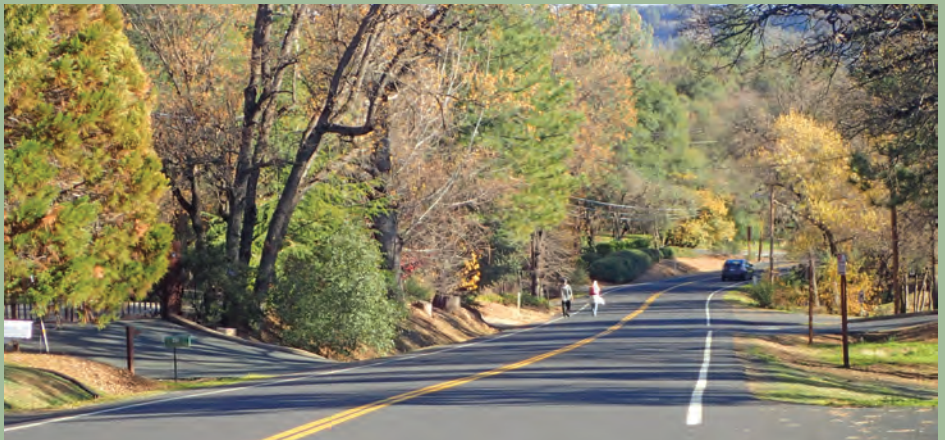




MURPHYS SR 4

COMPLETE STREETS PLAN





MURPHYS SR 4 COMPLETE STREETS PLAN

Final Plan | September 2019

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MURPHYS SR 4 COMPLETE STREETS

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CHAPTER 1: INTRODUCTION

PLAN OVERVIEW

The Murphys State Route 4 (SR 4) Complete Streets Plan evaluates the SR 4 corridor through Murphys, California, and identifies improvements to provide safe connectivity by all modes, including walking and biking, throughout the community and to key destinations. This Complete Streets Plan proposes future transportation strategies to improve multimodal corridor safety, access, aesthetics, and mobility. This Plan will also facilitate future grants to construct identified improvements.

PROJECT TEAM

The Murphys SR 4 Complete Streets Project was a collaborative effort between Caltrans, the Calaveras Council of Governments (CCOG), and Calaveras County. A portion (88 percent) of the funding was from a Caltrans-administered federal transportation planning grant; the remainder was locally matched from the Calaveras Council of Governments. The consultant team was led by PlaceWorks with transportation planning services by Fehr & Peers Transportation Consultants and engineering, cost



Riding to school on Big Trees Road, circa 1900
Credit: Marvin, Judith, 2005, *Images of America: Around Murphys, Charleston, South Carolina*: Arcadia Publishing



Crossing SR 4 at Pennsylvania Gulch Road to walk to school today

estimating, and visual simulation services by ActiveWayz Engineering.

STUDY AREA

Calaveras County is a largely rural county in the Sierra foothills of California, extending into the Stanislaus National Forest to the east and the Central Valley to the west. Murphys is an unincorporated community located in the foothills portion of Calaveras County at approximately 2,200 feet in elevation. The US Census has mapped Murphys as a Census-Designated Place (CDP)¹ and estimated its 2016 population to be 2,088 people.²

The study area for the Murphys SR 4 Complete Streets Project incorporates much of the main commercial uses on SR 4, the eastern portions of Main Street and Jones Street, Big Trees Road, and the western portion of Pennsylvania Gulch Road. Albert Michelson Elementary School and Feeney Park are located near the intersection of SR 4 and Pennsylvania Gulch Road and have been included in this study. The regional context for the project is displayed in Figure 1-1 and the study area boundary is shown in Figure 1-2.

Figure 1-3 shows the existing land uses in the vicinity of the project boundary, as mapped by the Calaveras County Assessor's Office. County Assessor records may not be up to date for all properties, but they are the best data available to map existing land uses. As shown in the figure, there is some capacity for new development on vacant parcels along and near SR 4. There are no current pending development applications within the boundary, although there is an approved 42-unit subdivision south of Murphys Creek Road near the project boundary.

TRANSPORTATION FACILITIES

Pedestrian and bicycle facilities in the project boundary are limited, including only a few marked crosswalks for pedestrians and no existing bicycle facilities. The following major roadways are located within the project boundary:



SR 4 east of Mitchler Street looking east

- **California State Route 4:** SR 4 is a Caltrans facility that runs from Hercules in Contra Costa County to Markleeville in Alpine County. Operating as a major roadway within Murphys, SR 4 provides access to Main Street, Big Trees Road, Pennsylvania Gulch Road, and smaller residential streets. Some commercial uses exist along SR 4, particularly along the sections of the roadway closest to Main Street. Within Murphys, SR 4 contains one lane in each direction with a posted speed limit of 35 miles per hour (mph). In areas close to the school, speed limits drop to 25 mph when children are present. Immediately outside the study area, the posted speed limit increases to 45 mph. There are currently no bicycle facilities on SR 4, and pedestrian facilities are limited to a crosswalk close to Michelson Elementary School and on the south leg of the intersection with Big Trees Road/Tom Bell Road.

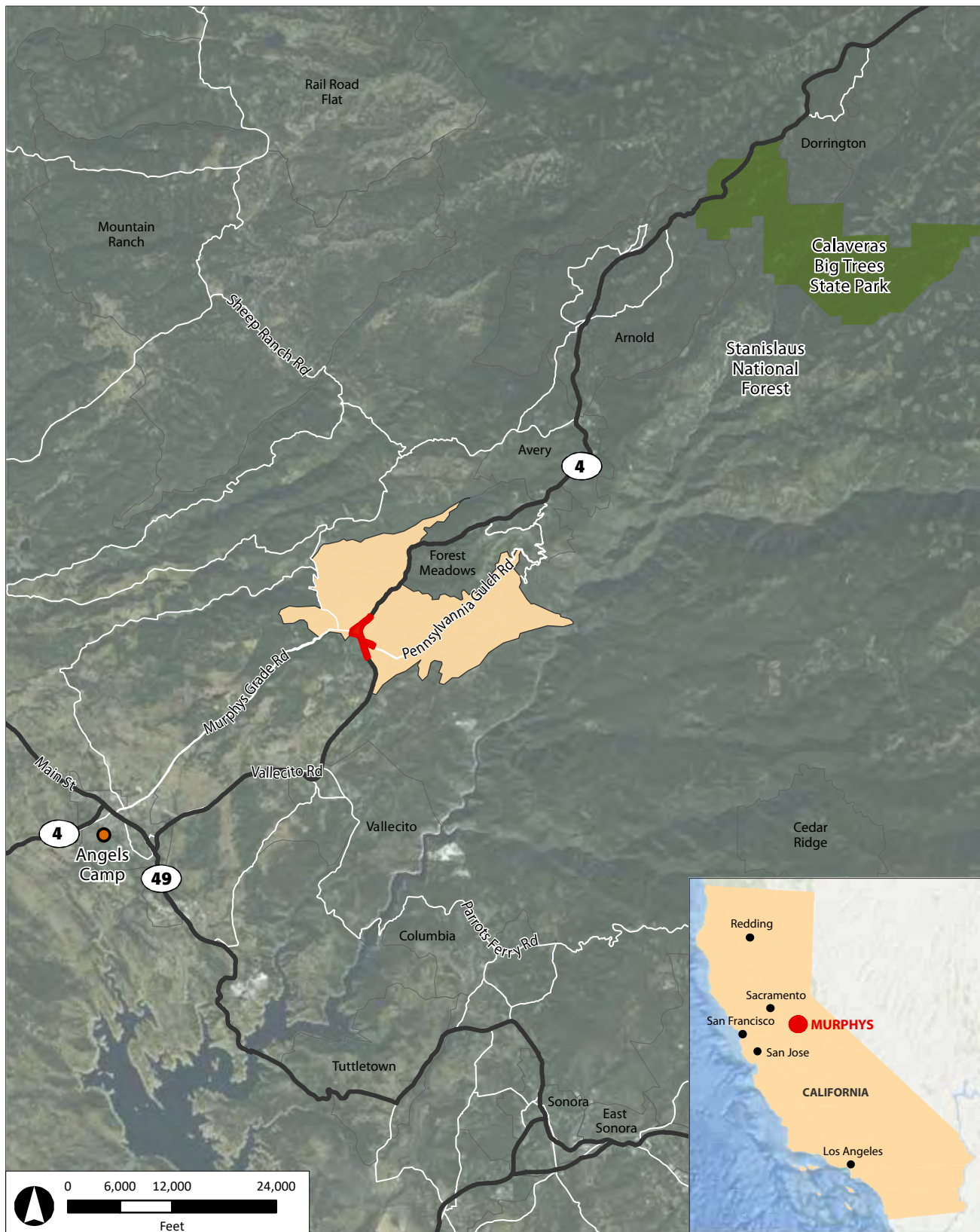
Peak month average daily traffic (ADT) for SR 4 at the intersection of Big Trees Road/Tom Bell Road is 8,200 vehicles according to the 2016 Caltrans Traffic Volumes. Additionally, weekday traffic counts collected on August 15, 2017 at Douglas Flat, 1.3 miles west of the project boundary, indicated that AM peak hour (8:00 a.m. to 10:00 a.m.) two-way traffic volume is approximately 660 vehicles and PM peak hour (4:00 p.m. to 6:00 p.m.) two-way traffic volume is approximately 830 vehicles.

¹ United States Census, Geography. Geographic Terms and Concepts – Place, https://www.census.gov/geo/reference/gtc/gtc_place.html, accessed March 7, 2018.

² 2012-2016 American Community Survey 5-Year Estimates.

MURPHYS SR 4 COMPLETE STREETS PLAN

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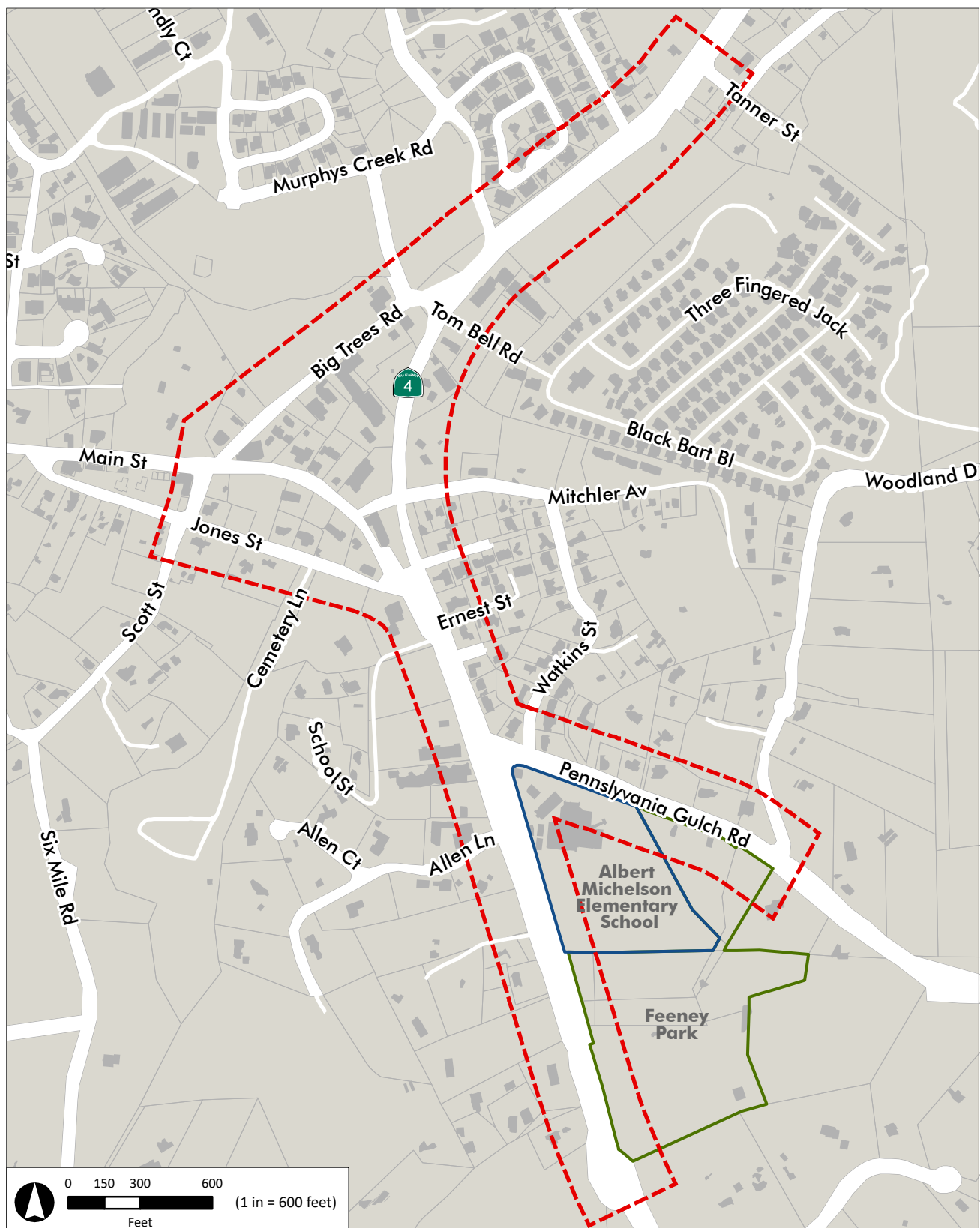
Source: ESRI, 2017; PlaceWorks, 2018.

-  Murphys Census Designated Place (CDP) Boundary
-  SR 4 Complete Streets Plan Boundary

Figure 1-1
Regional Location

MURPHYS SR 4 COMPLETE STREETS PLAN

Chapter 1 | Introduction



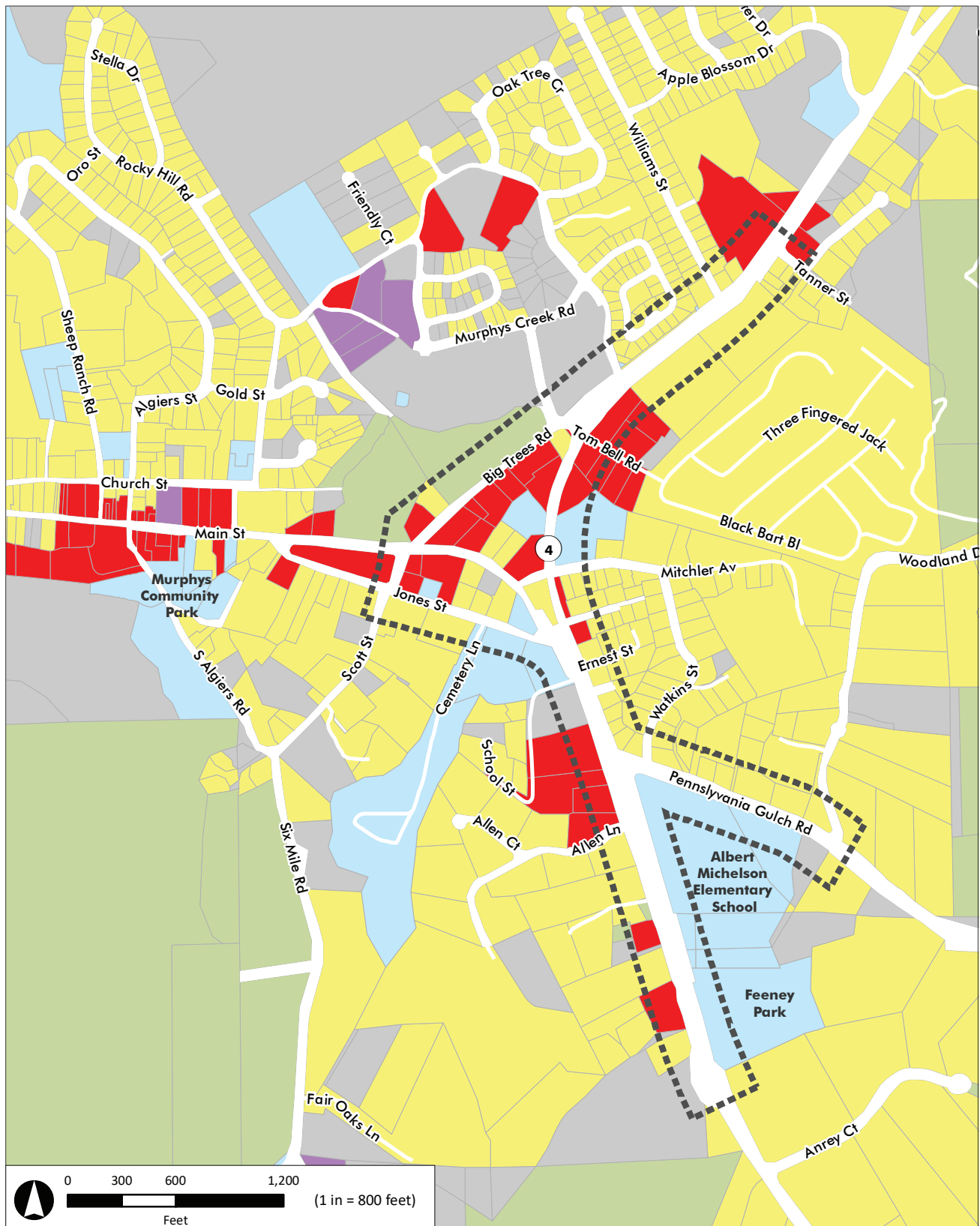
Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

-  SR 4 Complete Streets Corridor
-  Buildings

Figure 1-2
Project Boundary

MURPHYS SR 4 COMPLETE STREETS PLAN

Chapter 1 | Introduction



Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

Figure 1-3
Existing Land Use

- **Pennsylvania Gulch Road:** The Pennsylvania Gulch Road encroachment onto SR 4 provides a local connection to residential communities, Albert Michelson Elementary School, and Feeney Park, making the intersection particularly important for the Complete Streets Plan. The school entrance, its parking lot, and the park's parking lot are located on Pennsylvania Gulch Road. Most of Pennsylvania Gulch Road has a posted speed limit of 35 mph, with a notable exception of the 25-mph school zone surrounding Michelson Elementary School. Pennsylvania Gulch Road at Highway 4 currently serves 348 trips during the peak AM hours and 175 trips during the peak PM hours. School drop off corresponds to the AM peak period, but a majority of school pickup occurs earlier in the afternoon than the PM peak period.
- **Main Street:** Main Street operates as the main commercial corridor for Murphys, featuring restaurants, hotels, wineries, and other businesses. Main Street runs from Murphys Grade Road and French Gulch Road in the west to SR 4 in the east. For all of its length, Main Street contains one lane in each direction and a posted speed limit of 25 mph. Within the main commercial district of Murphys, Main Street includes on-street, unmetered parking on both sides. There are currently no bicycle facilities on Main Street, and pedestrian facilities are limited to some sidewalks in the commercial core and marked crosswalks on all four legs of the intersection with Algiers Street and the north leg of the intersection with Big Trees Road. Main Street at Highway 4 currently serves 214 trips during the peak AM hours and 219 trips during the peak PM hours.
- **Big Trees Road:** Big Trees Road is a local street that connects SR 4 and Main Street. Some limited commercial and residential uses exist along Big Trees Road. For all of its length, Big Trees Road contains one lane in each direction and a posted speed limit of 25 mph. The intersection with SR 4 is a signalized intersection with a marked crosswalk on the northwest leg, and the intersection with Main Street is unsignalized with a marked crosswalk on the north leg. There are currently no bicycle facilities on Big Trees Road and a sidewalk on only a portion of the south side of the road.

TRANSIT SERVICE

Calaveras Transit, the only public transit service in the county, provides bus service to the project area on its “Blue Line,” which runs from the SR 4/SR 49 intersection in Angels Camp easterly through Murphys to its terminus at the Arnold Library. From Angels Camp, the Blue Line connects to other Calaveras Transit routes that provide service to regional destinations, including retail centers in Jackson and Valley Springs, the San Andreas government center, and Columbia College. Figure 1-4 shows the full transit service map throughout Calaveras County.

There are two bus stops in the project boundary: one at the western corner of the SR 4/Pennsylvania Gulch Road intersection, in front of the Murphys Suites Hotel (westerly buses), and the other on the south side of Tom Bell Road, across from the El Dorado Savings Bank and adjacent shopping center (easterly buses). Weekday service includes six trips per day. Easterly buses arrive around 5:56 a.m., 8:56 a.m., 11:56 a.m., 2:56 p.m., 5:56 p.m., and 7:16 p.m. Westerly buses arrive around 6:41 a.m., 9:41 a.m., 12:41 p.m., 3:41 p.m., 6:41 p.m., and 8:01 p.m. On Saturdays between February and November, the Saturday Hopper provides hourly service between Angels Camp and Arnold, with stops in downtown Murphys and Ironstone. There is no Sunday service.

PROJECT NEED

SR 4 through Murphys is a challenging corridor to navigate for pedestrians and bicyclists. As demonstrated in this Plan, there is a need for improvements due to a high percentage of seniors, a lower than county average median income, and the presence of the Albert Michelson Elementary School across the highway from downtown Murphys and nearby residential developments.

PROJECT GOALS

The goals of the Complete Streets Plan are listed below:

- Create safe pedestrian and bicycle connections to Michelson Elementary School and along the SR 4 corridor.



Figure 1-4 Calaveras Transit System

- Provide safe environments for all modes along the SR 4 corridor.
- Create a better sense of cohesiveness and connectivity between SR 4 and Main Street Murphys.
- Engage community members to create and prioritize improvements.
- Establish clear gateways at each entrance to town.
- Beautify the SR 4 corridor.
- Slow traffic through Murphys, alerting vehicles to pedestrian activity.

PROJECT APPROACH

This Complete Streets Plan was driven by input from the Murphys community through an extensive outreach and engagement approach, as described in Chapter 3. Community direction, combined with guidance from Caltrans, CCOG, and Calaveras County, resulted in the conceptual design for the corridor described in this Plan, including the individual project components that implement the community's vision.

Planning began by exploring the current site conditions through a site inventory, data gathering, and stakeholder input to develop the *Summary of Existing Conditions* report. Following the existing conditions evaluation, a series of community meetings were held to develop ideas and alternatives for the corridor, select a preferred alternative, and prioritize among the projects that make up that preferred alternative. The concepts shown in this Complete Streets Plan have been refined with additional direction from the Advisory Committee (described in Chapter 3) and the Project Team.

HOW TO USE THIS PLAN

This Plan includes the following chapters:

- **Chapter 1: Introduction.** An overview of the project study area, approach, goals, and funding.
- **Chapter 2: Existing Conditions, Opportunities and Constraints Summary.** A summary of the existing conditions in the project area, including demographics, urban design characteristics, traffic and safety analysis, and analysis of future traffic conditions.
- **Chapter 3: Summary of Community Engagement.** A summary of outreach methods, including the Advisory Committee, community workshops, other events and meetings, and the project website. A summary of community concerns is also included.



Main Street Murphys

- **Chapter 4: Complete Streets Recommended Improvements.** A detailed description of the final preferred alternative from the planning process, detailed plans with images, visual simulations, and street cross sections illustrating the recommended improvements along the SR 4 corridor.
- **Chapter 5: Complete Streets Toolkit.** Descriptions of the types of improvements recommended in the Plan.
- **Chapter 6: Implementation and Financing.** Information about implementation, cost estimates, and funding mechanisms for projects included in the Plan.
- **Appendices:** Warrant analyses and detailed cost estimates.



Main Street Murphys during Gold Rush Street Faire and Grape Stomp Event



CHAPTER 2: EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

HISTORICAL CONTEXT

Murphys was first inhabited by the Miwok tribe; artifacts and other archaeological resources can be found along Angels and Coyote Creeks, and there are caves, midden mounds, and burial sites located throughout the area. The town of Murphys was founded by two brothers—John and Daniel Murphy—in 1848-49, when they opened a trading post in a tent. During and following the California Gold Rush, Murphys was a bustling boom town. Major fires in 1859 and 1874 destroyed many original frame buildings. A few of the original stone buildings remain, including the Murphys Historic Hotel on Main Street Murphys, which opened in 1856 and continues to serve as an important asset to the community today, and the Compere and Peter Traver buildings. The Murphys Schoolhouse, which was built in 1860 and not involved in any of the fires, is still standing. Modern-day Main Street Murphys hosts several wineries and other attractions for tourists.



Main Street Murphys in 1853

Credit: The Oakland Museum of California; from: Marvin, Judith, 2005, Images of America: Around Murphys, Charleston, South Carolina: Arcadia Publishing

DEMOGRAPHICS

The following analysis of demographic trends suggests that there is a need for complete streets improvements in Murphys, and that these improvements will be well-utilized once constructed. While Murphys has a higher mean household income than Calaveras County, Murphys has a substantially higher percentage of households with lower incomes than the county or state. It is found to have a much higher proportion of people aged 65 and older and a higher percentage of people who walk to work.

The US Census has mapped Murphys as a Census-Designated Place (CDP) and estimated its 2016 population to be 2,088 people. There are about 1,300 housing units, 80 percent of which are occupied. Of the occupied units, 76 percent are owner-occupied and 24 percent are rental units. As of the 2010 Census, the average household size was 2.1 people. The median household income is about \$43,700, and almost 10 percent of the population is below the poverty level.¹

Table 2-1 shows the historic population trends in Murphys, as well as expected population trends for the future based on anticipated countywide population growth. As shown in the table, Census data indicates that the Murphys CDP population peaked around 2010 and has declined over the past six years to almost return to the 2000 population. Population projections from the California Department of Finance for the county as a whole indicate that the

population is expected to grow again, with an overall increase of 7 percent between 2020 and 2040.

Figures 2-1 and 2-2 compare age demographics in the Murphys CDP to those in the county and state. As of the 2016 American Community Survey published by the US Census, Murphys CDP residents, as a group, were older than in the rest of the county and state; the median age in the Murphys CDP was 60.7 years old, compared to 51.2 in the county and 36 in the state. In reviewing the distribution of various age groups, Murphys also has a higher proportion of younger and older senior residents than the county and state, especially in the 65 and older age group, and a smaller proportion of kids, young adults, and middle-age adults, especially in the 20 to 34 age group.² Therefore, while the Complete Streets Plan will need to address kids’ safety walking and biking around the school, it will also need to consider senior accessibility and needs, especially around the Murphys Diggins, a 55+ community in the study area, along with the Senior Center and other key services like the grocery store and post office.

TABLE 2-1 POPULATION TRENDS

Scenario				Percent Change
<i>Historic Population Trend</i>	<i>2000</i>	<i>2010</i>	<i>2016</i>	<i>2000-2016</i>
Murphys CDP Population	2,061 ^a	2,213 ^b	2,088 ^c	1%
<i>Future Population Projection</i>	<i>2020</i>	<i>2030</i>	<i>2040</i>	<i>2020-2040</i>
Murphys CDP Population Projection ^d	2,113	2,205	2,258	7%

a. 2000 Census.

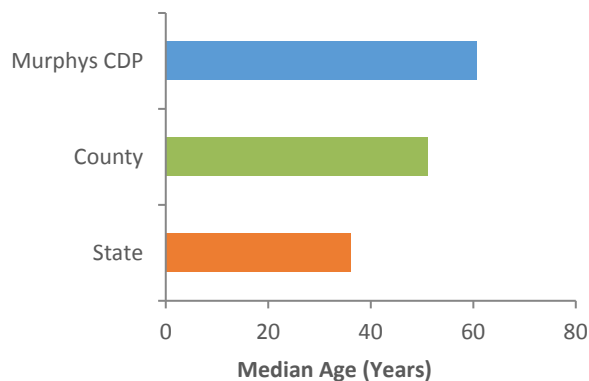
b. 2010 Census.

c. 2012-2016 American Community Survey 5-Year Estimates.

d. County population projections from California Department of Finance Demographic Research Unit, January 2018, Table P-1. Applied factor assuming that 4.7 percent of county population will reside in Murphys CDP, based on comparison of 2016 population estimates from 2012-2016 American Community Survey.

¹ Unless otherwise noted, data is from the 2012-2016 American Community Survey 5-Year Estimates.

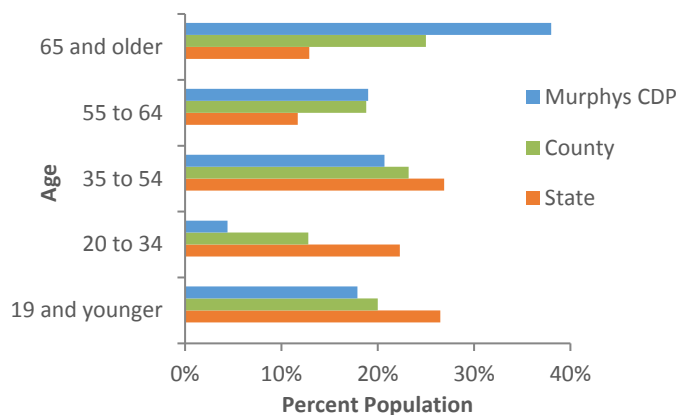
² 2012-2016 American Community Survey 5-Year Estimates.



Source: 2012-2016 American Community Survey 5-Year Estimates.

Figure 2-1 Median Age

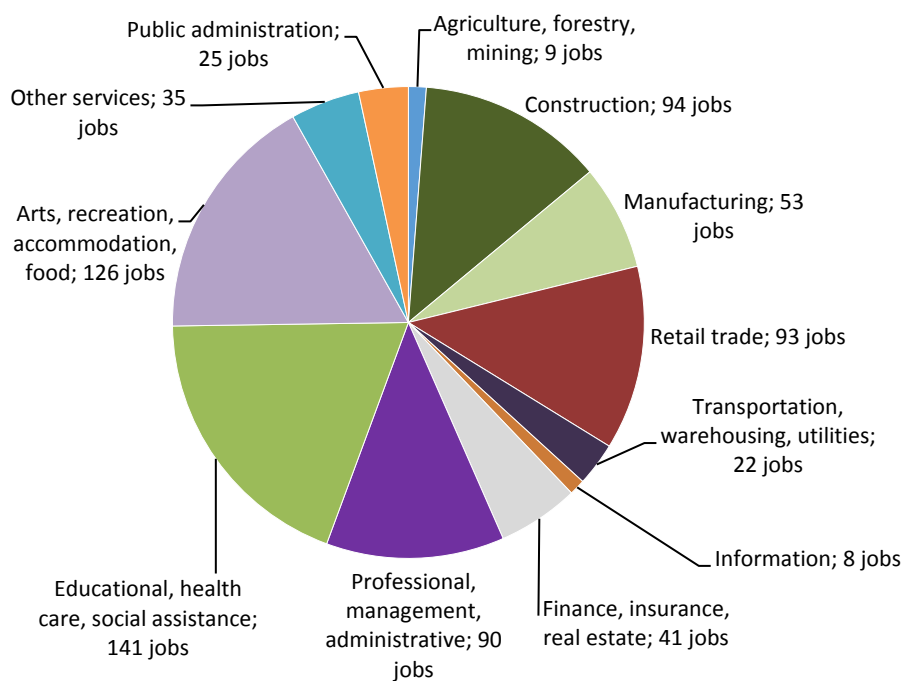
As of 2016, there were 737 Murphys CDP residents age 16 and older who were employed (about 35 percent of the total population). As shown in Figure 2-3, about a third of the employed population in Murphys works in the



Source: 2012-2016 American Community Survey 5-Year Estimates.

Figure 2-2 Age Distribution

educational, health care, social services, arts, entertainment, recreation, accommodation, and food services industries.³



Source: 2012-2016 American Community Survey 5-Year Estimates.

Figure 2-3 2016 Employment by Industry

³ 2012-2016 American Community Survey 5-Year Estimates.

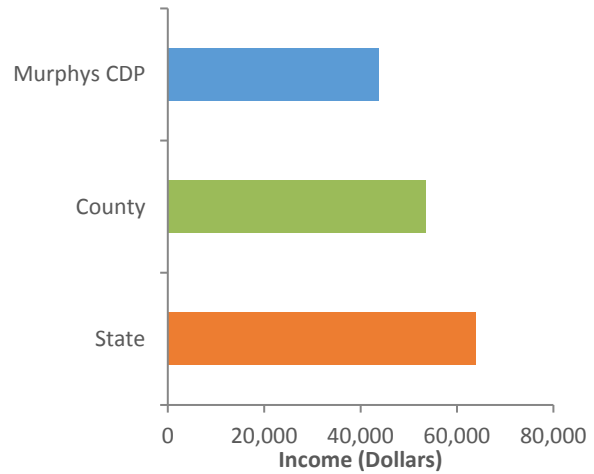
Figure 2-4 compares the median household income (median means the middle value if you sort all the household incomes in order) in the Murphys CDP to that of the county and state. The median income in Murphys is about \$43,700, compared to about \$53,500 in the county and \$63,800 in the state.⁴ Given that property values in Murphys are generally higher than in the rest of the county, the income data is somewhat surprising.

To explore this further, Census data for mean household incomes was also consulted; mean household income reports the average of all of the household incomes in the area (i.e., add up all the household incomes and divide by the number of households). The mean household income in Murphys is about \$87,800, which is higher than in the overall county (\$75,400), while still lower than throughout the state (\$91,100).⁵

Median household income is the most widely used and accepted measure of income, but it doesn't take into account incomes at the extreme ends of the distribution. Meanwhile, mean household income can be distorted by a small number of extreme values, especially at the high end, resulting in the higher incomes values in this category. These data points suggest that while there are households in Murphys enjoying higher incomes that bring the mean household income value above that of the county, there are a significant number of Murphys households with incomes below the average in the community, meaning that there is a significant portion of the population with limited incomes.

This is supported by an additional evaluation of the distribution of income ranges by household in greater detail, which shows that Murphys has a much higher percentage of households with incomes lower than \$35,000 (43 percent) than Calaveras County (34 percent) and the state overall (23 percent).⁶ Furthermore, almost 10 percent of residents fall below the poverty level.⁷

With the significant proportion of households in Murphys with limited incomes, combined with almost 10 percent of residents falling below the poverty level, safe multimodal access to school and work may be more important than in



Source: 2012-2016 American Community Survey 5-Year Estimates.

Figure 2-4 Median Income

other locations given the significant investment required to purchase and operate a personal vehicle, and/or a second vehicle for a household with multiple workers.

As shown in Figure 2-5, despite a lack of pedestrian infrastructure throughout much of the Murphys CDP, a higher proportion of Murphys residents walk to work than in the rest of the county or state (5 percent in Murphys compared to 2 percent in the county and 3 percent in the state). A higher proportion of Murphys residents also work at home compared to the county and state.⁸



Main Street Murphys businesses

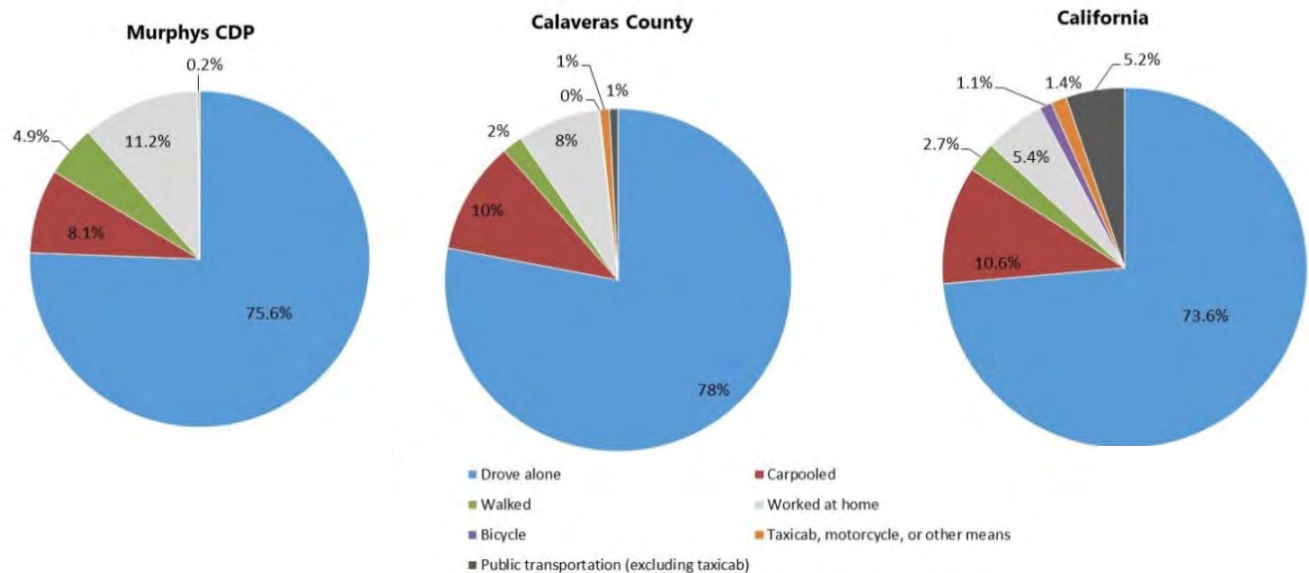
⁴ 2012-2016 American Community Survey 5-Year Estimates.

⁵ 2012-2016 American Community Survey 5-Year Estimates.

⁶ 2012-2016 American Community Survey 5-Year Estimates.

⁷ 2012-2016 American Community Survey 5-Year Estimates.

⁸ 2012-2016 American Community Survey 5-Year Estimates.



Source: 2012-2016 American Community Survey 5-Year Estimates.

Figure 2-5 Means of Transportation to Work

Census commute data from 2015 shows that the majority (47 percent) of Murphys CDP residents travel 50 miles or more to work, but the next highest share (30 percent) of residents travel less than 10 miles to work, which may explain why more people walk to work in Murphys than in the county or state.⁹ Of those traveling far to work, the top destination cities are San Jose, Modesto, Fresno, San Francisco, and Oakland. Closer work destinations outside Murphys include Angels Camp, Arnold, San Andreas, and Sonora.¹⁰

URBAN DESIGN ANALYSIS

In general, the SR 4 corridor in Murphys faces issues that are common among many rural highways that go through town centers where there are multiple driveways and potential pedestrians or bicyclists. Drivers acclimated to higher speeds in outlying areas have to adjust to a slower speed. While the highway is marked with speed limits of 35 miles per hour (mph) within the project area, the wide

paved shoulders and even wider paved intersections do not deter some people from driving through the project area faster, leading to potential conflicts with slow-moving local traffic, bicyclists, and pedestrians.

Origins and Destinations

The roadways within the project boundary serve several major residential areas, including the Willow Creek Cottages, Stone Ridge Estates, and other homes accessed primarily by Williams Street, all in the northern portion of the study area. In this area, south of Murphys Creek Road, there is an approved 42-unit subdivision; grading for that project is underway as of the publication of this Plan in spring 2019. Tom Bell Road connects the Murphys Diggins, a 55+ mobile home community, to SR 4 in the north-eastern portion of the study area, and Mitchler Avenue, Watkins Street, and several other short local roads provide access to residential areas immediately south of SR 4. Pennsylvania Gulch Road serves as an important route for rural residential development extending east from the study area, as well as access to the park and school.

In addition to Michelson Elementary School and Feeney Park, the project boundary incorporates a number of other important destinations, shown in Figure 2-6. The

⁹ US Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2015).

¹⁰ US Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2015).

MURPHYS SR 4 COMPLETE STREETS PLAN

Chapter 2 | Existing Conditions, Opportunities, and Constraints

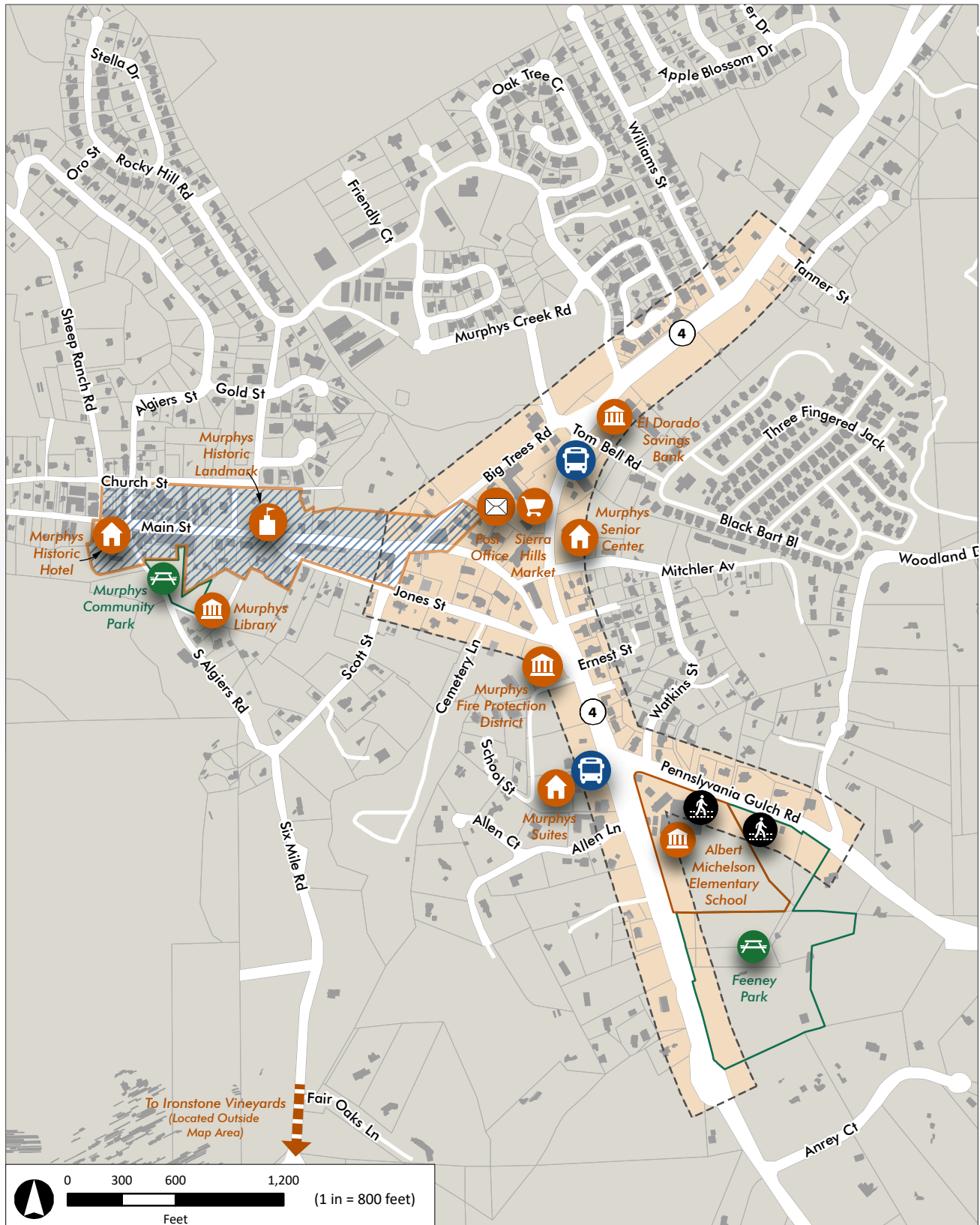


Figure 2-6
Destinations and Landmarks

destinations were selected as potential locations where residents and visitors may walk within the project limit:

- Post Office (access on Big Trees Road)
- Sierra Hills Market (access on SR 4 and Big Trees Road)
- El Dorado Savings Bank (access on Tom Bell Road)
- Murphys Senior Center (access on Mitchler Avenue)
- Murphys Fire Protection District (access on Jones Street)
- Murphys Suites (access on SR 4)
- Main Street Murphys (shopping, dining, and landmarks), Murphys Community Park, and Murphys Library (access on Main Street and Algiers Street)
- Ironstone Vineyards (access on 6 Mile Road)

Walkability and Bikeability

Main Street Murphys is one of the destinations that is most likely to be accessed on foot by locals and tourists alike. Once on Main Street, there is heavy pedestrian activity, but accessing the historic downtown on foot is fairly limited.

Figure 2-7 shows the ¼- and ½-mile walking distances, along with a 3-mile biking distance, to Main Street from the surrounding areas. Generally, a ¼-mile distance is considered a five-minute walk, easily achieved by most people, while a ½-mile distance, or 10-minute walk, is considered the high end for most people to comfortably walk to transit, school or work on a daily basis. The 3-mile distance is generally thought to be a reasonable bicycling distance for most people.

The figure shows the actual distance from the center point, along a roadway or street, rather than the “crow flies” radius distance. Each of the distances is shown in a different color, and the entire area of yellow, for example, is a ½-mile distance or less from Main Street Murphys. Note that these distances are shown for reference only, and many people may want to travel greater distances than the limits that are shown. In addition, the comfort and safety of the route deeply affect the willingness of people to decide to walk or bike.

Some of the residential uses along Jones Street and Scott Street are within a ¼-mile walking distance, as are

residences south of SR 4 near Mitchler Avenue and Ernest Street; but the crossing of SR 4 presents a formidable obstacle.

The ½-mile walking distance extends into more residential areas, including western Main Street, the areas accessed by Rocky Hill Road and Algiers Street, the existing and planned subdivisions in the Murphys Creek Road and Williams Street areas, and residential areas south of SR 4, including the Murphys Diggins community. However, as mentioned above, residents south of SR 4 face a challenging crossing of SR 4.

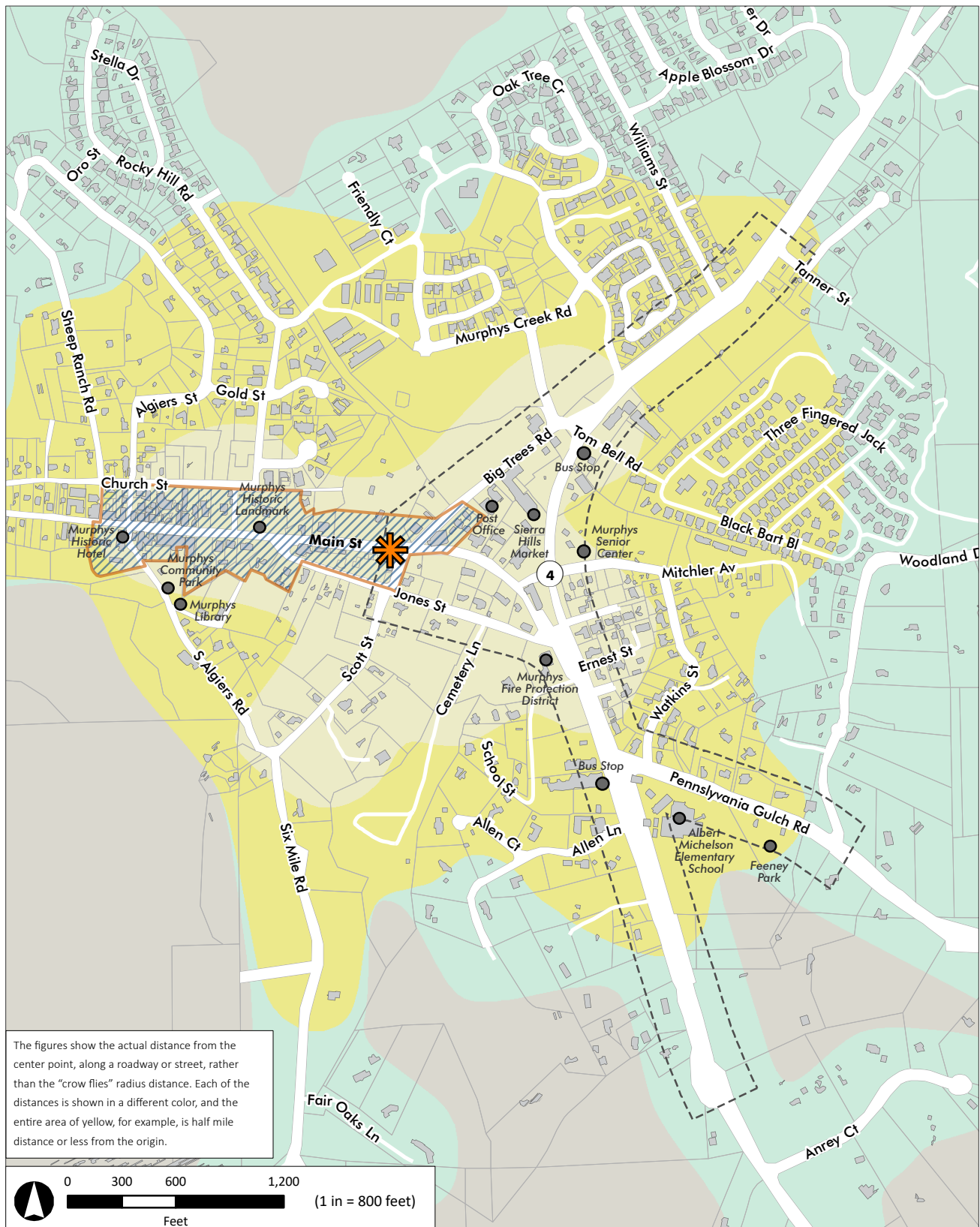
Of the two larger hotels in Murphys, the Murphys Inn is within a ¼-mile walking distance and the Murphys Suites are within a ½-mile walking distance. The 3-mile biking distance indicates that most residential areas in the study area are within a reasonable bicycling distance, although riders face a challenging bicycle environment on major roads.

Walkability to another major destination, Michelson Elementary School, is shown in Figure 2-8. Much of the residential area immediately north of the school, including along Pennsylvania Gulch Road, Watkins Street, Ernest Street, and Lawrence Street, is within a ¼-mile walking distance to the school, while other homes along Mitchler Avenue and north of SR 4 are within a ½-mile walking distance. Based on County Assessor data, approximately 100 households are within a ¼-mile walking distance of the school and 180 households are within a ½-mile walking distance of the school. The more extensive residential development existing and planned in the northern portion of the study area is not within a reasonable walking distance to the school. Therefore, while residents north of the school can reasonably walk to school (assuming the crossing of Pennsylvania Gulch Road to the school can be made safely), other residential development in the area is likely too far to access the school on foot.

The 3-mile biking distance shown in the diagram indicates that most residential areas in the study area are within a reasonable bicycling distance, although the lack of bicycle facilities and safety features is a deterrent. County Assessor data shows that approximately 1,310 households are within a 3-mile biking distance to the school.

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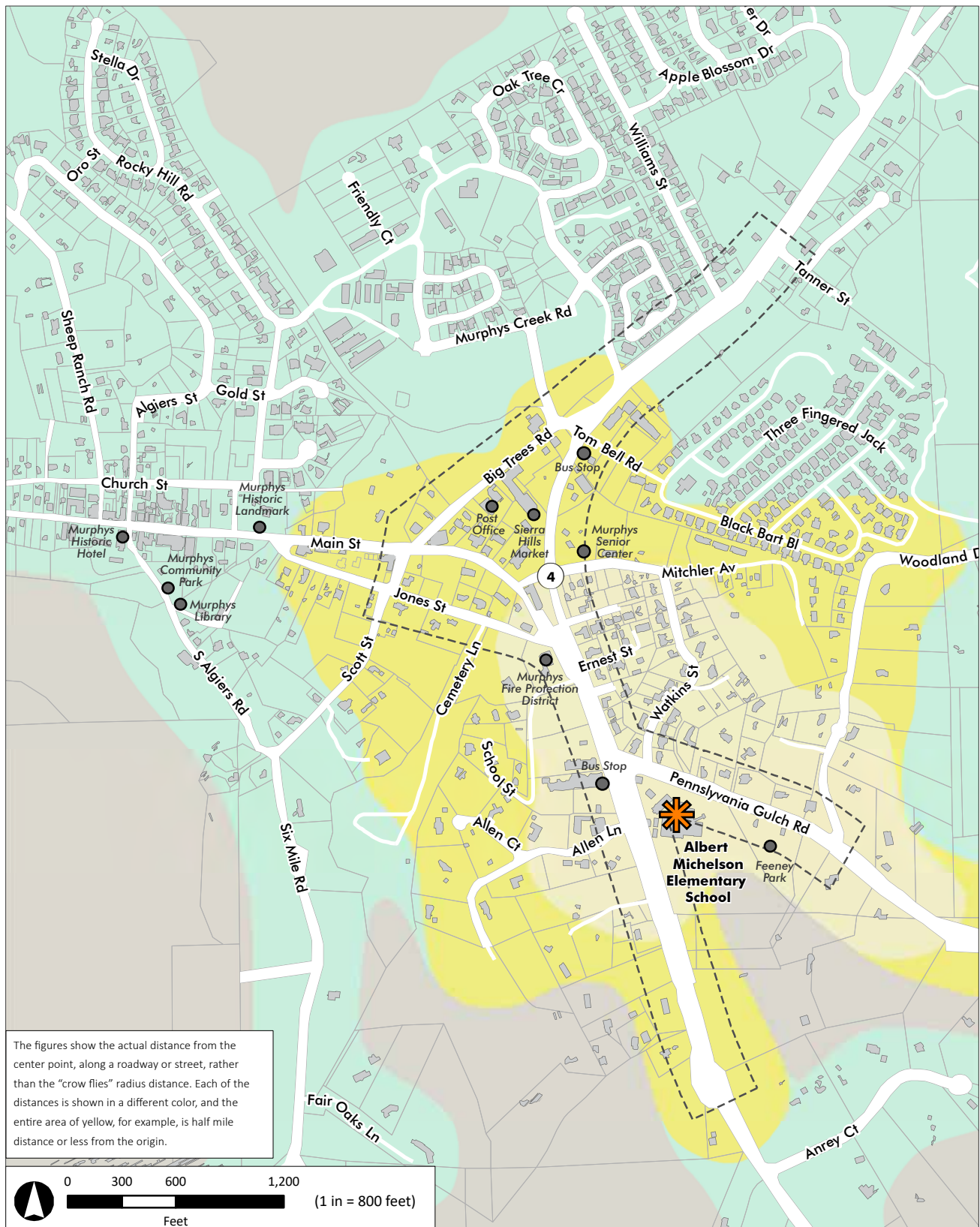
Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

- SR 4 Complete Streets Corridor
- Quarter-Mile Distance
- Half-Mile Distance
- Three-Mile Distance
- ★ Center Point of Analysis
- Other Key Destinations
- Murphys Main Street

Figure 2-7
Walkability and Bikeability
around Main Street

MURPHYS SR 4 COMPLETE STREETS PLAN

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Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

- SR 4 Complete Streets Corridor
- Quarter-Mile Distance
- Half-Mile Distance
- Three-Mile Distance
- ✱ Center Point of Analysis
- Other Key Destinations

Figure 2-8

**Walkability and Bikeability around
Michelson Elementary School**

Signage

Signage visible from SR 4 in Murphys generally falls into three categories: traffic control signage, community signage, and commercial signage.

- **Traffic Control Signage.** This signage is located in the Caltrans right-of-way and includes speed limit signage, cross street signage, pedestrian crossing notifications, Caltrans destination signage (for example, the Mercer Cavern/Main Street sign in standard green and white), and other highway-oriented signage.

Speed limits on SR 4 outside of the study area are 55 mph. Immediately west of Murphys, there is a 50-mph limit between Ansil Davis Road in Douglas Flat and Anrey Court. In Murphys, these highway speeds decrease to 45 mph at Anrey Court travelling east and Apple Blossom Drive travelling west. The central portion of the study area from west of Pennsylvania Gulch to Williams Street has posted speed limits of 35 mph. Near the school there are signs limiting speeds to 25 mph when children are present. Those signs have flashing beacons. In general, the Caltrans signage is not overly obtrusive, communicates clearly, and is located well.

- **Community Signage.** Community signage includes the “Welcome to Murphys” type signage and other signage highlighting upcoming events. These signs are usually outside the Caltrans right-of-way. The main signs are described below:

Eastbound Signs

- *“Welcome to Murphys” entry sign.* For eastbound travelers, the first sign indicating entry into Murphys is west of Feeney Park. This green sign is set back behind a fence below a rise. It is not large but very visible.
- *Murphys community sign.* The second visible sign for eastbound travelers is another “Welcome to Murphys” sign, set back behind the fence at Feeney Park. This sign has community organization logos such as FFA, Rotary, and Lions incorporated.
- *Murphys Caltrans sign and Historic Murphys signs.* Also at Feeney Park is a standard Caltrans sign with the name Murphys and its population and elevation data. This is a prominent sign as it is next to the



School speed limit sign on eastbound SR 4



Mercer Cavern sign on eastbound SR 4



Murphys community sign on eastbound SR 4

road in Caltrans right-of-way. Adjacent to this sign but beyond the Feeney Park fence is a carved and painted wooden sign that says, “Welcome to Historic Murphys ‘Queen of the Sierras’.” This handsome sign is quite visible.

- *“Historic Downtown Murphys” sign.* A standard California State Historic Landmark sign is at the intersection of SR 4 and Main Street.

Westbound Signs

- *Caltrans/Mercer Caverns signs.* There is a standard Caltrans library graphic symbol attached to the post that also supports the sign for Mercer Caverns turnoff onto Big Trees Road.
- *Murphys Realty sign.* Although this sign at Big Trees and SR 4 is not a community sign exactly, it is very visible to travelers and prominently shows the name Murphys.
- *Main Street.* Even though it does not say Murphys, this standard Caltrans sign is a visible indicator that says the historic downtown is that direction.
- *Signboard at fire station.* A small signboard that announces events is located at the intersection of Main Street/Jones Street and SR 4. It is more oriented to Main Street/Jones Street than SR 4, clearly to announce events for a more local and resident population, those coming from Main Street to the highway.
- *Michelson Elementary School fence.* The fence at the school is a prominent place to hang banners announcing local fundraising events, clubs, and the like. Michelson Elementary School also has an electronic sign board at this location to announce school events. The fenceline signage seems to serve as the community bulletin board at a vehicle scale.
- *Other signage.* Other community signage in the study area but off SR 4 includes a “Business District” sign facing those turning onto Main Street, and another fence with banners under a tree at the intersection of Big Trees and Main Street, facing those coming south on Big Trees Road.

Commercial Signage

- There is quite a lot of commercial signage along SR 4. Almost all of it appears to be advertising the businesses themselves that line the highway; there



Main Street sign on westbound SR 4



Commercial signage on westbound SR 4

are few signs advertising remote locations or products: in other words, billboards. Many of the signs are located on the buildings lining the highway, which is the most appropriate signage for a historic place like Murphys. The best signs are those integrated into the architecture of the buildings. A prime example is the view of the Sierra Hills Market travelling west on SR 4 (the other side is not as well integrated). Other good examples include the signs on the row of commercial properties with Hillbillies Restaurant.

- Less successful commercial signage is found on the freestanding signs and commercial banners along SR 4. If there are too many detached signs, it can lead to visual clutter. Another type of signage that adds to clutter are the “temporary” sandwich boards along SR 4. Some of these boards appear to be in the Caltrans right-of-way.

ENGINEERING ANALYSIS

An engineering analysis of the study area was conducted to consider the existing physical roadway conditions, including pavement, pavement markings, driveways, crosswalks, utility infrastructure, and drainage, and identify potential safety and traffic flow issues based on the current roadway configuration. The analysis also discloses potential constraints to installing typical complete streets improvements.

There are “no parking” signs located along SR 4 at the western end of the project boundary. Parallel parking is allowed along the majority of SR 4 through the project boundary, but off-street parking provided at individual businesses is typically adequate. Parking along SR 4 is generally limited to a few major community events that draw large crowds, such as Irish Days in March and the Grape Stomp in October.

Pickup and drop off for students at Michelson Elementary School occurs in the large parking lot for Feeney Park, located just east of the school on Pennsylvania Gulch Road. In the morning, the majority of the school traffic turns onto Pennsylvania Gulch Road from SR 4, and often gets backed up on Pennsylvania Gulch Road while waiting to turn right into the parking lot. Inside the parking lot, a crossing guard periodically stops the flow of traffic entering the lot to let students cross the main entry. A crossing guard is also positioned at the crosswalk across the school on Pennsylvania Gulch Road. The parking lot at Michelson Elementary School is for staff use only and drop off is not allowed. Even though signs are posted to prohibit it, some students are dropped off at the parking lot for the Michelson Extended Day program and Resource Connection (located just west of the school on Pennsylvania Gulch Road), and then walk to school along the roadway shoulder and asphalt sidewalk that serves a portion of this route. In the afternoon, traffic often gets backed up on Pennsylvania Gulch Road, waiting to turn onto SR 4, but the queues are generally shorter than in the morning. Traffic from the west is coming at a relatively high speed and the crosswalk across SR 4 is not very visible, therefore students are discouraged from using it due to safety concerns.



SR 4 at Pennsylvania Gulch Road, looking east

Below is a summary of the engineering analysis for each of the major roadways in the project boundary:

- **SR 4:** SR 4 is a two-lane conventional highway. The road has a curvilinear alignment as it passes through Murphys, and features roadside ditches on both sides. There are no sidewalks on either side of the road through the majority of the project boundary. Installation of new sidewalks on SR 4 would require piping the existing ditches. Pedestrian crosswalks across SR 4 are currently provided at only two locations: an uncontrolled school crossing near the Pennsylvania Gulch Road intersection, and a controlled crossing at the signalized intersection at Big Trees Road. These two crossings are approximately 2,000 feet apart. Some of the intersections in the project boundary have wide footprints, encouraging higher speeds of travel. There are no separate left-turn lanes on SR 4 except at the intersection with Big Trees Road. Left-turning vehicles at all other locations have to queue on the through lanes while waiting for a gap in the opposing traffic.
- **Pennsylvania Gulch Road.** Pennsylvania Gulch Road is a local two-lane collector road that provides the primary access to Michelson Elementary School. An asphalt sidewalk exists on the south side of the road near the school. There is no sidewalk for the remaining portions of Pennsylvania Gulch Road towards its intersection with SR 4. Pennsylvania Gulch Road has a steep profile, with the apex located near the school entrance. A mid-block pedestrian crossing is located at the apex of the

road. On the north side of this crossing, pedestrians land between two driveways and have no clear path of travel.



Pennsylvania Gulch Road at the Michelson Elementary School entrance

- Main Street.** Approximately 400 feet of the eastern portion of Main Street has a sidewalk on the north side. The remaining easterly portion does not have a sidewalk. In this segment, the shoulder area is being used for parking by the adjacent businesses. Extension of the sidewalk along the north side of the road would result in removal of some parking where the right-of-way widths of 30 to 50 feet do not allow for 5 feet of sidewalk, 8 feet of parking and the existing 21 feet of paved travel lanes. The south side of the road is not suitable for sidewalk installation due to the steep terrain and large trees. In addition, most of the businesses that would generate pedestrian volume are located on the north side of the road.



Main Street at the Scott Street/Big Trees Road intersection, looking east

- Big Trees Road.** Big Trees Road has a continuous sidewalk on the south side of the road except for an approximately 170-foot gap near the intersection with Creek View. Some portions of the existing sidewalk exceed the ADA maximum cross-slope due to non-compliant driveways and tree uplift. Installation of a new sidewalk to close the gap may require parking removal and/or adjustment in front of Realty World and Next-Upscale Resale Consignment due to existing lane widths (25 feet of paved travel lanes) and right-of-way constraints (ranges from 32 to 53 feet). The Big Trees Road/Creek View intersection is a wide T-intersection located on a curve. There is no accessible connection between the sidewalk on the west side of Creek View and the sidewalk on the south side of Big Trees Road.



Big Trees Road at Creek View, looking east to intersection with SR 4

PLANNED CALTRANS OPERATIONS (SHOPP) PROJECT

Complete streets improvements within the project boundary will also be affected by a planned and programmed Caltrans project. In May 2017, Caltrans completed a Project Initiation Document (PID) to request consideration in the 2018 State Highway Operation and Protection Programs (SHOPP) for a two-way left turn lane on SR 4 between Pennsylvania Gulch Road and Main Street. Because SR 4 does not currently provide a left turn lane for vehicles turning into local streets or businesses, vehicles must stop in the through lane when turning left, creating congestion in the through lanes. During peak hours, Caltrans observed drivers using the shoulder to pass vehicles waiting to turn left. The project as proposed



Figure 2-9 Cross-Section of SR 4 Showing Planned SHOPP Project

consists of two 12-foot-wide through lanes, a center 12-foot-wide left turn lane, and 8-foot-wide shoulders (see Figure 2-9). The width of the travel lanes may be reconsidered when future complete streets improvements identified in this Plan are implemented. Estimated cost for this project is \$1.82 million. An alternative that would have included 6-foot sidewalks on both sides of SR 4, a crosswalk at Main Street, ten curb ramps, and extending the shoulder to Tom Bell Road was rejected due to cost, estimated at \$3.43 million. The complete street elements that are included in this Plan do not conflict with the SHOPP project.

OPERATIONS ANALYSIS

Fehr & Peers conducted a traffic operations analysis to evaluate the existing conditions for six intersections and roadway segments within the study area. The analysis of future traffic operations is presented in Chapter 4.

Data Collection

Intersections

Weekday morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) peak-period intersection turning movement volumes, including separate counts of heavy vehicles, pedestrians, and bicyclists, were collected at the following study intersections:

- Big Trees Road/Creek View Road
- SR 4/Big Trees Road/Tom Bell Road
- Main Street/Scott Street/Big Trees Road
- Main Street/Jones Street/Lawrence Street

- SR 4/Jones Street/Lawrence Street
- SR 4/Pennsylvania Gulch Road

All intersection data was collected on May 9, 2018, a typical weekday with local schools in session. For the study intersections, the single hour with the highest traffic volumes during the count periods was identified. The AM peak hour in the study area is generally from 7:15 AM to 8:15 AM and the PM peak hour is generally from 4:30 PM to 5:30 PM. It is important to note that this differs from the bicycle and pedestrian peak hours, in which the AM peak hour is from 8:00 AM to 9:00 AM and the PM peak hour is from 4:30 PM to 5:30 PM. Figure 2-10 displays the existing automobile AM and PM peak hour turning movement volumes, intersection lane configurations and traffic controls. Figure 2-11 displays the existing AM and PM peak hour turning movements for bicyclist and pedestrian volumes.

Roadway Segments

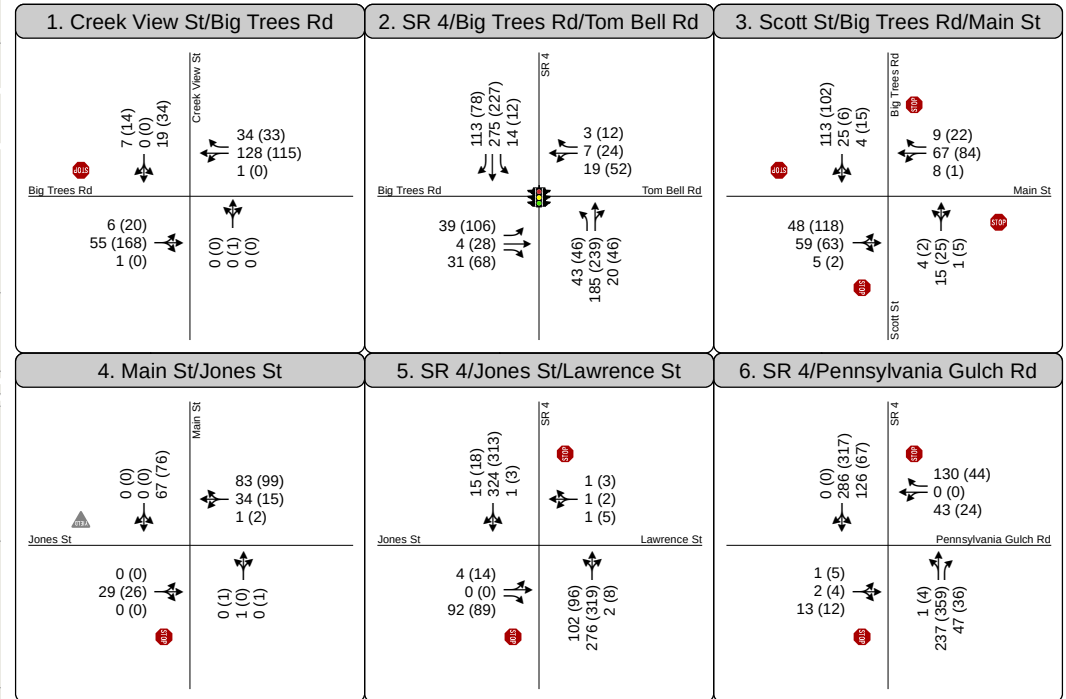
Roadway segment counts were collected for seven consecutive days for 24-hour periods from May 9, 2018 to May 15, 2018, during the off-tourist season, and from September 20, 2018 to September 26, 2018, when there is still some tourist activity, on the following roadway segments:

- SR 4
- Main Street
- Big Trees Road

Figure 2-12 displays the hourly weekday (Monday – Thursday) average and the weekend (Friday – Sunday) average traffic volumes for each of the roadway segments during both the tourist season and off-season. There is an approximately 12-percent increase in average weekend

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- 1** Study Intersection
- Turn Lane
- AM (PM)** Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign
- Yield Sign

Source: Fehr & Peers Transportation Consultants.

Figure 2-10

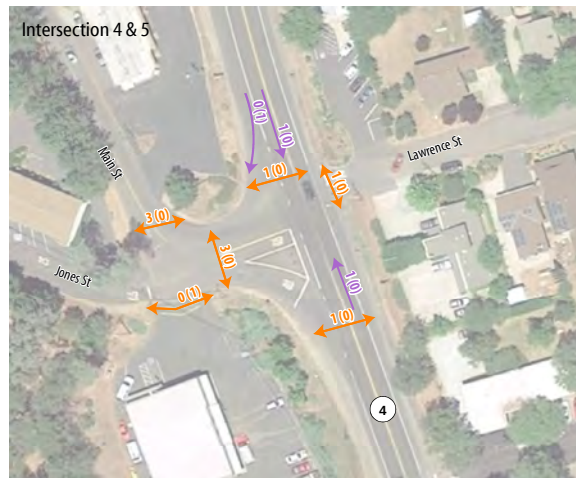
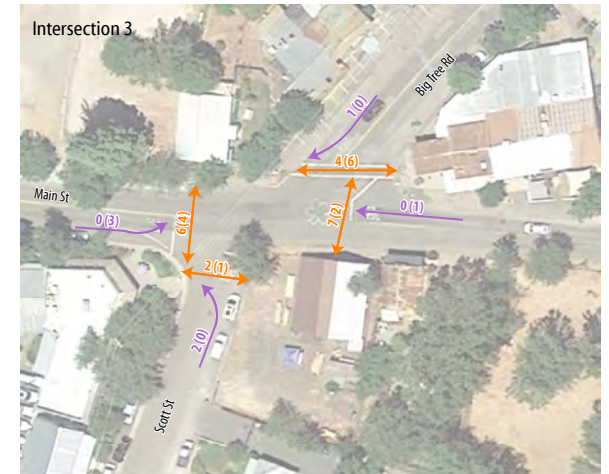
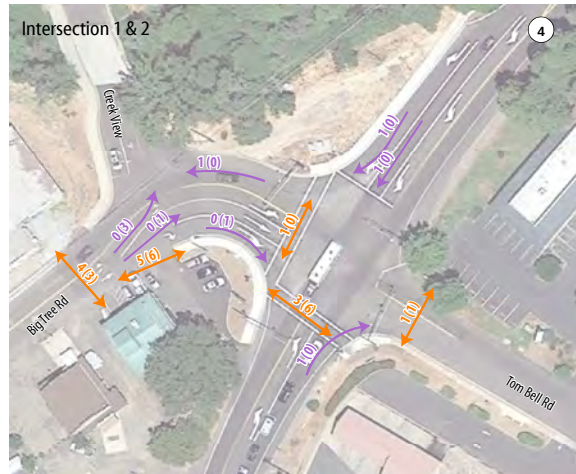
Peak Hour Traffic Volumes and Lane Configurations – Existing Conditions

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- ① Study Intersection
- x (x) → AM (PM) Bicycle Volume
 - x (x) → AM (PM) Pedestrian Volume

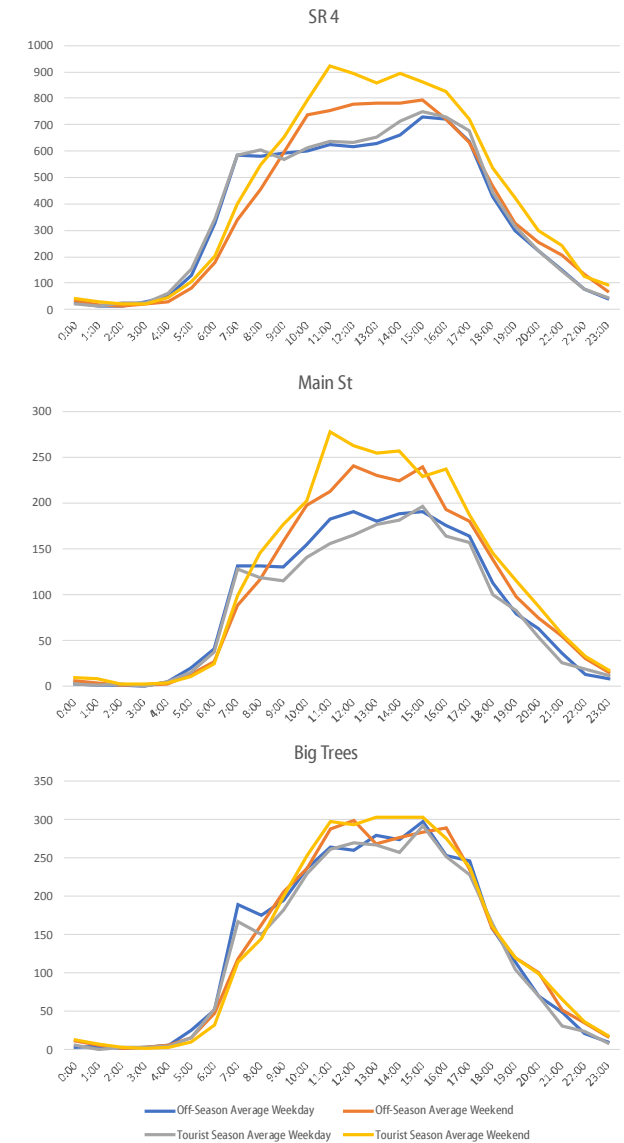
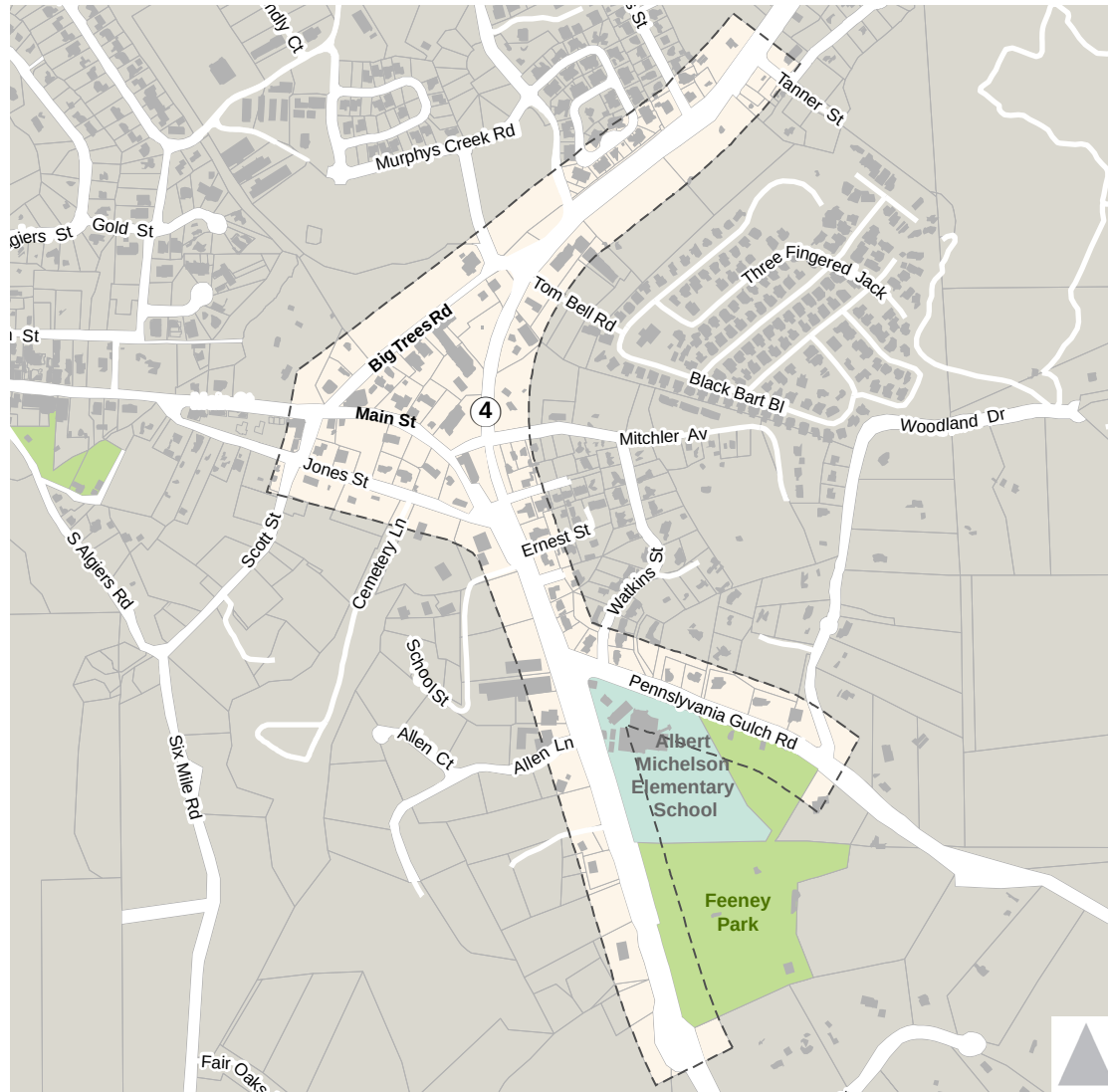


Source: Fehr & Peers Transportation Consultants.

Figure 2-11
Peak Hour Bicycle and Pedestrian Volumes

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Source: Fehr & Peers Transportation Consultants.

Figure 2-12
Average Daily Volumes

TABLE 2-2 LEVEL OF SERVICE DEFINITIONS FOR INTERSECTIONS

Level of Service	Description	Delay (Seconds/Vehicle)	
		Signalized Intersection	Unsignalized Intersection
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 10	0-10
B	Free-flow speeds are maintained. The ability to maneuver within the traffic stream is only slightly restricted.	> 10-20	> 10-15
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 20-35	> 15-25
D	Speeds decline slightly with increasing flows. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 35-55	> 25-35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 55-80	> 35-50
F	Represents a breakdown in flow.	> 80	> 50

Source: *Highway Capacity Manual* (HCM), Transportation Research Board, 2016.

traffic volumes on SR 4 and Main Street during the tourist season, and an approximately 21-percent increase during the AM peak hour (11:00 AM). Minimal changes were observed on Big Trees Road. Weekday traffic volumes remained relatively consistent along all three study segments during both the tourist season and off-season.

Analysis Methods

This study analyzes traffic operations using level of service (LOS) as the primary measure of performance. Automobile LOS is a qualitative description of traffic flow from the perspective of motorists. The *Highway Capacity Manual* (HCM) defines six levels of service from LOS A representing the least congested traffic conditions, to LOS F representing the most congested traffic conditions. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver. Table 2-2 describes LOS and the average delay ranges associated with each LOS category.

The HCM 6th Edition (Transportation Research Board, 2016) procedures were applied using Synchro 10 analysis software. The program considers peak hour factors and heavy vehicle percentages that were measured in the field,

as well as lane configurations, traffic volumes, traffic controls (including signal phasing/timing), and other pertinent parameters of intersection operations. At signalized intersections, LOS is determined by the average control delay per vehicle experienced by all motorists travelling through the intersection. For all-way stop-controlled intersections, the weighted average control delay for all motorists travelling through the intersection is reported. For side-street stop-controlled intersections, delay is calculated for each stop-controlled movement and for the uncontrolled left turns, if any, from the main street. Delay for side-street stop-controlled intersections is reported in seconds per vehicle for the overall intersection and (worst case) movement delay.

Existing Traffic Operations

Table 2-3 presents the LOS results for the study intersections under existing conditions. The existing conditions LOS analysis assumes installation of the Caltrans SHOPP project. All intersections operate at an acceptable level of service of D or better. A signal at the SR 4/Pennsylvania Gulch intersection is not warranted under existing conditions if the SHOPP project is in place. However, without the SHOPP project, a signal warrant is currently met.

TABLE 2-3 LEVEL OF SERVICE ANALYSIS – EXISTING CONDITIONS WITH THE SHOPP PROJECT

Intersection		Control Type	Period	Delay ^a	LOS ^b
1.	Big Trees/Creek View Street	SSSC	AM	1.2 (10.2)	A (A)
			PM	1.8 (11.9)	A (B)
2.	SR 4/Big Trees Road/Tom Bell Road	Signal	AM	13.6	B
			PM	17.5	B
3.	Big Trees Road/Main Street	AWSC	AM	8.3	A
			PM	8.7	A
4.	Main Street/Jones Street	SSSC	AM	0.1 (7.2)	A (A)
			PM	0.1 (7.5)	A (A)
5.	SR 4/Jones Street/Lawrence Street	SSSC	AM	2.6 (22.8) ^c	A (C)
			PM	2.7 (22.4) ^c	A (C)
6.	SR 4/Pennsylvania Gulch Road	SSSC	AM	4.5 (28.0) ^d	A (D)
			PM	2.3 (23.0) ^d	A (C)

a. Delay is reported in seconds per vehicle for the overall intersection for signalized intersections. Delay is reported as the weighted average control delay for all motorists travelling through the intersection for all-way stop-controlled (AWSC) intersections. Delay is reported in seconds per vehicle for the overall intersection and (worst case) movement delay for side-street stop-controlled (SSSC) intersections.

b. LOS = level of service; calculated based on methodologies contained in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2016.

c. Under existing conditions without the SHOPP project, AM delay is 2.6 (23.3) with a LOS C and PM delay is 2.7 (22.8) with a LOS C. Minimal changes in delay/LOS occur with the SHOPP project because the highest delay is experienced by motorists making an eastbound left turn from Jones Street to SR 4, which do not benefit from the installation of the SHOPP project.

d. Under existing conditions without the SHOPP project, AM delay is 4.5 (28.9) with a LOS D and PM delay is 2.3 (23.3) with a LOS C. Minimal changes in delay/LOS occur with the SHOPP project because the highest delay is experienced by motorists making a westbound left turn from Pennsylvania Gulch Road to SR 4, which do not benefit from the installation of the SHOPP project.

Source: Fehr & Peers, 2018.

BICYCLIST AND PEDESTRIAN COMFORT

The level of comfort that a bicyclist or pedestrian may experience on a roadway is a way of estimating the suitability of the roadway for bicyclists and pedestrians and the likelihood that these users will use the roadway.

Bicycle riders vary in experience, skill, ability, and confidence. Some people are comfortable riding in traffic and value bikeways and routes that are direct and limit unnecessary delay. These cyclists more comfortably utilize facilities that share the roadway with automobiles or have limited bicycle infrastructure. Other people with less confidence bicycling and lower or developing bicycle skills, such as children and older adult riders, may need more separation from traffic to feel comfortable enough to ride.

Different bicycle types also require more space in bicycle facilities, such as trailers for children or cargo or adult tricycles.

Research has correlated these different types of bicycle riders with the level of traffic stress they are willing to experience while cycling. Traffic stress is the discomfort and unease that a bicyclist may feel due to vehicle traffic, roadway conditions, bicycle facility design, and other factors. Metrics have been developed to quantify the level of traffic stress (LTS) that a typical rider may experience so that new bicycle facilities can be targeted to reduce this stress.¹¹ The methodology uses a “weakest link” approach, as roadways are classified based on their segments with the highest level of traffic stress, assuming that only those

¹¹ Maaza C. Mekuria, Peter G. Furth, and Hilary Nixon, 2012. *Low-Stress Bicycling and Network Connectivity*. San Jose, California: Mineta Transportation Institute.

that are comfortable riding under the higher stress would travel on that road. Factors influencing LTS include:

- Number of travel lanes
- Speed of traffic
- Number of vehicles
- Presence of bike lanes
- Width of bike lanes
- Presence of physical barrier

Using these factors, a score for Bicycle Level of Service (BLTS) can be assigned from 1 to 4 for each roadway segment, with 1 being the least stressful and 4 being the most stressful:

- **BLTS 1:** The lowest level of traffic stress and the design goal for a network that truly accommodates people of all ages and abilities. This level of traffic stress allows children trained in traffic safety to bicycle to school by themselves as well as the mainstream adult population, people interested but concerned about bicycling.
- **BLTS 2:** The highest level of stress that the mainstream adult population will tolerate while still feeling safe. This is the threshold for a low traffic stress bicycle network that truly accommodates people of all ages and abilities.
- **BLTS 3:** This level of traffic stress accommodates a much smaller segment of population, people who are excited and more familiar with biking and will therefore accept a higher level of traffic stress. Bicyclists who are considered enthused and confident but still prefer having their own dedicated space for riding will tolerate this level of stress and feel safe while bicycling.
- **BLTS 4:** For bicyclists, this level of stress is tolerated only by those characterized as strong and fearless, which comprises a small percentage of the population. These roadways have high speed limits, multiple travel lanes, limited or non-existent bike lanes and signage, and large distances to cross at intersections.

Similarly, pedestrians vary in experience and confidence. Some pedestrians are comfortable walking close to busy traffic on narrow sidewalks, while others will only walk if there is greater distance from rapidly traveling vehicles. Factors including pedestrian comfort include:

- Usable sidewalk width
- Frequency of driveways
- Lighting
- Street trees and landscaping
- Sidewalk quality
- Speed of traffic
- Number of vehicles
- Number of vehicle travel lanes

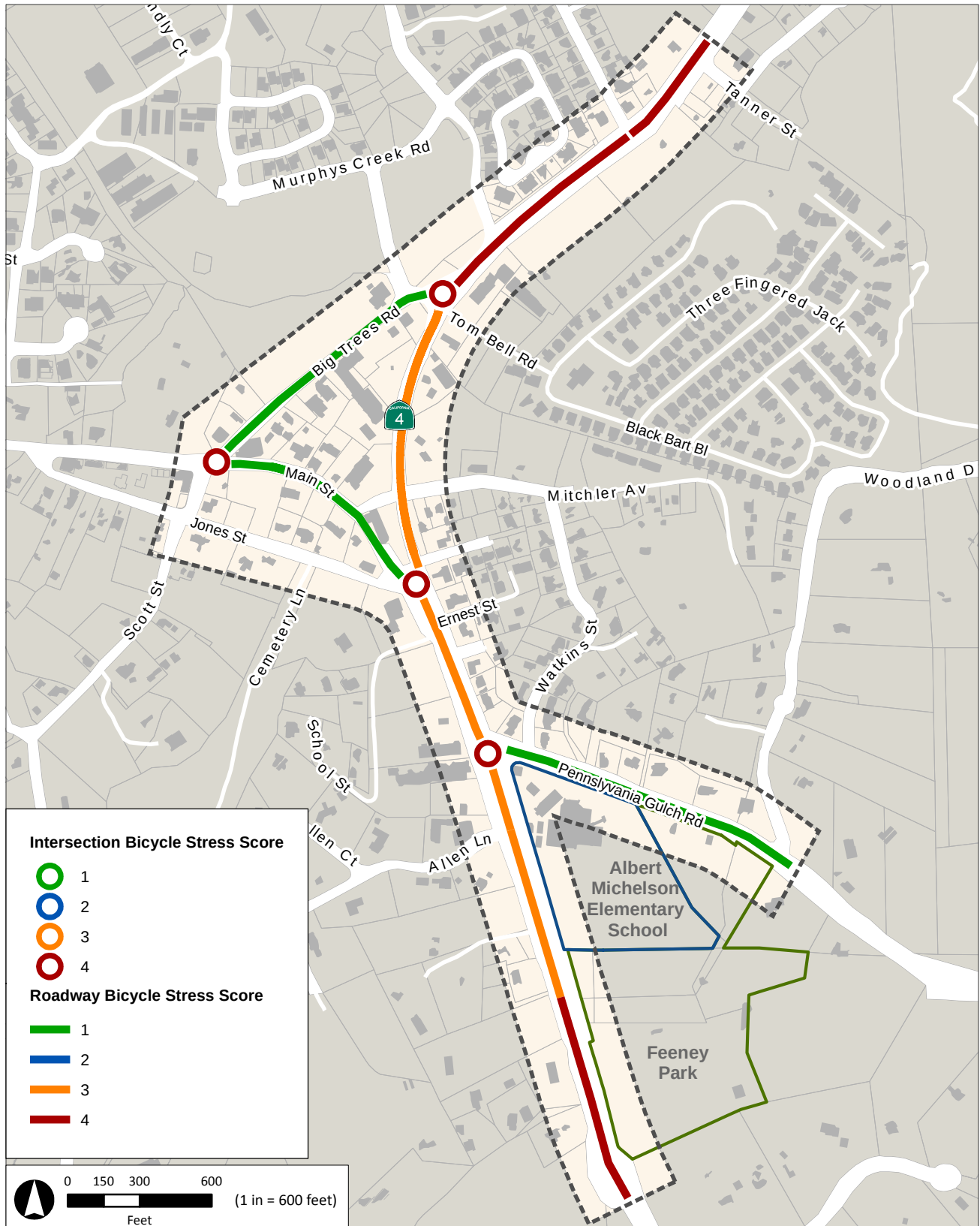
Using these factors, a score for Pedestrian Level of Service (PLTS) can be assigned from 1 to 4 for each roadway segment, with 1 being the least stressful and 4 being the most stressful:

- **PLTS 1:** Highly comfortable, pedestrian-friendly, and easily navigable for pedestrians of all ages and abilities, including seniors or school-aged children walking unaccompanied to school. These streets provide an ideal “pedestrian-friendly” environment.
- **PLTS 2:** Generally comfortable for many pedestrians, but parents may not feel comfortable with children walking alone. Seniors may have concerns about the walking environment and take more caution. These streets may be part of a pedestrian-friendly environment where it intersects with a more auto-oriented roadway or other environmental constraints.
- **PLTS 3:** Walking is uncomfortable but possible. Minimum sidewalk and crossing facilities may be present, but barriers are present that make the walking experience uninviting and uncomfortable.
- **PLTS 4:** Walking is a barrier and is very uncomfortable or even impossible. Streets have limited or no accommodation for pedestrians and are inhospitable and possibly unsafe environment for pedestrians.

Using this methodology, an analysis of bicycle and pedestrian level of traffic stress was completed for the study area using data collected between May 9, 2018 and May 15, 2018. Results are displayed in Figures 2-13 and 2-14.

MURPHYS SR 4 COMPLETE STREETS PLAN

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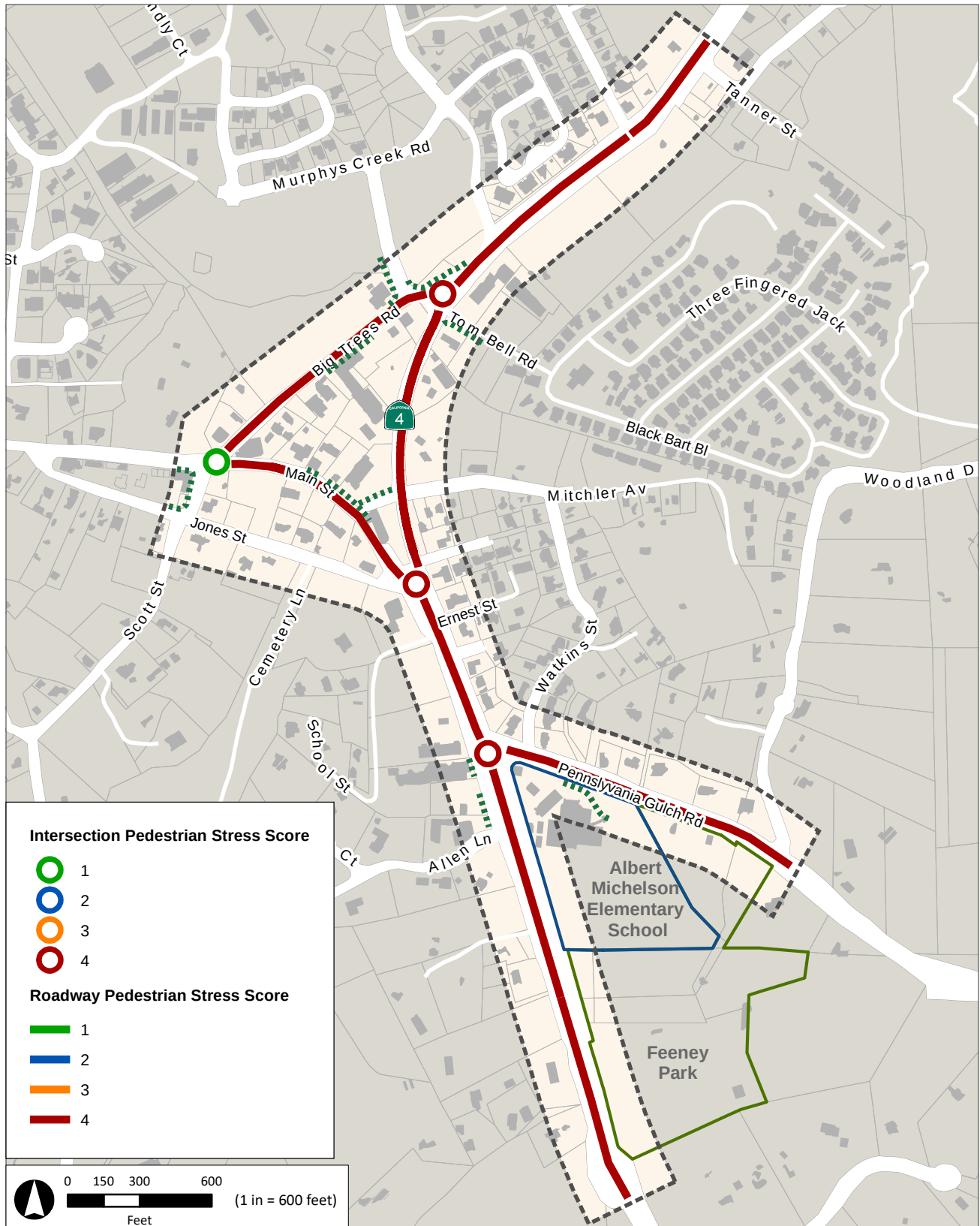
Source: ESRI, 2017; Calaveras County, 2017; Fehr & Peers, 2018; PlaceWorks, 2018.

Figure 2-13

Bicycle Traffic Stress – Existing Conditions

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Source: ESRI, 2017; Calaveras County, 2017; Fehr & Peers, 2018; PlaceWorks, 2018.

Figure 2-14

Pedestrian Traffic Stress – Existing Conditions

Bicycle Level of Traffic Stress (BLTS)

Under existing conditions, generally only the strongest bicyclists will ride along SR 4. Although the segment between Williams Street and Allen Lane is slightly more comfortable due to lower speeds and Big Trees Road, Main Street, and Pennsylvania Gulch Road are generally comfortable due to lower speeds and traffic volumes, intersections are still uncomfortable for all but the strongest bicyclists due to relatively large turning radii.

Pedestrian Level of Traffic Stress (PLTS)

The existing pedestrian environment on SR 4, as well as throughout the study area, is very uncomfortable, discouraging use by most pedestrians, due to the lack of sidewalks and minimal crossing improvements.

SAFETY ANALYSIS

To understand existing conditions related to traffic safety in Murphys, SafeTREC Traffic Injury Monitoring System (TIMS) data for 2006-2016 for unincorporated Calaveras County was examined. This data represents reported vehicle collisions involving an injury or fatality. As such, it does not capture collisions not involving injuries or fatalities, incidents unreported to law enforcement, or near misses. Most collisions involved only vehicles; within the project boundary, no collisions involved pedestrians or bicycles. A map showing concentrations of incidents within the study area is shown in Figure 2-15. The data shows multiple incidents along SR 4, with the highest concentration of collisions at the intersection of Pennsylvania Gulch Road and SR 4.

Profile of Collisions

The study area was compared to all of unincorporated Calaveras County. This data is summarized in Table 2-4. As shown, collisions in both areas were relatively constant over the time period, with a general decrease in the unincorporated county from 2011 on compared to 2010 and earlier. No fatalities were reported in the study area.

For both unincorporated Calaveras County and the study area, incidents were somewhat higher in the summer months as shown in Figure 2-16. This was particularly true for the study area, due potentially to increased tourist traffic combined with school traffic in late summer. Collisions peaked around the late afternoon/early evening in both unincorporated Calaveras County and the study area as shown in Figure 2-17.

The most common violation category for collisions in the study area was unsafe speed. Table 2-5 summarizes collisions by violation category. Most collisions in the study area were rear end collisions, as shown in Table 2-6.

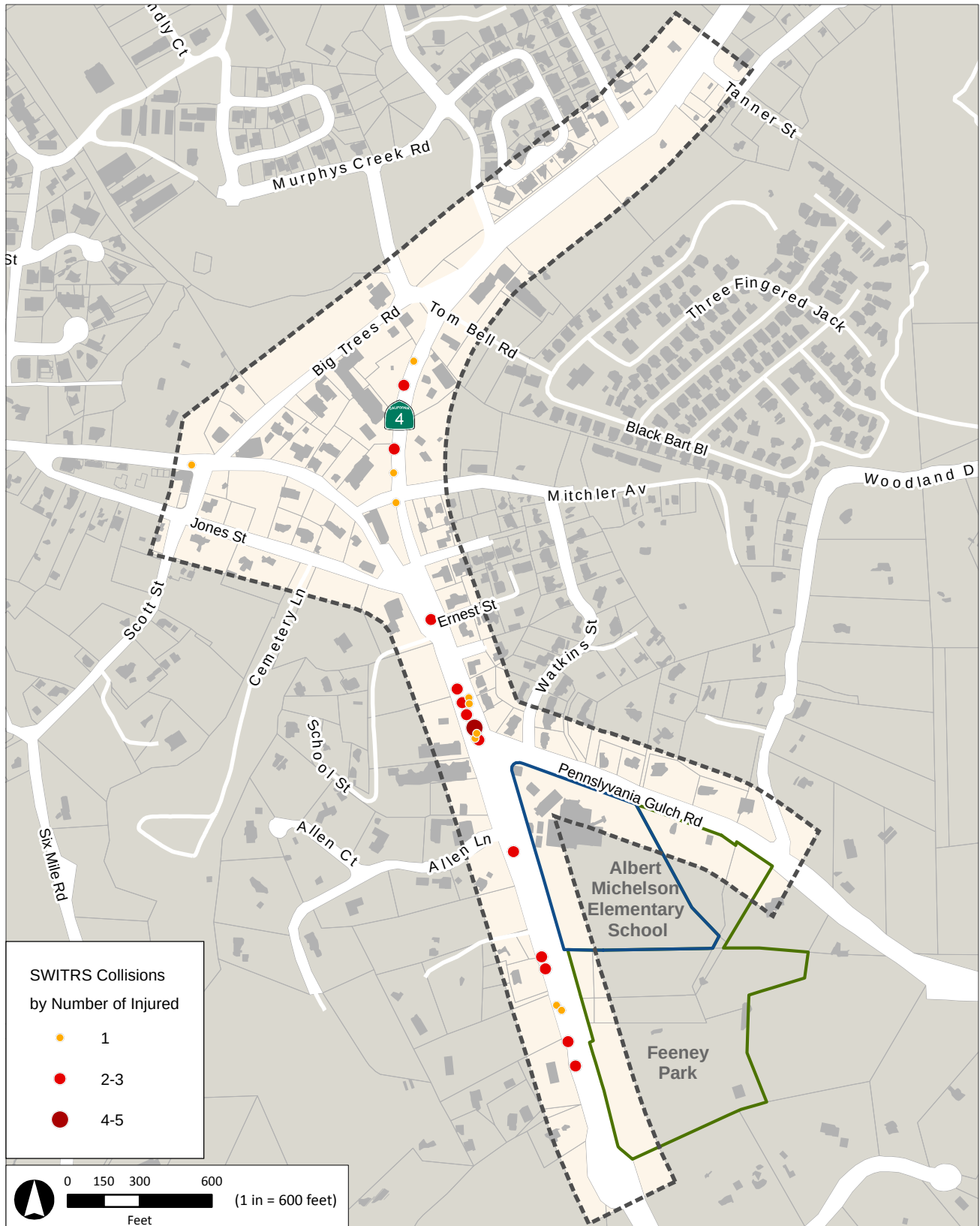
TABLE 2-4 INJURY AND FATALITY COLLISIONS, 2006 – 2016

Year	Study Area	Unincorporated Calaveras County
2006	2	284
2007	2	296
2008	2	253
2009	1	229
2010	2	261
2011	3	226
2012	1	226
2013	2	180
2014	3	206
2015	4	226
2016	1	226
Total	23	2,613
Fatalities	0	100

Source: TIMS, 2018.

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Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

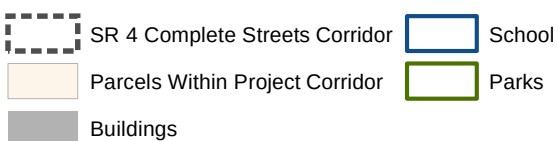
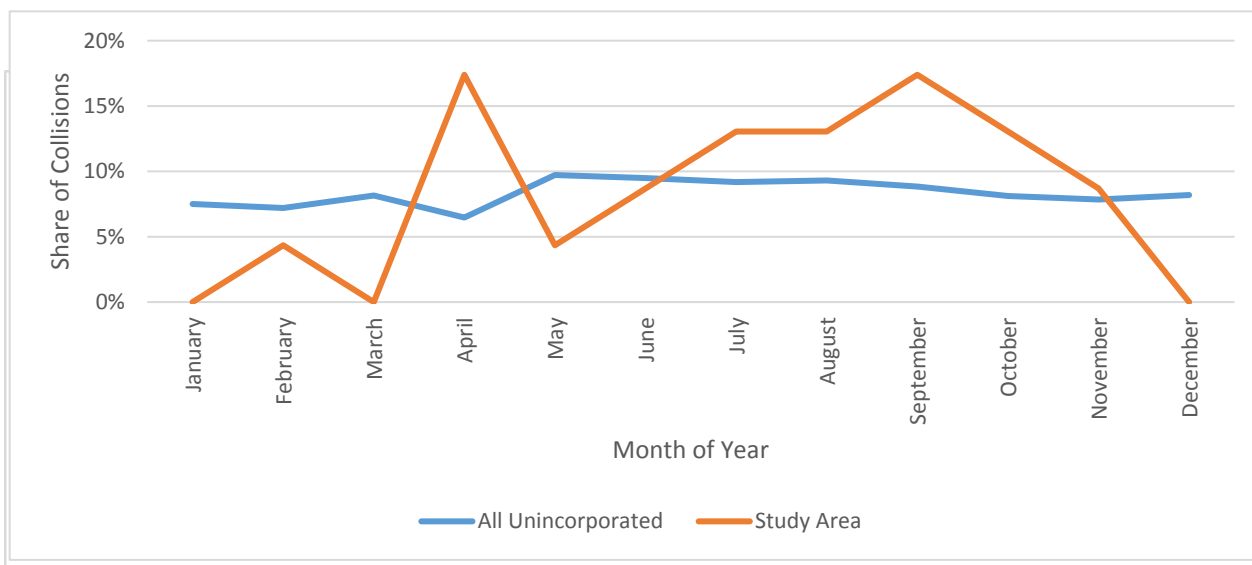
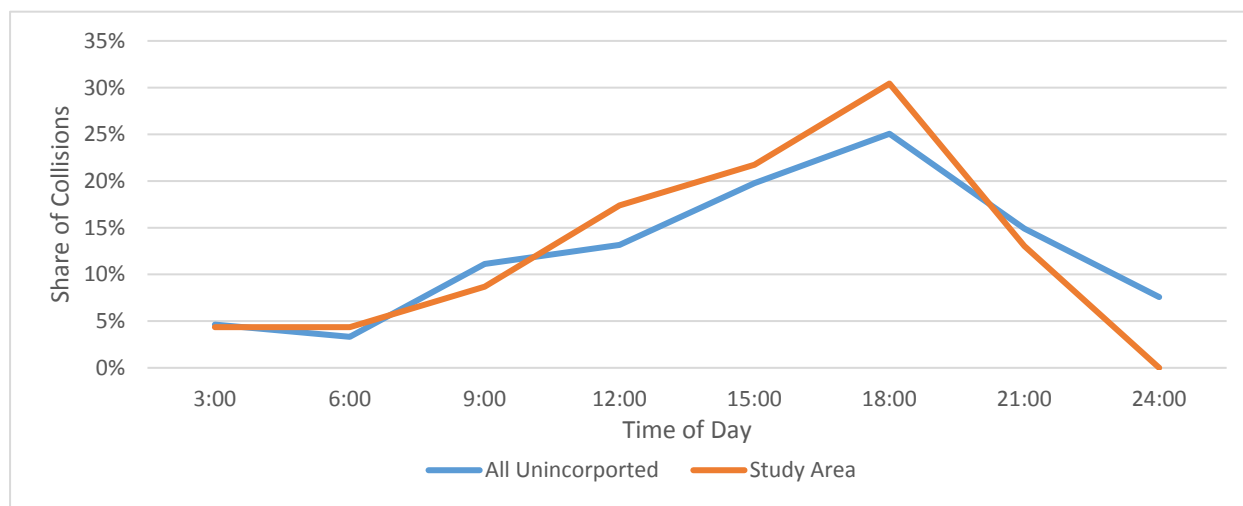


Figure 2-15
Reported Incidents: TIMS (2006 – 2016)



Source: TIMS, 2018.

Figure 2-16 Collisions by Month of Year, 2006 – 2016



Source: TIMS, 2018.

Figure 2-17 Collisions by Time of Day, 2006 – 2016

TABLE 2-5 VIOLATION CATEGORY, 2006 – 2016

Violation Category	Study Area	Unincorporated Calaveras County
Unsafe Speed	14	681
Wrong Side of Road	3	396
Improper Turning	2	630
Driving or Bicycling Under the Influence of Alcohol or Drug	1	442
Automobile Right-of-Way	1	243
Following Too Closely	1	19
Improper Passing	1	7
Other Than Driver (or Pedestrian)	0	80
Other Hazardous Violation	0	22
Unknown	0	22
Pedestrian Violation	0	21
Unsafe Starting or Backing	0	17
Traffic Signals and Signs	0	15
Other Equipment	0	7
Other Improper Driving	0	5
Unsafe Lane Change	0	3
Hazardous Parking	0	2
Pedestrian Right-of-Way	0	1

Source: TIMS, 2018.

TABLE 2-6 CRASH TYPE, 2006 – 2016

Violation Category	Study Area	Unincorporated Calaveras County
Rear End	14	308
Broadside	4	252
Head-On	2	208
Sideswipe	2	121
Hit Object	1	1,087
Overturned		539
Other		53
Vehicle/Pedestrian		41
Not Stated		4

Source: TIMS, 2018.

Profile of Victims

TIMS data provides some information about all parties and victims involved in collisions. Table 2-7 presents a breakdown of victims by transportation mode for unincorporated Calaveras County and the study area.

TABLE 2-7 VICTIM ROLE, 2006 – 2016

Victim Role	Study Area	Unincorporated Calaveras County
Driver (Auto)	26	2,546
Passenger (Auto)	32	1,871
Pedestrian	0	43
Bicyclist	0	29

Source: TIMS, 2018.

In the study area, only 2 percent of parties involved were reported to be under the influence. In the unincorporated county, this figure was nearly 11 percent, as shown in Table 2-8.

TABLE 2-8 PARTY SOBRIETY, 2006 – 2016

Party Sobriety	Study Area	Unincorporated Calaveras County
Had Not Been Drinking	90.2%	81.0%
Had Been Drinking, Under Influence	2.0%	10.9%
Had Been Drinking, Not Under Influence	0.0%	1.3%
Had Been Drinking, Impairment Unknown	0.0%	0.7%
Impairment Unknown	2.0%	3.4%
Not Applicable	3.9%	0.6%
Not Reported	2.0%	2.3%

Source: TIMS, 2018.

Conclusions from Collisions Review

The findings show the importance of looking at improvements to pedestrian and bicycle facilities. Key findings from this analysis include:

- No fatalities were reported in the study area during the reporting period, but some years prior to the beginning of the reporting period, a child was fatally hit by a vehicle near the school crossing of SR 4. During the reporting period, the county as a whole did see fatalities.
- The most frequently reported collision factor was unsafe speed. The frequency of rear-end collisions may be due to failure to maintain adequate following distance for the speed being traveled; the Caltrans SHOPP two-way left-turn project may help alleviate this type of collision.
- Collisions were reported most frequently near the intersection of SR 4 and Pennsylvania Gulch Road. This is particularly important to study due to the nearby proximity of Michelson Elementary School and Feeney Park.
- Several collisions were also reported along SR 4 adjacent to Feeney Park. Drivers sometimes park in this area and access the park through a gate on the south side of SR 4. Speed limits are also higher in this segment.
- Collisions due to under-the influence driving were less frequent in the study area than in the unincorporated county as a whole. The lower rate in the study area may be due to the higher age of the population compared to the county as a whole. Another factor may be lower speeds in Murphys compared to the entire unincorporated county, which can reduce the likelihood of an accident. Additionally, the study area is only a portion of Murphys and does not include all wineries and other destinations where alcohol is consumed.
- Collisions are somewhat more frequent in late summer, when both of these overlap: schools are back in session and tourists are still visiting.
- Because there are limited facilities, bicyclist and pedestrian activity is low, which inherently reduces the rate of collisions.

As indicated at the beginning of this section, the data used for this analysis only includes reported vehicle collisions involving an injury or fatality between 2006 and 2016. As such, it does not capture collisions not involving injuries or

fatalities, incidents unreported to law enforcement, or near misses.

REGULATORY AND PLANNING FRAMEWORK

Several documents have been developed to address planning and decision-making for the physical environment in Murphys. We have summarized the most important ones below.

Murphys Circulation, Pedestrian, Bicycling, and Parking Study

In 2002, the Calaveras Council of Governments prepared the Murphys Circulation, Pedestrian, Bicycling, and Parking Study. The Circulation Study was aimed at guiding transportation facility improvements that would address roadway network deficiencies, improve pedestrian and bicycle safety and comfort, and comprehensively plan for parking improvements. The Study recommended new roadway alignments throughout the Murphys area to provide better emergency access, improve circulation for local and tourist traffic, and reduce traffic impacts in sensitive areas. None of the proposed new roadways are within the project boundary for the Complete Streets Plan, but one proposed connector would connect Pennsylvania Gulch Road, east of the project boundary, to SR 4 west of the project boundary, providing a bypass to residents along Pennsylvania Gulch Road heading west on SR 4.

To support biking, the Study carried forward planned bikeway recommendations from the latest bicycle plan at that time, the 1998 Bikeway Plan, which proposed a Class II bike lane along SR 4 and Class III bike route signage along Main Street. The Study also recommended bike route signage along Pennsylvania Gulch Road and Jones Street and “share the road” signage along SR 4. The Study proposed a comprehensive network of walking paths, including along some roadways within the project boundary: Pennsylvania Gulch Road, Jones Street, Main Street, Big Trees Road, and Tom Bell Road.

In addition, the Study identified the need for a safer crossing of SR 4 at Pennsylvania Gulch Road, proposing installation of in-pavement flashers in the crosswalk,

combined with a pedestrian/bicyclist refuge area on the southeast corner of the intersection. Finally, the Study recommended a pedestrian walking path connecting the lodging properties along SR 4 to the Jones Street/Scott Street intersection, via the Old School House.

Based on its parking analysis, the Study includes a set of recommended parking improvements. The only recommendation within the project boundary was to complete the planned parking lot construction at the Old School House on Jones Street, which is now complete.

Murphys & Douglas Flat Community Plan

The Murphys & Douglas Flat Community Plan was adopted in 1988. The Community Plan is part of the current Calaveras County General Plan (discussed further below) and provides policies and implementation measures that address issues that are specific to the community. At the time of the last major update, bicycle and pedestrian infrastructure was not a focus area, so the Community Plan's Transportation section focuses on roadway maintenance issues, traffic, and parking deficiencies. However, in 2003, the Community Plan was amended to incorporate provisions of the Murphys Circulation, Pedestrian, Bicycling, and Parking Study, discussed above. Specifically, the amendment added a new goal to provide a safe and attractive environment for all modes, including pedestrians and bicyclists, accompanied by policies and implementation measures that address funding for and implementation of the recommended new roadway connectors, pedestrian paths, and bikeways. The amendment also includes a new goal to address parking, along with policies and implementation measures that address funding for and implementation of the recommended parking improvements.

Calaveras County General Plan and Municipal Code

The existing Calaveras County General Plan was adopted in 1996, and, as of the publication of this Complete Streets Plan, the County is currently underway with a comprehensive update to the General Plan. Title 17, Zoning, of the Calaveras County Municipal Code,

implements the land use direction contained in the General Plan. As shown in Figure 2-18, the project boundary is zoned for a variety of residential, commercial, and public uses.

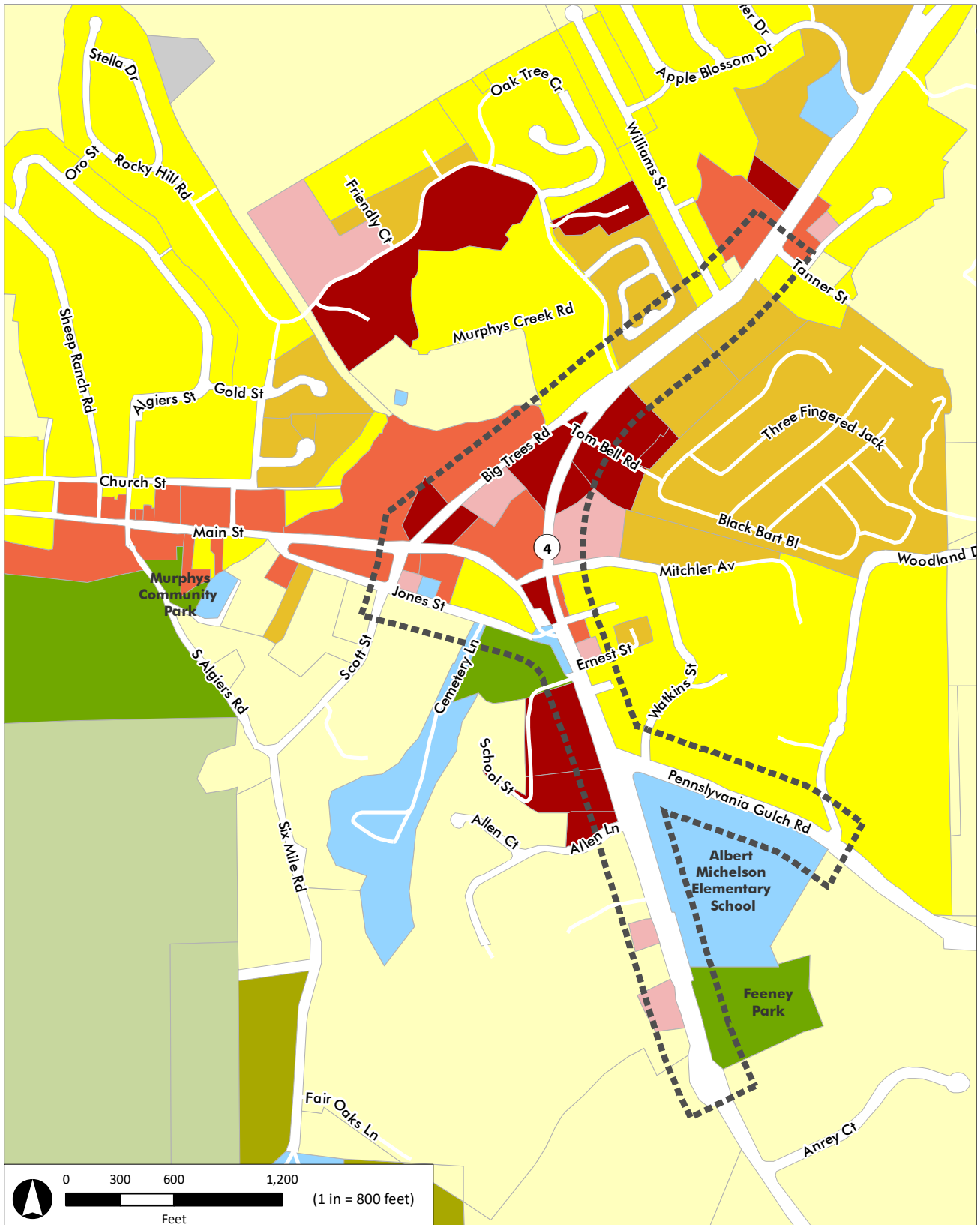
The existing 1996 General Plan Circulation Element classifies roadways into two major categories: "regional roads" and "community roads." Regional roads are located outside of community-oriented areas, such as areas within a Community Plan, while community roads fall within community-oriented areas. Because the project boundary falls within the Murphys & Douglas Flat Community Plan boundary (see description above), roads within the project boundary are considered community roads. Within that general classification, the General Plan Circulation Element designates roads within the project boundary as "through roads," "connector roads," and "local roads." Each roadway type has corresponding roadway standards in the Municipal Code, as discussed below.

Article III, Road Construction Specifications and Standards, of Chapter 12.02, i.e., the "road ordinance," of the Calaveras County Municipal Code specifies required road standards by road type (as classified in the existing 1996 General Plan), as summarized below:

- Two-lane through roads in a community plan area (SR 4 and Big Trees Road):
 - 45 mph speed limit.
 - 1,000-foot minimum radius.
 - 54-foot right-of-way width.
 - 40-foot roadbed width, including gutter.
 - 36-foot surface width.
 - 12-foot travel lane width.
 - 4½-foot sidewalks on both sides of roadway.
- Two-lane connector roads in a community plan area (Pennsylvania Gulch Road and Main Street):
 - 35 mph speed limit.
 - 600-foot minimum radius.
 - 54-foot right-of-way width.
 - 40-foot roadbed width, including gutter.
 - 36-foot surface width.
 - 12-foot travel lane width.
 - 4½-foot sidewalks on both sides of roadway.
- Residential local roads in a community plan area (all other roads):
 - 25 mph speed limit.

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Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

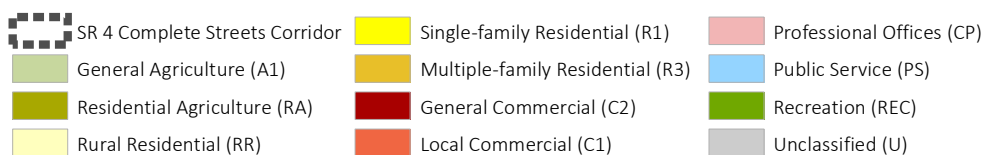


Figure 2-18
Zoning

- 300-foot minimum radius.
- 50- to 60-foot right-of-way width (depending on whether curb, gutter, and sidewalk are provided).
- 36-foot roadbed width, including gutter.
- 24- to 32-foot surface width (depending on whether curb, gutter, and sidewalk are provided).
- 10- to 12-foot travel lane width (depending on whether curb, gutter, and sidewalk are provided).
- 4½-foot sidewalks on both sides of roadway, if provided.

Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan

The Calaveras County Regional Bicycle, Pedestrian and Safe Routes to School Master Plan (June 2015) recommended the following improvements in the project boundary:

- Class III bike routes:
 - SR 4 east of Big Trees Road/Tom Bell Road (high priority).
 - Pennsylvania Gulch Road (high priority).
- “Share the Road” signage:
 - SR 4 west of Tom Bell Road (high priority).
 - Main Street (high priority).
- Sidewalks:
 - SR 4 both sides between Big Trees Road/Tom Bell Road and Pennsylvania Gulch Road.
 - Main Street.
 - Big Trees Road.
- High visibility crosswalks:
 - SR 4 at Pennsylvania Gulch Road, with yield lines (high priority).
 - SR 4 and Big Trees Road/Tom Bell Road, all four legs (high priority).
 - Main Street and Big Trees Road/Scott Street, all four legs (high priority).
 - Pennsylvania Gulch Road and Watkins Street, with yield lines (high priority).

The Calaveras County Regional Bicycle, Pedestrian and Safe Routes to School Master Plan also includes bicycle and pedestrian design guidelines.

Regional Transportation Plan

The 2017 Calaveras Regional Transportation Plan (RTP) is a federally mandated long-range, fiscally constrained multimodal transportation plan for Calaveras County. The RTP has a 20-year horizon that covers the period between 2017 and 2037. It serves as the planning blueprint to guide transportation investments in the county that involve local, State, and federal funding over that timeframe. Transportation improvements are identified as short-range/constrained (2017-2027) and long-range/unconstrained (2028-037). The RTP must be updated every four years, and it is prepared by the Calaveras Council of Governments in cooperation with Caltrans, Calaveras County, the City of Angels, and other stakeholders. Among the projects identified in the RTP, one is to construct safe routes to school improvements along SR 4 and Pennsylvania Gulch Road, including high-visibility crosswalks, signage, and sidewalks, to be constructed in 2025.

Caltrans Plans, Directives and Guides

Context-Sensitive Solutions (CSS)

Defined by the Federal Highway Administration (FHWA), the CSS process is a collaborative, interdisciplinary, and holistic approach to the development of transportation projects. Guided by four core principles, the process includes a shared stakeholder vision, a comprehensive understanding of a project’s context, flexibility and creativity to produce solutions that link a project to its surrounding environment, and communication and collaboration throughout the project process to enable consensus. Caltrans’ policy on CSS is provided through Deputy Directive 22 (DP-22), signed in 2001. As mentioned in the directive, Caltrans uses CSS as an approach to plan, design, construct, maintain, and operate its transportation system. The implementation of DP-22 has influenced multiple policy decisions from Caltrans, including the Deputy Directive Accommodating Non-Motorized Travel (DD-64) in 2001 and its subsequent enhancements (DD-64-R1 in 2008, DD-64-R2 in 2014) to further integrate complete streets into the planning of transportation projects. Another notable application of CSS principles is

the development of the “Main Streets California Guide”, which provides a range of design solutions that balance community values with efficient operations of all modes. It was first adopted in 2005 with the latest edition updated in 2013.

Full text on the Caltrans Deputy Directive on Context Sensitive Solutions is available for download at: <http://www.dot.ca.gov/hq/transprog/ocip/te/dp-22.pdf>.

Caltrans Deputy Directive Accommodating Non-Motorized Travel (DD-64, DD-64-R1, DD-64-R2)

Originally signed in March 2001, DD-64 gave direction accommodating non-motorized travel, providing expectations to programs related to the need of all non-motorized travelers, including bicyclists, pedestrians, and persons with disabilities statewide. Coinciding with the California Complete Street Act (AB 1358) in 2008, Caltrans updated and strengthened their policy on non-motorized travel with DD-64-R1. This revision enhanced DD-64 from accommodation to integration of the transportation system, providing “for needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State highway system.” Caltrans revised the directive (DD-64-R2) in 2014 to reflect changes of Caltrans division names and management within the organization, as well as reaffirming its commitment to complete streets and its emphasis on multimodal mobility.

Full text on the current Caltrans Deputy Directive on Accommodating Non-Motorized Travel is available for download at: http://www.dot.ca.gov/hq/tpp/offices/ocp/docs/dd_64_r2.pdf.

Caltrans Complete Streets Implementation Action Plan 2.0 (CSIAP 2.0)

Released in 2014, this Plan updates the first Complete Street Implementation Action Plan from 2010. The intent of the Plan is to describe the current Caltrans complete streets policy framework and overview of complete streets efforts statewide. This update also lays out the structure for monitoring, reporting, and overcoming barriers to

complete streets. Over 100 additional action items have been introduced in this Plan update, further integrating complete streets into all Caltrans functions and processes. Action items include conducting complete streets training courses to Caltrans staff, the development of a statewide Bicycle and Pedestrian Plan and supporting complete street plans for all twelve Caltrans districts. The Plan also includes policies on collecting complete streets data, the creation of performance measures evaluating the effectiveness of bicycle and pedestrian infrastructure, and the revision of Caltrans manuals to be consistent with and supportive of complete streets.

The CSIAP 2.0 Plan is currently available for download here at: http://www.dot.ca.gov/hq/tpp/offices/ocp/docs/CSIAP2_rpt.pdf.

Main Streets California Guide

This informational guide was created to serve as a reference on current traffic engineering practices, policies, and standards for Caltrans staff, local partners, and stakeholders to develop a shared vision on projects. In addition, the guide also provides guidance on design practices that aim to improve livability, sustainability, aesthetics, public space, and landscaping. Compatible with current guidance in the Caltrans Highway Design Manual (HDM), Manual of Uniform Traffic Devices (MUTCD), and Project Development Procedures Manual (PDPM), it offers flexibility of design standards for roadways that serve both as a State highway and a community street with traffic speeds typically less than 40 mph (SR 4 through Murphys currently has a 35-mph speed limit). The most recent edition of the manual, published in November 2013, includes greater emphasis on complete street investments consistent with recent Caltrans Non-Motorized Travel Deputy Directives, including support of infrastructure improvements that enhance travel conditions for all modes, with design solutions that focus on creating livable and sustainable communities.

The Main Streets California Guide is currently available for download at: http://www.dot.ca.gov/hq/LandArch/main_street/main_street_3rd_edition.pdf.

Transportation Concept Reports (TCR)

As long-range planning documents, TCRs identify existing conditions and future needs for each route on the State Highway System (SHS). Developed with the Caltrans Mission, Vision, and Goals in mind, each TCR includes an overall route summary, summaries of individual route segments and maps, existing and future travel data along the route, and a list of planned, programmed, and needed projects over the next 20 years. The most current TCR for SR 4 was published in 2014. The report analyzes the span of the State highway from San Joaquin County through Stanislaus County, Calaveras County (including the community of Murphys) to Alpine County.

The TCR for SR 4 defers to the Corridor System Management Plan (CSMP) for Highway 4, described further below, for the vision for SR 4 through Murphys. The CSMP describes SR 4 through Murphys as a “Main Street” highway because it is critical to the community’s economic development and serves multiple trip purposes. Design considerations for “Main Streets” that are also designated as State Highways are discussed in greater detail through Caltrans’ 2013 Main Streets California Guide, described above.

The TCR prepared for SR 4 is available for download at: <http://www.dot.ca.gov/dist10/divisions/Planning/advancedplanning/docs/TCR's/SR4TCRFinal.pdf>.

Corridor System Management Plan (CSMP)

A multimodal, multijurisdictional way to manage existing transportation infrastructure and systems, the CSMP involves using capacity improvement projects to optimize a corridor versus increasing roadway capacity for automobiles. CSMPs provide a lower cost, higher benefit option to make existing roadway systems more efficient. Improvements may include Intelligent Transportation System (ITS) solutions such as adaptive signals and changeable message signs to better manage traffic flow for drivers, transit, and alternative modes alike. A CSMP was prepared for SR 4 from the Stanislaus County/Calaveras County line to Lake Alpine in Alpine County in October 2008.

The CSMP mentions the following infrastructure improvements for SR 4 in Murphys (see Table 5.0.1 in the CSMP):

- Extend left turn lane at Main Street (funded, SHOPP project)
- Add a left turn lane at Pennsylvania Gulch Road (funded, SHOPP project)
- Add a left turn lane at Vallecito Road (funded, SHOPP project)
- Add a crosswalk, street lighting, and a flashing pedestrian beacon at Pennsylvania Gulch Road (unfunded, mentioned in 2007 Calaveras County Pedestrian Master Plan)**
- Add a class II bikeway from around Pennsylvania Gulch Road to Main Street (unfunded, mentioned in 2007 Calaveras County Bicycle Master Plan)
- Upgrade crosswalk, pedestrian signal heads, and street lighting at Main Street (unfunded, mentioned in 2007 Calaveras County Pedestrian Master Plan)
- Add a class III bikeway from Main Street in Murphys to Blagen Road in Arnold (unfunded, mentioned in 2007 Calaveras County Bicycle Master Plan)**
- Upgrade crosswalk, pedestrian signal heads, and street lighting at Tom Bell Road (unfunded, mentioned in 2007 Calaveras County Pedestrian Master Plan)**
- Add sidewalks and crosswalks to access the transit stop at Big Trees Road, near Bret Harte Drive (unfunded, mentioned in 2007 Calaveras County Pedestrian Master Plan)**

**Note – Recommendations for similar/more advanced improvements are also in the most current version of the Calaveras County Regional Bicycle, Pedestrian and Safe Routes to School Master Plan, described above.

As indicated in the list above, there are a number of unfunded recommendations in the ten-year implementation plan for the 2008 CSMP, some with direct references to recommendations in other plans, such as the Calaveras County Pedestrian Master Plan or Bicycle Master Plan. Those projects that are also recommended for implementation in this Complete Streets Plan will likely be more attractive for grant funding (particularly efforts led

by Caltrans), as they would directly implement *both* Caltrans and local plans.

In addition, even if there are projects not specifically mentioned in the CSMP, there are policies in the CSMP that support connectivity of bicycle and pedestrian infrastructure in future transportation projects along SR 4, maintaining existing and future expansions of transit service, and the expansion of transportation demand management practices including the construction of park-n-ride facilities, all of which are supported by various projects in this Complete Streets Plan. These policies are mentioned in detail on Page 30 of the CSMP.

The CSMP prepared for SR 4 is available for download at:
<http://www.dot.ca.gov/d10/tcr-csmp/sr4/CSR-4CSMP.pdf>.



CHAPTER 3: SUMMARY OF COMMUNITY ENGAGEMENT

This Complete Streets Plan was developed by the Murphys community through an extensive engagement process. The project utilized both conventional and non-conventional outreach techniques to engage diverse perspectives in identifying issues of concern, considering and selecting improvements to address those issues, and prioritizing the improvements.

This chapter describes the outreach methods and summarizes the input received over the course of the project.

ADVISORY COMMITTEE

Outreach began with the Advisory Committee, a group of 12 community members representing a variety of local interests, including parents, the school, business and tourism, community groups, and a bicycle coalition. One of the Advisory Committee's main functions was to serve as ambassadors to the community, letting community

members know about the project and opportunities to participate. The Advisory Committee held five meetings at key points in the process, including before each community workshop so that Advisory Committee members could share information and encourage participation at the upcoming workshops.

- **Advisory Committee Meeting #1.** On March 5, 2018, the Advisory Committee held its first meeting, during which they learned about the project, discussed key issues and concerns about the study area, and provided feedback on the outreach strategy.
- **Advisory Committee Meeting #2.** On April 16, 2018, the Advisory Committee reviewed and provided feedback on the draft *Summary of Existing Conditions* report, and provided guidance on the approach to the walking and biking tours for the upcoming Community Workshop #1. Committee members also helped spread the word about this upcoming workshop.



Advisory Committee meeting at the Murphys Schoolhouse

- **Advisory Committee Meeting #3.** On June 18, 2018, the Advisory Committee reviewed and provided feedback on the draft conceptual design alternatives, and provided guidance on the approach and outreach for the upcoming Community Workshop #2.
- **Advisory Committee Meeting #4.** On October 15, 2018, the Advisory Committee reviewed and provided feedback on the draft preferred alternative, and provided guidance on the workshop exercise for the upcoming Community Workshop #3. Committee members also helped spread the word about this upcoming workshop.
- **Advisory Committee Meeting #5.** On January 14, 2019, the Advisory Committee reviewed and provided feedback on the draft implementation and funding components, including how projects are grouped and prioritized.

COMMUNITY WORKSHOPS

Three interactive community workshops were held at key points in the process, as described below. To help spread the word about these workshops, the Project Team used a variety of media, including:

- Meeting fliers posted at various locations in the area
- Sandwich board signs posted at key locations
- Newspaper press releases
- Email updates
- Social media

The Project Team also coordinated with the school to include workshop information in school emails, with the

Murphys Sanitation District to include information in monthly bill mailings, and with the Murphys Business Association to include information in their weekly emails.

- **Community Workshop #1.** On April 25, 2018, the Project Team introduced the project to the community and conducted a walking and biking tour of the project area. Approximately 40 people attended the workshop. After the walking/biking tours, community members reconvened to discuss potential improvements in small groups. The workshop ended with a report back from each of the small groups. Community members who couldn't attend the workshop were also invited to participate in the walking and biking tour on their own. Worksheets were made available online and printed copies were available at the Murphys Sanitation District office.



Workshop #1 participants on the walking and biking tours



Small group reports back at Workshop #2

- **Community Workshop #2.** On June 27, 2018, approximately 40 workshop participants reviewed two alternatives for improvements in bike and pedestrian connectivity. Working in small groups, community members reviewed the alternative approaches in each section of the study area, answering key questions and identifying a preferred alternative to address each issue. The workshop ended with a report back from each of the small groups. Community members who couldn't attend the workshop were also invited to provide input on their own by completing the small group questionnaires, which were made available on the project website.
- **Community Workshop #3.** On October 24, 2018, approximately 40 community members reviewed and provided feedback on the draft preferred alternative, including on how projects should be prioritized. This workshop was organized as an open house, in which participants could visit stations set up around the space to learn about each project that was included in the draft preferred alternative. Using a worksheet, participants identified the top ten projects that they thought were most important to implement. In addition, using sticker dots, participants also identified their top three projects on a board showing all improvements. Community members who couldn't attend the workshop were also invited to provide input on their own by completing the open house worksheets, which were made available on the project website.



Open house station at Workshop #3

FIELD OFFICE

The Project Team opened a field office in the Murphys Sanitation District office, located on SR 4 in the project area. The field office was open one day a week for the month that followed Community Workshop #2, and community members were invited to visit the field office to discuss the conceptual design alternatives, and provide additional feedback and input. The Project Team also used the field office as a venue for stakeholder meetings, including a meeting with the Murphys Fire Protection District staff regarding possible improvements near the District's fire station. The field office was advertised at Community Workshop #2, with flyers posted around the community, on the project website, via eblasts, and with a large banner sign posted outside the field office.



Field office banner sign

POP-UP EVENTS

The Project Team set up a booth at three community events to let community members know about the project and to ask for input on corridor improvements:

- First Friday in the Park: June 1, 2018
- “Chicken in a Barrel” Murphys Parents Club annual fundraiser: June 2, 2018
- Grape Stomp: October 6, 2018

The events were timed to precede Workshops #2 and #3 so that the booth could help to advertise for the upcoming workshops. The booths also functioned as an opportunity to hear from community members who may not have time to participate in the process through other venues.



Booths at First Friday in the Park and the Grape Stomp

OTHER MEETINGS

The Project Team attended meetings of active community groups in order to help spread the word about the project, hear ideas for how best to engage the community, and receive input on issues and potential improvements:

- Murphys Community Club Board Meeting: April 10, 2018
- Murphys Business Association Membership Meeting: June 7, 2018

PARENT SURVEY

Between May 1 and May 7, 2018, parents of students at Albert Michelson Elementary School were invited to participate in a brief survey about walking and biking behaviors and issues of concern. The survey was sent to parents via the school email list, and 33 parents participated in the survey. See Figure 3-1 for a summary of results.

WEBSITE

A dedicated website was developed for the project (murphyscompletestreets.com), which includes a description of the project and the project area, information about upcoming events, and project updates as milestones were reached. The website also offered a quick and easy way to sign up for a mailing list and submit comments or questions.

PLANNING COMMISSION AND BOARD OF SUPERVISORS MEETINGS

While reviewing and considering adoption of this Complete Streets Plan, the Calaveras County Planning Commission and Board of Supervisors held public meetings. Community members were invited to speak about the Draft Complete Streets Plan at those meetings.

What is the most significant impediment for your child to walk or bike to school (check all that apply)?

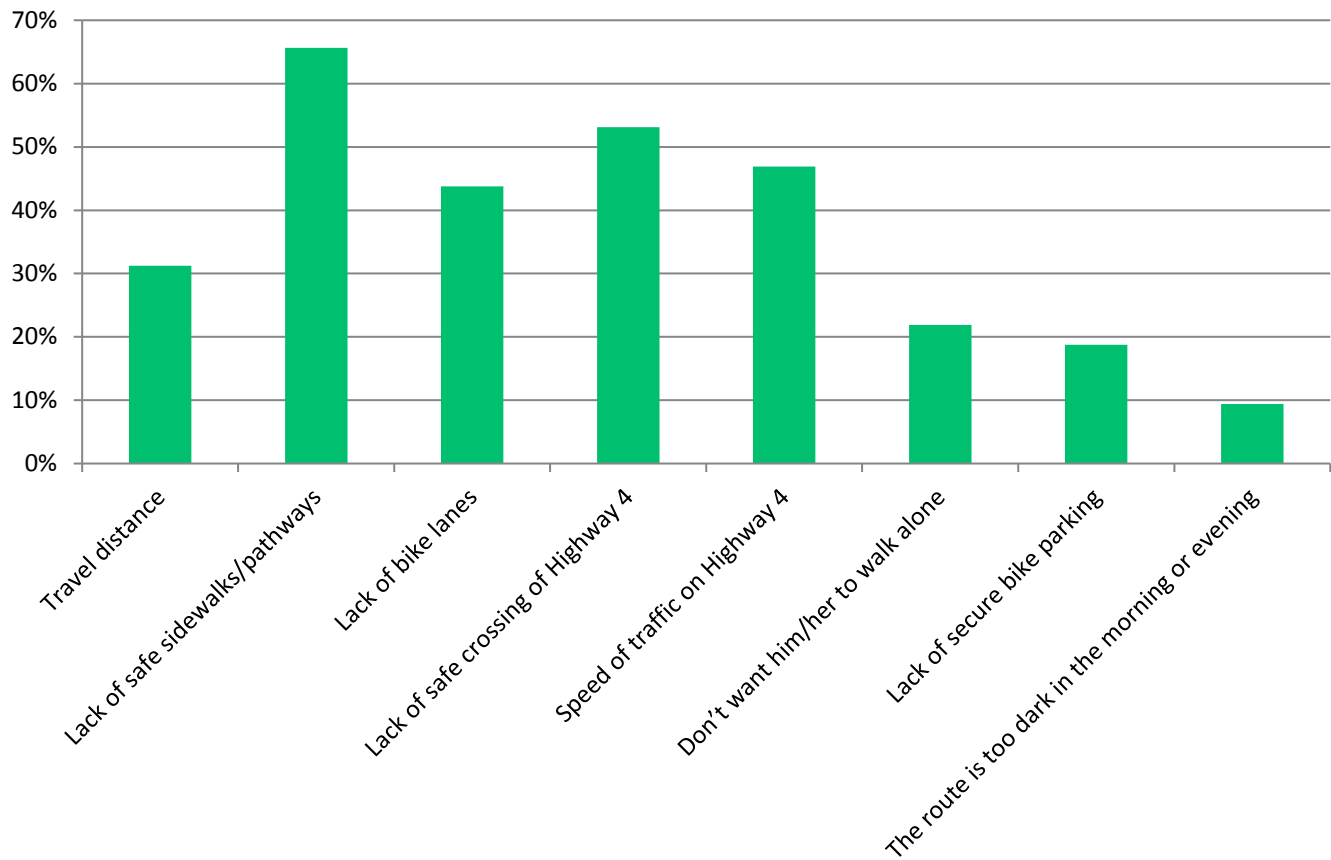


Figure 3-1 Parent Survey Results

SUMMARY OF COMMUNITY CONCERNS

This section presents a summary of the community input from each major phase of the project, including 1) identifying issues and potential improvements; 2) selecting a preferred alternative; and 3) prioritizing projects.

Issues

The community provided substantial input on issues within the project area and potential improvements to address those issues. Input was collected using the following venues:

- Advisory Committee Meetings #1 and 2

- Community Workshop #1
- Murphys Community Club Board Meeting
- Parent Survey

Key issues and improvements are summarized below.

West (Jones Street to Feeney Park)

- Need better signage to alert drivers that they are in Murphys and to direct them to Downtown/Main Street. Ensure signage is appropriate.
- Feeney Park parking on SR 4 creates safety concerns but there are few alternatives.
- Confusing intersection at Jones Street/Main Street/SR 4.
- Jones Street should have safe places to walk.

- Jones Street/Scott Street intersection needs better crosswalks.

Central (Near Pennsylvania Gulch Road/SR 4 Intersection)

- Concerns regarding safety for children around the school due to lack of facilities, high-speed traffic, and visibility issues. (See Figure 3-1 on the previous page for the parent survey results related to impediments to walking or biking to school.)
- Eastbound traffic on Pennsylvania Gulch Road (toward the school) is blinded by morning sun.
- Parents drive too fast during pick-up and drop-off.

East (Main Street to Apple Blossom Drive)

- Concerns regarding bike/pedestrian safety along SR 4.
- Preference for sidewalks on both sides of SR 4 between Pennsylvania Gulch Road and Big Trees Road, although if only one side is feasible, the north side is generally preferred.
- Need more access from Diggins senior housing development to key destinations; bring up to ADA standards given senior population.
- Many children from the Williams Street/Apple Blossom Drive area walk to school along SR 4.
- Need continuous sidewalks and pedestrian lighting on Big Trees Road and Main Street, but use alternative materials to maintain rural feel.
- Big Trees Road/Creek View intersection has no clear path of travel for pedestrians, and vehicles drive through quickly with poor visibility of pedestrians coming from Creek View. Need crosswalk across Big Trees Road.

Overall Bike Facilities

- Need regional bike connections along SR 4, Pennsylvania Gulch Road, and Six Mile Road to Ironstone Vineyards.

Alternative Solutions

Based upon the input received regarding issues that need to be addressed and suggestions for potential improvements, the Project Team developed alternative design concepts for the community to consider. Input was received through the following venues:

- Advisory Committee Meeting #3
- Community Workshop #2
- Field Office
- Pop-Up Events (“Chicken in a Barrel” Fundraiser and First Friday in the Park)
- Murphys Business Association Membership Meeting

A preferred alternative, which is described in more detail in Chapter 4, was developed using community recommendations. Community input on the preferred alternative is summarized below.

West of Pennsylvania Gulch Road

- SR 4 west of Pennsylvania Gulch Road should be enhanced with a 10-foot separated multi-use sidepath or sidewalk.
- Parking should be accommodated on SR 4 near the Feeney Park access with a reconfigured parking area and formalized ingress/egress.
- The crossing of SR 4 at Pennsylvania Gulch Road should be improved with a signal and pedestrian refuge. Community members supported both a full traffic signal and a pedestrian-activated hybrid beacon.

Pennsylvania Gulch Road Area

- Pedestrians and bikes should be accommodated on Pennsylvania Gulch Road by a 10-foot multi-use sidepath on the south side of the road to the Feeney Park parking lot.
- Trees should be planted to reduce glare at the crossing of Pennsylvania Gulch Road.

Central SR 4

- Pedestrians and bikes should be accommodated on SR 4 between Pennsylvania Gulch Road and Tom Bell Road with either sidewalks and bike lanes or a 10-foot multi-use sidewalk.

- Street lighting should be limited to maintain the rural environment and minimize light and glare impacts on adjacent residential uses.
- The center turn lane proposed by the SHOPP project should be extended as a separate project north of Main Street to Tom Bell Road.
- A new pedestrian crossing of SR 4 should be added at the Main Street/SR 4 intersection.
- The Main Street/Jones Street/SR 4 intersection should be improved by replacing the existing Yield sign with a Stop sign on Main Street and adding a crosswalk with a pedestrian refuge island across Main Street at SR 4.
- A gateway sign should be added along Main Street near the Main Street/Jones Street/SR 4 intersection.

Tom Bell Road Area

- The Tom Bell Road/Big Trees Road/SR 4 intersection should be improved with crosswalks on each leg of the intersection and curb extensions to tighten the intersection.
- Pedestrian travel from Creek View should be improved with a new sidewalk on the north side of Big Trees Road connecting to a new crosswalk across Big Trees Road near the Sierra Hills shopping center.

East of Tom Bell Road

- The north side of SR 4 east of Tom Bell Road should be enhanced for pedestrian and bike access, potentially using the weigh station driveway.
- A new “Welcome to Murphys” sign should be installed near the Bret Harte Drive/SR 4 intersection.

Main Street/Big Trees Road/Scott Street Intersection Area

- The Main Street/Big Trees Road/Scott Street intersection should be improved with new crosswalks on all legs of the intersection.
- Big Trees Road should be improved for better pedestrian access either by extending the sidewalk on the south side of the road or by installing a gravel path.

- Main Street between Big Trees Road and SR 4 should be improved with a gravel path.
- Input on potential Jones Street improvements was split between no improvements and a Class III bike route with a gravel path.

Project Prioritization

The Project Team developed the preferred alternative based upon the community input from the prior phase. During this phase, community members provided input on how to prioritize among the projects that make up the preferred alternative, including through the following venues:

- Advisory Committee Meetings #4 and #5
- Community Workshop #3
- Grape Stomp

The priority rankings by community members are presented in Table 6-1 in Chapter 6 as part of the implementation discussion. Generally, community members prioritized projects that would improve safety around the school and that would provide safer opportunities to walk and bike along SR 4 between Pennsylvania Gulch Road and Tom Bell Road.



CHAPTER 4: COMPLETE STREETS RECOMMENDED IMPROVEMENTS

In meetings with the Advisory Committee and at community outreach events, community members supported the goal of improvements for pedestrians and bicyclists. The Project Team used input from these meetings and events to review alternative ideas for improvements and refine those ideas into the concepts shown in this Plan.

This chapter describes the multimodal vision for the future of the study area through a set of conceptual descriptions and diagrams of streetscape improvements. It also includes



Bikers along central SR 4 near the Tom Bell Road intersection

an analysis of future traffic operations with the proposed improvements in place. Note that additional study will be required for many of these improvements, in conformance with Caltrans standards.

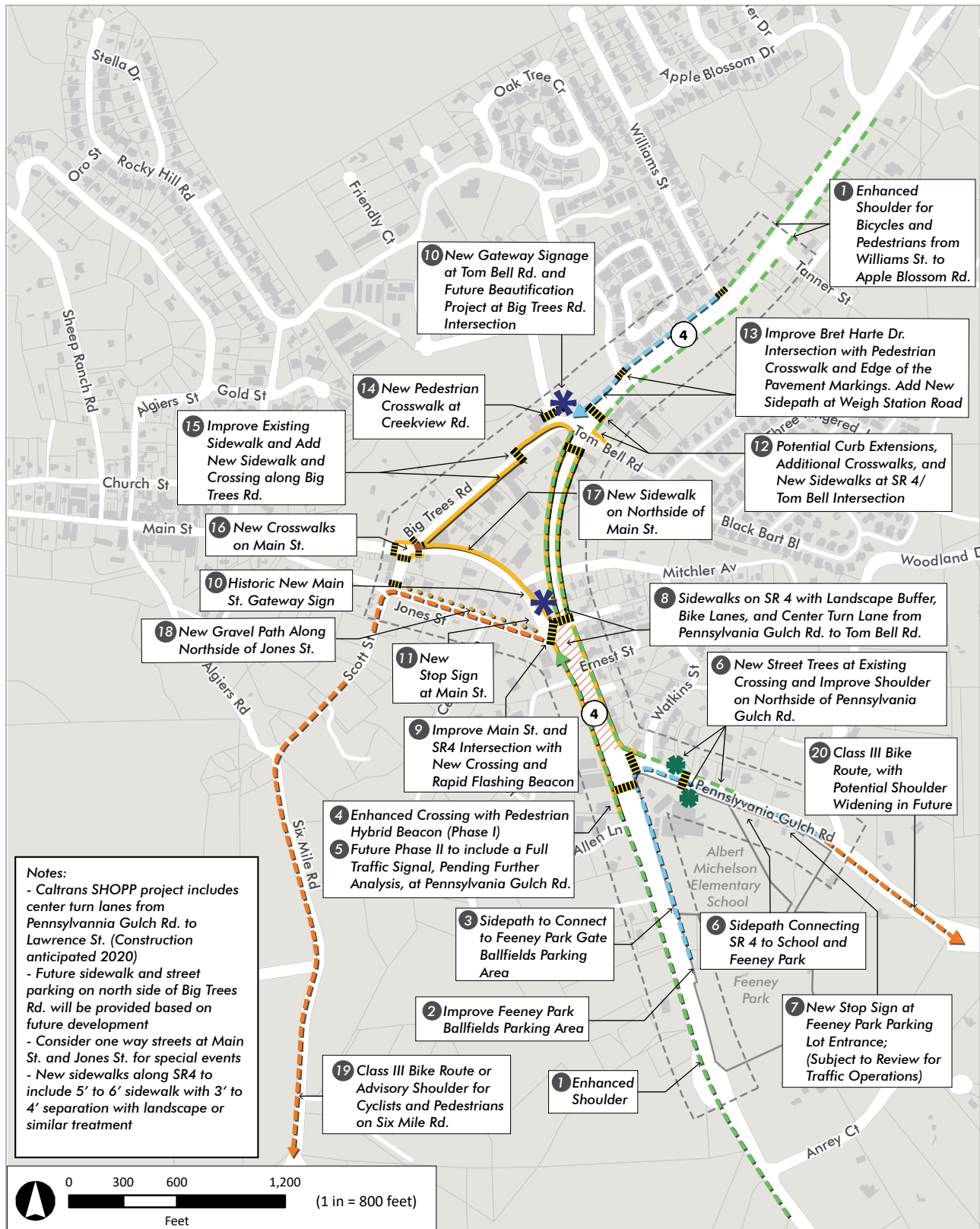
OVERVIEW OF KEY IMPROVEMENTS

This Complete Streets Plan envisions a high visibility pedestrian crossing of SR 4 at Pennsylvania Gulch Road and significant multimodal improvements along SR 4 in the central section from Pennsylvania Gulch Road to Tom Bell Road. Other pedestrian and bicycle improvements are planned outside the central SR 4 section, all using Caltrans Context Sensitive Solutions along SR 4.

Figure 4-1 provides an overview of the key elements of the Complete Streets Plan and locations of the recommended improvements. Figure 4-2 shows street cross-sections illustrating recommended improvements along SR 4.

MURPHYS SR 4 COMPLETE STREETS PLAN

Chapter 4 | Complete Streets Recommended Improvements

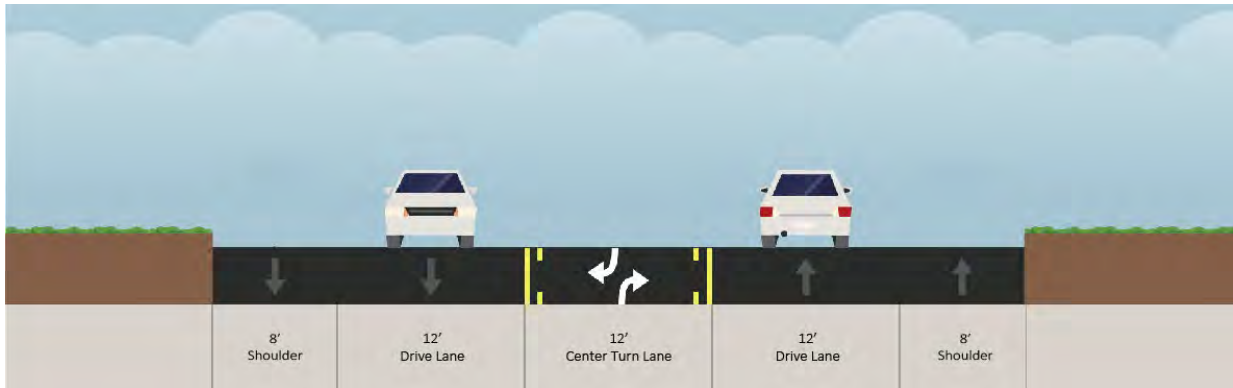


Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

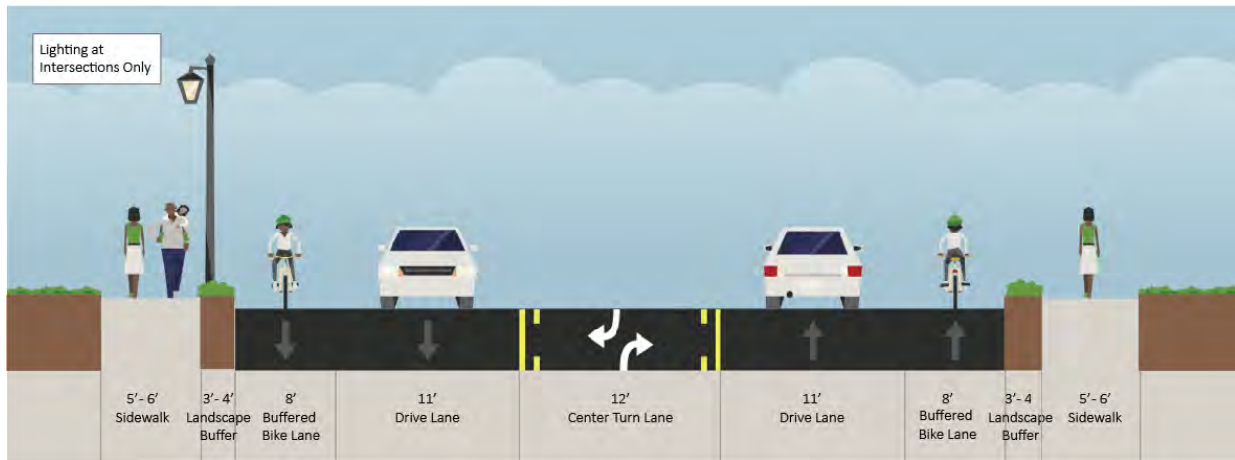
Figure 4-1

Plan Overview

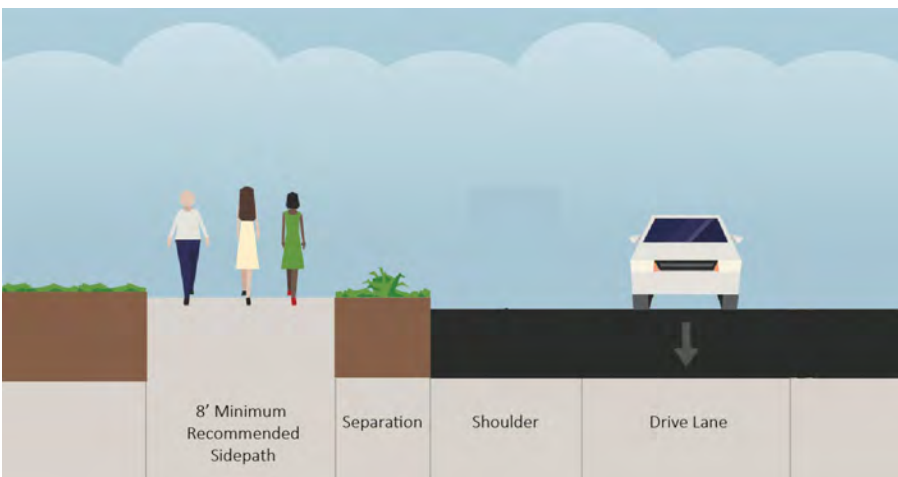
STREET SECTIONS AT SR 4



STREET SECTION OF PROPOSED CALTRANS SHOPP PROJECT – CONSTRUCTION ANTICIPATED 2020



A. STREET SECTION – CENTRAL SECTION FROM PENNSYLVANIA GULCH ROAD TO TOM BELL ROAD



B. STREET SECTION – SIDEPATH OUTSIDE CENTRAL SECTION

Figure 4-2
SR 4 Cross-Sections

SUMMARY OF KEY ISSUES AND IMPROVEMENTS BY SEGMENT

This section describes the key issues and the planned improvements to address those issues within each segment of the study area.

SR 4 West of Pennsylvania Gulch Road to Feeney Park

Key Issues

Pedestrian and Bicycle Access and Safety Concerns

This section of the corridor is a gateway into Murphys from the west. Existing pedestrian or bicycle access to this area is by using the shoulder of SR 4. Pedestrian and bicycle level of traffic stress (LTS) is ranked at 4 (i.e., walking is “very uncomfortable or impossible” and biking is only for “strong and fearless” riders – see Chapter 2).

High Collision Rates Due to High Traffic Speed

Traffic speeds are high, and collision history indicates higher collision rates in this area compared to the majority of the study area (except at Pennsylvania Gulch Road). A contributing factor to this cluster of collision incidents may be the use of an informal parking area on the south side of SR 4 to access the Feeney Park ballfields.

Lack of Effective Signage

There are multiple “welcome to Murphys” signs in this area, but all are located outside of the Caltrans right-of-way, meaning they are set far from the road, limiting their effectiveness.

Key Improvements

Figure 4-3 shows the recommended improvements along SR 4 west of Pennsylvania Gulch Road to Feeney Park. The recommended improvements are also described below.

Sidepath

A separated sidepath on the south side of SR 4 should be provided from the intersection of Pennsylvania Gulch Road and SR 4 to the Feeney Park gate and associated parking lot. A minimum width of 8 feet for the sidepath is

recommended. It appears there is space to provide the sidepath along the top of the bluff, but the rise and fall in elevation at this location will require further review to ensure it meets accessibility standards.

Enhanced Shoulders

Enhanced shoulders on SR 4 west of Pennsylvania Gulch Road should be provided to accommodate bikes and pedestrians. These shoulders may require additional paving. The shoulders could be lined on the traffic side with mumble strips (i.e., quieter than “rumble strips”), a series of depressions that make noise to alert drivers they are encroaching, subject to Caltrans review and approval.

Parking Lot Improvement

The informal parking area for Feeney Park west of Pennsylvania Gulch Road should be improved with a single-in and a single-out access. The parking should also be separated from the highway by using an approved barrier. Depending on property boundaries, a maintenance agreement between Caltrans and the County may be required. With these improvements, the parking lot could double as a park and ride lot during the work week to encourage carpooling and transit use.



Informal parking area along SR 4 at Feeney Park

New Signage

After discussion with community members, the priority for new signage is to add more visible “Historic Main Street Murphys” signage at the SR 4 and Main Street intersection, rather than the western entrance into Murphys.

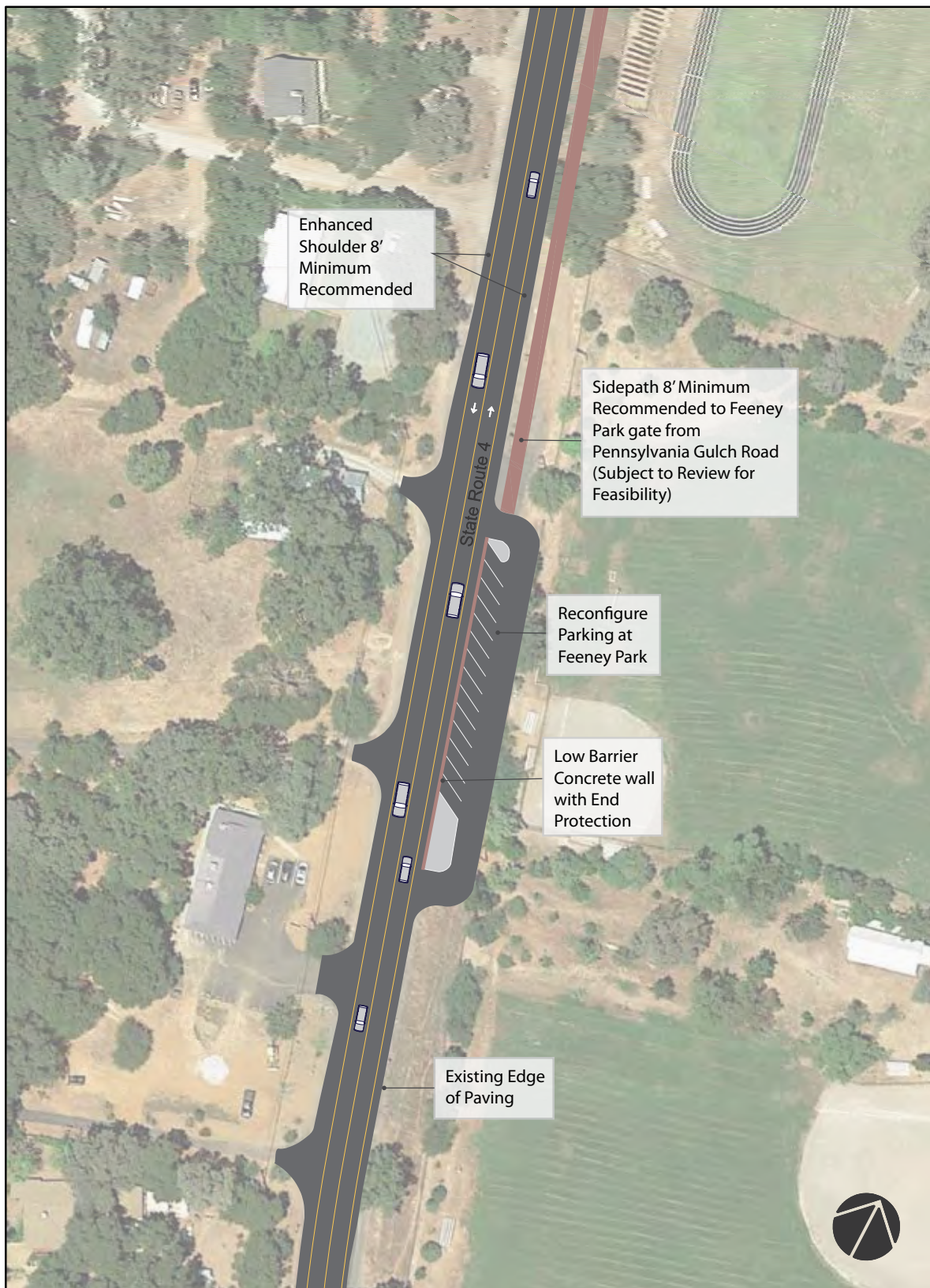


Figure 4-3

Recommended Improvements for
SR 4 West of Pennsylvania Gulch Road

Pennsylvania Gulch Road

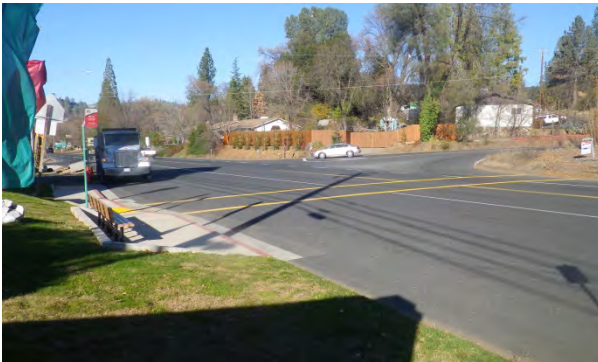
Key Issues

Limited Pedestrian- and Bicycle-Oriented Facilities

Overall, there are limited pedestrian and no bicycle facilities for students to get to Michelson Elementary School.

Pedestrian Safety Concerns

The existing school crossing across SR 4 is very challenging; the school does not recognize it as a school crossing, and does not encourage its use. The largest cluster of collision incidents within the study area occurred at the SR 4 and Pennsylvania Gulch Road intersection. Residents report high traffic speeds, especially during drop-off and pick-up times, and the wide intersection doesn't help to slow traffic. Meanwhile, this is also the transit stop for westbound bus service. On Pennsylvania Gulch Road, there are no continuous sidewalks connecting from the SR 4 intersection to the school entry.



Existing crossing of SR 4 at Pennsylvania Gulch Road

Lack of Pedestrian Facilities

Data shows many students live on the south side of SR 4 (across Pennsylvania Gulch Road from the school) but there are few facilities to walk or bike to school. Where there is a crosswalk across Pennsylvania Gulch Road, community members report sun glare impeding visibility at the crosswalk during the morning drop-off time; in addition, there is no clear pedestrian path of travel on the north side of this crosswalk.



Safety around Michelson Elementary is a key issue for the project

Narrow Shoulders and High Speed of Traffic

East of Feeney Park, Pennsylvania Gulch Road has a very narrow shoulder, vehicle speeds are high, and there is some truck traffic with heavy loads, creating a challenging pedestrian and bicycle environment. Meanwhile, high school students get dropped off at Michelson Elementary by the bus system; so many students walk this corridor every day.

Key Improvements

Figure 4-4 shows the recommended improvements along Pennsylvania Gulch Road, which are also described below.



Existing crosswalk across Pennsylvania Gulch Road

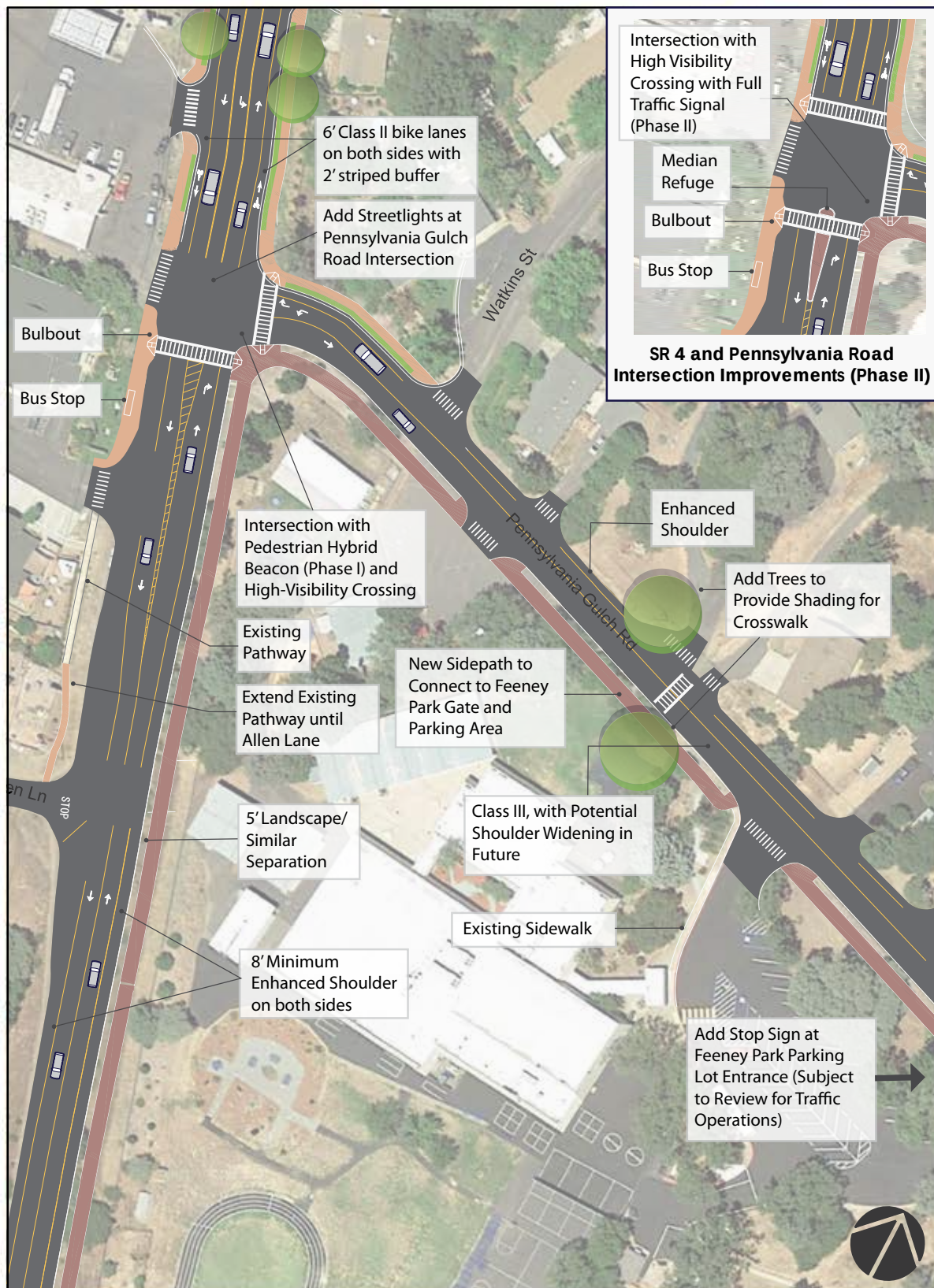


Figure 4-4
Recommended Improvements for Pennsylvania Gulch Road



Figure 4-5 Visual Simulation Showing Improvements at Pennsylvania Gulch Road and SR 4 (View from Pennsylvania Gulch Road)

Need for Phased Improvements Due to Warrants

At the Pennsylvania Gulch Road/SR 4 intersection, the improvements may need to be made in phases, due to Caltrans requirements that certain warrants regarding pedestrian use need to be met to justify the improvement. The Project Team anticipates that with other Complete Street improvements in Murphys, the warrants will eventually be met.

- For Phase I (short-term), a high visibility crosswalk on the south side of the intersection with a pedestrian hybrid beacon to stop traffic on demand should be provided. See Figures 4-5 and 4-6 for visual simulations showing this and other recommended improvements at this location.

- For Phase II (longer-term), a full traffic signal is anticipated with high visibility crosswalks on all three sides of the intersection.

New Sidepath on South Side of Pennsylvania Gulch Road

On Pennsylvania Gulch Road, a new sidepath for pedestrians and bicycles on the south side should be provided from SR 4 to the Feeney Park parking lot on Pennsylvania Gulch Road, which is used as the school drop-off/pick-up spot. In addition, some have asked for a stop sign on Pennsylvania Gulch Road, at the parking lot. This is a potential improvement that could be installed if it meets warrants.



Figure 4-6 Visual Simulation Showing Improvements at Pennsylvania Gulch Road and SR 4 (View from SR 4 Looking West Towards Pennsylvania Gulch Road)

New Pedestrian Markings and Street Trees

On the north side of Pennsylvania Gulch Road, pedestrian markings leading to the crosswalk across Pennsylvania Gulch Road to the school should be provided. New street trees should be planted on both sides of Pennsylvania Gulch Road, eventually overhanging the road to provide shade and block sun glare in the morning and evening hours.

New Bike Route and Shoulder Widening

East of Feeney Park, a Class III bike route (bikes share the road with cars) should be provided on Pennsylvania Gulch Road. In a future phase, consideration should be given to widening the shoulders along Pennsylvania Gulch Road to provide more space for pedestrians and bicycles.

Extension of Existing Pathway

On SR 4 in this area, an existing pathway on the north side should be extended to Allen Lane.



Class III bike route signage

Central SR 4 and Main Street/ Jones Street/SR 4 Intersection

Key Issues

Lack of Bicycle and Pedestrian Infrastructure

- Even though many important destinations are within a ¼-mile or ½-mile walking distance from residential areas, pedestrians and cyclists are not encouraged to walk or bike due to a lack of safe facilities, particularly along this central section of the study area. The pedestrian LTS is ranked at 4, and bicycle LTS is ranked at 3 (i.e., only for “confident” bicyclists).



Existing shoulder on central SR 4, looking east

- Community members strongly support adding sidewalks or a sidepath along SR 4, as well as adding more opportunities to safely cross SR 4, especially given the 2,000-foot distance between the two existing crosswalks at Pennsylvania Gulch Road and Tom Bell Road.

- Community members also support providing safe bicycle facilities along SR 4 given the active biking population and its importance of recreational cycling to tourism and the economy.
- The Main Street/Jones Street/SR 4 intersection is confusing for vehicular traffic, and there are no clear pedestrian paths of travel. Meanwhile, many tourists staying at the Murphys Suites prefer to walk to Main Street for wine tasting, which requires walking along the shoulder of SR 4 and then navigating this confusing intersection.



Existing Main Street/Jones Street/SR 4 intersection

Lack of Wayfinding Signage

The Main Street/Jones Street/SR 4 intersection is the main entrance to Main Street Murphys, yet travelers passing by often do not realize the charming historic center of Murphys is nearby. The intersection lacks gateway signage or wayfinding.

Key Improvements

Figure 4-7 shows the recommended improvements along the central SR 4 section and Main Street/Jones Street/SR 4 intersection, which are also described below. Figures 4-8 and 4-9 show visual simulations of key improvements at Main Street/Jones Street and SR 4.



Figure 4-7

Recommended Improvements for Central SR 4 and Main Street/
Jones Street/SR 4 Intersection



**Figure 4-8 Visual Simulation Showing Improvements at Main Street/Jones Street and SR 4
(View from SR 4 Looking East Towards Main Street)**

New Sidewalks and Landscaped Buffer

Along SR 4, a 5- to 6-foot sidewalk should be provided on both sides. Sidewalks should be separated from the roadway by a 3- to 4-foot buffer and standard curb and gutter. The buffer could be landscape planting, mulch, gravel or decorative paving. Maintenance needs to be considered. Street trees are shown in key locations, and the size and species will need to be selected to be appropriate to the location.

New Bike Lanes

Class II bike lanes (6 feet in width) along the curb should be provided on both sides of SR 4. There should also be a 2-foot buffer for a total of 8 feet. These bike lanes could be colored green at areas of potential conflict or even along the entire stretch between Pennsylvania Gulch Road and Tom Bell Road.

Improved Street Lighting

Street lighting at key intersections only should be provided. Street light fixtures should match the historic character of Murphys.



Class II bike lane pavement markings



**Figure 4-9 Visual Simulation Showing Improvements at Main Street/Jones Street and SR 4
(View from Main Street/Jones Street Looking Towards SR 4)**

New High-Visibility Pedestrian Crossing

Across SR 4 near Main Street, a new pedestrian crossing should be provided, including a high visibility crosswalk and pedestrian crossing beacons. Across Main Street at SR 4, a new high-visibility pedestrian crosswalk should be provided with a pedestrian refuge island that includes mountable curbs to provide adequate truck turning space.

New Stop Sign

A new stop sign on Main Street where it intersects with Jones Street (to replace the existing yield sign) should help improve safety. A new sidewalk should be provided around the corner of Main Street and Jones Street, connecting to a future gravel sidewalk along the north side of Jones Street.

New Gateway Signage

A new gateway sign at the Main Street turnoff of SR 4 should point the way to the historic center of Murphys for eastbound travelers on SR 4. The design of the sign should reflect the historic character of Murphys. The sign would need to be located outside of the Caltrans right-of-way unless it conforms to Caltrans' standards.



High-visibility crosswalk with pedestrian refuge island

Big Trees Road/Tom Bell Road/ SR 4 Intersection Area

Key Issues

Lack of Adequate Pedestrian-Oriented Infrastructure

- The Big Trees Road/Tom Bell Road/SR 4 intersection serves as a key entry to the historic Main Street of Murphys for westbound traffic. It also provides access to the 55+ Diggins community, the bank, and other important services, and is the connection to the bus transit stop for eastbound bus service for Murphys. However, only one side of the intersection provides a crosswalk for pedestrian access, and there is no sidewalk on the southeast corner. Meanwhile, the wide radius at the corners allows turning vehicles to travel at high speeds (especially for westbound traffic turning right onto Big Trees Road), a common issue for intersections designed to accommodate large trucks where passenger vehicles can take the same corners at high speeds.
- Just north of this intersection, the Creek View/Big Trees Road intersection, which serves a large residential area, poses significant challenges for pedestrians. Once pedestrians walk from Creek View Road onto Big Trees Road, they have no safe connection and no safe crossing of Big Trees Road to access the services on Tom Bell Road across SR 4 and on the other side of Big Trees Road.

Lack of Gateway Signage

As mentioned, the Big Trees Road/Tom Bell Road/SR 4 intersection is the entrance to Main Street Murphys for



Existing crosswalk at Big Trees Road/Tom Bell Road/SR 4 intersection

westbound traffic, yet it lacks gateway signage and wayfinding for tourists, and the design does not represent the character of the community.

Key Improvements

Figure 4-10 shows the recommended improvements in the Big Trees Road/Tom Bell Road/SR 4 intersection area, which area also described below.

Extension of Central Turn Lane and New Pedestrian and Bicycle Infrastructure

The central turn lane that is proposed in the Caltrans SHOPP project from Pennsylvania Gulch Road to Main Street should be extended east to the Big Trees Road/Tom Bell Road/SR 4 intersection, along with sidewalks, buffer strips, and bike lanes.

Crosswalk Enhancements

The crossing of SR 4 at Big Trees Road/Tom Bell Road should be enhanced with painted curb extensions and crosswalks on all four sides, connecting to a new sidewalk installed at the southeast corner leading to the shopping center. New crosswalks may affect traffic signal operations, and will need to undergo an operations analysis before being implemented. The painted curb extensions will slow down turning traffic, making the intersection safer for pedestrians, while allowing large trucks to still make the turn when necessary.

New Mid-Block Crossing and Improved Sidewalk Connection

There should be a new crosswalk across Creek View at Big Trees Road, leading south down a new sidewalk to a new mid-block crossing of Big Trees Road near the Sierra Hills Market shopping center, thereby connecting to existing sidewalks leading to Main Street.

Intersection Improvements

The intersection at Big Trees Road and SR 4 should also be improved aesthetically. This should include new landscaping along the north side of SR 4, and new gateway signage indicating the turnoff to the historic center of Murphys. The design of the sign should reflect the historic character of Murphys, and it would need to be located outside of the Caltrans right-of-way unless it conforms to Caltrans' standards.

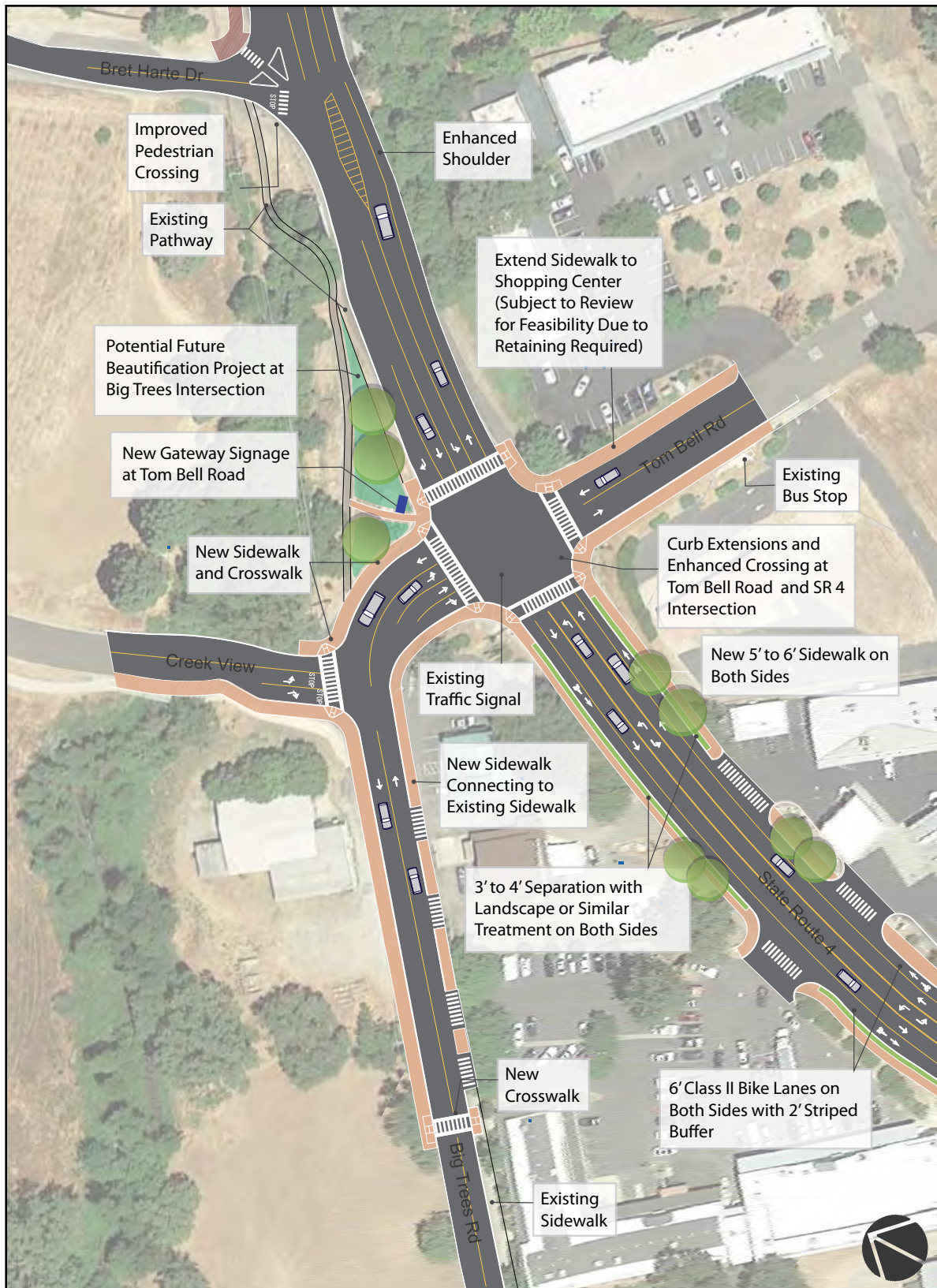


Figure 4-10
Recommended Improvements for Big Trees Road/Tom Bell Road/
SR 4 Intersection Area

SR 4 East of Tom Bell Road

Key Issues

Lack of Bicycle and Pedestrian Facilities

East of Tom Bell Road, vehicle speeds on SR 4 are higher, especially for westbound traffic coming down from the mountains, but there are no facilities for bicycles or pedestrians. Meanwhile, this portion of SR 4 serves a large residential area to the north. Pedestrian LTS is ranked at 4; bicycle LTS is ranked at 3 east of Williams Street and 4 west of Williams Street.

Bicycle and Pedestrian Safety Concern

- The California Highway Patrol (CHP) operates a weigh station on the north side of SR 4. The configuration means that there is a narrowing of the shoulder to an unsafe dimension for pedestrian or bicycle use at that location.



CHP weigh station on north side of SR 4

- The Bret Harte Drive turnoff from SR 4 could be improved to increase pedestrian visibility and safety. In addition, some community members have said that the edge of paving at the turnoff is not very visible to westbound drivers turning into Bret Harte Drive.

Absence of Gateway Signage

Although there is no clear gateway into Murphys for westbound travelers, community members expressed a preference to put gateway signage closer to the turn-off at Big Trees Road.

Key Improvements

Figure 4-11 shows the recommended improvements along SR 4 east of Tom Bell Road, which are also described below.

Provide Enhanced Shoulders

Enhanced shoulders on SR 4 east of Tom Bell Road should be provided to accommodate bikes and pedestrians up to Apple Blossom Drive. These shoulders may require additional paving. The shoulders could be lined on the traffic side with mumble strips (i.e., quieter than “rumble strips”), a series of depressions that make noise to alert drivers they are encroaching, subject to Caltrans review and approval. Where the proposed bike lanes west of Tom Bell Road change to enhanced shoulders in this area, signage and lane markings will need to be provided to indicate the change to cyclists.

New Sidepath for Roads with Limited Width

At the existing CHP weigh station on the north side of SR 4, where there is no space for enhanced shoulders, a sidepath paralleling the weigh station frontage road should be provided in a 10-foot utility easement, passing behind the weigh station building. The minimum recommended width for the sidepath is 8 feet.

New Crosswalk across Bret Harte Drive

A crosswalk across Bret Harte Drive at SR 4 should be provided to connect an existing path to the west with the new sidepath to the east, and the edge of paving on Bret Harte Drive at the turnoff should be well marked with additional striping.



Existing signage and pedestrian path east of Tom Bell Road

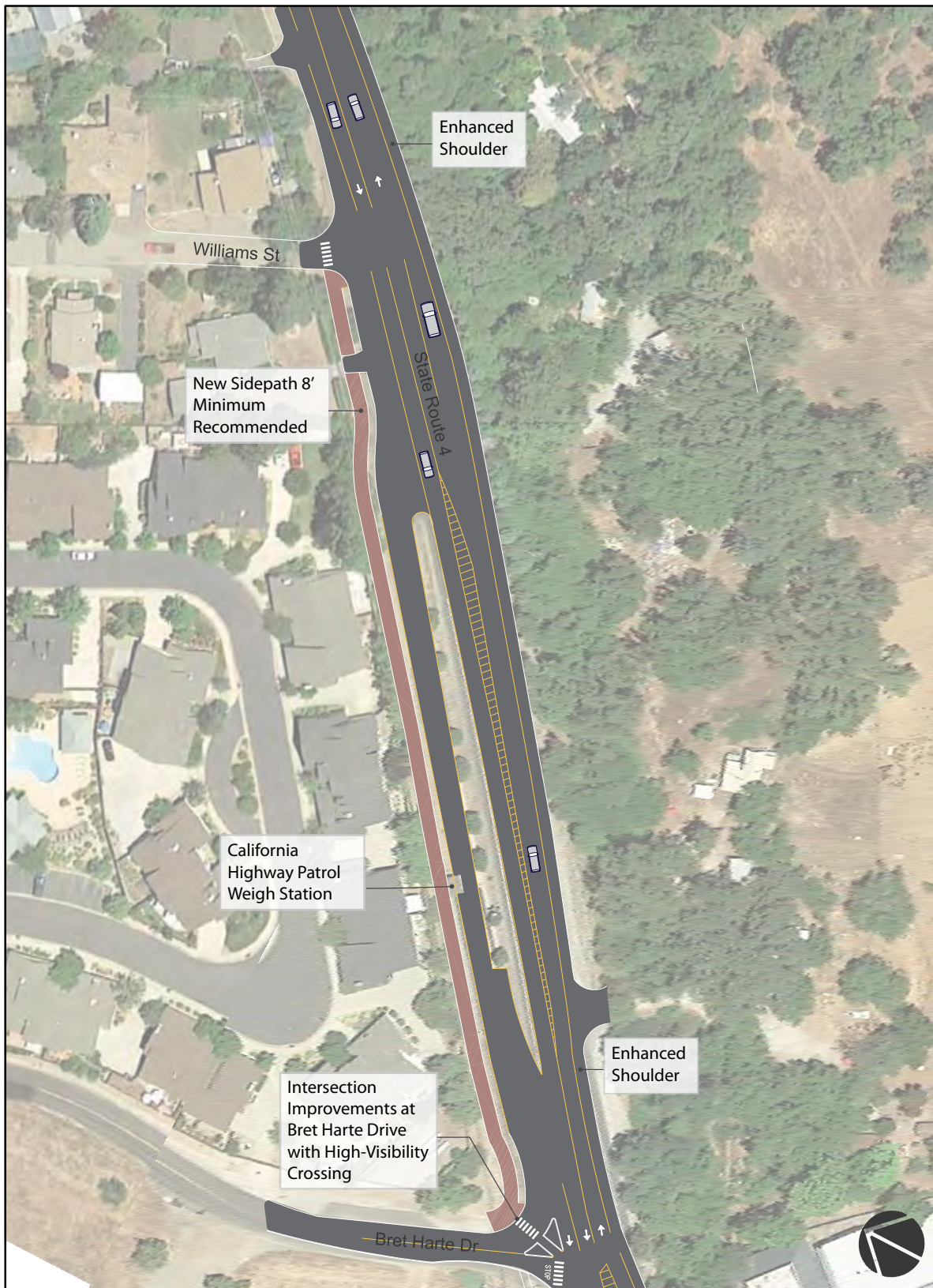


Figure 4-11
Recommended Improvements for SR 4 East of Tom Bell Road

Main Street and Big Trees Road Area

Key Issues

Lack of Crosswalks

The Main Street/Scott Street/Big Trees Road intersection is a key intersection for Main Street Murphys, and it has significant pedestrian traffic. However, only one leg of the intersection has a crosswalk.



Existing crosswalk at Main Street/Big Trees Road intersection

Gaps in Sidewalks along Main Street and Big Trees Road

Main Street, Jones Street, and Big Trees Road provide key connections to the historic center of Murphys and experience significant pedestrian traffic, yet they either have no sidewalks (i.e., Jones Street) or there are gaps in the sidewalk (i.e., Main Street and Big Trees Road). On Main Street, the rolled curb used for some sidewalk sections encourages vehicles to park on the sidewalk. On Big Trees Road, portions of the sidewalk are not ADA compliant. Existing parking on these roadways is important to community members to maintain.

Poor Bike and Pedestrian Connection to Ironstone Winery

Scott Street and Six Mile Road provide access to Ironstone Winery, a major destination for wine tasting and large events that attract significant amounts of people to Murphys. The existing shoulder is very narrow, and the road is a one-lane road in sections, so there is limited space for pedestrians and bicyclists.

Key Improvements

Figure 4-12 shows the recommended improvements in the Main Street and Big Trees Road area, which are also described below.

New Crosswalks at Main Street/Scott Street/Big Trees Road Intersection

At the Main Street/Scott Street/Big Trees Road intersection, new pedestrian crosswalks should be provided. At the south side of the intersection (where there is an existing barn), a new sidewalk should be provided to link the crosswalks together.

New Sidewalk and Parallel Parking along Main Street

A new continuous 5-foot sidewalk should be provided on the north side of Main Street from SR 4 to Big Trees Road. Main Street should be striped and parallel parking allowed on the north side where there is enough width to provide spaces.

Bike Route and Parallel Parking along Jones Street

On Jones Street, a Class III shared bike route should be provided. A 4-foot-wide gravel sidewalk along the north side of Jones Street that allows parallel parking where there is enough road width should also be provided. Clear road width for emergency vehicle access must be maintained, and no parking should be allowed where emergency access would be impeded.

New Mid-Block Crossing and Sidewalk Extension along Big Trees Road

The existing sidewalk on Big Trees Road should be improved and connected with new sections to extend from the new mid-block crossing of Big Trees near the Sierra Hills Market shopping center (described in the Big Trees Road/Tom Bell Road/SR 4 intersection area improvements above) down to the Main Street intersection. Sidewalks on the north side of Big Trees Road will be required if and when the neighboring property is developed.

Bike Route or Advisory Shoulder along Scott Street/Six Mile Road

To Ironstone Winery, a Class III shared bike route (cars share the road with bikes) or advisory shoulders (dashed shoulder striping) should be provided (see Figure 4-1).

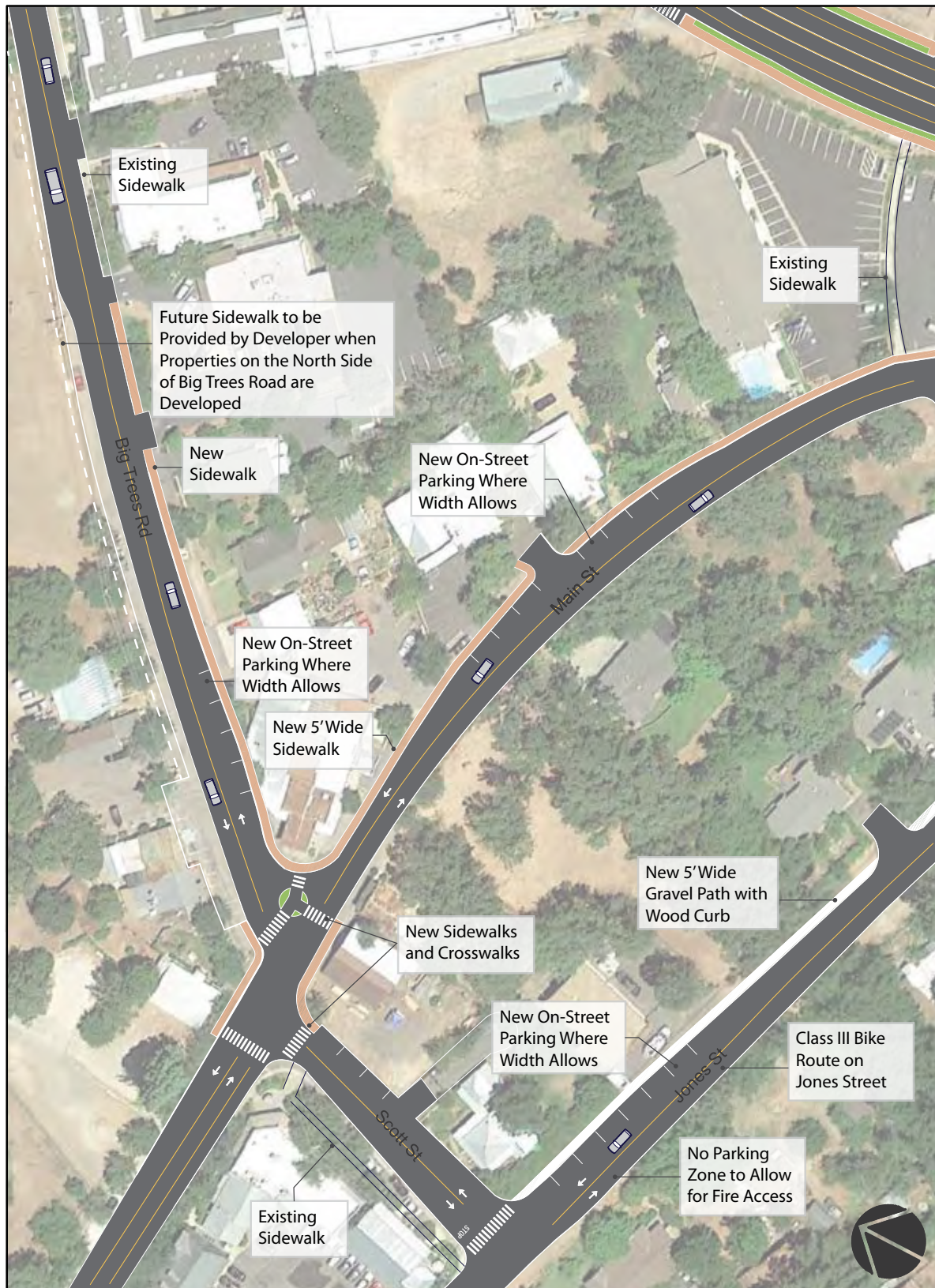


Figure 4-12
Recommended Improvements for Main Street and
Big Trees Road Area

FUTURE OPERATIONS

This analysis considers the effects of the recommended improvements described above on future traffic operations and bicycle and pedestrian LTS (i.e., an analysis of “existing plus project” conditions).

Future Traffic Operations

The improvements most likely to affect traffic operations include the installation of a traffic signal at the existing unsignalized intersection of SR 4/Pennsylvania Gulch Road and the installation of two additional crosswalks at the existing signalized intersection at SR 4/Big Trees Road/Tom Bell. See the Operations Analysis in Chapter 2 of this Plan to review the data collection and analysis methods used in this study.

Table 4-1 presents the Level of Service (LOS) results for the study intersections under the existing plus project conditions. As shown in the table, under existing plus

project conditions, delay would remain similar and LOS would remain the same at all intersections, with the exception of the SR 4/Pennsylvania Gulch Road intersection. At that intersection, LOS during the peak hours would improve from C/D to A/B due to the installation of a traffic signal. To determine if a signal is warranted at this intersection, Fehr & Peers completed a signal warrant analysis per guidelines in the California Manual on Uniform Traffic Control Devices (MUTCD), which is presented in Appendix A. With the installation of the SHOPP project, a signal is not warranted at this time. However, completion of recommended improvements in this Plan will likely generate an increase in pedestrian/bicycle travel. If this occurs, at least one of the signal warrants analyzed will likely be met in the near future. For example, the school crossing warrant would be met if the number of school children crossing increased by approximately 15 children during the highest crossing hour and a gap analysis was conducted. Signal warrants are described in greater detail in Appendix A.

TABLE 4-1 LEVEL OF SERVICE (LOS) ANALYSIS – EXISTING PLUS PROJECT CONDITIONS

Intersection	Control Type	Period	Existing Conditions		Existing Plus Project	
			Delay ^a	LOS ^b	Delay ^a	LOS ^b
1. Big Trees/Creek View	SSSC	AM	1.2 (10.2)	A (A)	1.2 (10.2)	A (A)
		PM	1.8 (11.9)	A (B)	1.8 (11.9)	A (B)
2. SR 4 /Big Trees Road/Tom Bell Road	Signal	AM	13.6	B	13.6	B
		PM	17.5	B	19.6	B
3. Big Trees Road/Main Street	AWSC	AM	8.3	A	8.3	A
		PM	8.7	A	8.7	A
4. Main Street/Jones Street	SSSC	AM	0.1 (7.2)	A (A)	0.1 (7.2)	A (A)
		PM	0.1 (7.5)	A (A)	0.1 (7.5)	A (A)
5. SR 4/Jones Street/Lawrence Street	SSSC	AM	2.6 (22.8)	A (C)	2.6 (22.8)	A (C)
		PM	2.7 (22.4)	A (C)	2.7 (22.4)	A (C)
6. SR 4/Pennsylvania Gulch Road	SSSC/Signal ^c	AM	4.5 (28.0)	A (D)	11.6	B
		PM	2.3 (23.0)	A (C)	9.7	A

a. Delay is reported in seconds per vehicle for the overall intersection for signalized intersections. Delay is reported as the weighted average control delay for all motorists travelling through the intersection for all-way stop-controlled (AWSC) intersections. Delay is reported in seconds per vehicle for the overall intersection and (worst case) movement delay for side-street stop-controlled (SSSC) intersections.

b. LOS = level of service; calculated based on methodologies contained in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2016.

c. Existing conditions delay/LOS represents delay for a SSSC intersection. Existing Plus Project delay/LOS represents delay at the intersection with a traffic signal.

Source: Fehr & Peers, 2018.

Bicycle and Pedestrian Level of Traffic Stress

Bicycle and pedestrian LTS was studied for existing plus project conditions. See the section on Bicyclist and Pedestrian Comfort in Chapter 2 of this Plan, for background information about bicycle and pedestrian LTS.

Bicycle Level of Traffic Stress (BLTS)

Under existing plus project conditions, bicycle level of comfort is increased at all intersections. Level of comfort is also increased on SR 4 between Feeney Park and Williams Street due to the installation of buffered bicycle lanes.

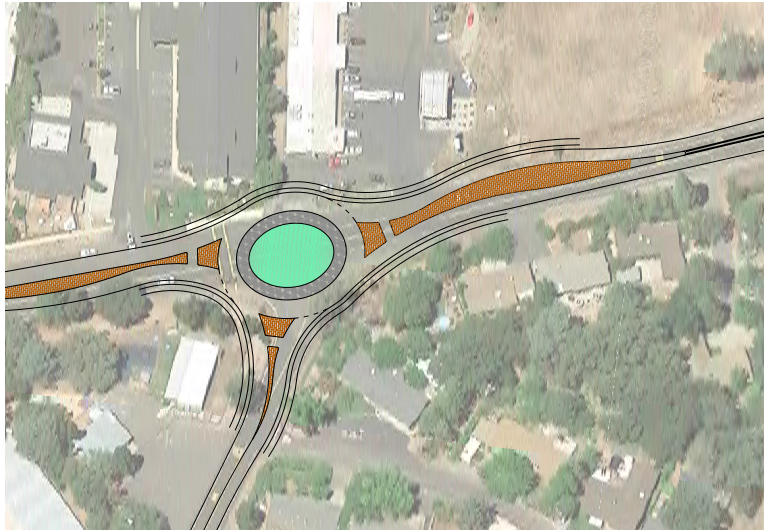
Pedestrian Level of Traffic Stress (PLTS)

Under existing plus project conditions, pedestrian comfort is improved at all study segments and intersections where pedestrian improvements are proposed.

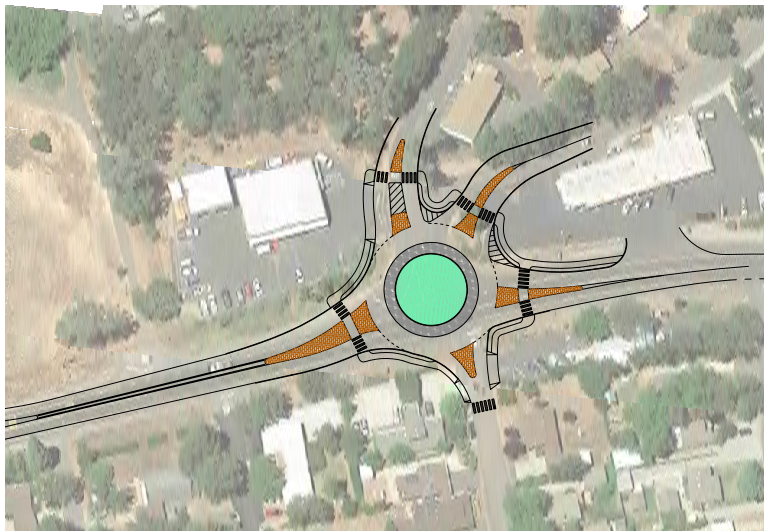
ADDITIONAL STUDY RECOMMENDATION

There was mixed community support for roundabouts at key intersections along SR 4 throughout the outreach process, including at the intersections with Pennsylvania Gulch Road, Main Street, and Big Trees Road/Tom Bell Road. Some Advisory Committee members are concerned about traffic operations of existing and future signalized intersections, and recommend additional study of the possible operational and safety benefits of roundabouts. In particular, Committee members called out the Big Trees Road/Tom Bell Road/SR 4 intersection, where westbound traffic can back up for miles on some Sunday afternoons, and where backups could create potential safety concerns during a natural disaster, such as a wildfire. Roundabouts at the Pennsylvania Gulch Road/SR 4 and Main Street/SR 4 intersections were also discussed during the process as part of a system of roundabouts (note that roundabouts at Pennsylvania Gulch Road/SR 4 and Main Street/SR 4 would likely only work if the Big Trees Road/Tom Bell Road/SR 4 intersection were also converted to a roundabout, as a signal at that intersection may result in cars backing up into the trailing roundabout and cause it to fail).

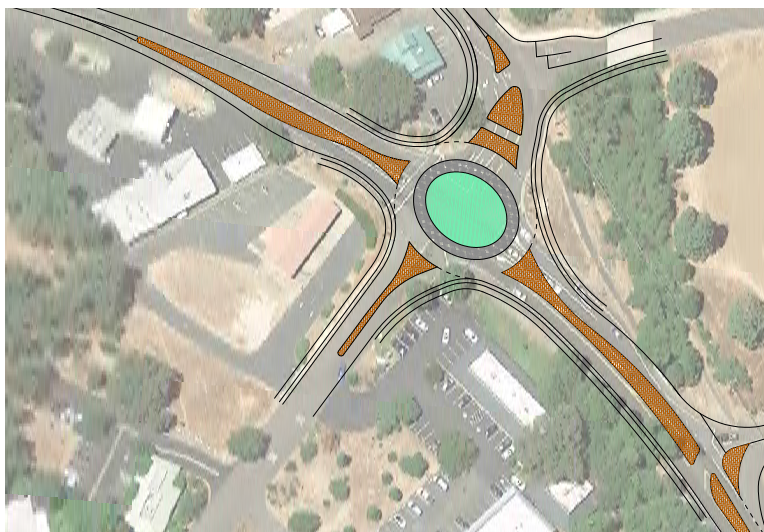
Therefore, while the Committee supports the recommended improvements outlined in this chapter, they also recommend additional study of roundabouts in the future, particularly at the existing traffic signal at Big Trees Road/Tom Bell Road/SR 4. For reference during future study, see Figure 4-13, which lays out conceptual level roundabouts at the three major intersections along SR 4 in the study area.



Pennsylvania Gulch Road/SR 4



Main Street/SR 4



Big Trees Road/Tom Bell Road/SR 4

Figure 4-13
Conceptual Roundabout Layouts



CHAPTER 5: COMPLETE STREETS TOOLKIT

This chapter describes the different types of pedestrian, bicycle, transit, and vehicle-related improvements that are included in this Plan, including photos of existing facilities in other locations to serve as examples. Figure 5-1 shows the recommended improvements within the context of the SR 4 cross-sections.

Multimodal Improvements. Multimodal improvements are those that benefit all modes of travel: pedestrian, bicycle, transit, and vehicle. Multimodal facilities are also referred to as complete streets.

Sidewalk with Buffer. Sidewalks provide dedicated space intended for use by pedestrians that is safe, comfortable, and accessible to all. Sidewalks are physically separated

from the roadway by a curb or buffer space. Buffers can be filled with landscaping or other materials that contrast with the sidewalk, such as gravel or colored paving. According to the *Highway Design Manual*, the minimum width of a sidewalk should be 5 feet when separated by a planting strip or 6 feet when contiguous to a curb.

Class II Buffered Bike Lanes. Class II bike lanes designate an exclusive space for bicyclists through the use of pavement markings and optional signs. A bike lane is located directly adjacent to a motor vehicle travel lane and follows the same direction as motor vehicle traffic. Bike lanes may be enhanced with a longitudinal marked buffer area for more separation distance. This treatment is appropriate for bike

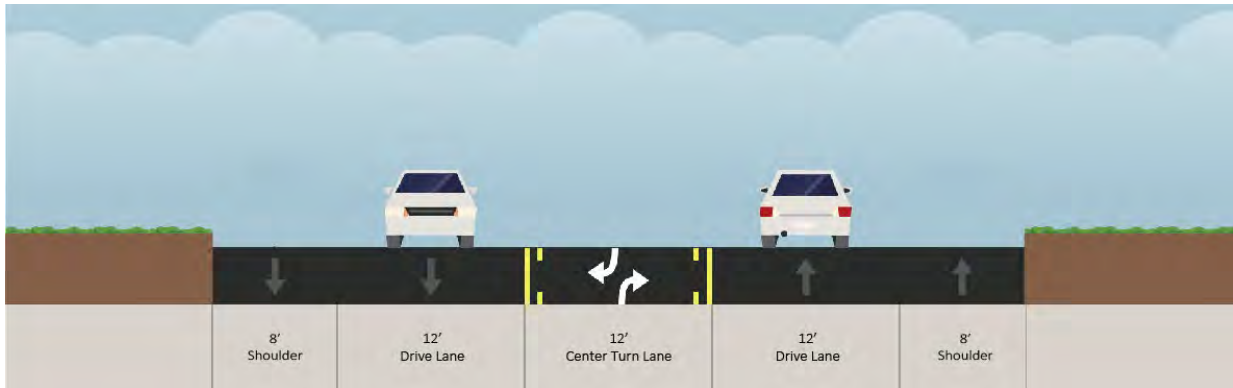


Sidewalk with buffer

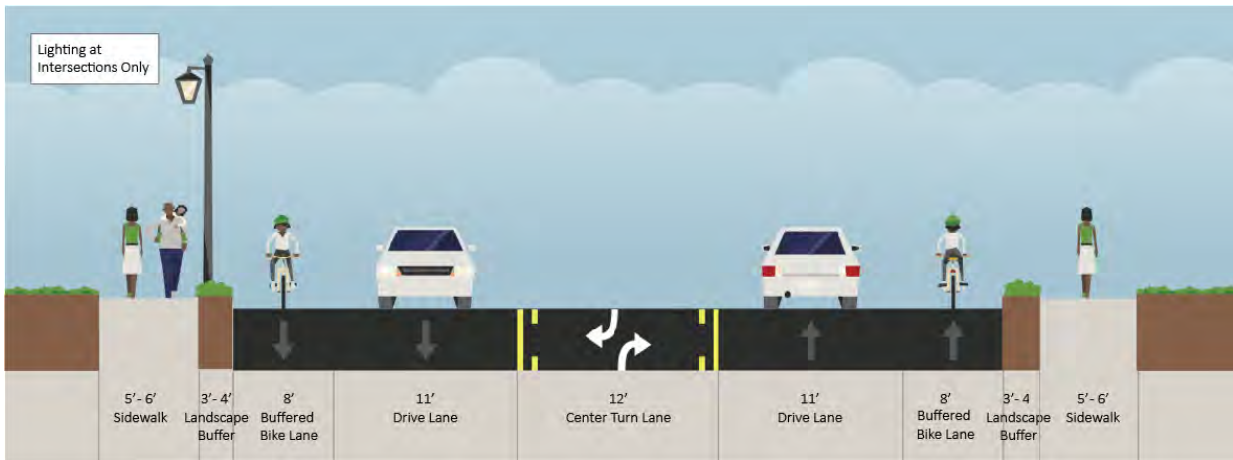


Buffered bike lane and central turn lane

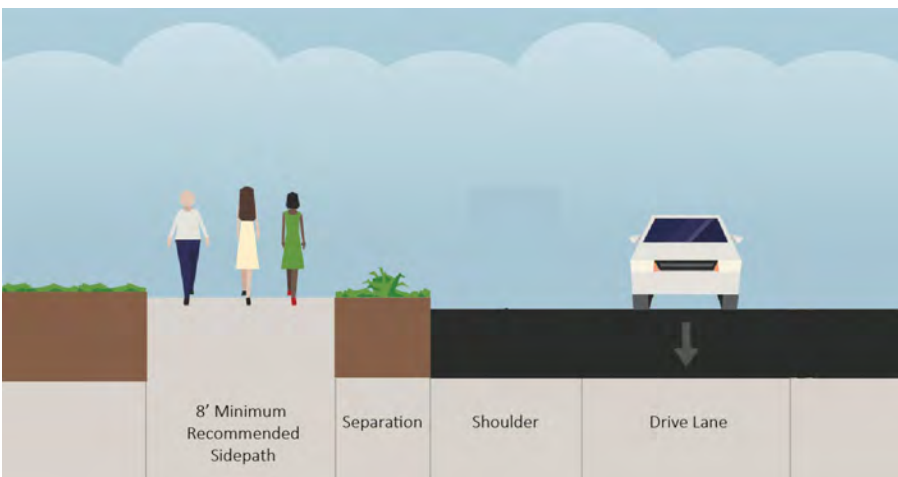
STREET SECTIONS AT SR 4



STREET SECTION OF PROPOSED CALTRANS SHOPP PROJECT – CONSTRUCTION ANTICIPATED 2020



A. STREET SECTION – CENTRAL SECTION FROM PENNSYLVANIA GULCH ROAD TO TOM BELL ROAD



B. STREET SECTION – SIDEPATH OUTSIDE CENTRAL SECTION

Figure 5-1
SR 4 Cross-Sections

lanes on roadways with high motor vehicle traffic volumes and speed, adjacent to parking lanes, or on roadways with high volumes of truck or oversized vehicle traffic. The recommended bike lane width, as described by NACTO, is 6 feet when adjacent to curb face with a minimum buffer width of 18 inches. The buffer should be marked with two solid white lines, with interior diagonal cross hatching or chevron markings if the buffer width is equal to or greater than 3 feet.

Central Turn Lanes. A continuous vehicle lane in the center of a street that allows turning movements for vehicles. Turning movements are allowed in both directions.

Separated Sidepath. A sidepath is a bidirectional shared use path located immediately adjacent and parallel to a roadway. According to the Highway Design Manual, the recommended sidepath width is 10 feet and the minimum width is 8 feet, with a recommended separation width from roadway of 5 feet. Sidepaths can offer a high-quality experience for users of all ages and abilities as compared to on-roadway facilities in heavy traffic environments, allow for reduced roadway crossing distances, and maintain rural and small town community character.



Separated sidepath

Enhanced Shoulders. Paved shoulders on the edge of roadways can be enhanced to serve as a functional space for bicyclists and pedestrians to travel in the absence of other facilities with more separation. The recommended minimum width for a roadway with a 45 MPH speed limit is 6½ feet. Shoulders may be enhanced by lining the traffic side with mumble strips (i.e., quieter than “rumble strips”), a series of depressions that make noise to alert drivers they are encroaching, subject to Caltrans review and approval. Rumble/mumble strips should only be used

when there is adequate width for bicycles to travel outside of the strip (i.e., minimum 6-foot shoulder outside the rumble/mumble strip).



Enhanced shoulder

Warrants. Caltrans requires an engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of a location to determine whether installation of a traffic control signal is justified at a particular location. Warrants are investigations of the need for a traffic control signal that include an analysis of factors related to the existing operation and safety at the study location, and the potential to improve these conditions.

High Visibility Pedestrian Crossing. Marked crosswalks are at intersections or midblock crossings. The minimum width for a marked crosswalk is 6 feet. For improved visibility, the preferred crosswalk marking pattern is the high-visibility “continental” crosswalk marking.

Pedestrian Crossing Beacon. (Also called a Pedestrian Hybrid Beacon.) A traffic control device designed to help pedestrians safely cross busy or higher-speed roadways at midblock crossings and uncontrolled intersections. The beacon head consists of two red lenses above a single yellow lens. The lenses remain “dark” until a pedestrian desiring to cross the street pushes the call button to activate the beacon. The signal then initiates a yellow to red lighting sequence consisting of steady and flashing lights that directs motorists to slow and come to a stop. The pedestrian signal then flashes a WALK display to the pedestrian. Once the pedestrian has safely crossed, the hybrid beacon again goes dark. In April 2018 Caltrans was awarded statewide approval from the Federal Highway Administration for use of Rectangular Rapid-Flashing Beacons (RRFB’s) at uncontrolled intersections with



High visibility pedestrian crossing and pedestrian crossing beacon

marked crosswalks, subject to provisions in Section 1A.21 of the interim approval memorandum. RRFB's are user-actuated amber LED lights that have an irregular flash pattern that is very visible to drivers. They are effective at increasing the yield rates of drivers to pedestrians in the marked crosswalk.

Full Traffic Signal. An intersection with an overhead traffic signal that controls movement of vehicles.

Class III Bike Route. Class III bikeways, or bike routes, designate a preferred route for bicyclists on streets shared with motor traffic not served by dedicated bikeways to provide continuity to the bikeway network. Bike routes are established by placing bike route signs and optional shared roadway markings (sharrow) along roadways.



Class III bike route

Mountable Curbs. Mountable curbs, sometimes referred to as roll curbs, have sloping faces that allow vehicles to encroach on them without damaging tires and wheels; they are sometimes required by emergency service providers.

Gravel Sidewalk. A lower cost alternative to a concrete sidewalk, but typically requires more maintenance than a concrete sidewalk. Providing accessibility can be a challenge. Gravel materials should include a stabilizer to reduce maintenance. Accessible pathways do not have to be paved as long as they are 'firm and stable'. Compacted and stabilized decomposed granite can be a good solution for such unpaved pathways.



Gravel sidewalk

Gateway Signage. Decorative signage that welcomes visitors. When done well and placed appropriately, they can create a sense of place, convey an image, and help visitors find their way. For Murphys, gateway signage would be appropriate at the Main Street and Big Trees Road turnoffs. Overhead signage could be considered at Main Street, but not SR 4.



Gateway signage

Painted Curb Extensions. Curb extensions visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians and calming (slowing) vehicle turning speeds. Curb extensions can be implemented using painted striping and if desired, additional materials such as bollards or planters.

Advisory Shoulders. Advisory shoulders create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement markings and optional pavement color. Motorists may only enter the shoulder when no bicyclists are present and must overtake these users with caution due to potential oncoming traffic. Advisory shoulders should not be used on SR 4.



Advisory shoulder



CHAPTER 6: IMPLEMENTATION AND FINANCING PLAN

As shown in Figure 4-1 in Chapter 4 of this Plan, which describes the recommended improvements, there are 20 projects that make up the Complete Streets Plan for the study area. In this chapter, the 20 projects have been grouped into eight implementation packages, which are described first. The second part of this chapter provides information about opportunities to fund these projects.

IMPLEMENTATION PACKAGES

At Community Workshop #3, participants identified the top ten projects that they thought were most important to implement. In addition, using sticker dots, participants also identified their top three projects. The results of that prioritization exercise are shown in Table 6-1 in the column “Number of Workshop Votes.” Based on the combined vote results, projects were initially grouped into four priority categories (see the column entitled “Initial Priority Group,” which is also reflected by the color coding in the table).

The Project Team then worked with the Advisory Committee to refine the prioritization of the projects and group them into implementation packages based on a cost analysis, how they could be funded, and other considerations. The resulting implementation packages, including cost information, are listed in Table 6-1 and summarized in Figure 6-1. See also Appendix B for detailed cost estimates of each project.

The implementation packages described in this section each have independent utility and combine projects that are in close proximity. They have been sized relative to grant funding rounds, but could be combined or disaggregated to fit other funding sources. For example, Packages A and B could be combined into a larger package, or a component of Package A could be pulled out as a discrete project.

TABLE 6-1 PRIORITY RANKINGS AND IMPLEMENTATION PACKAGES

Implementation Package	Project #	Project Description	Number of Workshop Votes			Initial Priority Group	Cost	Notes	Package Cost (Rounded)
			Top 3	Top 10	Total				
A	4	Pedestrian hybrid beacon and high visibility crosswalks at SR 4 and Pennsylvania Gulch Road intersection (Phase I)	23	27	50	Group 1 - High Priority	\$848,700		PACKAGE A = \$1,400,000
	6	Sidewalk from SR 4 down Pennsylvania Gulch Road to Michelson Elementary and Feeney Park main parking lot + Shoulder improvements along north side of Pennsylvania Gulch Road across from school + New street trees to shade crosswalk across Pennsylvania Gulch Road	6	22	28	Group 1 - High Priority	\$535,900		
B	5	Full traffic signal at SR 4 and Pennsylvania Gulch Road intersection (Phase II)	6	13	19	Group 1 Project - High Priority - Future Option	\$1,021,800	Cost assumes Phase I already completed	PACKAGE B = \$2,500,000
B	9	Improve Main Street and SR 4 intersection with new crosswalk at Main Street and high-visibility crosswalk at SR 4 with rapid flashing beacon	15	20	35	Group 1 - High Priority	\$889,100		
B	8a	Sidewalks along SR 4 with landscape buffer, bike lanes, and center turn lane from Pennsylvania Gulch Road to Main Street	6	24	30	Group 1 - High Priority	\$622,800		
B	11	New stop sign to replace yield sign on Main Street and Jones Street near SR 4	3	14	17	Group 3 - Low Priority	\$600		
C	8b	Sidewalks along SR 4 with landscape buffer, bike lanes, and center turn lane from Main Street to Tom Bell Road	6	24	30	Group 1 - High Priority	\$3,852,000		PACKAGE C = \$5,000,000
C	12	Curb extensions, additional crosswalks, and new sidewalks at SR 4 / Tom Bell Road intersection	6	19	25	Group 2 - Med Priority	\$1,194,500		
D	16	Pedestrian crosswalks at Main Street/Big Trees Road/Scott Street intersection	13	18	31	Group 1 - High Priority	\$361,200		PACKAGE D = \$1,500,000
D	17	New Sidewalk and parallel parking on north side of Main Street between Big Trees Road and SR 4	2	15	17	Group 3 - Low Priority	\$447,100		
D	15	New Sidewalk along Big Trees Road linking Creekview Road to a new midblock crossing at Big Trees Road connecting to existing sidewalk + Improve existing sidewalk along Big Trees Road leading to Main Street	3	13	16	Group 3 - Low Priority	\$679,300		
D	14	New Stop Sign on Creekview Road at Big Trees Road intersection with pedestrian crosswalk leading to SR 4 / Tom Bell Road intersection	0	9	9	Already done			
E	10	New Historic Main Street gateway signage at SR 4 / Main Street turn-off + New Historic Murphys gateway signage at SR 4 / Big Trees Road turn-off + Beautification of Big Trees Road intersection at SR 4 with landscaping	4	14	18	Group 2 - Med Priority	\$507,100		PACKAGE E = \$500,000
F	1a	"Enhanced Shoulders" for bicycles and pedestrians on SR 4 east of Williams Road	8	16	24	Group 2 - Med Priority	\$645,800		PACKAGE F = \$1,100,000
F	13	Improve Bret Harte Drive intersection at SR 4 with pedestrian crosswalk and edge of pavement markings + Sidewalk at California Highway Patrol weigh station between Bret Harte Drive and Williams Street	2	17	19	Group 2 - Med Priority	\$414,000		
G	1b	"Enhanced Shoulders" for bicycles and pedestrians on SR 4 west of informal Feeney Park ballfields parking area	8	16	24	Group 2 - Med Priority	\$2,626,300		PACKAGE G = \$3,400,000
G	3	Sidewalk to SR 4 / Feeney Park ballfields parking area from Pennsylvania Gulch Road corner	1	16	17	Group 3 - Low Priority	\$369,100		
G	2	Improve SR 4 / Feeney Park ballfields parking area	1	14	15	Group 3 - Low Priority	\$438,400		
H	19	Class III Bike Route or Advisory Shoulders for bicycles and pedestrians on Six Mile Road	8	13	21	Group 2 - Med Priority	\$11,400		PACKAGE H = \$200,000
H	18	New gravel path along the north side of Jones Street including Class III bike facilities on Jones	2	8	10	Group 4 -Lowest Priority	\$185,400		
H	20	Class III Bike Route on Pennsylvania Gulch Road east of Feeney Park, with potential shoulder widening in future	1	6	7	Group 4 -Lowest Priority	\$7,600		
H	7	New Stop Sign on Pennsylvania Gulch Road at Feeney Park main parking lot	1	6	7	Group 4 -Lowest Priority	\$600		

MURPHYS SR 4 COMPLETE STREETS PLAN

Chapter 6 | Implementation and Financing Plan



Source: ESRI, 2017; Calaveras County, 2017; PlaceWorks, 2018.

Implementation Packages



Figure 6-1

Implementation Packages

The order of the packages generally follows community preferences and build off one another, but could be implemented in any order if needed. For example, some smaller projects on local roads may be funded by development projects, local fundraising efforts, or County/Calaveras Council of Governments (CCOG) funds, which could happen ahead of some of the larger packages of projects on SR 4 that would likely require grant funding.

The descriptions of implementation packages below reference the individual projects according to the project numbers shown Table 6-1 and Figure 6-1. See the second part of this chapter for a description of the funding sources referenced below.

Implementation Package A

Implementation Package A responds to the core need of the project to improve access for children and parents walking and biking to Michelson Elementary School and Feeney Park. Package A includes adding an actuated pedestrian crossing to SR 4, improving the existing marked crosswalk at Pennsylvania Gulch Road with a pedestrian hybrid beacon (Project #4) or if warranted at the time of implementation, a full traffic signal (Project #5). The route along Pennsylvania Gulch Road would be improved by adding a sidepath on the south side of the roadway to provide better access to the school and park (Project #6). The existing crossing of Pennsylvania Gulch Road near Watkins Street would also be improved with better shoulders, improved signage, and shade trees to limit morning glare. This package is very competitive for safe routes to school funding through the State's Active Transportation Program (ATP) and Highway Safety Improvement Program (HSIP) funds. Due to the project simultaneously expanding access for non-motorized travel and improving green space, the project is also a good candidate for Proposition 68 Urban Greening Grant funding.

While not a specific project, community members also expressed interest in partnering with Michelson Elementary School to incorporate safe walking and biking practices into the school curriculum, which could be incorporated into this implementation package or conducted as a separate program.

Approximate Implementation Cost: \$1,400,000

Next Steps: Implementation Package A would require a warrant analysis with Caltrans to install the pedestrian hybrid beacon and then an encroachment permit if implemented by the Calaveras Council of Governments or County, but the other improvements could be completed as a County project. Right-of-way needs would need to be determined, which would dictate the level of environmental clearance.

Implementation Package B

Implementation Package B builds from the first set of improvements to create a better multimodal connection from the school and park to the core of Murphys. After the Caltrans SHOPP project is built, which will add a two-way left turn lane, 8-foot shoulders, and curb and gutter, SR 4 from Pennsylvania Gulch Road to Main Street will be prepped for the inclusion of sidewalks with landscape buffers (Project #8a), a full signal (Project #5) at Pennsylvania Gulch assuming pedestrian demand increases, and intersection improvements at Main Street and SR 4 (Projects #9 and 11). Restriping the roadway to include buffered bike lanes with 11-foot travel lanes could be included to lower traffic stress for people riding bicycles on this portion of SR 4. This package of improvements will start to change the nature of the highway to slow traffic and create a more formal entrance to Main Street for all types of users of the facility. Similar to Package A, this package is also very competitive for ATP and HSIP funds, and is a candidate for Proposition 68 Urban Greening Grant funding. It could also be combined with Package A into a single application.

Approximate Implementation Cost: \$2,500,000

Next Steps: Implementation Package B may have the ability to tier off of the environmental work that has been completed to date by Caltrans as part of the SHOPP project and completed under an encroachment permit with Caltrans. Additional counts and warrants may be required for the traffic signal at Pennsylvania Gulch Road.

Implementation Package C

Implementation Package C extends the sidewalks with landscape buffers and bike lanes from Package B, which ended at Main Street, east to the Big Trees Road/Tom Bell Road/SR 4 intersection (Project #8b). This package is significantly more expensive than Package B due to the fact that the roadway would need to be widened to accommodate a similar cross section that includes a two-way left turn lane, shoulders, and drainage improvements. The package would make additional improvements for pedestrians to the Big Trees Road/Tom Bell Road/SR 4 intersection to make it easier for people to walk to Taylor Plaza, El Dorado Savings Bank, Murphys Diggins adult community, and other destinations south of the highway (Project #12). This package is a critical link to create safe walking and biking connections to the new residential development to the north near Creek View. Although more expensive, this package would be competitive for transportation funding as a gap closure project, with the potential to apply for funding through Caltrans ATP or HSIP programs, using the previous packages as proof of commitment to providing complete streets for the residents and visitors to Murphys. This package may also be eligible for Urban Greening Grant funds if drainage improvements focus on improving water quality and stormwater management and landscaping improvements focus on the planting of native trees and shrubs.

Approximate Implementation Cost: \$5,000,000

Next Steps: Implementation Package C would require a Caltrans coordination and a project study report (PSR). Depending on initial findings and right-of-way needs, environmental clearance may be more complicated. A more detailed drainage study may be required.

Implementation Package D

Implementation Package D builds connections along Big Trees Road and the southernmost section of Main Street from the historic downtown Murphys to the packages of improvements completed on SR 4. The package focuses on improving the pedestrian realm by filling gaps in the sidewalks on the north side of Main Street (Project #17). Formal pedestrian connections are created to Creek View with improved crosswalks (Project #14) and sidewalks (Project #15) along Big Trees Road. The package is tied

together with pedestrian crosswalk enhancements (Project #16). This package has the opportunity to be funded by a number of different sources ranging from State ATP funds, local development frontage improvements, or combined with County maintenance activities.

Approximate Implementation Cost: \$1,500,000

Next Steps: Implementation Package D can be constructed through the County process for roadway improvements or as part of new development along Big Trees Road.

Implementation Package E

Implementation Package E is a standalone gateway sign and beautification project that could be built at any time or included with the improvements to SR 4. The project includes two new gateway signs near Main Street/SR 4 and Big Trees Road/SR 4, as well as design and installation of signature landscaping at the Big Trees Road/SR 4 intersection (Project #10). These signs would help draw people travelling on the highway from either direction into historic downtown Murphys. If located within Caltrans right-of-way (ROW), gateway signs would need to be designed and installed to Caltrans standards. The beautification component at Big Trees Road and SR 4 is located in Caltrans ROW, and will therefore require a Caltrans permit, with landscaping comprised of low water use and native plants to meet Caltrans' water conservation and environmental goals.

Funds for these signs and landscaping could come from corporate donations from local businesses, be consolidated into a larger grant-funded infrastructure project application (with signs provided as part of the agency's local match, or in the case of the Urban Greening Grant, signs and landscaping could be paid for as part of a larger infrastructure project), or funded through a community endowment. It is worth noting, however, that most endowments in California provide \$100,000 or less in funding for ATPs.

Approximate Implementation Cost: \$500,000

Next Steps: Implementation Package E can be completed without Caltrans encroachment permits assuming the gateway signs are outside of the State's right of way. Right-of-way or easements would need to be acquired for any work within the right-of-way.

Implementation Package F

Implementation Package F provides needed access to some of the existing single-family homes just east of downtown. Extending the sidepath behind the weigh station from Bret Harte Drive to Williams Street (Project #13) would provide access for people walking and minimize conflicts with the California Highway Patrol activities at the scales and ramps. Coordination will be needed to secure a pedestrian easement along the community sound wall on the north side of SR 4. Enhanced shoulders would be extended to the east (Project #1a) to provide safer access for people walking or riding bicycles on the edge of the roadway. Implementing this package after Packages B and C would provide separate pedestrian facilities along SR 4 from Williams Street to Pennsylvania Gulch Road, providing walking and biking access to the school, park, and downtown destinations. Implementation funding could come from ATP funds, but could also be combined with facility or safety upgrades to the weigh station.

Approximate Implementation Cost: \$1,100,000

Next Steps: Implementation Package F would require Caltrans and California Highway Patrol coordination as part of a PSR. Depending on initial findings and right-of-way needs, environmental clearance may be more complicated. A more detailed drainage study may be required for possible roadway widening towards the creek.

Implementation Package G

Implementation Package G continues improvements to the west of Murphys on SR 4. The improvements address the existing parking taking place on the unimproved shoulder of the highway adjacent to Feeney Park. The project would formalize the parking, per Caltrans standards, with a small separate parking lot near the gate to the park (Project #2). The parking lot would be connected to Pennsylvania Gulch Road by a sidepath on the south side of the highway (Project #3). Enhanced shoulders would be extended to the west to Holiday Mine Road (Project #1b) for people riding bicycles from Angels Camp, Vallecito, or Douglas Flat. The enhanced shoulders would also accommodate people walking from residences to the west near Anrey Court and beyond. Implementation of this package would need to be coordinated with Caltrans and may be funded

with safety funds through HSIP if the current parking creates a hazard to highway users and needs to be mitigated.

In addition, due to its proximity to the Calaveras Transit Blue Line stop, the parking lot project has the potential to double as a park and ride lot during the work week to encourage carpooling and transit use. Caltrans supports Traffic Demand Management (TDM) improvements that help reduce single occupancy vehicle use and increase performance on the highway. The park and ride designation would qualify the project for additional federal Transit Administration (FTA), Congestion Mitigation and Air Quality Mitigation Program (CMAQ), and State transportation funding sources.

Approximate Implementation Cost: \$3,400,000

Next Steps: Implementation Package G would require Caltrans coordination through the Park and Ride program to initiate the parking improvements. Access easements should also be pursued for access to the park.

Implementation Package H

Implementation Package H contains the lowest ranked projects that connect the outer lying areas to the study area. These projects generally have nominal benefit or require additional study. They include a Class III Bike Route along Pennsylvania Gulch Road (Project #20) from a new stop sign at the intersection to Feeney Park (Project #7) to Wingdam Road. The package also contains improvements north of SR 4 with a new gravel path along Jones Street (Project #18) and a Class III Bike Route or advisory shoulders along Scott Street and Six Mile Road to Ironstone Vineyards (Project #19). These projects could be funded through future development projects, County maintenance activities, or through roadways funds if the demand for walking and biking on these facilities increases. Another potential opportunity is to group this implementation package as part of the “local match” on a larger grant funded project (e.g., combining this package with Implementation Package B). If it is determined that additional planning studies are required to determine what infrastructure improvements are best for this implementation package, it is recommended that CCOG pursue Caltrans Sustainable Communities Planning Grant funding.

Approximate Implementation Cost: \$200,000

Next Steps: Implementation Package H should be studied in more detail with additional traffic counts and right-of-way evaluation and considerations for potential land use changes.

FUNDING OPPORTUNITIES

Grant Funding Sources

This section lists recommended grant funding sources for the implementation packages.

Caltrans Active Transportation Program Funding (Implementation Packages A, B, C, D, F)

The Caltrans ATP is the leading funding source for installing bicycle, pedestrian, and safe routes to school infrastructure statewide. Many of the implementation packages satisfy specific criteria and funding preferences in the grant program. The study area is within a rural and small urban area per grant guidelines, as well as being in a “disadvantaged” community by being in a census tract with a median income lower than 80 percent of the statewide average. Projects that contain these criteria have been underrepresented as applicants in past ATP grant cycles and thus have a greater chance of receiving project funding from the grant program.

Highway Safety Improvement Program (Implementation Packages A, B, C, D, G)

Also administered by Caltrans, this funding program designates funds specifically focusing on safety improvements along State highways, including new or upgraded traffic signals or improvements that focus on expanding sight distance/visibility, as well as on State highways that function as “Main Streets,” such as SR 4 in Murphys.

Proposition 68 Urban Greening Grant (Implementation Packages A, B, C)

Administered through the California Natural Resources Agency, in past grant cycles this source funded projects that increased non-motorized access to community destinations concurrently with improving water quality and stormwater management, as well as the planting of shade trees. This proposition also supports projects involving removal of pavement for permeable surfaces.

Upcoming Grant Cycles

This section describes the upcoming grant cycles for the grant funding sources described above at the time of the adoption of this Complete Streets Plan in 2019.

Caltrans Active Transportation Program

Caltrans runs a Call of Projects for this program once every two years, complete with public webinars to review and discuss the grant applications and guidelines. Cycle 5 guidelines will likely be released in late spring 2020 with applications due in summer 2020. Funding amounts available should be similar to those in Cycle 4, which had approximately \$440 million dollars in funding available for bicycle, pedestrian, and safe routes to school projects statewide.

Highway Safety Improvement Program

Similar to the ATP, Caltrans runs a Call for Projects for HSIP every other year, with grant cycles usually released in late April and grant applications due in late August, with public webinars available to discuss the grant guidelines and application. The next grant cycle is expected to be released in 2020, with expected funding available ranging from around \$160 million to \$180 million statewide.

Proposition 68 Urban Greening Grant

Approximately \$18.5 million will be available statewide for green infrastructure projects, with draft guidelines available for public comment to be released from the California Natural Resources Agency Bonds and Grant Unit in early 2019. Future grant cycles are determined based on available funding from existing State propositions. While this program has been administered through multiple cycles over the past decade, there is no regular funding source to fund this grant program.

Grant Application Components

While funding agencies frequently update grant guidelines, requirements, and individual applications for each funding program's cycle, there are several items that are commonly recommended in competitive grant applications. Key items to accomplish prior to submittal of a grant application are listed below. Note that descriptions are based on grant applications in prior funding cycles, and grant application requirements are subject to change.

Resolution from Agency Supporting the Project

A resolution from an agency supporting the project is required for Urban Greening Grant applications, but not required for Caltrans ATP and HSIP applications.

Disadvantaged Community Analysis

Typically, funding agencies prioritize or require funds to be distributed to areas that are considered socioeconomically or environmentally "disadvantaged." The most common formulas used to identify disadvantaged communities include the top 25 percent of CalEnviroScreen 3.0 Census Tracts,¹ median incomes that are lower than 80 percent of the statewide average, or 75 percent of students in the project area that qualify for free/reduced lunches. See the Demographics section in Chapter 2 of this Plan for income information that could be used to support a disadvantaged community analysis for the study area.

Assessment of disadvantaged communities is required for Caltrans ATP and Urban Greening Grant applications, but not required for HSIP applications.

Cost-Benefit Analysis

A cost-benefit analysis is required for all Urban Greening Grant and HSIP applications, but only required for Caltrans ATP grant applications requesting over \$7 million dollars in funding.

Statement of Project Need

A statement of project need is required for most competitive grant applications, including Caltrans ATP, HSIP, and Urban Greening Grants. Most applications require a short project title (less than 200 characters), followed by an executive-level project description (200 words or less), and a longer statement of need (500-1,000

words). The existing conditions analysis in Chapter 2 of this Plan could be used to support a statement of project need, generally, for the study area. For specific projects, Chapter 4 identifies key issues that the project will address, which can also support the project need statement.

Cost Estimate

A preliminary cost estimate is required for most infrastructure project applications, with costs often separated into environmental studies and permits (PA&ED), preliminary engineering and pre-construction (PS&E), ROW acquisition, and construction (CON). Caltrans ATP and HSIP applications require that such estimates be prepared by a registered engineer licensed in the State of California. See Appendix B for detailed project cost estimates.

Collision Statistics in Project Area

Collision statistics are required for Caltrans ATP and HSIP applications, but not required for Urban Greening Grant applications. See the Safety Analysis in Chapter 2 of this Plan for collision statistics in the study area.

Bicycle and Pedestrian Counts in Project Area

Bicycle and pedestrian counts are required for Caltrans ATP applications, but not required for HSIP or Urban Greening Grant applications. Existing bicycle and pedestrian counts are reported in Appendix A.

Community Outreach

Documentation of outreach may include a brief written description of outreach conducted, sign-in sheets, images of events, and promotional materials of events. Such documentation is recommended for most competitive grant applications; it is optional for HSIP applications and required for ATP and Urban Greening Grant applications. A summary of the community outreach for this Complete Streets Plan, which includes the projects for which grant funding will be sought, is provided in Chapter 3.

Letters of Support

Letters of support are recommended for most competitive grant applications; they are optional for HSIP applications and required for ATP and Urban Greening Grant applications.

¹ Available online: <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>.

Grant-Funded Project Components

The infrastructure grants described in this chapter typically fund the following project components.

Preliminary Engineering/Pre-Construction

Environmental studies and permits (PA & ED) and preparation of plans, specifications, and estimates (PS&E) can be funded by the grants described above. The Urban Greening Grant requires that no more than 25 percent of total project costs go to pre-construction. While the ATP and HSIP grants have no set guidelines, it is generally assumed that pre-construction costs should stay within 25 percent of total project costs from those funding sources as well.

Right-of-Way

Grants also fund the engineering, appraisal, and acquisition of ROW for a project. For the HSIP grant, ROW costs are required to stay within 10 percent of total construction costs. For the Urban Greening Grant, staff costs associated with ROW tasks can be no more than \$10,000.

Construction

Grants can also cover the construction engineering and construction of a project.

APPENDIX A

SR 4 Pedestrian Hybrid Beacon Analysis and Signal Warrant Analysis



MEMORANDUM

Date: August 8, 2018
To:
From: Adrian Engel, PE, and Carly Panos, Fehr & Peers
Subject: **SR-4 Pedestrian Hybrid Beacon Analysis and Signal Warrant Analysis**

RS18-3626

Fehr & Peers has evaluated application guidance for a pedestrian hybrid beacon (PHB), also known as a high intensity activated crosswalk (HAWK), for an existing crossing located on SR-4 south of Pennsylvania Gulch Road in Murphys, CA. In addition to the PHB Analysis, a signal warrant analysis was conducted for the SR-4/Pennsylvania Gulch Road unsignalized intersection. The analyses were completed per guidelines in the California Manual on Uniform Traffic Control Devices (CAMUTCD).

Existing Conditions

The existing crossing has a total crossing distance of 70 feet with no center median or pedestrian refuge island. The posted speed limit on SR - 4 approaching Pennsylvania Gulch is 25 MPH when children are present and 35 MPH during all other times, however the observed 85th percentile free flow speed is 49 MPH. Although the observed free flow speed is greater than the posted speed limit, the intent of the project is to reduce speeds on SR-4; therefore, 35 MPH is the approach speed used for analysis in this memorandum.

Traffic data collected on May 9, 2018 during the AM and PM peak periods was used to count the AM and PM bicycle/pedestrian volume. In this analysis, the bicycle and pedestrian volumes are combined since they share the crossing. The bicycle/pedestrian volume used for analysis in this memorandum is 7 pedestrians in the AM peak hour and 8 pedestrians in the PM peak hour.

AM and PM vehicle counts (including all turning and through movements) were collected on May 9, 2018 at SR - 4 / Pennsylvania Gulch Road as part of the *Murphys Complete Street Master Plan* project. The resulting vehicle volumes are 885 vehicles per hour during the AM peak hour and 870 vehicles per hour during the PM peak hour, respectively.

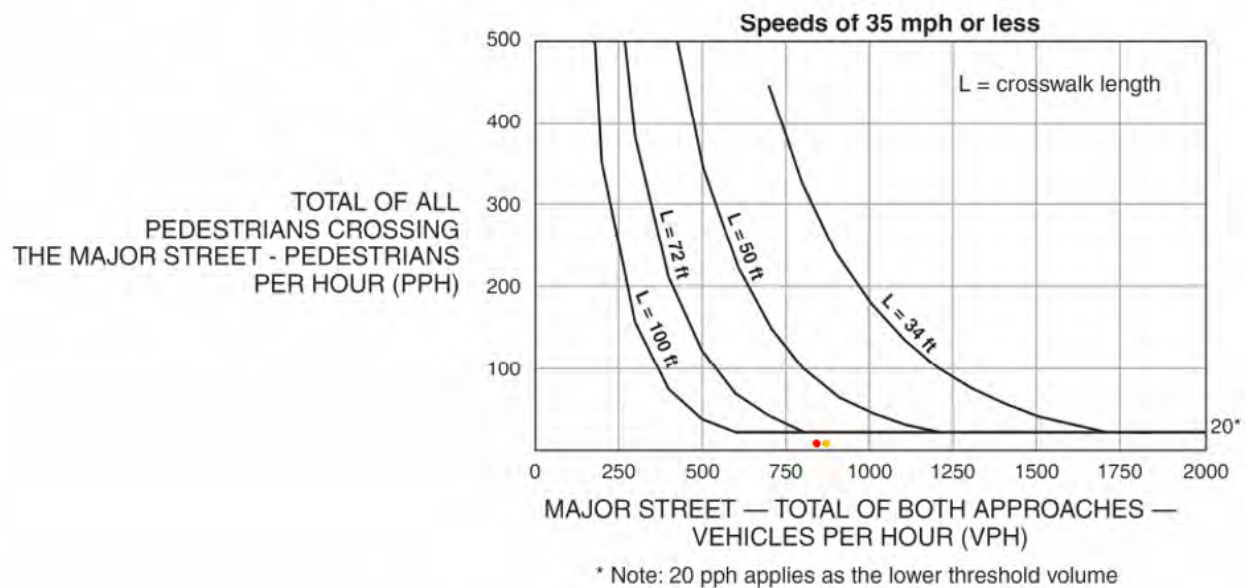


Pedestrian Hybrid Beacon Analysis

Chapter 4F Section 4F.01 of the *California Manual on Uniform Traffic Control Devices* discusses the application of pedestrian hybrid beacons. The application guidance in paragraphs 6-8 of Section 4F.01, requires the plotted point representing the vehicles per hour on the major street (total both approaches) and the corresponding total of all pedestrians crossing the major street during the same peak hour fall above the applicable curve in Figure 4F-1 for roadway speeds 35 MPH or less.

Figure 4F-1 shows the plotted point of the intersection of the total pedestrian crossings during the AM peak hour (7 PPH) and vehicle volume (885 VPH) in yellow. The plotted point of the intersection of the total pedestrian crossings during the PM peak hour (8 PPH) and vehicle volumes (870 VPH) is shown in red. The length of the crossing is approximately 70 feet, so the curve L=72 is used for this analysis.

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways



Although the intersecting points shown in Figure 4F-1 lie below the curve L=72, improving SR-4 with bicycle lanes and sidewalks will likely increase the number of pedestrians crossing to more than 20 PPH. If this occurs, the combined PPH and VPH would meet the application guidance necessary from the *CAMUTCD* to consider the need for a pedestrian hybrid beacon on SR-4.



SR-4 / Pennsylvania Gulch Road Signal Warrant Analysis

Per the *CAMUTCD*, nine signal warrant analyses were conducted for the SR-4 / Pennsylvania Gulch Road intersection. On May 9, 2018, roadway segment counts were collected during a 24-hour period and AM and PM vehicular, pedestrian, and bicyclist counts were collected during the AM and PM peak periods. These counts were used for the signal warrant analyses. A summary of each warrant analysis is displayed in Table 1 and described below.

TABLE 1 – SIGNAL WARRANT ANALYSIS SUMMARY	
Intersection	SR – 4 / Pennsylvania Gulch Rd
WARRANT	SATISFIED
Warrant 1 – Eight Hour Vehicular Volume	No
Warrant 2 – Four Hour Vehicular Volume	No
Warrant 3 – Peak Hour	No
Warrant 4 – Pedestrian Volume	No
Warrant 5 – School Crossing	No
Warrant 6 – Coordinated Signal System	No
Warrant 7 – Crash Experience Warrant	No
Warrant 8 – Roadway Network	No
Warrant 9 – Intersection Near Grade Crossing	No

Warrant is almost satisfied under existing conditions
Warrant may be satisfied in the future if substantial growth occurs
Warrant cannot be satisfied

Warrant 1, Eight-Hour Vehicular Volume:

The intersection does not satisfy Warrant 1 because as shown in Attachment A - Worksheet 1, Figure 4C-101, volumes on SR-4 and Pennsylvania Gulch are not high enough to satisfy Condition A or Condition B or a combination of Condition A and B, during any eight hours.

However, it should be noted that existing volumes nearly satisfy Condition B. When averaged, volumes on both SR-4 and Pennsylvania Gulch exceed the minimum requirement. However, volumes on SR-4 do not meet the minimum requirement during three of the eight hours and volumes on Pennsylvania Gulch do not meet the minimum requirement during two of the eight hours.



Volumes on SR-4 would need to increase an average of 2% during each of those three hours in order to meet the minimum volume requirement. Westbound volumes on Pennsylvania Gulch would need to increase an average of 9% during each of those two hours in order to meet the minimum volume requirement.

Warrant 2, Four-Hour Vehicular Volume:

The intersection does not satisfy Warrant 2 because as shown in Attachment A - Worksheet 2, Figure 4C-101 and Figure 4C-2, volumes on SR-4 and Pennsylvania Gulch are not high enough during any four hours to warrant a traffic signal.

However, if volumes on SR-4 increased an average of 1% and westbound volumes on Pennsylvania Gulch increased by approximately 8%, this warrant would be satisfied.

Warrant 3, Peak Hour:

The intersection does not satisfy Warrant 3 because as shown in Attachment A - Worksheet 2, Figure 4C-101 and Figure 4C-4, peak hour volumes and delay at the intersection are not high enough/long enough to satisfy Part A or Part B.

It should be noted that the analysis assumes two lanes on SR – 4 (major street) because the Caltrans project will install a two-way left turn lane. However, under existing conditions with one lane, this intersection satisfies Part B during the AM peak hour, and warrants a traffic signal. Additionally, if volumes on Pennsylvania Gulch increase by approximately 14% or volumes on SR-4 increase by approximately 15%, this intersection will satisfy the signal warrant even with two lanes on SR-4.

Warrant 4, Pedestrian Volume:

The intersection does not satisfy Warrant 4 because as shown on Attachment A - Figure 4C-8 and Figure 4C-101, pedestrian peak hour volumes during the one hour period are not high enough to warrant a traffic signal. To satisfy this signal warrant, pedestrian volumes would need to increase by approximately 145 pedestrians during the peak hour.

Warrant 5, School Crossing:

The intersection does not satisfy Warrant 5 because there is not a minimum of 20 school children crossing during the highest crossing hour. To satisfy this warrant, pedestrian volumes would need



to increase by approximately 400% (or 15 children) during the highest crossing hour and a gap analysis would need to be conducted.

Warrant 6, Coordinated Signal System:

Warrant 6 is not applicable because there are no traffic signals within 1,000 feet of the intersection.

Warrant 7, Crash Experience:

The intersection does not satisfy Warrant 7 because less than five crashes within a 12-month period have been reported, alternatives have not been tested, and volumes on SR-4 and Pennsylvania Gulch during any eight hours are not high enough to warrant a traffic signal.

To satisfy this warrant, five or more crashes within a 12-month period must occur, adequate trial of alternatives with satisfactory observance and enforcement must have taken place and failed to reduce crash frequency, and pedestrian volumes must be at least 80% of the total number of pedestrians required to meet Warrant 4 or vehicular volumes must increase enough to exceed volumes listed in the 80% column shown in Attachment A -Table 4C-1.

Warrant 8, Roadway Network:

Warrant 8 is not applicable because two or more major routes do not intersect at this intersection.

Warrant 9, Intersection Near a Grade Crossing:

Warrant 9 is not applicable because the intersection is not near a grade crossing.

ATTACHMENT A:

Warrant Analyses

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE May 9, 2018
 CALC CP DATE July 25, 2018
 CHK _____ DATE _____

DIST _____ CO _____ RTE _____ PM _____

Major St: SR-4
 Minor St: Pennsylvania Gulch Rd

Critical Approach Speed _____ mph
 Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph. ☐ or ☒ } RURAL (R)
 In built up area of isolated community of < 10,000 population. ☒ }
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume SATISFIED YES ☐ NO ☒
 (Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume

100% SATISFIED YES ☐ NO ☒
 80% SATISFIED YES ☐ NO ☒

MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)					80% SATISFIED YES ☐ NO ☒								
APPROACH LANES	U	R	U	R									
	1		2 or More										
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	9:45AM 628	10:45AM 648	11:45AM 615	12:45PM 603	1:45PM 691	2:45PM 722	3:45PM 736	4:45PM 644	Hour
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	79	63	81	65	110	85	83	91	

Condition B - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒
 80% SATISFIED YES ☒ NO ☐

MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)					80% SATISFIED YES ☒ NO ☐								
APPROACH LANES	U	R	U	(R)									
	1		2 or More										
					9:45 AM	10:45 AM	11:45 AM	12:45 PM	1:45 PM	2:45 PM	3:45 PM	4:45 PM	Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	628	648	615	603	691	722	736	644	
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	79	63	81	65	110	85	83	91	

Combination of Conditions A & B

SATISFIED YES ☐ NO ☒

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☒
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC	✓	
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)**WARRANT 2 - Four Hour Vehicular Volume**SATISFIED* YES ☐ NO ☒

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	1:45 PM	2:45 PM	3:45 PM	4:45 PM	Hour
Both Approaches - Major Street		X	691	722	736	644	
Higher Approach - Minor Street	X		110	85	83	91	

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)

Yes ☐ No ☐OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)Yes ☐ No ☒**WARRANT 3 - Peak Hour
(Part A or Part B must be satisfied)**SATISFIED YES ☐ NO ☐**PART A**SATISFIED YES ☐ NO ☒

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; <u>AND</u>	Yes ☐ No ☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; <u>AND</u>	Yes ☒ No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒ No ☐

PART BSATISFIED YES ☐ NO ☒

APPROACH LANES	One	2 or More	7:15 AM	Hour
Both Approaches - Major Street		X	697	
Higher Approach - Minor Street	X		173	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)

Yes ☐ No ☐OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 3 of 5)**WARRANT 4 - Pedestrian Volume**
(Parts 1 and 2 Must Be Satisfied)SATISFIED YES ☐ NO ☒**Part 1 (Parts A or B must be satisfied)**

Hours --->

A. Vehicles per hour for any 4 hours				
Pedestrians per hour for any 4 hours				

Hours --->

B. Vehicles per hour for any 1 hour	834	885	869	785
Pedestrians per hour for any 1 hour	0	5	11	3

7:00 AM 8:00 AM 4:00 PM 5:00 PM

Figure 4C-5 or Figure 4C-6
SATISFIED YES ☐ NO ☐Figure 4C-7 or Figure 4C-8
SATISFIED YES ☐ NO ☒**Part 2**SATISFIED YES ☐ NO ☐

<u>AND</u> , The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☒	No ☐
<u>OR</u> , The proposed traffic signal will not restrict progressive traffic flow along the major street.	Yes ☐	No ☐

WARRANT 5 - School Crossing
(Parts A and B Must Be Satisfied)SATISFIED YES ☐ NO ☐**Part A**

Gap/Minutes and # of Children

SATISFIED YES ☐ NO ☒

Gaps vs Minutes	Minutes Children Using Crossing	
	Number of Adequate Gaps	
School Age Pedestrians Crossing Street / hr		

Hour

Gaps < Minutes YES ☐ NO ☐AND Children > 20/hr YES ☐ NO ☒

<u>AND</u> , Consideration has been given to less restrictive remedial measures.	Yes ☐	No ☐
--	------------------------------	-----------------------------

Part BSATISFIED YES ☐ NO ☐

The distance to the nearest traffic signal along the major street is greater than 300 ft	Yes ☐	No ☐
<u>OR</u> , The proposed signal will not restrict the progressive movement of traffic.	Yes ☐	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 4 of 5)**WARRANT 6 - Coordinated Signal System
(All Parts Must Be Satisfied)**SATISFIED YES ☐ NO ☒

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N <u>1400</u> ft, S <u> </u> ft, E <u> </u> ft, W <u> </u> ft	Yes ☐ No ☒
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☒
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

**WARRANT 7 - Crash Experience Warrant
(All Parts Must Be Satisfied)**SATISFIED YES ☐ NO ☒

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.		Yes ☐ No ☒
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.	Yes ☐ No ☒
5 OR MORE		
REQUIREMENTS	CONDITIONS	✓
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume	Yes ☐ No ☐
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic	
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8	

**WARRANT 8 - Roadway Network
(All Parts Must Be Satisfied)**SATISFIED YES ☐ NO ☒

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES	✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour <u>845</u> Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.		Yes ☐ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun <u> </u> Veh/Hr		
CHARACTERISTICS OF MAJOR ROUTES		MAJOR ROUTE A	MAJOR ROUTE B
Hwy. System Serving as Principal Network for Through Traffic		X	
Rural or Suburban Highway Outside Of, Entering, or Traversing a City			
Appears as Major Route on an Official Plan		X	
Any Major Route Characteristics Met, Both Streets			Yes ☐ No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 5 of 5)

**WARRANT 9 - Intersection Near a Grade Crossing
(Both Parts A and B Must Be Satisfied)**

SATISFIED YES ☐ NO ☒

PART A A grade crossing exists on an approach controlled by a STOP or YIELD sign and the center of the track nearest to the intersection is within 140 feet of the stop line or yield line on the approach. Track Center Line to Limit Line _____ ft	Yes ☐ No ☒
PART B There is one minor street approach lane at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-9. Major Street - Total of both approaches: _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH OR, There are two or more minor street approach lanes at the track crossing - During the highest traffic volume hour during which rail traffic uses the crossing, the plotted point falls above the applicable curve in Figure 4C-10. Major Street - Total of both approaches : _____ VPH Minor Street - Crosses the track (one direction only, approaching the intersection): _____ VPH X AF (Use Tables 4C-2, 3, & 4 below to calculate AF) = _____ VPH	Yes ☐ No ☐

The minor street approach volume may be multiplied by up to three following adjustment factors (AF) as described in Section 4C.10.

- 1- Number of Rail Traffic per Day _____ Adjustment factor from table 4C-2 _____
- 2- Percentage of High-Occupancy Buses on Minor Street Approach _____ Adjustment factor from table 4C-3 _____
- 3- Percentage of Tractor-Trailer Trucks on Minor Street Approach _____ Adjustment factor from table 4C-4 _____

NOTE: If no data is available or known, then use AF = 1 (no adjustment)

Table 4C-1. Warrant 1, Eight-Hour Vehicular Volume**Condition A—Minimum Vehicular Volume**

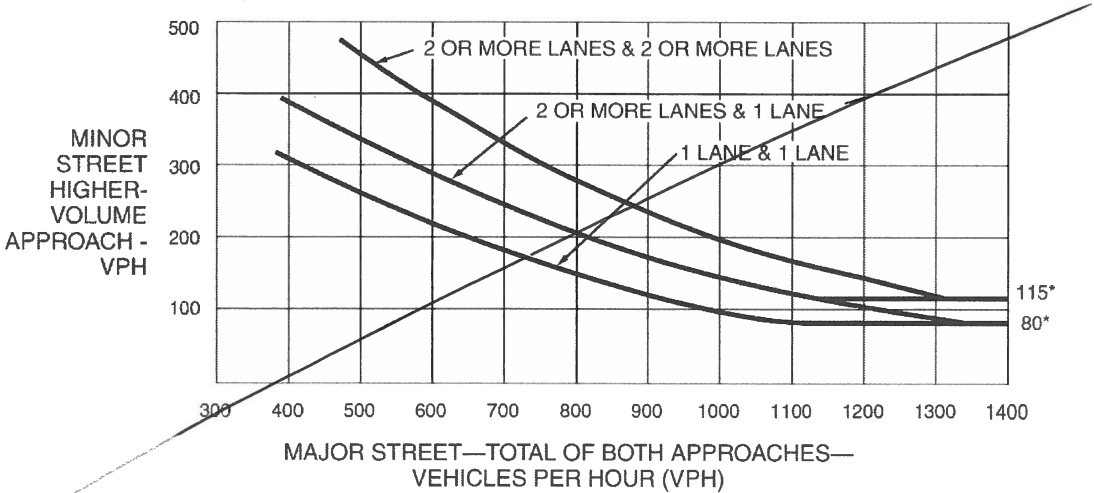
Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B—Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor-street approach (one direction only)			
Major Street	Minor Street	100% ^a	80% ^b	70% ^c	56% ^d	100% ^a	80% ^b	70% ^c	56% ^d
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

^a Basic minimum hourly volume^b Used for combination of Conditions A and B after adequate trial of other remedial measures^c May be used when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000^d May be used for combination of Conditions A and B after adequate trial of other remedial measures when the major-street speed exceeds 40 mph or in an isolated community with a population of less than 10,000

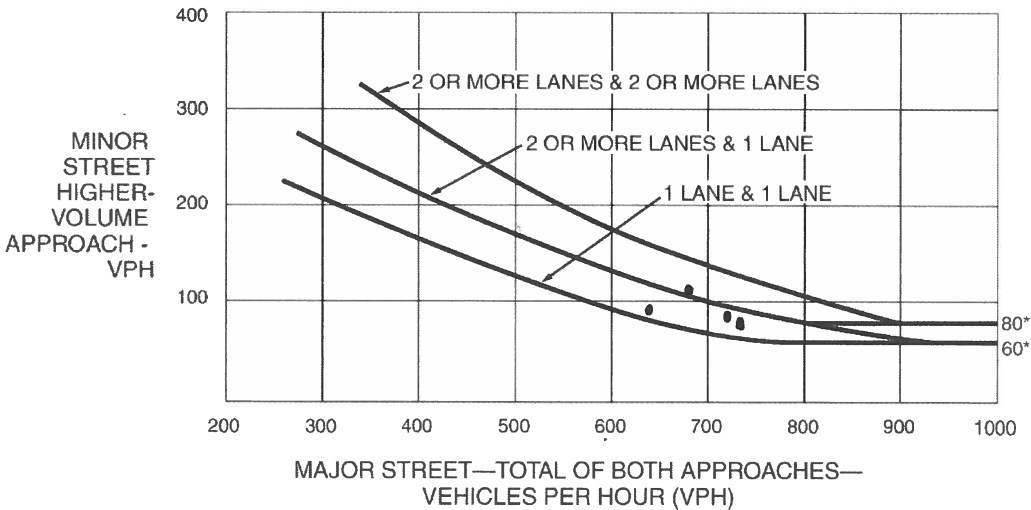
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 3 (With Caltrans SHOPP Project)



Major Street **SR 4**
Minor Street **Pennsylvania Gulch Rd**

Project **Murphy's Complete Streets**
Scenario **Existing Conditions**
Peak Hour **AM**

Turn Movement Volumes

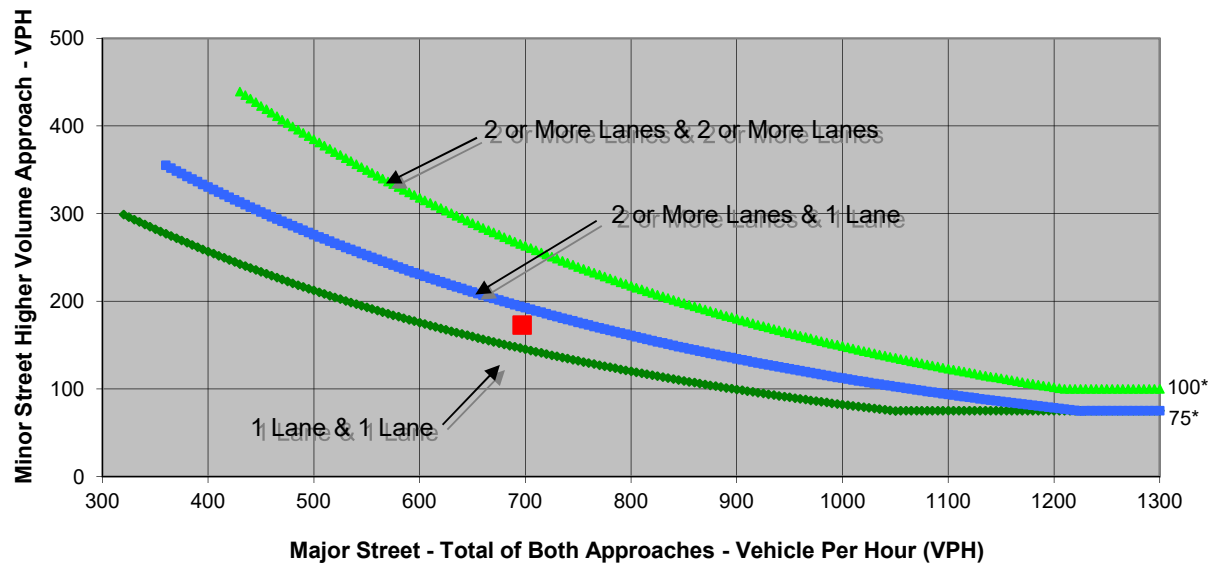
	NB	SB	EB	WB
Left	1	126	1	43
Through	237	286	2	0
Right	47	0	13	130
Total	285	412	16	173

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET



* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: California Manual on Uniform Traffic Control Devices, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	SR 4	Pennsylvania Gulch Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	697	173	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

Warrant 3 (Without Caltrans SHOPP Project)



Major Street **SR 4**
Minor Street **Pennsylvania Gulch Rd**

Project **Murphy's Complete Streets**
Scenario **Existing Conditions**
Peak Hour **AM**

Turn Movement Volumes

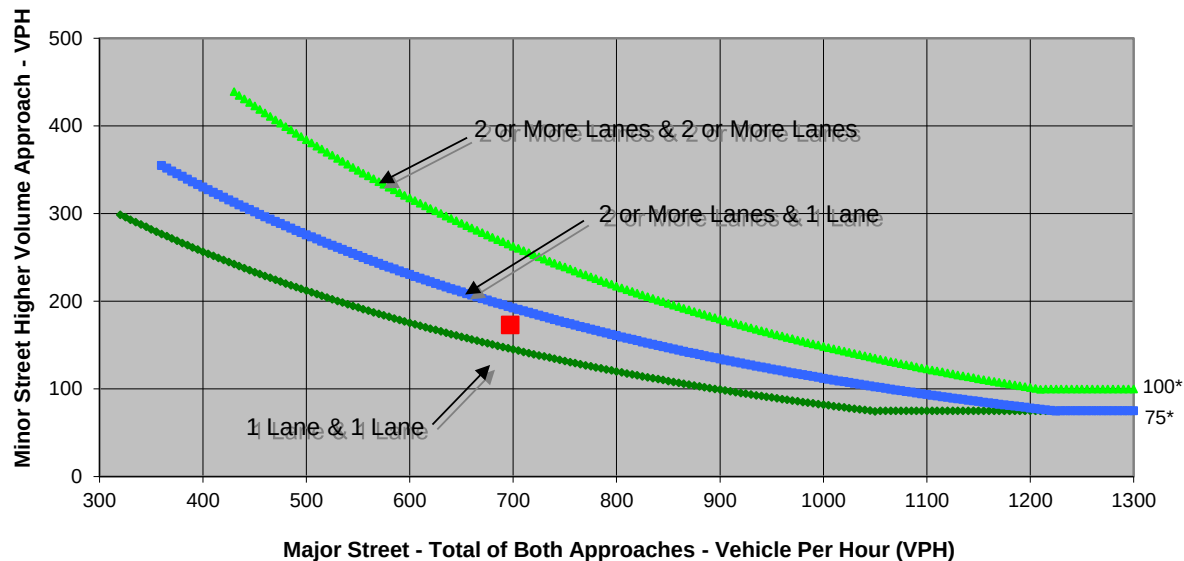
	NB	SB	EB	WB
Left	1	126	1	43
Through	237	286	2	0
Right	47	0	13	130
Total	285	412	16	173

Major Street Direction

x	North/South
	East/West

Figure 4C-4. Warrant 3B, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR

ABOVE 40 MPH ON MAJOR STREET

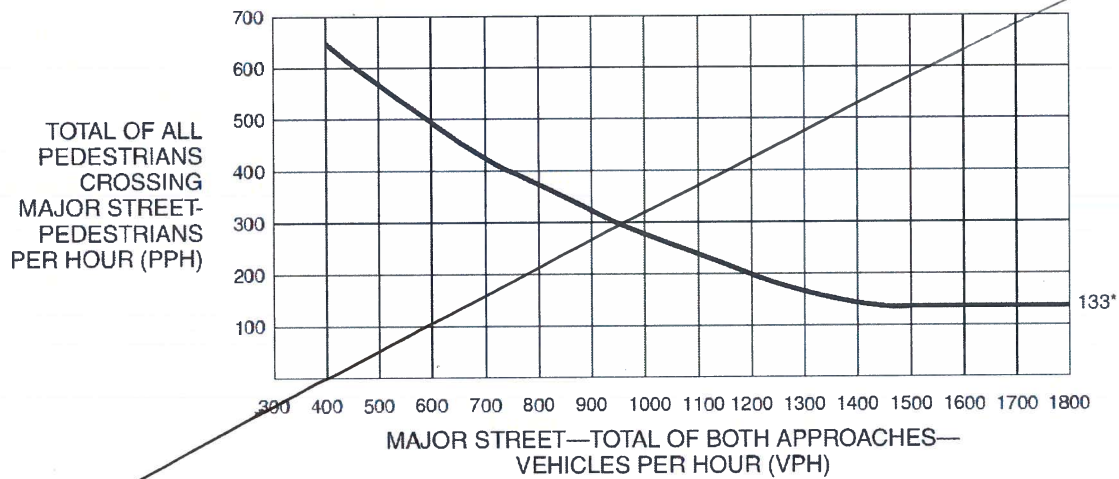


* Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: California Manual on Uniform Traffic Control Devices, Caltrans, 2014

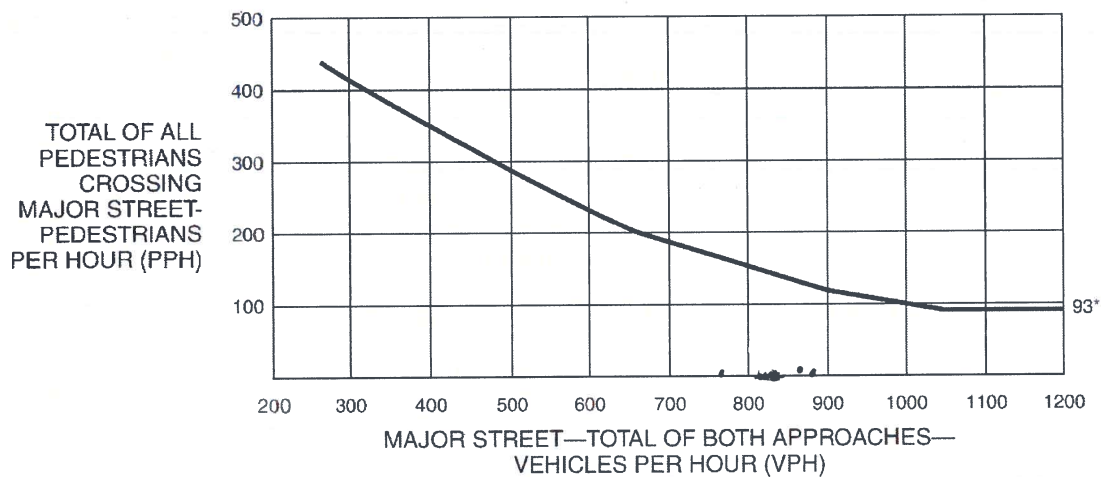
	Major Street	Minor Street	Warrant Met
	SR 4	Pennsylvania Gulch Rd	
Number of Approach Lanes	1	1	<u>YES</u>
Traffic Volume (VPH) *	697	173	
* Note: Traffic Volume for Major Street is Total Volume of Both Approches. Traffic Volume for Minor Street is the Volume of High Volume Approach.			

Figure 4C-7. Warrant 4, Pedestrian Peak Hour



*Note: 133 pph applies as the lower threshold volume.

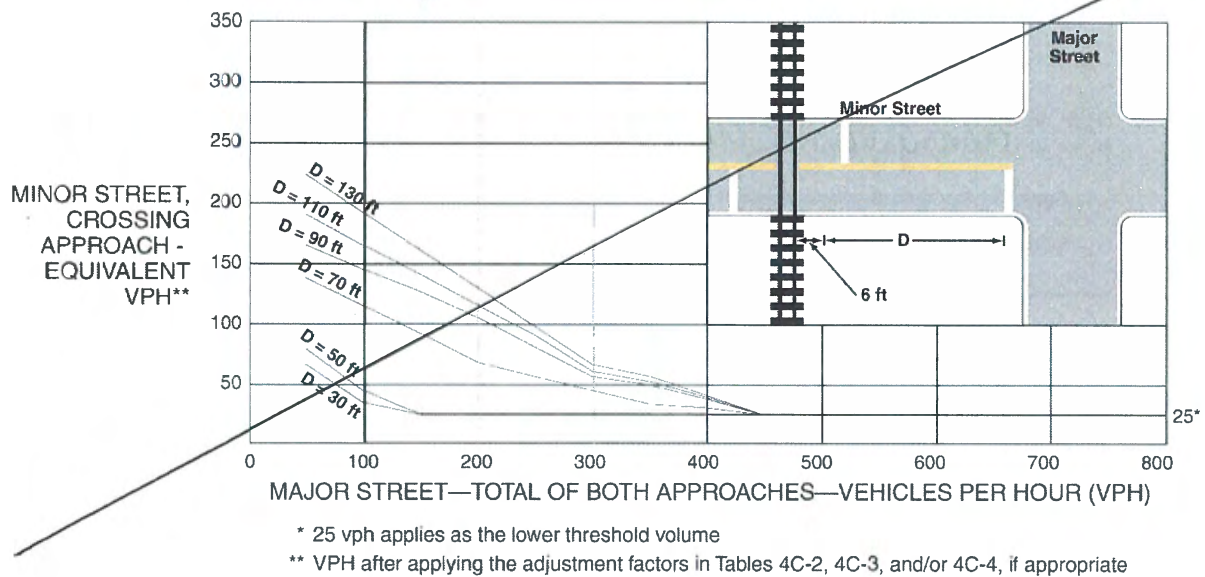
Figure 4C-8. Warrant 4, Pedestrian Peak Hour (70% Factor)



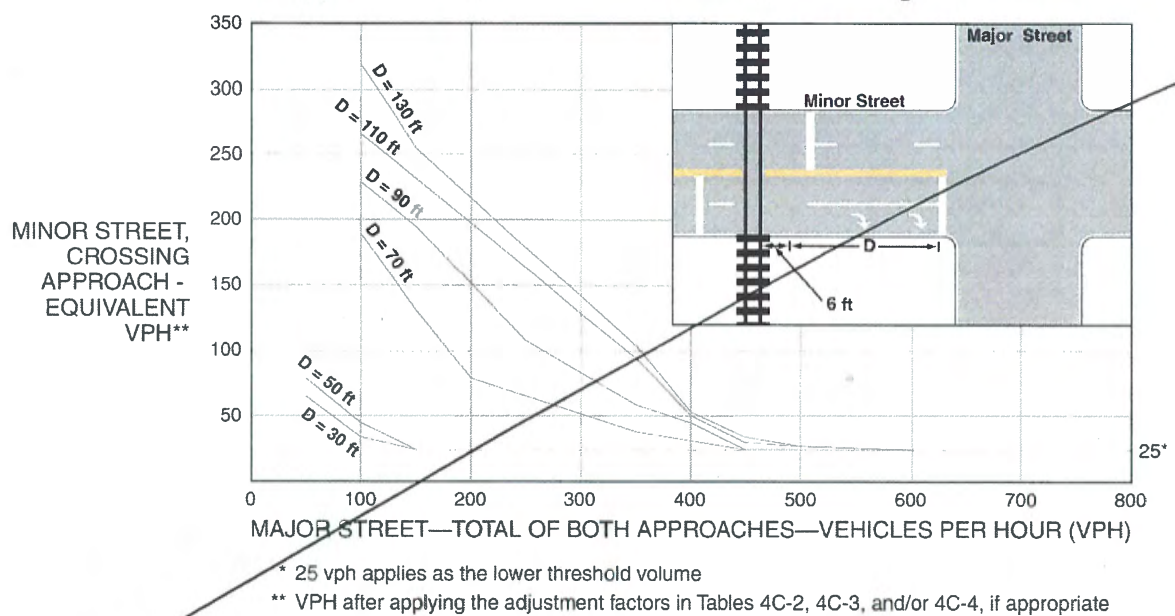
*Note: 93 pph applies as the lower threshold volume.

*N/A - Project is not near a grade crossing.

**Figure 4C-9. Warrant 9, Intersection Near a Grade Crossing
(One Approach Lane at the Track Crossing)**



**Figure 4C-10. Warrant 9, Intersection Near a Grade Crossing
(Two or More Approach Lanes at the Track Crossing)**



APPENDIX B

Detailed Cost Estimates

Murphys State Route 4 (SR 4) Complete Streets Project

12/1/2018

UNIT PRICES

1	ROADWAY		
	ITEM DESCRIPTION	UNIT	PRICE
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00
	DECOMPOSED GRANITE	SF	\$12.00
	SIDEWALK	SF	\$15.00
	SIDEPATH (ASPHALT)	SF	\$6.00
	CURB & GUTTER	LF	\$100.00
	MEDIAN CURB	LF	\$75.00
	CURB RAMP	EA	\$7,500.00

2	DRAINAGE		
	ITEM DESCRIPTION	UNIT	PRICE
	DRAINAGE	LF	\$250.00

3	MISCELLANEOUS		
	ITEM DESCRIPTION	UNIT	PRICE
	TRAFFIC SIGNAL	INT	\$450,000.00
	TRAFFIC SIGNAL MODIFICATIONS	INT	\$150,000.00
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00
	LANDSCAPING	SF	\$15.00
	PLANT TREES	EA	\$2,000.00
	ENHANCED SHOULDER	LF	\$10.00
	GATEWAY SIGN	EA	\$50,000.00
	SIGN	EA	\$300.00

4	MINOR ITEMS		
	(e.g. striping, traffic control, driveway conforms, fencing, etc.)		
	ITEM DESCRIPTION	UNIT	PRICE
	MINOR ITEMS	%	30.0%

5 CONTINGENCY 30%

6	STRUCTURES		
	ITEM DESCRIPTION	UNIT	PRICE
	BRIDGES	SF	\$175.00
	CULVERTS	SF	\$110.00
	RETAINING WALLS	SF	\$130.00

7	ENGINEERING & MANAGEMENT		
	ITEM DESCRIPTION	UNIT	PRICE
	ENGINEERING STUDIES	%	3.0%
	ENVIRONMENTAL DOCUMENTS	%	1.5%
	DESIGN ENGINEERING	%	12.0%
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%
	CONSTRUCTION STAKING	%	2.5%
	CONSTRUCTION MANAGEMENT	%	13.0%

8	Right of Way, Utility Relocation, Environmental Mitigation		
	ITEM DESCRIPTION	UNIT	PRICE
	RIGHT OF WAY	SF	\$3.00
	EASEMENT	SF	\$3.00
	UTILITY RELOCATION	%	0.0%
	ENVIRONMENTAL MITIGATION	%	4.5%

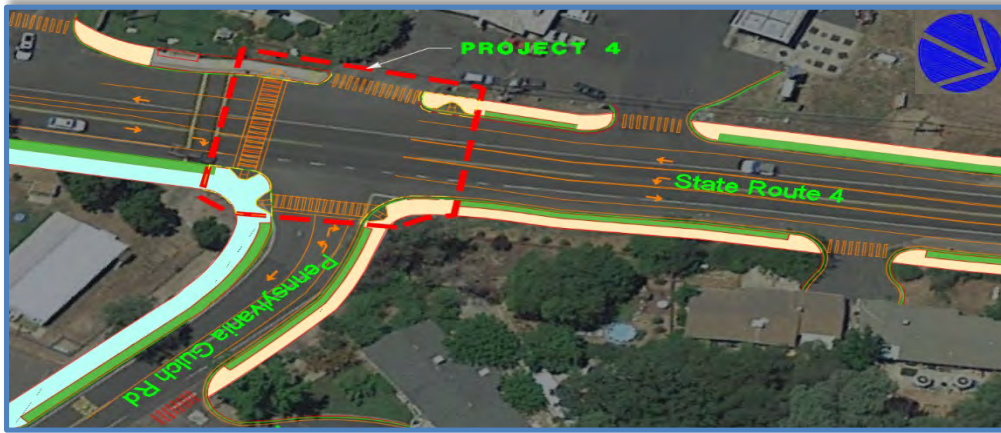
Conceptual Cost Estimate

Project No. 4

Description:



PEDESTRIAN HYBRID BEACON AND HIGH VISIBILITY CROSSWALKS AT SR 4 AND PENNSILVANIA GULCH ROAD INTERSECTION (PHASE 1)



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	7,930	\$23,790
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	1,082	\$16,230
	CURB & GUTTER	LF	\$100.00	179	\$17,900
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	5	\$37,500
	TOTAL FOR ITEM 1 ROADWAY				\$95,420
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	85	\$21,250
	TOTAL FOR ITEM 2 DRAINAGE				\$21,250
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	1	\$250,000
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	1	\$7,000
	LANDSCAPING	SF	\$15.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0

Conceptual Cost Estimate

Project No. 4

Description:



PEDESTERIAN HYBRID BEACON AND HIGH VISIBILITY CROSSWALKS AT SR 4 AND PENNSILVANIA GULCH ROAD INTERSECTION (PHASE 1)

	TOTAL FOR ITEM 3 MISCELLANEOUS				\$257,000
4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$112,200
	TOTAL FOR ITEM 4 MINOR ITEMS				\$112,200
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$485,900
6	CONTINGENCY	30%			\$145,800
TOTAL CONSTRUCTION COST					\$631,700
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$19,000
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$9,500
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$75,900
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$9,500
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$15,800
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$82,200
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$211,900
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$5,100
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$5,100

TOTAL PROJECT COST \$848,700

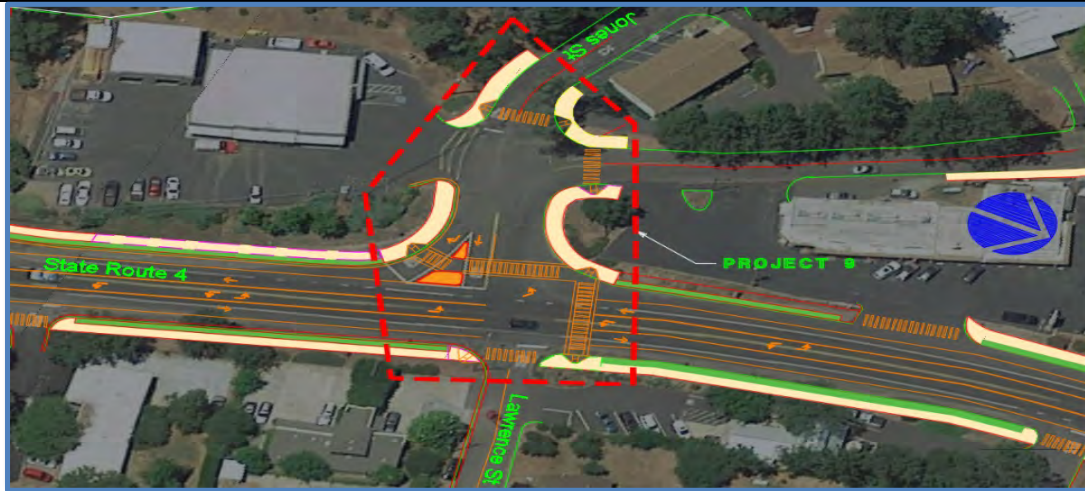
Conceptual Cost Estimate

Project No. 9

Description:



IMPROVE MAIN STREET AND SR 4 INTERSECTION WITH NEW CROSSWALK AT MAIN STREET AND HIGH-VISIBILITY CROSSWALK AT SR 4 WITH RAPID FLASHING BEACON



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	15,269	\$45,807
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	2,975	\$44,625
	CURB & GUTTER	LF	\$100.00	434	\$43,400
	MEDIAN CURB	LF	\$75.00	93	\$6,975
	CURB RAMP	EA	\$7,500.00	7	\$52,500
	TOTAL FOR ITEM 1 ROADWAY				\$193,307
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	300	\$75,000
	TOTAL FOR ITEM 2 DRAINAGE				\$75,000
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	1	\$120,000
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	209	\$3,135
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0

Conceptual Cost Estimate

Project No. 9

Description:



IMPROVE MAIN STREET AND SR 4 INTERSECTION WITH NEW CROSSWALK AT MAIN STREET AND HIGH-VISIBILITY CROSSWALK AT SR 4 WITH RAPID FLASHING BEACON

	TOTAL FOR ITEM 3 MISCELLANEOUS				\$123,135
4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$117,500
	TOTAL FOR ITEM 4 MINOR ITEMS				\$117,500
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$509,000
6	CONTINGENCY	30%			\$152,700
TOTAL CONSTRUCTION COST					\$661,700
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$19,900
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$10,000
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$79,500
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$10,000
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$16,600
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$86,100
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$222,100
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$5,300
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$5,300

TOTAL PROJECT COST \$889,100

Conceptual Cost Estimate

Project No. 16

Description:



**PEDESTERIAN CROSSWALKS AT MAIN STREET/ BIG TREES
SCOTT STREET INTERSECTION**

ROAD/



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	7,295	\$21,885
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	1,072	\$16,077
	CURB & GUTTER	LF	\$100.00	236	\$23,560
	MEDIAN CURB	LF	\$75.00	66	\$4,943
	CURB RAMP	EA	\$7,500.00	5	\$37,500
	TOTAL FOR ITEM 1 ROADWAY				\$103,965
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	174	\$43,425
	TOTAL FOR ITEM 2 DRAINAGE				\$43,425
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	1	\$7,000
	LANDSCAPING	SF	\$15.00	298	\$4,463
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0

Conceptual Cost Estimate

Project No. 16

Description:



**PEDESTERIAN CROSSWALKS AT MAIN STREET/ BIG TREES
SCOTT STREET INTERSECTION**

ROAD/

	TOTAL FOR ITEM 3 MISCELLANEOUS				\$11,463
4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$47,700
	TOTAL FOR ITEM 4 MINOR ITEMS				\$47,700
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$206,600
6	CONTINGENCY	30%			\$62,000
TOTAL CONSTRUCTION COST					\$268,600
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$8,100
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$4,100
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$32,300
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$4,100
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$6,800
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$35,000
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$90,400
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$2,200
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$2,200

TOTAL PROJECT COST \$361,200

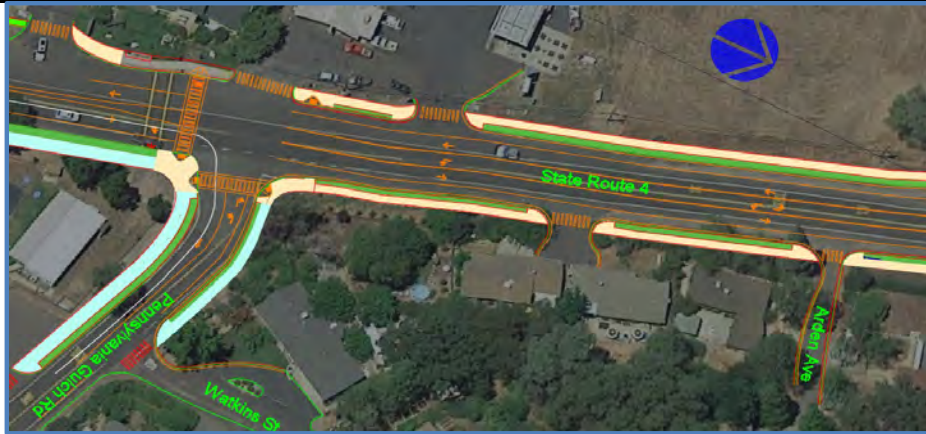
Conceptual Cost Estimate

Project No. 8A

Description:



SIDEWALKS ALONG SR 4 WITH LANDSCAPE BUFFER, BIKE LANES, AND CENTER TURN LANE FROM PENNSYLVANIA GULCH ROAD TO MAIN STREET



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	8,819	\$132,285
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	10	\$75,000
	TOTAL FOR ITEM 1 ROADWAY				\$207,285
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	4,452	\$66,780
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$66,780

Conceptual Cost Estimate

Project No. 8A

Description:



**SIDEWALKS ALONG SR 4 WITH LANDSCAPE BUFFER, BIKE LANES, AND CENTER TURN LANE
FROM PENNSYLVANIA GULCH ROAD TO MAIN STREET**

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$82,300
	TOTAL FOR ITEM 4 MINOR ITEMS				\$82,300
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$356,400
6	CONTINGENCY	30%			\$107,000
TOTAL CONSTRUCTION COST					\$463,400
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$14,000
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$7,000
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$55,700
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$7,000
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$11,600
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$60,300
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$155,600
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$3,800
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$3,800

TOTAL PROJECT COST \$622,800

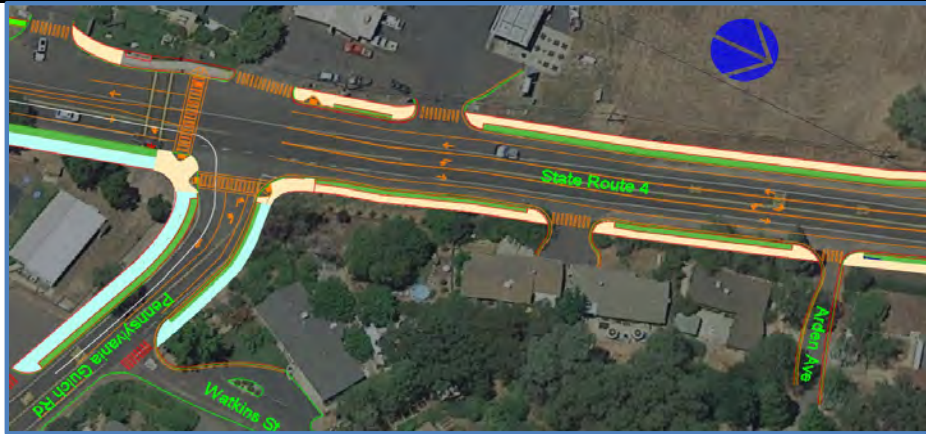
Conceptual Cost Estimate

Project No. 8B

Description:



**SIDEWALKS ALONG SR 4 WITH LANDSCAPE BUFFER, BIKE LANES, AND CENTER TURN LANE
FROM MAIN STREET TO TOM BELL ROAD**



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	28,384	\$312,224
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	27,922	\$83,766
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	10,962	\$164,430
	CURB & GUTTER	LF	\$100.00	2,014	\$201,400
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	16	\$120,000
	TOTAL FOR ITEM 1 ROADWAY				\$881,820
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	2,031	\$507,850
	TOTAL FOR ITEM 2 DRAINAGE				\$507,850
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	5,208	\$78,120
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$78,120

Conceptual Cost Estimate

Project No. 8B

Description:



**SIDEWALKS ALONG SR 4 WITH LANDSCAPE BUFFER, BIKE LANES, AND CENTER TURN LANE
FROM MAIN STREET TO TOM BELL ROAD**

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$440,400
	TOTAL FOR ITEM 4 MINOR ITEMS				\$440,400
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	2,304	\$299,520
	TOTAL FOR ITEM 5 STRUCTURES				\$299,520
SUBTOTAL CONSTRUCTION COST					\$2,207,800
6	CONTINGENCY	30%			\$662,400
TOTAL CONSTRUCTION COST					\$2,870,200
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$86,200
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$43,100
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$344,500
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$43,100
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$71,800
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$373,200
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$961,900
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$19,900
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$19,900

TOTAL PROJECT COST \$3,852,000

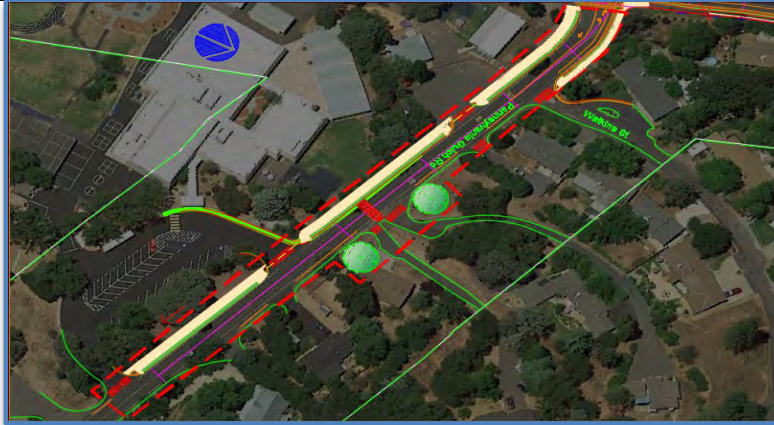
Conceptual Cost Estimate

Project No. 6

Description:



SIDEPATH FROM SR 4 DOWN PENNSYLVANIA GULCH TO MICHELSON ELEMENTARY AND FEENEY PARK MAIN PARKING LOT + SHOULDER IMPROVEMENTS ALONG NORTH SIDE OF PENNSYLVANIA GULCH ROAD ACROSS FROM SCHOOL + NEW STREET TREES TO SHADE CROSSWALK ACROSS PENNSYLVANIA GULCH ROAD



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEPATH (ASPHALT)	SF	\$6.00	7,324	\$43,947
	CURB & GUTTER	LF	\$100.00	863	\$86,284
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	6	\$45,000
	TOTAL FOR ITEM 1 ROADWAY				\$175,231
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	82	\$20,500
	TOTAL FOR ITEM 2 DRAINAGE				\$20,500
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	1,897	\$28,455
	PLANT TREES	EA	\$2,000.00	2	\$4,000
	ENHANCED SHOULDER	LF	\$10.00	780	\$7,800
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$40,255

Conceptual Cost Estimate

Project No. 6

Description:



SIDEPATH FROM SR 4 DOWN PENNSYLVANIA GULCH TO MICHELSON ELEMENTARY AND FEENEY PARK MAIN PARKING LOT + SHOULDER IMPROVEMENTS ALONG NORTH SIDE OF PENNSYLVANIA GULCH ROAD ACROSS FROM SCHOOL + NEW STREET TREES TO SHADE CROSSWALK ACROSS PENNSYLVANIA GULCH ROAD

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$70,800
	TOTAL FOR ITEM 4 MINOR ITEMS				\$70,800

5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0

SUBTOTAL CONSTRUCTION COST					\$306,800
6	CONTINGENCY	30%			\$92,100
TOTAL CONSTRUCTION COST					\$398,900

7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$12,000
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$6,000
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$47,900
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$6,000
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$10,000
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$51,900
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$133,800

8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$3,200
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$3,200

TOTAL PROJECT COST \$535,900

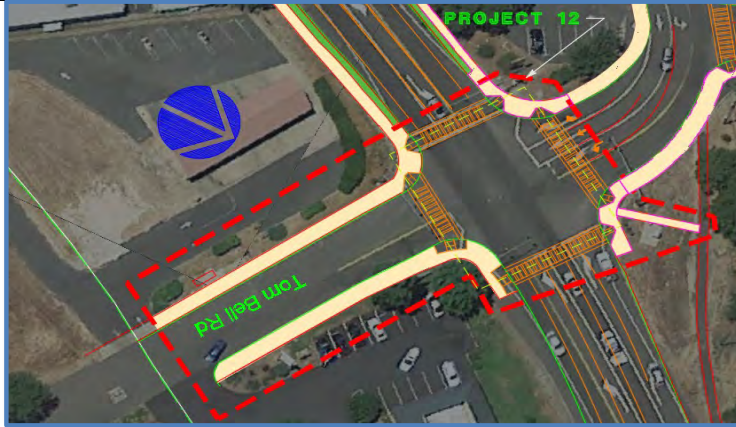
Conceptual Cost Estimate

Project No. 12

Description:



**CURB EXTENSIONS, ADDITIONAL CROSSWALKS, AND NEW SIDEWALKS
AT SR 4 / TOM BELL ROAD INTERSECTION**



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	10,511	\$31,533
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	4,730	\$70,950
	CURB & GUTTER	LF	\$100.00	580	\$58,000
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	8	\$60,000
	TOTAL FOR ITEM 1 ROADWAY				\$220,483
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	376	\$94,000
	TOTAL FOR ITEM 2 DRAINAGE				\$94,000
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	1	\$150,000
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$150,000

Conceptual Cost Estimate

Project No. 12

Description:



**CURB EXTENSIONS, ADDITIONAL CROSSWALKS, AND NEW SIDEWALKS
AT SR 4 / TOM BELL ROAD INTERSECTION**

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$139,400
	TOTAL FOR ITEM 4 MINOR ITEMS				\$139,400

5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	620	\$80,600
	TOTAL FOR ITEM 5 STRUCTURES				\$80,600

SUBTOTAL CONSTRUCTION COST					\$684,500
6	CONTINGENCY	30%			\$205,400
TOTAL CONSTRUCTION COST					\$889,900

7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$26,700
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$13,400
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$106,800
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$13,400
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$22,300
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$115,700
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$298,300

8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$6,300
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$6,300

TOTAL PROJECT COST \$1,194,500

Conceptual Cost Estimate

Project No. 13

Description:



IMPROVE BRET HARTE DRIVE INTERSECTION AT SR 4 WITH PEDESTRIAN CROSSWALK AND EDGE OF PAVEMENT MARKINGS + SIDEPAH AT CALIFORNIA HIGHWAY PATROL WEIGH STATION BETWEEN BRET HARTE DRIVE AND WILLIAMS STREET



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	10,511	\$31,533
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEPAH (ASPHALT)	SF	\$6.00	6,847	\$41,082
	CURB & GUTTER	LF	\$100.00	677	\$67,700
	MEDIAN CURB	LF	\$75.00	99	\$7,425
	CURB RAMP	EA	\$7,500.00	2	\$15,000
	TOTAL FOR ITEM 1 ROADWAY				\$162,740
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	65	\$16,250
	TOTAL FOR ITEM 2 DRAINAGE				\$16,250
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	209	\$3,135
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$3,135

Conceptual Cost Estimate

Project No. 13

Description:



IMPROVE BRET HARTE DRIVE INTERSECTION AT SR 4 WITH PEDESTERIAN CROSSWALK AND EDGE OF PAVEMENT MARKINGS + SIDEPAH AT CALIFORNIA HIGHWAY PATROL WEIGH STATION BETWEEN BRET HARTE DRIVE AND WILLIAMS STREET

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$54,700
	TOTAL FOR ITEM 4 MINOR ITEMS				\$54,700

5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0

SUBTOTAL CONSTRUCTION COST					\$236,900
6	CONTINGENCY	30%			\$71,100
TOTAL CONSTRUCTION COST					\$308,000

7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$9,300
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$4,700
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$37,000
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$4,700
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$7,700
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$40,100
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$103,500

8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$2,500
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$2,500

TOTAL PROJECT COST \$414,000

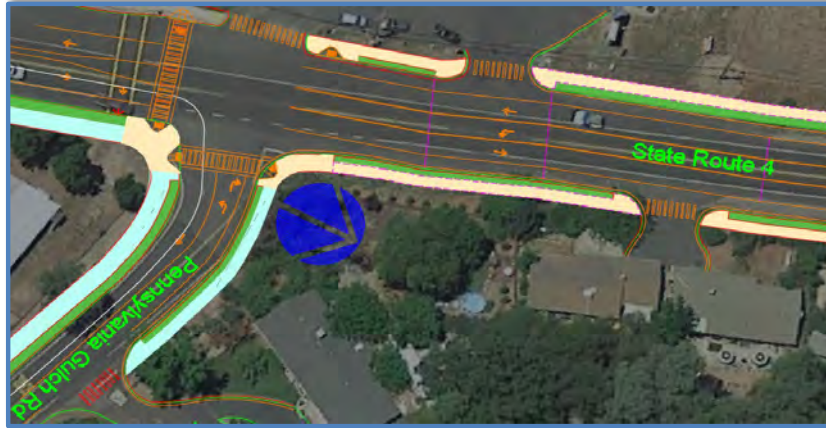
Conceptual Cost Estimate

Project No. 1

Description:



FULL TRAFFIC SIGNAL AT SR 4 AND PENNSYLVANIA GULCH ROAD INTERSECTION (PHASE II)



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	0	\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	LOW BARRIER CONCRETE WALL	LF	\$100.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$0
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	1	\$450,000
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$450,000

Conceptual Cost Estimate

Project No. 1

Description:



FULL TRAFFIC SIGNAL AT SR 4 AND PENNSYLVANIA GULCH ROAD INTERSECTION (PHASE II)

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$135,000
	TOTAL FOR ITEM 4 MINOR ITEMS				\$135,000
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$585,000
6	CONTINGENCY	30%			\$175,500
TOTAL CONSTRUCTION COST					\$760,500
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$22,900
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$11,500
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$91,300
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$11,500
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$19,100
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$98,900
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$255,200
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$6,100
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$6,100

TOTAL PROJECT COST \$1,021,800

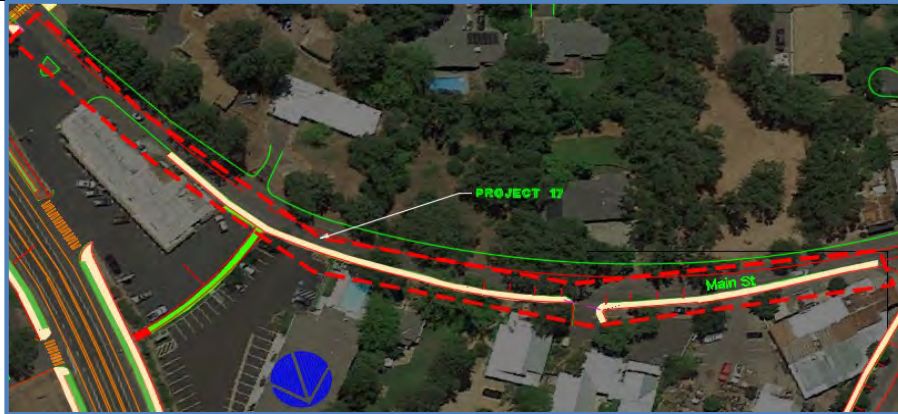
Conceptual Cost Estimate

Project No. 17

Description:



**NEW SIDEWALK AND PARALLEL PARKING ON NORTH SIDE OF MAIN STREET
BETWEEN BIG TREES ROAD AND SR 4**



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	2,000	\$22,000
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	3,134	\$47,010
	CURB & GUTTER	LF	\$100.00	752	\$75,200
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	2	\$15,000
	TOTAL FOR ITEM 1 ROADWAY				\$159,210
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	150	\$37,500
	TOTAL FOR ITEM 2 DRAINAGE				\$37,500
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$0

Conceptual Cost Estimate

Project No. 17

Description:



**NEW SIDEWALK AND PARALLEL PARKING ON NORTH SIDE OF MAIN STREET
BETWEEN BIG TREES ROAD AND SR 4**

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$59,100
	TOTAL FOR ITEM 4 MINOR ITEMS				\$59,100

5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0

SUBTOTAL CONSTRUCTION COST					\$255,900
6	CONTINGENCY	30%			\$76,800
TOTAL CONSTRUCTION COST					\$332,700

7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$10,000
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$5,000
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$40,000
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$5,000
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$8,400
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$43,300
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$111,700

8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$2,700
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$2,700

TOTAL PROJECT COST \$447,100

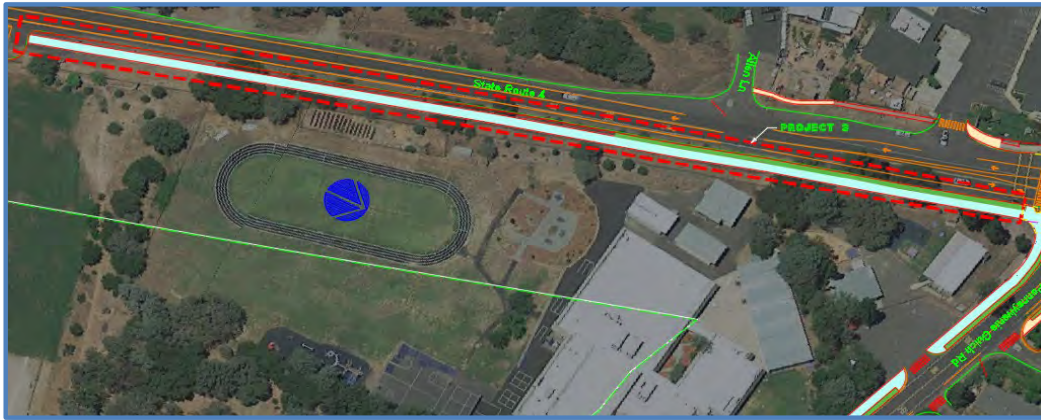
Conceptual Cost Estimate

Project No. 3

Description:



SIDEPATH TO SR 4 / FEENEY PARK BALLFIELDS PARKING AREA FROM PENNSYLVANIA GULCH ROAD CORNER



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEPATH (ASPHALT)	SF	\$6.00	10,380	\$62,280
	CURB & GUTTER	LF	\$100.00	430	\$43,000
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$105,280
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	100	\$25,000
	TOTAL FOR ITEM 2 DRAINAGE				\$25,000
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	2,140	\$32,105
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$32,105

Conceptual Cost Estimate

Project No. 3

Description:



**SIDEPATH TO SR 4 / FEENEY PARK BALLFIELDS PARKING AREA FROM PENNSYLVANIA
GULCH ROAD CORNER**

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$48,800
	TOTAL FOR ITEM 4 MINOR ITEMS				\$48,800
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$211,200
6	CONTINGENCY	30%			\$63,400
TOTAL CONSTRUCTION COST					\$274,600
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$8,300
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$4,200
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$33,000
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$4,200
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$6,900
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$35,700
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$92,300
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$2,200
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$2,200

TOTAL PROJECT COST \$369,100

Conceptual Cost Estimate

Project No. 15

Description:

NEW SIDEWALK ALONG BIG TREES ROAD LINKING CREEKVIEW ROAD TO A NEW MIDBLOCK CROSSING AT BIG TREES ROAD CONNECTING TO EXISTING SIDEWALK + IMPROVE EXISTING SIDEWALK ALONG BIG TREES ROAD LEADING TO MAIN STREET



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	5,619	\$84,282
	CURB & GUTTER	LF	\$100.00	877	\$87,700
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	6	\$45,000
	TOTAL FOR ITEM 1 ROADWAY				\$216,982
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	200	\$50,000
	TOTAL FOR ITEM 2 DRAINAGE				\$50,000
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	2,140	\$32,105
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$32,105

Conceptual Cost Estimate

Project No. 15

Description:



NEW SIDEWALK ALONG BIG TREES ROAD LINKING CREEKVIEW ROAD TO A NEW MIDBLOCK
CROSSING AT BIG TREES ROAD CONNECTING TO EXISTING SIDEWALK + IMPROVE EXISTING
SIDEWALK ALONG BIG TREES ROAD LEADING TO MAIN STREET

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$89,800
	TOTAL FOR ITEM 4 MINOR ITEMS				\$89,800
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$388,900
6	CONTINGENCY	30%			\$116,700
TOTAL CONSTRUCTION COST					\$505,600
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$15,200
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$7,600
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$60,700
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$7,600
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$12,700
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$65,800
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$169,600
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$4,100
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$4,100

TOTAL PROJECT COST \$679,300

Conceptual Cost Estimate
Project No. 2
Description:



IMPROVE SR 4 / FEENEY PARK BALLFIELDS PARKING AREA



1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	10,212	\$112,335
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00	0	\$0
	CURB & GUTTER	LF	\$100.00	347	\$34,730
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	CONCRETE BARRIER	LF	\$100.00	236	\$23,560
	TOTAL FOR ITEM 1 ROADWAY				\$147,065
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	100	\$25,000
	TOTAL FOR ITEM 2 DRAINAGE				\$25,000
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	2	\$1,000
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$1,000

Conceptual Cost Estimate
Project No. 2
Description:



IMPROVE SR 4 / FEENEY PARK BALLFIELDS PARKING AREA

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$52,000
	TOTAL FOR ITEM 4 MINOR ITEMS				\$52,000
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	200	\$26,000
	TOTAL FOR ITEM 5 STRUCTURES				\$26,000
SUBTOTAL CONSTRUCTION COST					\$251,100
6	CONTINGENCY	30%			\$75,400
TOTAL CONSTRUCTION COST					\$326,500
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$9,800
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$4,900
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$39,200
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$4,900
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$8,200
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$42,500
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$109,500
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$2,400
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$2,400

TOTAL PROJECT COST \$438,400

Conceptual Cost Estimate

Project No. 18

Description:



**NEW GRAVEL PATH ALONG THE NORTH SIDE OF JONES STREET
CLASS III BIKE FACILITIES ON JONES**

INCLUDING

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	2,510	\$30,120
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	4	\$30,000
	TOTAL FOR ITEM 1 ROADWAY				\$60,120
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	85	\$21,250
	TOTAL FOR ITEM 2 DRAINAGE				\$21,250
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$0

Conceptual Cost Estimate

Project No. 18

Description:


**NEW GRAVEL PATH ALONG THE NORTH SIDE OF JONES STREET
CLASS III BIKE FACILITIES ON JONES**
INCLUDING

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$24,500
	TOTAL FOR ITEM 4 MINOR ITEMS				\$24,500
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$105,900
6	CONTINGENCY	30%			\$31,800
TOTAL CONSTRUCTION COST					\$137,700
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$4,200
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$2,100
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$16,600
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$2,100
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$3,500
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$18,000
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$46,500
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$1,200
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$1,200

TOTAL PROJECT COST \$185,400

Conceptual Cost Estimate

Project No. 10

Description:



New historic Main Street Gateway Signage at SR4/ Main Street turn-off + New Historic Murphys gateway signage at SR-4/ Big Trees Road turn-off + Beautification of Big Trees Road intersection at SR 4 with landscaping

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$0
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	9,352	\$140,280
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	2	\$100,000
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$240,280

Conceptual Cost Estimate

Project No. 10

Description:



New historic Main Street Gateway Signage at SR4/ Main Street turn-off + New Historic Murphys gateway signage at SR-4/ Big Trees Road turn-off + Beautification of Big Trees Road intersection at SR 4 with landscaping

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$72,100
	TOTAL FOR ITEM 4 MINOR ITEMS				\$72,100

5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0

SUBTOTAL CONSTRUCTION COST \$312,400

6 CONTINGENCY 30% \$93,800

TOTAL CONSTRUCTION COST \$406,200

7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$12,200
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$6,100
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$48,800
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$6,100
	CONSTRUCTION STAKING	%	0.0%	of Total Cost	\$0
	CONSTRUCTION MANAGEMENT	LS	6.0%	of Total Cost	\$24,400
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$97,600

8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$3,300
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$3,300

TOTAL PROJECT COST \$507,100

Conceptual Cost Estimate

Project No. 11

Description:



New stop sign to replace Yield sign on Main Street and Jones Street near SR 4.

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$0
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	STOP SIGN	EA	\$300.00	1	\$300
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$300

Conceptual Cost Estimate

Project No. 11

Description:



New stop sign to replace Yield sign on Main Street and Jones Street near SR 4.

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$100
	TOTAL FOR ITEM 4 MINOR ITEMS				\$100
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$400
6	CONTINGENCY	30%			\$200
TOTAL CONSTRUCTION COST					\$600
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	0.0%	of Total Cost	\$0
	ENVIRONMENTAL DOCUMENTS	%	0.0%	of Total Cost	\$0
	DESIGN ENGINEERING	%	0.0%	of Total Cost	\$0
	DESIGN SERVICES DURING CONSTRUCTION	%	0.0%	of Total Cost	\$0
	CONSTRUCTION STAKING	%	0.0%	of Total Cost	\$0
	CONSTRUCTION MANAGEMENT	LS	0.0%	of Total Cost	\$0
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$0
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	0.0%	of Con. Cost	\$0
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$0

TOTAL PROJECT COST \$600

Conceptual Cost Estimate

Project No. 1A

Description:



"Enhanced Shoulders" for bicycles and pedestrians on SR 4 east of Williams Road to Apple Blossom Road

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	5,600	\$61,600
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$61,600
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	1,400	\$14,000
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$14,000

Conceptual Cost Estimate

Project No. 1A

Description:



"Enhanced Shoulders" for bicycles and pedestrians on SR 4 east of Williams Road to Apple Blossom Road

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$22,700
	TOTAL FOR ITEM 4 MINOR ITEMS				\$22,700
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	2,100	\$273,000
	TOTAL FOR ITEM 5 STRUCTURES				\$273,000
SUBTOTAL CONSTRUCTION COST					\$371,300
6	CONTINGENCY	30%			\$111,400
TOTAL CONSTRUCTION COST					\$482,700
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$14,500
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$7,300
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$58,000
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$7,300
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$12,100
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$62,800
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$162,000
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$1,100
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$1,100

TOTAL PROJECT COST \$645,800

Conceptual Cost Estimate

Project No. 1B

Description:



"Enhanced Shoulders" for bicycles and pedestrians on SR 4 west of informal Feeney Park ballfields parking area to Holiday Mine Road (approximately 1.7 miles)

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	36,000	\$396,000
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$396,000
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	9,000	\$90,000
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$90,000

Conceptual Cost Estimate

Project No. 1B

Description:



"Enhanced Shoulders" for bicycles and pedestrians on SR 4 west of informal Feeney Park ballfields parking area to Holiday Mine Road (approximately 1.7 miles)

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$145,800
	TOTAL FOR ITEM 4 MINOR ITEMS				\$145,800
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	6,750	\$877,500
	TOTAL FOR ITEM 5 STRUCTURES				\$877,500
SUBTOTAL CONSTRUCTION COST					\$1,509,300
6	CONTINGENCY	30%			\$452,800
TOTAL CONSTRUCTION COST					\$1,962,100
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$58,900
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$29,500
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$235,500
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$29,500
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$49,100
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$255,100
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$657,600
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$6,600
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$6,600

TOTAL PROJECT COST \$2,626,300

Conceptual Cost Estimate

Project No. 19

Description:



Class III Bike Route or Advisory Shoulders for bicycles and pedestrians on Six Mile Road to Iron Stone (1.5 miles)

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$0
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	SIGN	EA	\$300.00	16	\$4,752
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$4,752

Conceptual Cost Estimate

Project No. 19

Description:



Class III Bike Route or Advisory Shoulders for bicycles and pedestrians on Six Mile Road to Iron Stone (1.5 miles)

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$1,500
	TOTAL FOR ITEM 4 MINOR ITEMS				\$1,500
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$6,300
6	CONTINGENCY	30%			\$1,900
TOTAL CONSTRUCTION COST					\$8,200
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$300
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$200
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$1,000
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$200
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$300
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$1,100
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$3,100
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$100
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$100

TOTAL PROJECT COST \$11,400

Conceptual Cost Estimate

Project No. 20

Description:



Class III Bike Route on Pennsylvania Gulch Road east of Feeney Park extending to Wingdam Road (approximatel 5,100 feet)

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$0
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	SIGN	EA	\$300.00	10	\$3,060
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$3,060

Conceptual Cost Estimate

Project No. 20

Description:



Class III Bike Route on Pennsylvania Gulch Road east of Feeney Park extending to Wingdam Road (approximatel 5,100 feet)

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$1,000
	TOTAL FOR ITEM 4 MINOR ITEMS				\$1,000
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$4,100
6	CONTINGENCY	30%			\$1,300
TOTAL CONSTRUCTION COST					\$5,400
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	3.0%	of Total Cost	\$200
	ENVIRONMENTAL DOCUMENTS	%	1.5%	of Total Cost	\$100
	DESIGN ENGINEERING	%	12.0%	of Total Cost	\$700
	DESIGN SERVICES DURING CONSTRUCTION	%	1.5%	of Total Cost	\$100
	CONSTRUCTION STAKING	%	2.5%	of Total Cost	\$200
	CONSTRUCTION MANAGEMENT	LS	13.0%	of Total Cost	\$800
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$2,100
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	4.5%	of Con. Cost	\$100
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$100

TOTAL PROJECT COST \$7,600

Conceptual Cost Estimate

Project No. 7

Description:



New Stop sign on Pennsylvania Gulch Road at Feeny Park main parking lot

1	ROADWAY				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ASPHALT PAVEMENT (FULL SECTION)	SF	\$11.00	0	\$0
	ASPHALT PAVEMENT (2" Grind & Overlay)	SF	\$3.00	0	\$0
	DECOMPOSED GRANITE	SF	\$12.00	0	\$0
	SIDEWALK	SF	\$15.00		\$0
	CURB & GUTTER	LF	\$100.00	0	\$0
	MEDIAN CURB	LF	\$75.00	0	\$0
	CURB RAMP	EA	\$7,500.00	0	\$0
	TOTAL FOR ITEM 1 ROADWAY				\$0
2	DRAINAGE				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	DRAINAGE	LF	\$250.00	0	\$0
	TOTAL FOR ITEM 2 DRAINAGE				\$0
3	MISCELLANEOUS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	TRAFFIC SIGNAL	INT	\$450,000.00	0	\$0
	TRAFFIC SIGNAL MODIFICATION	INT	\$150,000.00	0	\$0
	PEDESTRIAN HYBRID BEACON	INT	\$250,000.00	0	\$0
	RECTANGULAR RAPID FLASHING BEACON	INT	\$120,000.00	0	\$0
	STREET LIGHTS / ELECTROLIERS	EA	\$7,000.00	0	\$0
	LANDSCAPING	SF	\$15.00	0	\$0
	REMOVE TREES	EA	\$500.00	0	\$0
	PLANT TREES	EA	\$2,000.00	0	\$0
	ENHANCED SHOULDER	LF	\$10.00	0	\$0
	GATEWAY SIGN	EA	\$50,000.00	0	\$0
	STOP SIGN	EA	\$300.00	1	\$300
	TOTAL FOR ITEM 3 MISCELLANEOUS				\$300

Conceptual Cost Estimate

Project No. 7

Description:



New Stop sign on Pennsylvania Gulch Road at Feeny Park main parking lot

4	MINOR ITEMS				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	MINOR ITEMS	%	30.0%	of Sections 1-3	\$100
	TOTAL FOR ITEM 4 MINOR ITEMS				\$100
5	STRUCTURES				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	BRIDGES	SF	\$175.00	0	\$0
	CULVERTS	SF	\$110.00	0	\$0
	RETAINING WALLS	SF	\$130.00	0	\$0
	TOTAL FOR ITEM 5 STRUCTURES				\$0
SUBTOTAL CONSTRUCTION COST					\$400
6	CONTINGENCY	30%			\$200
TOTAL CONSTRUCTION COST					\$600
7	ENGINEERING & MANAGEMENT				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	ENGINEERING STUDIES	%	0.0%	of Total Cost	\$0
	ENVIRONMENTAL DOCUMENTS	%	0.0%	of Total Cost	\$0
	DESIGN ENGINEERING	%	0.0%	of Total Cost	\$0
	DESIGN SERVICES DURING CONSTRUCTION	%	0.0%	of Total Cost	\$0
	CONSTRUCTION STAKING	%	0.0%	of Total Cost	\$0
	CONSTRUCTION MANAGEMENT	LS	0.0%	of Total Cost	\$0
	TOTAL FOR ITEM 7 ENGINEERING & MANAGEMENT				\$0
8	RIGHT-OF-WAY, UTILITY RELOCATION, AND ENVIRONMENTAL MITIGATION				
	ITEM DESCRIPTION	UNIT	PRICE	QUANTITY	COST
	RIGHT-OF-WAY	SF	\$3.00	0	\$0
	EASEMENT	SF	\$3.00	0	\$0
	UTILITY RELOCATION	%	0%	of Con. Cost	\$0
	ENVIRONMENTAL MITIGATION	%	0.0%	of Con. Cost	\$0
	TOTAL FOR ITEM 8 RIGHT-OF-WAY				\$0

TOTAL PROJECT COST \$600

