeds through community[2]
36	Traffic Calming	Plainsburg Road	Speed Feedback Sign[2]
37	Traffic Calming	Sutter Street	SR 140 to Santa Fe Avenue
38	Traffic Calming	Broadway Avenue	Sutter Street to Hupp Street
39	Traffic Calming	Childs Avenue	Hupp Street to Santa Fe Avenue
40	Traffic Calming	Haskell Avenue	Cody Avenue to Vallejo Avenue
41	Bicycle Lane	Plainsburg Road	North city limit to south city limit
42	Bicycle Lane	SR 140	West city limit to east city limit
43	Bicycle Lane	Broadway Avenue (westbound)	Fancheser Street to Sutter Street
44	Bicycle Lane	Broadway Avenue (eastbound)	Sutter Street to Fancheser Street
45	Bicycle Lane	Freemont Street	Childs Avenue to Broadway Avenue
46	Bicycle Lane	Childs Avenue	Plainsburg Road to Hupp Street
47	Bicycle Lane	Hupp Street	Fancheser Street to Childs Avenue
48	Bicycle Lane	Santa Fe Avenue	Childs Avenue to south city limit
49	Shared Use Path/Trail	Childs Avenue/Santa Fe Avenue to Topeka Street/Crispi Drive	Current desire line
50	Shared Use Path/Trail	Planada canal	

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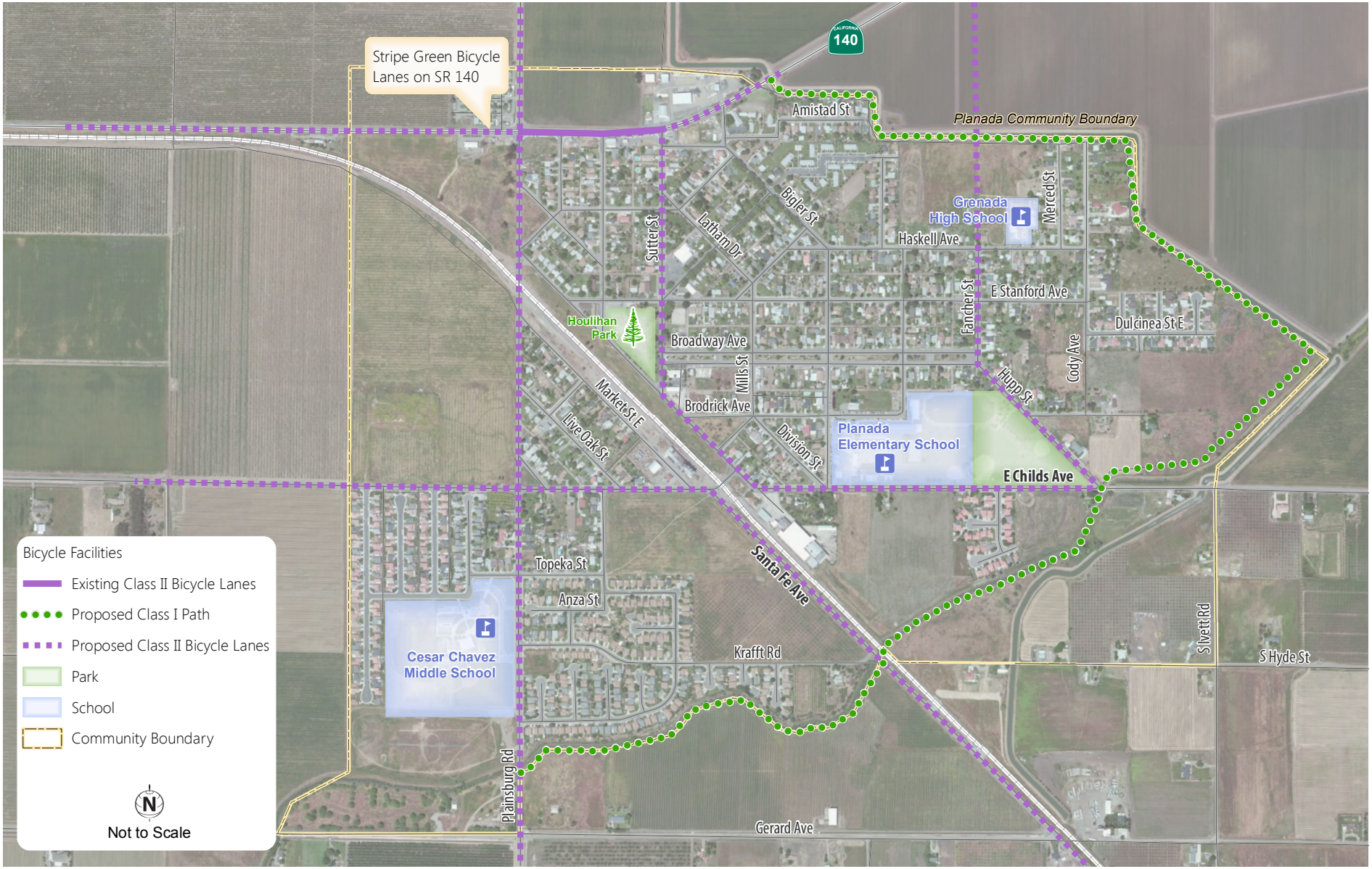
Existing and Proposed Sidewalks, Crosswalks and Traffic Control Devices in Planada

Figure 7



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Existing and Proposed Bicycle Network

Figure 8

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5. Prioritization

The purpose of the bicycle and pedestrian networks is to provide safe, convenient, direct, and comfortable access to schools and other destinations community-wide. However, the entire network cannot be completed at once due to funding and implementation constraints. Thus, prioritization criteria are identified to rank projects that would have more community benefit. Each proposed project was scored (ranked) using prioritization criteria based on input received at the community workshops. The criteria include:

- Community Priorty
- Access to Key Destinations
- Access to Schools
- Closure of a Critical Gap
- Serves Immediate Safety Need
- Pedestrian Demand
- Feasability

Each criterion is further defined below.

Community Priority (4 points)

One of the key criteria for prioritization is the community support for the project. During the two public workshops, the public had the opportunity to, first, identify projects and, later, vote on the highest priority projects. Based on the input received at the public outreach events, Community Priority is scored as follows:

- 4 points for projects identified as being the most important projects to the community. These are projects heard as top priority in the community workshop and previously mentioned in the community plan.
- 2 point for projects that have been previously identified but are not key projects.
- 0 points for projects being identified for the first time.

Access to Key Destinations (2 points)

Additional points are assigned to projects located within a priority development area, and direct access with frontage on schools, parks, commercial centers, transit and other key destinations. Intersection projects are awarded points if they are along a primary route to a key destination.

- 2 points for direct access to two or more key destinations

- 1 point for direct access to one key destination
- 0 points for no access to key destinations

ACCESS TO SCHOOLS (2 POINTS)

Additional points are assigned to projects located within close proximity to a school or with the potential to increase walking to and from a school.

- 2 points for projects within ½ mile of a school
- 1 point for projects between ½ and 1 mile of a school
- 0 points for projects over 1 mile from a school

CLOSURE OF A CRITICAL GAP (2 POINTS)

Gaps in the pedestrian network are defined as an area of discontinuity in existing pedestrian or bicycle infrastructure. Points are assigned to projects that close a gap in the pedestrian network, including sidewalk gaps and improved pedestrian access across interchanges.

- 2 points for directly closing a gap
- 1 point for improving access and reducing the impact of a gap
- 0 points for no gap closure

SERVES IMMEDIATE SAFETY NEED (2 POINTS)

Additional points are assigned to projects in areas where pedestrian safety is a primary concern, including proximity to recent pedestrian collisions and streets with high speed traffic or pedestrian exposure to high volumes of traffic. High speed roadways are considered those with a posted speed limit greater than 30 mph. Projects on roadways with at least one reported bicycle/pedestrian collision were considered to be projects near collisions.

- 2 points for locations near pedestrian collisions and high speed/high volume streets
- 1 point for locations near pedestrian collision or high speed/high volume streets
- 0 points for locations where collisions and traffic speed/volume are not a concern

PEDESTRIAN DEMAND (2 POINTS)

Additional points are assigned to projects that are located on the side of the street with greater pedestrian need due to the location of key destinations, existing infrastructure, and land use. Based on feedback at the community meetings, pedestrian

projects are a greater priority than bicycle projects, which was considered in the point designation for this criterion.

- 2 points for projects located on the primary desire line or the area with highest pedestrian demand
- 0 points for projects located not on the primary desire line or the side with the lower pedestrian demand; non-pedestrian projects such as bicycle projects also received 0 points

FEASIBILITY (4 POINTS)

Finally, additional points are assigned to projects with potential funding sources:

- 4 points for projects that are both feasible (in terms of engineering feasibility and/or political support) and fundable (strong contenders for grant opportuniites, could be built with new development opportunities, or are relatively affordable and could be included in the County's annual CIP program)
- 2 points for projects that are either feasible or fundable (as outlined above)
- 0 points for projects with no support and not associated with funding opportunities

Each recommended project was scored according to these criteria, with the highest scores indicating the highest priorities. Projects were then grouped into high, medium, or low priority projects. **Appendix A** presents all projects in their ranked order according to the sum of their scores for each criterion. The resulting ranked list is not intended to be a static document, as new opportunities for funding and improved access will emerge. However, the list will provide a starting point for determining project priorities and implementation.

HIGH PRIORITY PROJECTS

Using these prioritization criteria, the following fifteen projects received the highest scores, scoring thirteen or more points out of a possible sixteen points:

- Childs Avenue/Santa Fe Drive/BNSF Railroad Intersection and Crossing Improvements (#31)
- SR 140/Sutter Street Traffic Calming and Enhanced Crosswalk (#34 and #35)
- Sutter Street Traffic Calming, East Side (#37)
- Sutter Street Sidewalk, East Side (#21)
- Plainsburg Road Shared-Use Path, West Side (#2)

- Plainsburg Road Sidewalk, West Side (#6)
- Plainsburg Road Wide Shoulder, East Side (#5)
- Plainsburg Road Traffic Calming (#36)
- Plainsburg Road/Topeka Avenue Crosswalk Enhancements (#33)
- Plainsburg/BNSF Railroad Crossing (#30)
- Childs Avenue Sidewalk, North Side (#3)
- Childs Avenue Traffic Calming (#39)
- Broadway Avenue Bicycle Lanes, (#43 and #44)
- Broadway Traffic Calming (#38)

Of these high-priority projects, two projects were selected based on community input and guidance from Merced County for further study and concept development:

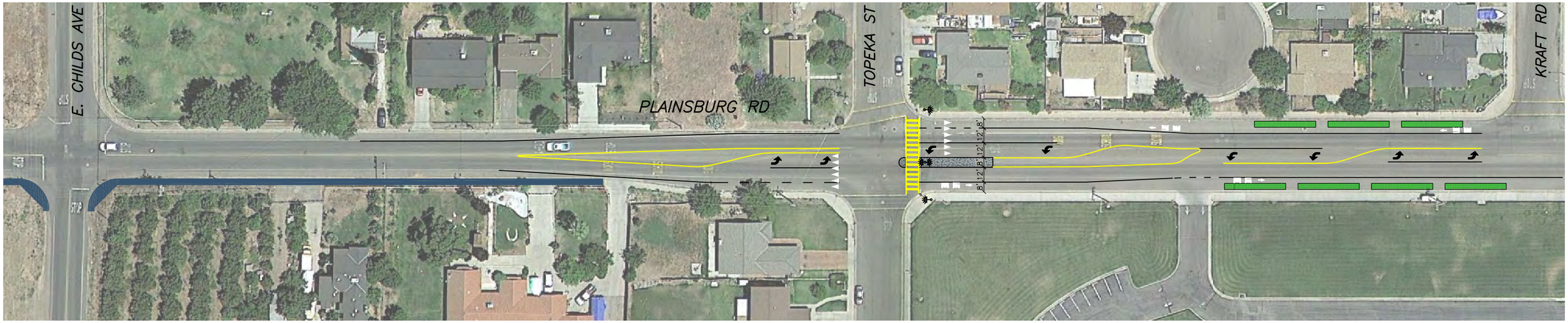
- Plainsburg Road Sidewalk and Plainsburg Road/Topeka Street Enhanced Crosswalk
- SR 140 Gateway Treatments and Crosswalk

Detailed project descriptions and concept drawings are presented in the next section.

Plainsburg Road Sidewalk and Plainsburg Road/Topeka Street Crosswalk Enhancement

Sidewalks will be constructed on the west side of Plainsburg Road near Childs Avenue. This facility will connect the dense worker housing north of SR 140 to Cesar Chavez Middle School and the existing sidewalk on Plainsburg Road south of Topeka Street. It also provides access to a number of dense housing developments. Plainsburg Road is the north-south street that provides the most direction connection through Planada.

The existing crosswalk at Plainsburg Road/Topeka Street would be enhanced with a high visibility crosswalk, Rectangular Rapid Flashing Beacons, a pedestrian median refuge, and advance yield markings. This crossing provides an important connection to Cesar Chavez Middle School and compliments the proposed Plainsburg Road sidewalk. **Figure 9** presents the improvements in plan view.



40 0 40 80
1" = 40' GRAPHIC SCALE

LEGEND

- SIDEWALK
- ADVANCED YIELD MARKINGS
- 12' RAISED, LANDSCAPE MEDIAN WITH GATEWAY SIGNAGE (WIDTH OF EXISTING TWLTL)
- RAISED LANDSCAPE AREA
- RETANGULAR RAPID FLASHING BEACON (RRFB)

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May 29, 2014

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Drawn By: DD
Checked By: CN
Drawing No.: RS13-3151
Date: MAY 2014

PLAINSBURG ROAD PRIORITY PROJECT

PLANADA PEDESTRIAN IMPROVEMENT PLAN

FIGURE 9

SR 140 Raised Median (Phase 1 Improvements)

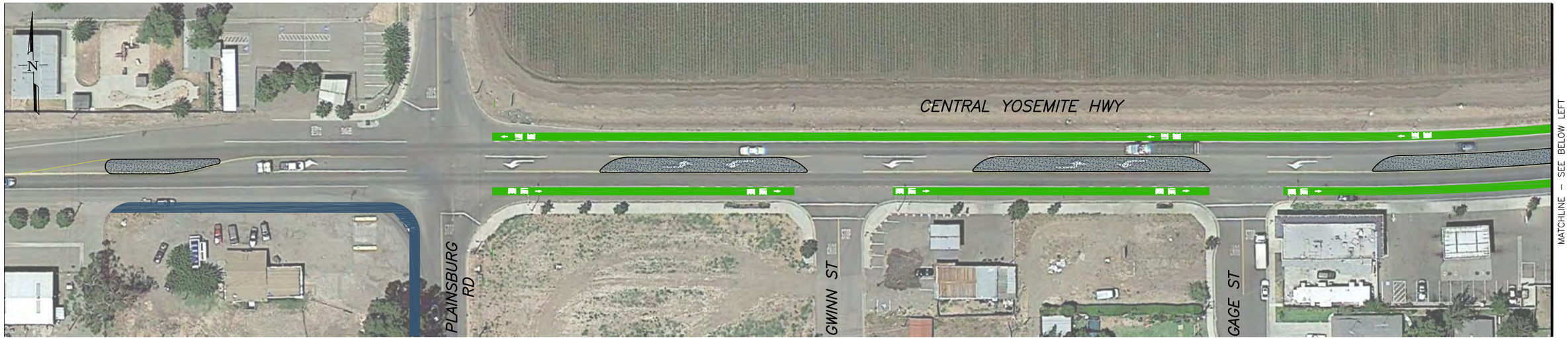
The improvements proposed on SR 140 consist of colorizing and extending the bicycle lanes along SR 140, sidewalk gap closures, and installing a raised median. These additional facilities improve safety and mobility for pedestrians and bicyclists and will help to slow speeds on SR 140, creating a gateway into Planada and signaling to drivers that they are entering the community.

These facilities also provide multimodal access to a number of retail locations at SR 140 and Gage Street. The proposed sidewalk along Plainsburg Road provides an important continuation of the existing sidewalk on SR 140, east of Plainsburg Road. The medians maintain left turn access to side streets and businesses along SR 140, while still serving as a traffic calming device by visually narrowing the roadway. SR 140 is a large arterial with 6,240 average daily vehicles and an 85th percentile speed of 54 mph. This proposed project is an effective means of slowing traffic and providing safe and accessible multimodal options.

Phase 1 of the project would consist of the median, sidewalk, and green bicycle lanes improvements. Phase 2, pending additional pedestrian volume data, would be to install an enhanced crossing on the west side of the Sutter Street/SR 140 intersection with a pedestrian hybrid beacon. **Figure 10a** presents Phase 1 improvements, and **Figure 10b** presents Phase 2 improvements.

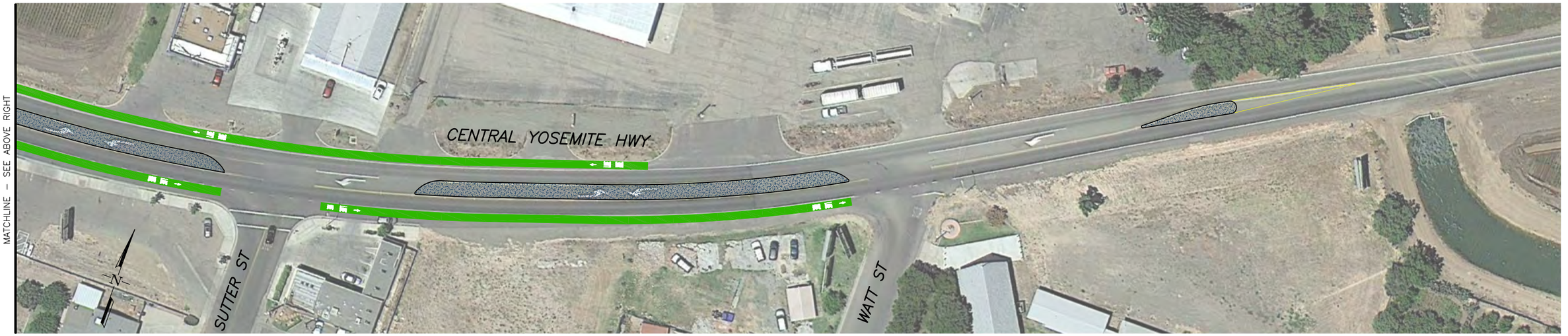
Phase 1 Improvements – Green Bicycle Lanes and Raised Median

Phase 2 Improvements – High-Visibility Crosswalk and Pedestrian Hybrid Beacon at Sutter Street



LEGEND

- SIDEWALK
- 12' RAISED, LANDSCAPE MEDIAN WITH GATEWAY SIGNAGE (WIDTH OF EXISTING TWLTL)
- 6' GREEN BIKE LANE



40 0 40 80
1" = 40' GRAPHIC SCALE

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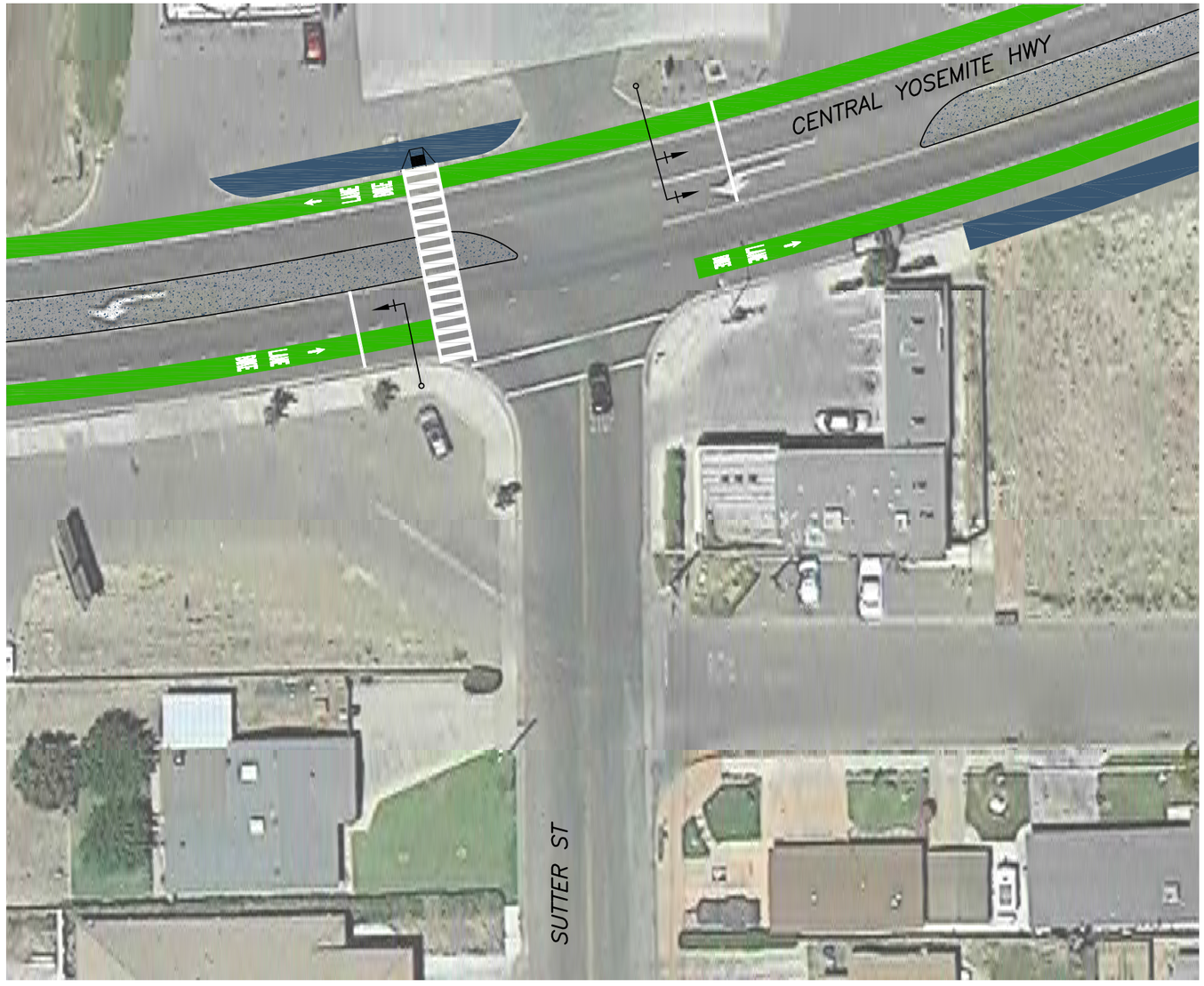
SR 140 PRIORITY PROJECT

PHASE 1

CHILDS AVENUE TO TOPEKA STREET

FIGURE 10A



N

20 0 20 40
1" = 20' GRAPHIC SCALE

LEGEND

- SIDEWALK
- 12' RAISED, LANDSCAPE MEDIAN WITH GATEWAY SIGNAGE (WIDTH OF EXISTING TWLTL)
- 6' GREEN BIKE LANE
- PEDESTRIAN HYBRID BEACON (HAWK)
- ADVANCED STOPBAR

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Drawn By: DD
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Drawing No.: RS13-3151
Date: MAY 2014

SR 140 PRIORITY PROJECT

PLANADA PEDESTRIAN IMPROVEMENT PLAN – PHASE 2

CENTRAL YOSEMITE HWY (SR 140) AND SUTTER STREET

FIGURE 10B

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6. FUNDING

Federal, state, regional, county and local organizations provide funding for pedestrian and bicycle projects and programs. The most recent federal surface transportation funding program, Moving Ahead for Progress in the 21st Century Act (MAP-21), was signed into law in July 2012. This is the first long-term federal transportation authorization enacted since 2005, and the new authorization brings significant changes to typical funding sources and structures.

MAP-21 funding is distributed to federal and state surface transportation funds. Most of these resources are available to Planada through Caltrans, the Merced County Association of Governments (MCAG), and Merced County.

This chapter includes details about current programs that are used to fund existing scheduled projects and an assessment of upcoming programs as of May 2014. These may change as state and local programs adapt to the new MAP-21 funding.

Table 4 summarizes the applicability of these various funding sources to projects, planning efforts, and programs proposed in this plan.

Federal Programs

The majority of public funds for bicycle, pedestrian, and trails projects are derived through a core group of federal and state programs. Federal funding is authorized through the Surface Transportation Program (STP). STP provides flexible funding that may be used by states and localities for projects on any Federal-aid highway. In the past this funding was authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Funding for STP is now authorized through MAP-21.

The Transportation Enhancements (TE) under SAFETEA-LU is now the Transportation Alternatives Program (TAP). TAP, authorized through MAP-21, consolidates TE, Safe Routes to School, and Recreational Trails and provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, transit access, mobility, and recreation trails program. TAP broadens eligibility and flexibility for state allocation of TAP funds. Safe Routes to School programs, including infrastructure, encouragement, campaigns, education, outreach and a Safe Routes coordinator, are eligible under TAP, though no funds are dedicated for this.

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) also authorizes federal funds, including education programs. MAP-21 maintains the existing CMAQ program and broadens eligibility for transit operations.

Federal funds from STP, TAP and CMAQ programs are allocated for distribution through MCAG. Distribution is allocated either competitively or proportionally according to jurisdiction population.

Other recent policies at the federal level have resulted in a series of programs that promise to provide increased funding in the coming years for bicycle projects. The HUD-DOT-EPA Interagency Partnership for Sustainable Communities has generated a series of new grant programs to-date, including Urban Circulator grants, TIGER grants, and Sustainable Communities Planning grants. The Department of Transportation recently announced a new DOT policy initiative, indicating "well-connected walking and bicycling networks [are] an important component for livable communities."

State Programs

There are a number of state-wide funding sources and regionally administered funds. These are summarized below and in **Table 4** which shows the applicability of these various funding sources to projects, planning efforts, and programs proposed in this Plan.

Active Transportation Program

The Active Transportation Program was created by SB 99/Assembly Bill 101 to encourage increased use of active modes of transportation such as biking and walking. The program consolidated five previous state funded programs: Transportation Alternatives Program, Recreational Trails program, Safe Routes to Schools, Environmental Enhancement and Mitigation Program and the Bicycle Transportation Account. It provides a comprehensive program that improves program planning and flexibility and is more efficient than multiple programs. Another benefit is that funds can be directed to multi-year projects to make greater long-term improvements to active transportation.

The ATP mixes state and federal funds and provides approximately $130 million annually, with a focus on implementing active transportation improvements to support the goals of local SB 375 sustainable community strategies. This program is funded from a combination of federal and state funds from appropriations in the annual state budget act. Forty percent of the funding will go toward metropolitan planning

organizations in urban areas. Ten percent of the funds go to small urban and rural regions. The remaining funds will go to the California Transportation Commission for statewide projects. The ATP ensures that disadvantaged communities fully share in the benefits of the program by requiring that a minimum of 25 percent of funding be distributed to disadvantaged communities. Given the percentage of Planada students receiving free or reduced price lunches, the community qualifies as a disadvantaged community, as defined by the ATP.

In order to maximize the effectiveness of program funds and to encourage the aggregation of small projects into a comprehensive bundle of projects, the minimum request for Active Transportation Program funds that will be considered is $250,000. This minimum does not apply to non-infrastructure projects, Safe Routes to Schools projects, and Recreational Trails projects.

Project types allowed under the ATP include: new bikeways serving major transportation corridors, new bikeways to improve bicycle commuting options, bicycle parking at transit and employment centers, traffic control devices to improve pedestrian and bicycle safety, improving and maintaining safety on existing bikeways, recreational facilities, Safe Routes to School projects, Safe Routes To Transit projects, education programs, and other improvements to bicycle-transit connections and urban environments.

For a project to contribute toward the Safe Routes to School funding requirement, the project must directly increase safety and convenience for public school students to walk and/or bike to school. Safe Routes to Schools infrastructure projects must be located within two miles of a public school or within the vicinity of a public school bus stop. Other than traffic education and enforcement activities, non-infrastructure projects do not have a location restriction.

Highway Safety Improvement Program

Caltrans administers two funding programs for roadway safety improvements: the Highway Safety Improvement Program (HSIP) and the Highway Rural Roads Program (HR3). These programs use cost-benefit ratios as a primary factor in the awarding of applications. Because both of these programs focus on roadway safety, projects with documented collision history – through frequency of collision but particularly collision severity – are typically ranked higher. Roadways with documented bicycle and pedestrian collision history, as discussed in Section 9-3 of this Plan, may be well-qualified for HSIP and HR3 applications,

particularly since many of the proposed projects would improve bicyclist and pedestrian safety at a lower cost than many of the highway projects also eligible under this funding source.

In its most recent grant cycle (November 2013), Caltrans awarded $150 million to 231 projects. While this funding source is often used for major roadway improvement projects, installation of traffic signals, and most other cost-intensive projects, funding has routinely been awarded to bicycle and pedestrian projects. Successful projects have included:

- Median refuges and curb extensions
- Curb, gutter, and sidewalk
- Paved shoulders
- Upgraded traffic signals with pedestrian countdown signals and pedestrian-scale lighting
- Bicycle lane striping
- Crosswalk striping
- Rectangular rapid flashing beacon (RRFB) at crossings

Many of these projects were applied for as standalone bicycle and pedestrian improvement projects; some bicycle and pedestrian improvements were included with a broader package of roadway improvement projects. The average programmed federal funding amount was $400,000.

An additional $15 million is dedicated for the Highway Rural Road Improvement Program (HR3), for which many Merced County communities are eligible. To be eligible for HR3, roadway improvements must occur on a roadway with a functional classification of:

- Rural major collector
- Rural minor collector
- Rural local road

Programmed federal funds for HR3 projects averaged $580,000 in the third funding cycle (2011), and most projects funded the widening or improvement of shoulders.

Caltrans expects the available funding apportioned to local agencies in the 2013 Federal Statewide Transportation Improvement Program (FSTIP), which is a four-year funding cycle from 2012/13 through 2015/16, to be approximately $100 million for the four-year HSIP plan. More information is available online:
http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm

Other Statewide Funding Programs

Caltrans Transportation Planning Grants are available to jurisdictions and can be used for planning or feasibility studies. The Division will award approximately $5.3 million in funding through three Grant Programs for Fiscal Year 2014-15. The maximum funding available per project is $300,000.

Limited amounts from the Local Transportation Fund (LTF), which is derived from a ¼ cent of the general sales tax collected statewide, can be used for bicycle and pedestrian facilities.

The California State Parks administers the state's Recreational Trails Program (RTP). RTP provides funds annually for recreational trails and trails-related projects. Counties are eligible applicants for the approximately $1.5 million available annually. The program requires an applicant match of 12 percent of the total project cost.

The National Park Service and California State Parks administer the Land and Water Conservation Fund (LWCP). The LWCF Program provides matching grants to states and local governments for the acquisition and development of public outdoor recreation areas and facilities. Counties are eligible applicants. Approximately $1.74 million is available annually; grants require a 50 percent local match.

Some of these programs will no longer be funded under proposed and current federal and state funding plans, and may only be short-term funding resources for the current schedule of projects. See below for proposed funding structures related to some of these programs.

Regional and Local Funding

Private/local funding for pedestrian projects comes primarily from development projects, either in the form of improvements constructed directly by developers or through development fee programs.

These funding sources should be actively pursued to help fund high-priority projects not eligible under the Active Transportation Program.

San Joaquin Valley Air Pollution Control District REMOVE II Program

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is currently accepting applications for bicycle infrastructure projects, including Class I (bicycle path construction) or Class II

(bicycle lane striping) projects that may provide air quality improvements as an alternative to motorized vehicular travel. The program provides funding to assist with the development or expansion of a comprehensive bicycle-transportation network which will provide a viable transportation option for travel to school, work and commercial sites.

TABLE 4: REGIONAL FUNDING SOURCE APPLICABILITY MATRIX

Funding Source	Class I Bicycle Path	Class II Bicycle Lane	Class III Bicycle Route	Pedestrian Projects	Other Projects	Planning and Programs
Highway Safety Improvement Program (HSIP) Grants	◒	●	◒	●	●	○
Caltrans Transportation Planning Grants	○	○	○	○	○	●
Local Transportation Fund (LTF)	●	●	●	●	●	○
California State Parks Recreational Trails Program (RTP)	●	○	○	○	○	○
Land and Water Conservation Fund (LWCP)	●	○	○	○	○	○
Active Transportation Program (ATP)	●	●	●	●	●	●
SJVAPCD REMOVE II Program	●	●	○	○	○	○
Transportation Development Act (TDA)	●	●	●	●	●	●

Notes:

1. ● indicates that funds may be used for this category; ○ indicates that funds may not be used for this category, and ◒ indicates that funds may be used, though restrictions apply.

Source: Fehr & Peers, 2013.

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7. Implementation

This section presents basic design guidelines, recommended safe routes to school, and next steps for grant funding.

Basic Design Guidelines

Table 5 contains a unit cost summary for constructing the proposed bikeway and pedestrian facilities. These cost estimates are based on costs experienced in other California and western United States communities and recent cost estimates for projects that were awarded grant funding. These cost estimates should only be used to develop generalized construction cost estimates and project prioritization. In some cases, both a low-end and high-end cost estimate are provided; low-end cost estimates usually apply where little grading or demolition is necessary. More detailed estimates should be developed through feasibility analysis, preliminary engineering, and design. Planning-level cost estimates for each project are included in **Appendix B**.

TABLE 5 GENERALIZED UNIT COSTS FOR IMPROVEMENTS

Facility/Item Type	Cost	Unit
Class I Bike Path or Trail		
Class I Bike Path (Paved)	$80	Per Linear Foot
Class II Bike Lane		
Class II Bike Lane (Add Stripe)	$23,200	Per Mile
Class II Bike Lane (Widen Roadway)	$300,000	Per Mile
Traffic Calming		
Planter	$5,080	Per Planter
Mobile Speed Feedback Sign	$12,000	Per Trailer
Speed Hump	$2,500	Per Hump
Replace Speed Limit Sign	$600	Per Sign
Gateway Sign	$1,500	Per Sign
Two to One Way Conversion	$50,000	Per Linear Mile
Pedestrian Facility		
Sidewalks, Curb, and Gutter	$90	Per Linear Foot
Sidewalks, without Curb and Gutter	$50	Per Linear Foot
ADA Curb Ramp	$3,500	Each
Curb Extension/Bulb Out	$20,000	Per Intersection
High Visibility Crosswalk	$5,000	Each

Marked Crosswalk	$770	Each
Rectangular Rapid Flashing Beacon (RRFB) (overhead mounted)	$18,000	Each
Pedestrian Hybrid Beacon (PHB)	$100,000	Each
Median	$20	Per Square Foot
Pedestrian Railroad Crossing Gate (2 gates)	$100,000	Per Track Crossing
Wide Shoulder	$60	Per Linear Foot
Signalized Intersection	$250,000	Per Signal and Post

Source: Fehr & Peers, 2014

Class I Bike Paths or Trails

Each of the proposed Class I bike path or trail facilities will require a feasibility assessment for implementation. The feasibility assessment should identify or include:

- A preferred alignment
- Bike path or trail surface type (aggregate versus pavement)
- Proposed solutions to key roadway or waterway crossings
- Preliminary engineering and cost estimates
- Statements of stakeholder interest

Following a feasibility assessment, the County can either fund project design and construction or pursue grant funding.

Class II Bike Lanes

Where Class II bike lanes are proposed, the County should require that roadways are modified to the desired standard for Class II bike lanes when various roadway projects are completed. Width for bike lanes can be acquired in two ways:

- Add width to the existing roadway
- Reduce the width of travel lanes on the existing roadway

Painting bike lanes or conflict points in green has been shown to increase motorist awareness of the presence of cyclists, increase cyclist safety and result in bicyclists positioning themselves more accurately. Green bike lanes, green conflict points, and green-back bicycle symbols have been granted interim approval in the CAMUTCD.

Further feasibility assessment should determine the proposed implementation strategy for individual Class II bike lane projects.

Directional signage can provide wayfinding at key intersections

Signage can also be used to display distances to major destinations

Class III Bike Routes

For proposed Class III bike route with sharrows, the County can first sign these roadways as a Class III bike route with signage only and add sharrows (also known as "shared-lane markings"). The County should also consider installing "SHARE THE ROAD" signage, as appropriate. Similar to the strategy outlined for Class II bike lane projects, the County should require that roadways are modified to the desired standard for a Class III bike route with sharrows when various roadway projects are completed. For key segments or gap closures, the County can either fund project design and construction or pursue grant funding.

Share the road signage communicates its message to all road users

The County can group the signage for all Class III bike routes into one project and apply for grant funding. This signage should include both the CAMUTCD D11-1 "Bike Route" signage, CAMUTCD W11-1 and W16-1 "Share the Road" signage, and guide signs for bicycle facilities.

Pedestrian Facility Design Guidance

Crosswalks

A uniform crosswalk policy that specifies different treatments for crosswalks at controlled (stop-controlled) and uncontrolled marked crosswalks is beneficial for pedestrians. While standard crosswalk striping is typically sufficient at controlled locations, high-visibility striping (such as "ladder" striping) is preferable at uncontrolled locations where motorist yielding is required, as ladder striping improves visibility for motorists. This may be accompanied with advanced yield markings, particularly on multi-lane roadways. Consistent crosswalk striping policies passively alert pedestrians and motorists to uncontrolled crosswalks.

The first step in identifying candidate marked crosswalk locations at an uncontrolled crossing (without a stop sign or signal) is to identify the places people would like to walk

A standard marked crosswalk with two parallel stripes – standard crosswalks are appropriate at stop or signal-controlled locations

Ladder crosswalks should be prioritized for use at uncontrolled locations

("pedestrian desire lines"). These places are affected by local land uses (homes, schools, parks, commercial establishments, etc.) and the location of transit stops. This information forms a basis for identifying pedestrian crossing improvement areas and prioritizing such improvements, thereby creating a convenient, connected, and continuous walking environment.

The second step is identifying the locations safest for people to cross. Of all road users, pedestrians have the highest risk because they are the least protected. National statistics indicate that pedestrians represent 14 percent of all traffic incident fatalities, yet walking accounts for only three percent of total trips. Pedestrian collisions occur most often when a pedestrian is

attempting to cross the street at an intersection or mid-block location.[4]

Several major studies of pedestrian collision rates at marked and unmarked crosswalks have been conducted. In 2002, the Federal Highway Administration (FHWA) published a comprehensive report on the relative safety of marked and unmarked crossings.[5] In 2006, another study was completed that further assists engineers and planners in selecting the right treatment for marked crosswalks based on studies of treatment effectiveness.[6] These studies represent best practice guidance on when to mark an uncontrolled crosswalk and how to enhance the crosswalk where needed (on higher volume, higher speed, wider roadways).

Several Merced County residents indicated that Planada's crossings are in need of improvement. The following are examples of preferred non-signal pedestrian safety treatments for uncontrolled locations. Further engineering studies should be completed to determine if candidate treatments are appropriate for a specific location.

Corner bulbouts extend the curb and sidewalks further into the roadway, shortening the length of the crosswalk. They act as a traffic calming device by narrowing the effective width of the roadway. Because they extend into the roadway, often past parallel-parked vehicles, they improve visibility for pedestrians. Corner bulbouts can be constructed with reduced curb radii and to accommodate ADA improvements, such as directional curb ramps.

1. *Pedestrian Crash Types, A 1990's Information Guide*, FHWA. This paper analyzed 5,076 pedestrian crashes that occurred during the early 1990s. Crashes were evenly selected from small, medium, and large communities within six states: California, Florida, Maryland, Minnesota, North Carolina, and Utah.
2. Zegeer, C.V., J.R. Stewart, H.H. Huang and RA. Lagerwey. "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines." Report No. FHWA-RD-01-075. Washington, DC, USA: Federal Highway Administration, March 2002. http://www.walkinginfo.org/pdf/r&d/crosswalk_021302.pdf.
3. Fitzpatrick, Kay, *et al*. *Improving Pedestrian Safety at Uncontrolled Crossings*. TCRP Report 112/NCHRP Report 562. 2006. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf.

Pedestrian refuge islands are placed in the center of the roadway separating opposing lanes of traffic with cutouts or ramps for accessibility along the pedestrian path. Median refuge islands are recommended where right-of-way allows and conditions warrant.

Source: Eugene Safe Routes to School

The Rectangular Rapid Flashing Beacon (RRFB) is an enhancement of the flashing beacon that replaced the traditional slow flashing incandescent lamps with rapid flashing LED lamps. The RRFB may be push-button activated or activated with passive detection.

Source: PBIC

The *pedestrian hybrid beacon*, also known as the High intensity Activated crossWalK (or HAWK), is a pedestrian-activated warning device located on the roadside or on mast arms over midblock pedestrian crossings. The beacon head consists of two red lenses above a single yellow lens. The beacon head is "dark" until activated by the pedestrian desires to cross the street, at which point the device displays a steady red indication to drivers and a "WALK" indication to pedestrians.

Sidewalks

Per the proposed sidewalk network maps, sidewalks should be required as individual parcels develop. However, most of the proposed sidewalks are located on streets that are unlikely to incur significant further development. For these segments, the County can either fund project design and construction or pursue grant funding. When pursuing grant funding, multiple sidewalk segments should be grouped into a single grant application. Grant applications should include enough sidewalk

segments to significantly improve conditions for pedestrians while maintaining a reasonable cost (a cost that has historically been awarded by the grant and for which the County can meet any matching requirements).

Wider sidewalks can accommodate more pedestrians and further buffer pedestrians from vehicles. New sidewalks should have a minimum width of five feet. In busy areas such as commercial corridors and school areas, sidewalks should be wider.

Meandering sidewalks, as opposed to straight sidewalks, should be avoided since they are inconvenient for pedestrians and are challenging for disabled users.

Curb Ramps

Providing two curb ramps per corner, each that points directly into the crosswalk, improves access for blind pedestrians. When installing new curb ramps, strive to install two ramps per corner where possible. The City of Sacramento's curb ramp design standards are a best practice.[7]

Near-Term Improvements

The above section provides an overview on best practices for accommodating pedestrians and bicyclists. Some of these capital improvements, such as the construction of sidewalk, require substantial investment in addition to time to design and construct the project. However, there are interim solutions that can be employed by the County to make pedestrian and bicycle safety improvements in the near term using available funding and standard treatments.

- Striped Medians and Curb Extensions with Temporary Planters and/or Soft-Hit Posts: The County can stripe medians and protect them with temporary raised planters or soft-hit posts to create pedestrian refuges where

[7] Americans with Disabilities Act City of Sacramento Transition plan for Curb Ramps. Department of Public Works City of Sacramento. 9 January 2001. http://www.cityofsacramento.org/generalservices/documents/TransitionPlan.pdf

feasible. This provides a low cost solution that does not rely on curb and gutter work, sidewalk construction, or similarly costly measures.

- Stripe Edgelines: On roadways with no existing sidewalk, the County could consider striping edgelines on the roadways to designate a preferred path of travel for pedestrians.

- Stripe High-Visibility Crosswalks: On major roadways with existing marked crosswalks, refresh crosswalk striping with high-visibility ladder signing. Install high-visibility pedestrian crossing signage and school crossing signage.

- Install Asphalt Curb: Where median refuges or curb extensions could be provided, the County could install raised asphalt curb to provide protections for pedestrians.

NEXT STEPS FOR GRANT FUNDING

Merced County and its implementing agencies should work with community leaders in Planada to apply for the high priority projects identified through this Plan. The most applicable funding sources for the improvements recommended by this plan are the Active Transportation Program and the Highway Safety Improvement Program. Outlined below are next steps for the acquisition of these funds.

Active Transportation Program

The Safe Routes to School package of projects should be addressed through the Active Transportation Program. This is the first year of new consolidated Active Transportation Programs, so it is important to become familiar with the new criteria and guidelines in order to create competitive, focused grant applications. The ATP mixes state and federal funds and provides approximately $130 million annually, with a focus on implementing active transportation improvements. The next ATP call for projects is in Fall 2014. It is recommended to have an implementation plan in place that identifies a larger "package" of projects that can be submitted together that will justify a request of $500,000 or more.

Highway Safety Improvement Program

The Highway Safety improvement Program (HSIP) will provide another funding source for projects that may be high- or medium-priority and not necessarily in the vicinity of the school sites. Due to the high importance placed on safety countermeasures, the most competitive projects for HSIP are locations with documented collisions in which severe injuries were sustained by one of the parties.

The minimum federal HSIP reimbursement amount for any single HSIP project is $100,000 and the maximum for the next cycle of projects, Cycle 7, is $1,500,000. This minimum dollar amount has been established to ensure the efficiency and cost-effectiveness of the overall program and individual projects. Because of Planada's rural classification, most project applications will be High Risk Rural Road (H3) eligible projects.

- Pursue HSIP funding for Childs Avenue/Santa Fe Avenue/BNSF Railroad Crossing.
- Normally an HSIP Call for Projects is made at an interval of one to two years. The timing and size of a Call for Projects is determined by the program apportionments, HSIP FTIP capacity and the delivery of the existing HSIP projects.

- Agencies seeking HSIP funds to construct infrastructure improvements are required to complete the HSIP Application Form in PDF format located on the website. The application form and its instructions guide applicants through the process of entering the required data.

Priority Project Packaging for Funding

The projects in **Table 6** and presented on **Figure 11** represent a recommended package of walking and biking improvements for which the County should pursue competitive grant funding under the Active Transportation Program. These projects were selected because they ranked as the highest priority, given the community goals and public participation results, as identified in the priority ranking process described on page 16. These high priority projects address the most immediate needs in Planada and have the highest likelihood of grant funding through the ATP. As a package, these projects create a connected bicycle and pedestrian network that provides access to key destinations in Planada, including schools, parks and commercial centers. These projects together would have the greatest impact on walking and biking in the community due to their proximity to dense worker housing as well as schools. This package of projects satisfies the goals of the Active Transportation program by increasing biking and walking trips, enhancing public health, ensuring that disadvantaged communities fully benefit, and improving the safety and mobility of pedestrians and bicyclists.

Table 7 outlines the total cost of this package of projects, including just the construction cost, and final total with additional soft costs and contingency. The Active Transportation Program encourages the aggregation of small projects into a comprehensive bundle of projects, to ensure the effectiveness of funds. The minimum request considered is $250,000.

The County should continue to pursue the grants discussed above in the future by utilizing the prioritization process in this report to package high priority projects that further connect existing bicycle and pedestrian facilities and provide access to key destinations and areas of dense housing in the community.

TABLE 6 PRIORITY PROJECT PACKAGE

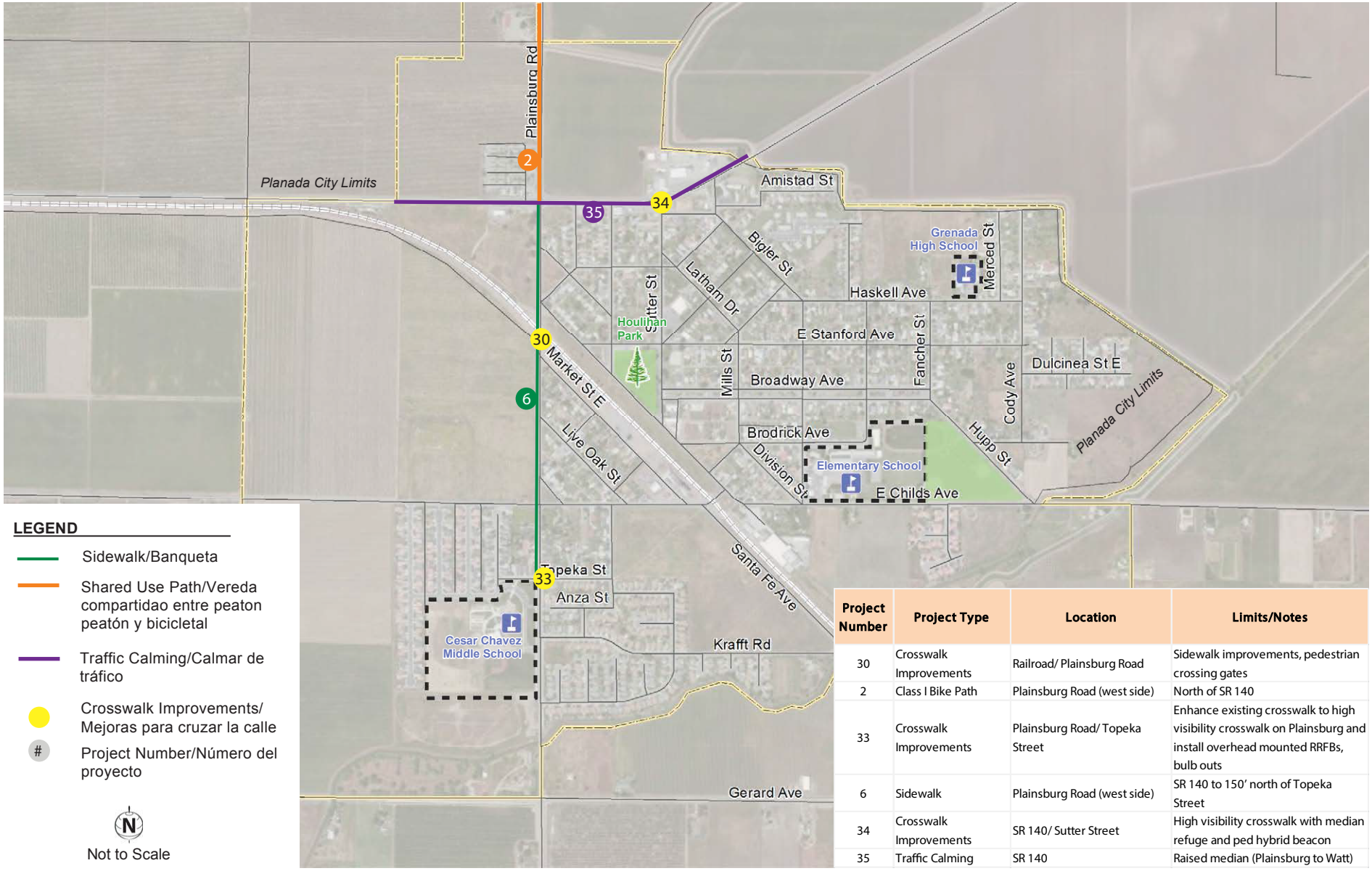
Proj #	Project Type	Location	Limits/Notes	Constr. Cost
30	Crosswalk Improvements	BNSF Railroad/ Plainsburg Road	Pedestrian crossing gates, sidewalk improvements	$194,000
2	Class I Bike Path	Plainsburg Road (west side)	North of SR 140	$209,840
33	Crosswalk Improvements	Plainsburg Road/ Topeka Street	High visibility crosswalk, RRFB, median	$43,000
6	Sidewalk	Plainsburg Road (west side)	SR 140 to 150' north of Topeka Street	$262,780
34	Crosswalk Improvements	SR 140/Sutter Street	High visibility crosswalk, median refuge, pedestrian hybrid beacon	$105,020
35	Traffic Calming	SR 140	Raised Median (Plainsburg to Watt)	$192,000

Source: Fehr & Peers, 2014

TABLE 7 TOTAL PRIORITY PROJECT PACKAGE COSTS

Additional Fees	Cost
Construction Cost	$1,006,640
Soft Costs (Traffic Control 5%, Construction Management 10%, Mobilization 5%)	$201,328
Design (10%)	$100,664
Environment (5%)	$50,332
Contingency (20%)	$201,328
Total Cost	**$1,560,292**

Source: Fehr & Peers, 2014



Project Number	Project Type	Location	Limits/Notes
30	Crosswalk Improvements	Railroad/ Plainsburg Road	Sidewalk improvements, pedestrian crossing gates
2	Class I Bike Path	Plainsburg Road (west side)	North of SR 140
33	Crosswalk Improvements	Plainsburg Road/ Topeka Street	Enhance existing crosswalk to high visibility crosswalk on Plainsburg and install overhead mounted RRFBs, bulb outs
6	Sidewalk	Plainsburg Road (west side)	SR 140 to 150' north of Topeka Street
34	Crosswalk Improvements	SR 140/ Sutter Street	High visibility crosswalk with median refuge and ped hybrid beacon
35	Traffic Calming	SR 140	Raised median (Plainsburg to Watt)

Appendix A: Project Prioritization Matrix

Project List				Criteria							Summary		
Project Number	Proposed Improvement	Location	Limits/Notes	Community Priority (4 points)	Access to Key Destinations (2 points)	Access to Schools (2 points)	Closure of a Critical Gap (2 points)	Serves Immediate Safety Needs (2 points)	Pedestrian Demand (2 points)	Feasibility (4 points)	Total (out of 14)	Ranking	Priority Ranking
38	Traffic Calming	Broadway Avenue	Traffic calming	3	2	2	2	2	2	4	17	High	2
33	Crosswalk Improvements	Plainsburg Road/Topeka Street	Mark fourth crosswalk, high visibility crosswalk on Plainsburg and install RRFBs	2	2	2	2	2	2	4	16	High	4
36	Traffic Calming	Plainsburg Road	Speed Feedback sign	3	0	2	2	2	2	4	15	High	5
31	Intersection & Crossing Improvements	Railroad/Childs Avenue/ Santa Fe Avenue	signalize intersection; install sidewalk impriovements; pedestrian crossing gates	4	1	2	2	2	2	2	15	High	1
3	Sidewalk	Childs Avenue (north side)	Plainsburg Road to Santa Fe Avenue, Freemont Street to Hupp Street	3	1	2	1	1	2	4	14	High	7
6	Sidewalk	Plainsburg Road (west side)	SR 140 to 150’ north of Topeka Street	2	0	2	2	2	2	4	14	High	8
30	Crosswalk Improvements	Railroad/ Plainsburg Road	Sidewalk improvements, pedestrian crossing gates	4	1	1	0	2	2	4	14	High	10
34	Crosswalk Improvements	SR 140/ Sutter Street	High visibility crosswalk with median refuge and ped hybrid beacon	2	2	1	2	1	2	4	14	High	11
43	Bicycle Lane	Broadway Avenue (westbound)	Fancheser Street to Sutter Street	3	2	2	2	1	0	4	14	High	12
44	Bicycle Lane	Broadway Avenue (eastbound)	Sutter Street to Fancheser Street	3	2	2	2	1	0	4	14	High	13
2	Class I bike path or wide shoulder	Plainsburg Road (west side)	North of SR 140	4	1	1	2	2	2	2	14	High	3
37	Traffic Calming	Sutter Street	Traffic calming	1	2	2	2	0	2	4	13	High	20
39	Traffic Calming	Childs Avenue	Traffic calming	2	1	2	1	0	2	4	12	High	27
1	Wide shoulder	Plainsburg Road (east side)	North of SR 140	4	1	1	2	2	0	2	12	High	6
21	Sidewalk	Sutter Street (east side)	SR 140 to Santa Fe Avenue	2	2	2	2	0	2	2	12	High	9
5	Sidewalk	Plainsburg Road (east side)	SR 140 to Topeka Street	2	0	2	1	2	0	4	11	Medium	28
9	Sidewalk	Freemont Street (east side)	Haskell Avenue to Childs Avenue	3	0	2	2	0	2	2	11	Medium	15
12	Sidewalk	Brodrick Avenue (south side)	Santa Fe Avenue to Freemont Street	2	1	2	2	0	2	2	11	Medium	16
8	Sidewalk	SR 140 (south side)	Sutter Street to Watt Street	3	1	1	1	1	2	2	11	Medium	14
24	Sidewalk	Bigler Street (south side)	SR 140 to Haskell Avenue	2	1	2	2	0	2	2	11	Medium	17
29	Crosswalk Improvements	SR 140/ Plainsburg Road	New high visibility crosswalk with median refuge and pedestrian hybrid beacon	4	1	1	0	1	2	2	11	Medium	18
49	Shared Use Path/ Trail	Childs Avenue/Santa Fe Avenue to Topeka Street/Crispi Drive	Currently desire line	2	1	2	1	1	2	2	11	Medium	21
40	Traffic Calming	Haskell Avenue	Traffic calming	1	0	2	1	0	2	4	10	Medium	39
41	Bicycle Lane	Plainsburg Road	North city limit to south city limit	0	0	2	2	2	0	4	10	Medium	40
25	Sidewalk	Cabrillo Street (east side)	Haskell Avenue to Brodrick Avenue	1	0	2	2	1	2	2	10	Medium	25
4	Sidewalk	Childs Avenue (south side)	Benicia Court to Hupp Street	3	1	2	1	1	0	2	10	Medium	22

Project List				Criteria							Summary		
Project Number	Proposed Improvement	Location	Limits/Notes	Community Priority (4 points)	Access to Key Destinations (2 points)	Access to Schools (2 points)	Closure of a Critical Gap (2 points)	Serves Immediate Safety Needs (2 points)	Pedestrian Demand (2 points)	Feasibility (4 points)	Total (out of 14)	Ranking	Priority Ranking
22	Sidewalk	Sutter Street (west side)	SR 140 to Santa Fe Avenue	2	2	2	2	0	0	2	10	Medium	24
35	Traffic Calming	SR 140	Lower speed limit through community	4	1	1	0	0	2	2	10	Medium	26
42	Bicycle Lane	SR 140	West city limit to east city limit	2	1	1	0	1	0	4	9	Medium	45
11	Sidewalk	Brodrick Avenue (north side)	Santa Fe Avenue to Cabrillo Street	2	1	2	2	0	0	2	9	Medium	31
7	Sidewalk	SR 140 (north side)	Plainsburg Road to Watt Street	3	1	1	1	1	0	2	9	Medium	29
10	Sidewalk	Freemont Street (west side)	Haskell Avenue to Brodrick Avenue	3	0	2	2	0	0	2	9	Medium	30
13	Sidewalk	Division Street (north side)	Brodrick Ave to Childs Avenue	1	0	2	2	0	2	2	9	Medium	32
23	Sidewalk	Bigler Street (north side)	SR 140 to Haskell Avenue	2	1	2	2	0	0	2	9	Medium	33
27	Sidewalk	De La Guerra Street (east side)	Bigler Street to Sutter Street	0	1	2	2	0	2	2	9	Medium	34
48	Bicycle Lane	Santa Fe	Childs Avenue to south city limit	4	0	2	0	1	0	2	9	Medium	35
32	Crosswalk Improvements	five-way intersection at Sutter Street/Stanford Avenue/De La Guerra Street	Curb extensions to narrow intersection and reduce crossing distances, ADA curb ramps, high visibility crosswalk striping across Sutter	2	2	1	2	0	2	0	9	Medium	19
45	Bicycle Lane	Freemont Street	Childs Avenue to Broadway Avenue	0	0	2	2	0	0	4	8	Low	48
17	Sidewalk	Haskell Avenue (north side)	Vallejo Avenue to 200’ east of Fancher Street, Merced Street to Cody Avenue	1	0	2	1	0	2	2	8	Low	37
26	Sidewalk	Cabrillo Street (west side)	Haskell Avenue to Brodrick Avenue	1	0	2	2	1	0	2	8	Low	38
15	Sidewalk	Santa Fe Avenue (north side)	Kraft Road to Plainsburg Road	2	1	2	0	1	2	0	8	Low	23
14	Sidewalk	Division Street (south side)	Brodrick Ave to 200’ north of Childs Avenue	1	0	2	2	0	0	2	7	Low	42
20	Sidewalk	Hupp Street (south side)	Childs Avenue to Fancher Street	0	1	2	0	0	2	2	7	Low	43
28	Sidewalk	De La Guerra Street (west side)	Bigler Street to Sutter Street	0	1	2	2	0	0	2	7	Low	44
18	Sidewalk	Haskell Avenue (south side)	Vallejo Avenue to 200’ east of Fancher Street, Merced Street to Cody Avenue	1	0	2	1	0	0	2	6	Low	47
16	Sidewalk	Santa Fe Avenue (south side)	Kraft Road to Plainsburg Road	2	1	2	0	1	0	0	6	Low	36
50	Shared Use Path/ Trail	Planada canal		1	1	2	0	0	2	0	6	Low	41
19	Sidewalk	Hupp Street (north side)	Childs Avenue to Fancher Street	0	1	2	0	0	0	2	5	Low	49
46	Bicycle Lane	Childs Avenue	Plainsburg Road to Hupp Street	0	1	2	1	1	0	0	5	Low	46
47	Bicycle Lane	Hupp Street	Fancheser Street to Childs Avenue	0	0	2	0	0	0	2	4	Low	50

Appendix B: Planning Level Cost Estimates

Project Number	Project Type	Location	Quantity	Construction Cost	Soft Costs (Traffic Control 5%, Construction Management 10%, Mobilization 5%)	Design (10%)	Environmental (5%)	Contingency (20%)	Total
Sidewalk									
3a	Sidewalk	Childs Avenue (north side) (east of RR tracks)	2066 feet	$ 182,500	$ 36,500	$ 18,250	$ 9,125	$ 7,300	$ 253,675
3b	Sidewalk	Childs Avenue (north side) (west of RR tracks)	1510 feet	$ 91,500	$ 18,300	$ 9,150	$ 4,575	$ 3,660	$ 127,185
4	Sidewalk	Childs Avenue (south side)	2603 feet	$ 213,430	$ 42,686	$ 21,343	$ 10,672	$ 8,537	$ 296,668
5	Sidewalk	Plainsburg Road (east side)	3360 feet	$ 189,600	$ 37,920	$ 18,960	$ 9,480	$ 7,584	$ 263,544
6	Sidewalk	Plainsburg Road (west side)	3210 feet	$ 262,780	$ 52,556	$ 26,278	$ 13,139	$ 10,511	$ 365,264
7	Sidewalk	SR 140 (north side)	1608 feet	$ 80,400	$ 16,080	$ 8,040	$ 4,020	$ 3,216	$ 111,756
8	Sidewalk	SR 140 (south side)	510 feet	$ 40,340	$ 8,068	$ 4,034	$ 2,017	$ 1,614	$ 56,073
9	Sidewalk	Freemont Street (east side)	1812 feet	$ 90,600	$ 18,120	$ 9,060	$ 4,530	$ 3,624	$ 125,934
10	Sidewalk	Freemont Street (west side)	1263 feet	$ 63,150	$ 12,630	$ 6,315	$ 3,158	$ 2,526	$ 87,779
11	Sidewalk	Brodrick Avenue (north side)	1640 feet	$ 102,000	$ 20,400	$ 10,200	$ 5,100	$ 4,080	$ 141,780
12	Sidewalk	Brodrick Avenue (south side)	1089 feet	$ 71,250	$ 14,250	$ 7,125	$ 3,563	$ 2,850	$ 99,038
13	Sidewalk	Division Street (north side)	783 feet	$ 39,150	$ 7,830	$ 3,915	$ 1,958	$ 1,566	$ 54,419
14	Sidewalk	Division Street (south side)	583 feet	$ 29,150	$ 5,830	$ 2,915	$ 1,458	$ 1,166	$ 40,519
15	Sidewalk	Santa Fe Avenue (north side)	4305 feet	$ 348,250	$ 69,650	$ 34,825	$ 17,413	$ 13,930	$ 484,068
16	Sidewalk	Santa Fe Avenue (south side)	4305 feet	$ 387,450	$ 77,490	$ 38,745	$ 19,373	$ 15,498	$ 538,556
17	Sidewalk	Haskell Avenue (north side)	1826 feet	$ 91,300	$ 18,260	$ 9,130	$ 4,565	$ 3,652	$ 126,907
18	Sidewalk	Haskell Avenue (south side)	1826 feet	$ 91,300	$ 18,260	$ 9,130	$ 4,565	$ 3,652	$ 126,907
19	Sidewalk	Hupp Street (north side)	1321 feet	$ 82,050	$ 16,410	$ 8,205	$ 4,103	$ 3,282	$ 114,050
20	Sidewalk	Hupp Street (south side)	1321 feet	$ 109,170	$ 21,834	$ 10,917	$ 5,459	$ 4,367	$ 151,746
21	Sidewalk	Sutter Street (east side)	2011 feet	$ 100,550	$ 20,110	$ 10,055	$ 5,028	$ 4,022	$ 139,765
22	Sidewalk	Sutter Street (west side)	2011 feet	$ 100,550	$ 20,110	$ 10,055	$ 5,028	$ 4,022	$ 139,765
23	Sidewalk	Bigler Street (north side)	1404 feet	$ 70,200	$ 14,040	$ 7,020	$ 3,510	$ 2,808	$ 97,578
24	Sidewalk	Bigler Street (south side)	1404 feet	$ 70,200	$ 14,040	$ 7,020	$ 3,510	$ 2,808	$ 97,578
25	Sidewalk	Cabrillo Street (east side)	1243 feet	$ 62,150	$ 12,430	$ 6,215	$ 3,108	$ 2,486	$ 86,389
26	Sidewalk	Cabrillo Street (west side)	1243 feet	$ 68,550	$ 13,710	$ 6,855	$ 3,428	$ 2,742	$ 95,285
27	Sidewalk	De La Guerra Street (east side)	1162 feet	$ 58,100	$ 11,620	$ 5,810	$ 2,905	$ 2,324	$ 80,759
28	Sidewalk	De La Guerra Street (west side)	1162 feet	$ 58,100	$ 11,620	$ 5,810	$ 2,905	$ 2,324	$ 80,759

Project Number	Project Type	Location	Quantity	Construction Cost	Soft Costs (Traffic Control 5%, Construction Management 10%, Mobilization 5%)	Design (10%)	Environmental (5%)	Contingency (20%)	Total
Wide Shoulder									
1	Wide shoulder	Plainsburg Road (east side)	2623 feet	$ 3,600	$ 720	$ 360	$ 180	$ 144	$ 5,004
Crosswalk Improvements									
29	Crosswalk Improvements	SR 140/ Plainsburg Road	1 high visibility crosswalk; 1 Ped Hybrid	$ 107,400	$ 21,480	$ 10,740	$ 5,370	$ 4,296	$ 149,286
30	Crosswalk Improvements	Railroad/ Plainsburg Road	2 pedestrian crossing gates; 850 feet	$ 194,000	$ 38,800	$ 19,400	$ 9,700	$ 7,760	$ 269,660
31	Intersection & Crossing Improvements	Railroad/Childs Avenue/ Santa Fe Avenue	2 pedestrian crossing gates; 1 signalized intersection;	$ 1,153,500	$ 230,700	$ 115,350	$ 57,675	$ 46,140	$ 1,603,365
32	Crosswalk Improvements	five-way intersection at Sutter Street/Stanford Avenue/De La Guerra Street	4 curb extensions; 4 ADA curb	$ 99,000	$ 19,800	$ 9,900	$ 4,950	$ 3,960	$ 137,610
33	Crosswalk Improvements	Plainsburg Road/Topeka Street	1 high visibility crosswalk (Plainsburg);	$ 43,000	$ 8,600	$ 4,300	$ 2,150	$ 1,720	$ 59,770
34	Crosswalk Improvements	SR 140/ Sutter Street	1 high visibility crosswalk; 1 median refuge;	$ 105,020	$ 21,004	$ 10,502	$ 5,251	$ 4,201	$ 145,978
Traffic Calming									
35	Traffic Calming	SR 140	2 speed feedback signs; replace 2 speed	$ 19,600	$ 3,920	$ 1,960	$ 980	$ 784	$ 27,244
36	Traffic Calming	Plainsburg Road	20 planters; 2 speed feedback	$ 117,600	$ 23,520	$ 11,760	$ 5,880	$ 4,704	$ 163,464
37	Traffic Calming	Sutter Street	4 speed humps	$ 10,000	$ 2,000	$ 1,000	$ 500	$ 400	$ 13,900
38	Traffic Calming	Broadway Avenue	8 speed humps, 2 two to one	$ 65,000	$ 13,000	$ 6,500	$ 3,250	$ 2,600	$ 90,350

Project Number	Project Type	Location	Quantity	Construction Cost	Soft Costs (Traffic Control 5%, Construction Management 10%, Mobilization 5%)	Design (10%)	Environmental (5%)	Contingency (20%)	Total
39	Traffic Calming	Childs Avenue	2 speed	$ 16,000	$ 3,200	$ 1,600	$ 800	$ 640	$ 22,240
40	Traffic Calming	Haskell Avenue	4 speed humps	$ 10,000	$ 2,000	$ 1,000	$ 500	$ 400	$ 13,900
Bicycle Lane									
41	Bicycle Lane	Plainsburg Road	1.268 miles	$ 29,422	$ 5,884	$ 2,942	$ 1,471	$ 1,177	$ 40,896
42	Bicycle Lane	SR 140	0.875 miles	$ 262,443	$ 52,489	$ 26,244	$ 13,122	$ 10,498	$ 364,796
43	Bicycle Lane	Broadway Avenue	0.452 miles	$ 10,475	$ 2,095	$ 1,048	$ 524	$ 419	$ 14,560
44	Bicycle Lane	Broadway Avenue (eastbound)	0.452 miles	$ 10,475	$ 2,095	$ 1,048	$ 524	$ 419	$ 14,560
45	Bicycle Lane	Freemont Street	0.148 miles	$ 3,445	$ 689	$ 344	$ 172	$ 138	$ 4,788
46	Bicycle Lane	Childs Avenue	0.823 miles	$ 116,136	$ 23,227	$ 11,614	$ 5,807	$ 4,645	$ 161,429
47	Bicycle Lane	Hupp Street	0.253 miles	$ 52,624	$ 10,525	$ 5,262	$ 2,631	$ 2,105	$ 73,147
48	Bicycle Lane	Santa Fe	0.334 miles	$ 76,856	$ 15,371	$ 7,686	$ 3,843	$ 3,074	$ 106,830
Shared-Use Path									
49	Shared Use Path/ Trail	Avenue to Topeka Street/Crispi Drive	0.188 miles	$ 79,280	$ 15,856	$ 7,928	$ 3,964	$ 3,171	$ 110,199
50	Shared Use Path/ Trail	Planada canal	2.895 miles	$ 1,222,640	$ 244,528	$ 122,264	$ 61,132	$ 48,906	$ 1,699,470
2	Class I Bike	Plainsburg Road (west side)	2623 feet	$ 209,840	$ 41,968	$ 20,984	$ 10,492	$ 8,394	$ 291,678