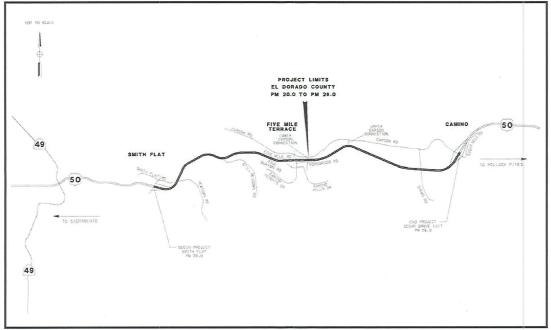
03-ED –50 – PM 20.0/26.0 El Dorado County Traffic Impact Mitigation Fees 03-4E620K November 2009

# PROJECT STUDY REPORT (PDS) To

## Request Programming for Capital Support (Project Approval and Environmental Document Phase) In the 2010 STIP



On US Route 50 Between Smith Flat Interchange And Cedar Grove Interchange in Camino, California.

LINDY K. LEE-LOVELL

Chief, North Region Right of Way

APPROVAL RECOMMENDED:

CLARK A. PERI Project Manager

APPROVED:

0

12/1/09

District Director

This Project Study Report (Project Development Support) has been prepared under the direction of the following Registered Engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Judith Matsui-Drury STERED CIVIL ENGINEER

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## 1. INTRODUCTION

This Project Study Report-Project Development Support (PSR-PDS) is proposed to enhance the safety of the Camino Corridor on US 50 in the Camino area of El Dorado County. The corridor study limits are from the Smith Flat Interchange (PM 20.0) to the Cedar Grove Interchange (PM 26.0). The proposed safety improvements occur from Still Meadows Road (PM 22.0) to near Upper Carson Road (PM 24.8) which include closing the median by installing concrete median barrier from Still Meadows Road (PM 22.0) to Upper Carson Road (PM 24.8). As a result of closing the median, access to and from US 50 would be significantly impacted. The objective of this study is to identify alternatives for mitigating the change in access while providing safety improvements along this section of US 50.

El Dorado County Transportation Commission (EDCTC) is the lead agency and sponsor for the Project Initiation Document (PID) phase which is funded with local funds. A lead agency for the Project Approval and Environmental Document (PA/ED) phase of work has not yet been determined. This project is proposed to be funded in two phases. The first phase intends to fund only the project support costs through (PA/ED). The second phase proposes to fund the support costs through the Plans, Specifications and Estimates (PS&E) phase and possibly the capital construction and right of way costs. This PSR-PDS discusses the need for programming and funding the support cost elements only. The PA/ED support cost for this project is proposed to be funded in the 2010 STIP. The remaining could be funded in whole or in combination by local, regional, state or federal funds. This project is part of the US 50 Camino Corridor Safety and Operational Improvements Project which is in the El Dorado County Regional Transportation Plan 2005-2025 and the MTIP. A draft cooperative agreement has been developed for the PA/ED phase and will be executed prior to beginning work. Separate cooperative agreements will be prepared for future phases of work.

See the Attachment C – Preliminary Cost Estimate Summary for specific work items included in this project.

Project Limits	03-ED-50-PM 20.0/26.0
Number of Alternatives (excluding	2
"no build")	
Capital Outlay Support for PA/ED	No funds programmed
Capital Construction Cost Range	\$20.0 million to \$23.7 million
(excluding "no build")	
Right of Way Cost Range (excluding	\$1.0 million to \$2.7 million
"no build")	
Caltrans Resources Needed	
Funding Source	PID: Local Agency; PA/ED: Not

	identified; PS&E/Const: Local
	Agency and Other.
Type of Facility	4-lane Expressway
Number of Structures	1
Anticipated Environmental	(CEQA) IS or Focused IS w/ND or
Determination or Document	Mitigated ND; (NEPA) EA w/
	FONSI
Project Category	4A
SCHEDULE:	
PID Approval	11/2009
Begin PA/ED	7/2010
PA/ED Approval	6/2013
Construction Completion	10/2016

The remaining support, right of way and construction components of the projects are preliminary estimates and are not suitable for programming purposes. A Project Report will serve as the programming document for the remaining support and capital components of the project. A Project Report will serve as the approval of the 'selected' alternative.

Approval by the El Dorado County Transportation Commission and/or Board of Supervisors will be required for project funding and authorization.

## 2. BACKGROUND

US 50 is a significant transportation corridor that California and Nevada rely on heavily for commerce, tourism, and recreational and emergency access. Eighteen at-grade local roads and private driveways intersect US 50 between the Smith Flat Interchange (PM 20.0) and the Cedar Grove Interchange (PM 26.0). See Table 1 for intersection locations. Camino residents use these intersections to access US 50 for local and regional trips from and within the Camino area, Placerville and beyond. Interregional travelers also use this segment of US 50 for trips between the San Francisco Bay Area/ Sacramento and the Lake Tahoe region. These interregional trips include commerce, recreation and goods movement and involve high volumes of automobile and truck drivers unfamiliar with the corridor. Truck volumes are 6-7% of the traffic volumes.

The existing US 50 facility within the project limits is a 4-lane expressway with a striped median that separates opposing traffic lanes. While providing access for local traffic along US 50, the striped median is a safety concern for vehicles traveling adjacent to opposing traffic lanes as well as the intermingling of interregional US 50 travelers and local traffic turning to and from local roads and driveways along the US 50 corridor. EDCTC, with support of El Dorado County Department of Transportation (EDCDOT), City of Placerville, and Caltrans, recognized the need to study this section of US 50 to determine whether a safety improvement project would be warranted to decrease the

number of accidents. Traffic and accident data were collected and analyzed over the past several years. The results of that analysis demonstrated the need for a project along this portion of US 50.

An improvement project funded through the State Highway Operation Protection Program (SHOPP) was constructed from May 2001 through January 2003. The project was a Resurfacing, Restoration, and Rehabilitation (RRR) project totaling \$17 million dollars in improvements on US 50 from Camino Heights to Pollock Pines. The project improved traffic operations by providing widened shoulders, installing new signing and striping, improving sight distance at intersections, lengthening left turn pockets and adding right turn pockets. The project also installed median barrier between the upper and lower intersections of Carson Road at US 50.

Alternatives identified in the US 50 Freeway Conversion Draft Project Report prepared by Caltrans in June 2003 proposed improvements that included eliminating all at-grade access to US 50 to improve safety, and the construction of local road improvements, which would ultimately connect with the existing local road system to provide residents with an alternative to utilizing US 50 as a connection to Placerville. Transportation funding shortfalls effectively stopped the Project Report's progress prior to completion of the environmental document.

In 2005, Caltrans contacted EDCDOT and the EDCTC to express their intent to limit access at the US 50/Still Meadows Road intersection due to the high incidence of accidents. Then in 2006, using a combination of state planning grants and local funding, the EDCTC initiated the Camino Area Parallel Capacity/Safety Study to identify relatively lower-cost, near-term solutions addressing existing safety issues on US 50 in the Camino area. The Study was presented to the EDCTC Board, Stakeholder Advisory Committee, (SAC) as well as to the public in 2007.

EDCTC was awarded \$304,000 in Rural Safety Innovation Program (RSIP) grant funds in August 2008 to install an ITS project (Collision Countermeasure System) at the uncontrolled, rural intersection of US 50 and Still Meadows Road. The project will advise east and westbound drivers on US 50 in real-time of the presence of approaching cross-traffic entering US 50 from Still Meadows Road. The project is the first of its kind on the US 50 corridor in California and is serving as a Caltrans ITS demonstration project. Caltrans awarded the construction contract in October 2009 and the project is scheduled to go to construction in early 2010. The purpose of the ITS project is to provide an interim nearer-term, low-cost solution that will improve safety in the Camino Corridor of US 50 and reduce accidents at the uncontrolled intersection of US 50 and Still Meadows Road while the Camino Corridor Project, named in this PSR-PDS, continues through the next phases of project development to construction.

In September 2009, Caltrans, in consultation with El Dorado County, installed a "No Left Turn" sign at the intersection of Still Meadows Road and US 50 due to a pattern of broadside collisions from vehicles pulling out from Still Meadows Road and being struck by either eastbound or westbound traffic.

#### **EXISTING FACILITIES**

US 50 is a four lane expressway with 12-ft wide lanes and shoulders that vary from 1-ft to 8-ft. At Smith Flat, US 50 climbs along a steep topography with a profile grade that varies from 3.9% to 6.0%. The horizontal radii in this segment varies from 1000-ft to 4140-ft. The minimum design speed is 55-mph. There is a median barrier from east of Smith Flat to Still Meadows Road. This section of US 50 is access controlled with some private openings. There are 13 at-grade intersections and five driveways on US 50 within the segment from Smith Flat to Cedar Grove as described below in Table 1:

TABLE 1 – INTSERSECTION/DRIVEWAY LOCATIONS ON US 50					
INTERSECTION/ DRIVEWAY (PM)	DESCRIPTION				
Smith Flat Interchange (PM 20.74)	Half-diamond interchange provides access to the Smith Flat area, east of Placerville.				
El Dorado Trail (PM 21.13)	Paved 8-ft wide combined bike path and walking trail with unpaved shoulders for equestrian uses; follows the alignment of the railroad previously owned by the Michigan-California Lumber Company from Placerville to Camino.				
Fall Trail (PM 21.35)	12-ft wide paved road which provides access to 11 residential properties north of US 50; connects to W/B US 50 approximately 400-ft east of the El Dorado Trail Overcrossing at PM 21.35; access from W/B US 50 is right- in/right-out due to the median barrier on US 50; has no outlet.				
Parkway Drive (PM 21.35)	16-ft wide paved road which provides access to a residential neighborhood south of US 50; connects to E/B US 50 approximately 1,200-ft east of the El Dorado Trail Overcrossing at PM 21.35; access from E/B US 50 is right-in/right-out due to the median barrier on US 50; outlets to Newtown Road.				
Rupley House Private Driveway (PM 21.70)	13-ft wide private driveway which provides access to 3 residential properties south of US 50; a historic building located approximately 160-ft south of US 50 at PM 21.70; access to the properties is right-in/right-out due to the median barrier on US 50; the driveway has no outlet.				
Still Meadows Road/Apple Café Driveway (PM 22.04)	Still Meadows Road and the Apple Café driveway share the same access location to US 50; Still Meadows Road extends east, south of US 50; Still Meadows Road is an 18-ft wide private road which provides access to 24 residential properties south of US 50; Still Meadows Road outlets to Newtown Road via Rugged Lane and Ivy Knoll Drive; a 200-ft long right- turn for vehicles leaving E/B US 50; a 400-ft left-turn pocket for vehicles leaving W/B US 50; a 60-ft acceleration lane for vehicles entering W/B US 50.				
County Road 1022 (PM 22.18)	13-ft wide public roadway that provides access to 5 residential properties located north of US 50; a 130-ft left-turn pocket for vehicles leaving E/B US 50; no right turn pocket for vehicles leaving W/B US 50; does not outlet to the County road system.				
Braeburn Lane (PM 22.39)	12-ft wide paved roadway which provides access to 4 residential properties north of US 50; no left-turn pocket for vehicles exiting E/B US 50; a break in the double-double yellow strip for left turns from US 50 to Braeburn Lane; has no outlet.				

TABLE 1 -	TABLE 1 – INTSERSECTION/DRIVEWAY LOCATIONS ON US 50					
INTERSECTION/ DRIVEWAY (PM)	DESCRIPTION					
Private Driveway (PM 22.37)	Provides access to a residential property located south of US 50; a break in the double-double yellow stripe for left-turns from US 50 to this driveway connection.					
Private Driveway (PM 22.68)	Provides access to a residential property located south of US 50; a break in the double-double yellow strip for left turns form US 50 to this driveway connection.					
Paul Bunyon Road (PM 22.85)	20-ft wide public road which provides access to 3 commercial properties south of US 50; a 500-ft left turn pocket for vehicles leaving W/B US 50; no right-turn pocket for vehicles leaving E/B US 50; intersects US 50 opposite of Five Mile Road.					
Five Mile Road (PM 22.85)	16-ft wide paved road which provides access to a residential neighborhood north of US 50; outlets to Carson Road via Gatlin Road; a 450-ft left-turn pocket for vehicles exiting E/B US 50; a 750-ft right-turn pocket for vehicles exiting W/B US 50.					
Camino Heights Drive (PM 24.11)	2-lane, 32-ft wide public road which provides access to the Camino Heights and Camino Hills Subdivisions located south of US 50; Camino Heights and Camino Hills Subdivisions are comprised of 206 residential parcels and 7 commercial parcels; a 750-ft right-turn pocket for vehicles exiting E/B US 50; a 425-ft left-turn pocket for vehicles leaving W/B US 50; a 525-ft acceleration lane for vehicles entering W/B US 50; has no outlet.					
Lower Carson Road Connection (PM 24.16)	Carson Road parallels US 50 and connects to US 50 via short hook-ramps; a 340-ft left-turn pocket for vehicles leaving E/B US 50; a 735-ft right-turn pocket for vehicles leaving W/B US 50.					
Pondorado Road (PM 24.16)	20-ft wide paved road directly opposite of the Lower Carson Road connection; access to US 50 is right-in/right-out only; Pondorado Road has no outlet and provides connection to US 50 for 2 commercial properties and a high school; Golden Chain Drive connects to Pondorado Road near US 50; provides access to a residential property south of US 50.					
Private Driveway (PM 24.57)	Provides access to a historic residential property, "Hickman Ranch House," located south of US 50; access from E/B US 50 is right-in/right-out due to the median barrier on US 50.					
Upper Carson Road Connection (PM 24.79)	Carson Road parallels US 50 and connects via short hook-ramps; a 580-ft left turn pocket for vehicles exiting E/B US 50; a 780-ft right turn pocket for vehicles existing W/B US 50; left-turning vehicles from Carson Road to E/B US 50 are provided a 500-ft acceleration lane on US 50; there is a gap here in the median barrier.					
Private Driveway (PM 24.97)	Provides access to a large undeveloped parcel located south of US 50; access is right-in/right-out due to the median barrier on US 50.					
Snows Road Undercrossing (PM 25.26)	Snows Road is a 26-ft wide public road having a sidewalk on the east side; Snows Road connects Newtown Road to Carson Road.					
Private Driveway (PM 25.34)	Access to an undeveloped parcel located south of US 50; access is right- in/right-out due to the median barrier on US 50.					
Seven Ridges Road (PM 25.56)	13-ft wide unpaved private road provides access to 4 residential parcels located south of US 50; access from E/B US 50 is right-in/right-out due to the median barrier on US 50.					
Cedar Grove Interchange (PM 25.95)	A tight-diamond interchange at that provides access to the Cedar Grove area; south of US 50, Eight Mile Road provides access to rural residential properties; north of US 50, Carson Road provides access to the Camino area.					

## 3. PURPOSE AND NEED

A Purpose and Need Statement was developed to reflect the key issues in the corridor and guide the alternatives development. A collaborative stakeholder approach was introduced at the start of the PID process in April 2008. Along with input from past public meetings, a public meeting was conducted to introduce the PID phase of the project in coordination with members of the Project Development Team (PDT). The following is the Purpose and Need statement:

US 50 is a significant transportation corridor that both California and Nevada rely on heavily for commerce, tourism, and recreational and emergency access. There are a series of at-grade intersections on US 50 between the Smith Flat Interchange (PM 20.0) and the Cedar Grove Interchange (PM 26.0). Camino residents use these intersections to access US 50 for their local and regional trips to the Camino area, Placerville and beyond. Interregional travelers also use this segment of US 50 for trips between the San Francisco Bay Area/Sacramento and the Lake Tahoe region. These interregional trips include both recreation and goods movement, so there are high volumes of drivers unfamiliar drivers unfamiliar with the corridor.

Accident rates on US 50 in the Camino area are higher than the state average. These safety issues can be attributed to uncontrolled left turn movements and the speed differential between the local Camino traffic and the interregional travelers on US 50. Because of these conditions, there is a need to improve safety for local and interregional travelers along the Camino Corridor.

The purpose of this project is to modify the facility to improve travel safety on US 50 in the Camino area. A secondary purpose is the need to provide local and regional access to and from the north and south sides of US 50 while providing safe east-west access on and off US 50. The overall goal is to improve safety and enhance travel connectivity between Camino and Placerville using lower cost, near term solutions.

## 4. **DEFICIENCIES**

## 4A. PRIMARY DEFICIENCIES

The traffic operations and safety concerns in the Camino Corridor are at the unsignalized intersections along US 50 which are located at Still Meadows Road, Paul Bunyon Road/Five Mile Road, Camino Heights Drive, Lower Carson Road/Sierra Blanca Road, and Upper Carson Road. Conflicting turn movements, primarily left turns, result in increased delay and risk of accidents for drivers. The improvement alternatives focus on eliminating or reducing these potential conflicts to improve safety and traffic flow, while also improving connectivity between the north and south sides of US 50 through the Camino community.

Traffic volumes in the Camino/Apple Hill area fluctuate greatly by day of the week and by season of the year due to recreation/tourist travel. Through traffic

on US 50 to and from the Lake Tahoe area usually peaks on Friday and Sunday evenings, especially during summer and winter months, as well as holidays. Traffic to and from the Apple Hill area (including turns on/off US 50) is typically highest on weekends, especially during the fall harvest season and seasonal winery events. The "typical" PM peak commute hour occurs midweek during fall or spring.

The Caltrans level of service (LOS) policy for the study area is detailed in the Highway 50 Corridor System Management Plan (May 2009) where the 20-year concept level of service is LOS F.

The El Dorado County General Plan (2003) also includes level of service policies. In the study area, the County's goal is LOS D. The Caltrans LOS policy is for the US 50 through traffic. However, the focus of this study is not the capacity or level of service for US 50. This study is focused on the operations of local traffic turning off of, turning onto, and crossing US 50. For the purposes of the traffic analysis, a LOS E threshold was used; therefore, a LOS F with more than 50 seconds of delay (unsignalized intersection) would be considered deficient. This traffic analysis focuses on unsignalized intersection operations.

According to Caltrans 2008 Traffic and Vehicle Data System, the existing daily volumes on US 50 in the study area are 25,000 vehicles/day west of Upper Carson Road and 19,900 vehicles/day east of Upper Carson Road. To assess variations in traffic, two-hour peak intersection turning movement counts were performed for four different scenarios as approved by the PDT:

- Summer Friday PM commute peak plus Tahoe traffic
- Summer Sunday afternoon peak return Tahoe traffic
- Fall weekend afternoon peak Apple Hill Event traffic
- Fall-Spring midweek PM commute traffic

Two key periods, Fall-Spring Midweek and Summer Friday PM, were analyzed during the existing (2008) conditions. During both periods, all intersection turning movements operated at LOS D or better with the exception of the northbound left turns onto US 50 at Still Meadows Road during the Summer Friday PM peak hour.

See Attachment E for detailed traffic volume and intersection delay data for existing conditions.

#### **Accident History**

The most common type of collision at intersections is a broadside collision. A broadside collision is usually caused by the driver failing to yield to opposing traffic. Table 2 summarizes collision data at the study area intersections for 2003 through 2007 from Caltrans Traffic Accident Surveillance and Analysis

System (TASAS). There were seven broadside collisions at the Still Meadows Road intersection, six broadside collisions at the Lower Carson Road intersection, and five broadside collisions at the Upper Carson Road intersection.

Table 2 - Intersection Collisions from January 2003 to December 2007						
Intersection	Broadside	<b>Rear End</b>	Sideswipe	Hit Object	Head On	
Still Meadows Rd	7	5	2	3	0	
Paul Bunyon Rd	2	1	0	0	0	
Camino Heights Dr	2	1	0	2	1	
Lower Carson Rd	6	2	1	0	0	
Upper Carson Rd	5	2	2	5	0	
Source: California Dep	Source: California Department of Transportation, 2008.					

## Accident Rates

The current accident rates reported below were taken from the TASAS report for September 2005 through August 2008.

The Table 3 below shows that the actual accident rate for this section of roadway is higher than the statewide average accident rate for a similar roadway with similar traffic volumes.

Table 3 – TASAS Accident Summary (September 2005 – August 2008)						
Location/Description (PM Limits)	Actual Accident Rate (acc/mv+)*			Average Accident Rate (acc/mv+)*		
	Fatal	F+I**	Total	Fatal	F+I**	Total
Still Meadows Road –RT (PM22.056)	0.000	.18	.33	0.003	.08	.20
Paul Bunyon Road/ Five Mile Road (PM 22.840)	0.000	.11	.11	0.006	.13	.30
Camino Heights Drive – RT (PM 23.241)	0.000	.10	.17	0.003	.08	.20
Lower Carson Road/Sierra Blanca Road (PM 23.400)	0.000	.11	.22	0.006	.13	.30
Upper Carson Road – LT PM 24.050	0.000	.24	.32	0.003	.08	.20
Smith Flat to Camino (PM 20.0/26.0)	0.007	.35	.68	0.014	.24	.64

\* Accident Rates expressed as # of accidents/Million Vehicles (MV) for intersections. Smith Flat to Camino segment listed as # of accidents/Million Vehicle Miles

\*\* F+I refers to Fatalities and Injuries.

TASAS data collected from January 2000 through December 2002 (Table 4) compared with data from January 2003 through December 2005 (Table 5) shows the Caltrans RRR project on US 50 from Camino Heights Drive to Pollock Pines that completed

construction in January 2003 did not reduce the accident rates at the intersection locations listed.

Table 4 – TASAS Accident Summary (January 2000 – December 2002)						
Location/Description (PM Limits)	Actual Accident Rate (acc/mv+)*			Average Accident Rate (acc/mv+)*		
	Fatal	F+I**	Total	Fatal	F+I**	Total
Still Meadows Road –RT (PM22.056)	0.036	.18	.39	0.003	.08	.20
Paul Bunyon Road/ Five Mile Road (PM 22.840)	0.000	.14	.25	0.006	.13	.30
Camino Heights Drive – RT (PM 23.241)	0.000	.07	.10	0.003	.08	.20
Lower Carson Road/Sierra Blanca Road (PM 23.400)	0.035	.21	.28	0.006	.13	.30
Upper Carson Road – LT PM 24.050	0.000	.04	.23	0.003	.08	.20
Smith Flat to Camino (PM 20.0/26.0)	0.031	.35	.70	0.014	.25	.65

\* Accident Rates expressed as # of accidents/Million Vehicles (MV) for intersections. Smith Flat to Camino segment listed as # of accidents/Million Vehicle Miles

\*\* F+I refers to Fatalities and Injuries.

Table 5 – TASAS Accident Summary (January 2003 – December 2005)						
Location/Description (PM Limits)	Actual Accident Rate (acc/mv+)*			Average Accident Rate (acc/mv+)*		
	Fatal	F+I**	Total	Fatal	F+I**	Total
Still Meadows Road –RT (PM22.056)	0.000	.21	.45	0.003	.08	.20
Paul Bunyon Road/ Five Mile Road (PM 22.840)	0.000	.04	.08	0.006	.13	.30
Camino Heights Drive – RT (PM 23.241)	0.000	.12	.16	0.003	.08	.20
Lower Carson Road/Sierra Blanca Road (PM 23.400)	0.000	.16	.24	0.006	.13	.30
Upper Carson Road – LT PM 24.050	0.000	.24	.40	0.003	.08	.20
Smith Flat to Camino (PM 20.0/26.0)	0.007	.36	.72	0.014	.24	.63

\* Accident Rates expressed as # of accidents/Million Vehicles (MV) for intersections. Smith Flat to Camino segment listed as # of accidents/Million Vehicle Miles

\*\* F+I refers to Fatalities and Injuries.

## **4B. SECONDARY DEFICIENCIES**

Caltrans does a speed survey about every 7 years. A recent speed survey indicated that 67 mph was the 85<sup>th</sup> percentile speed of the traveling public within the US 50 Camino Corridor. The speed limit must be set at the 85<sup>th</sup> percentile and rounded to the nearest 5 mph to be enforceable. The original posted speed limit was 55 mph but was changed to 65 mph as a result of the speed survey.

See Table 6 for locations within the highway improvement areas of the project that have horizontal curve radii less than the mandatory minimum standard of 1,625-feet in accordance with Highway Design Manual Table 203.2 [Mandatory] at 65 mph.

Table 6 – Non-Standard Horizontal Curve Radius						
Station	Location	Radius (feet)				
84+05 to 93+71	Still Meadows Road	1,250				
114+02 to 119+74	Still Meadows Road to Paul Bunyon Road	1,500				
189+36 to 201+35	Upper Carson Road	1,190				

The rural, mountainous terrain in the project area forms steep existing side slope conditions which are steeper than 4:1 (H:V). In accordance with the Highway Design Manual 304.1, embankment (fill) slopes for new construction, widening, or where slopes are otherwise being modified should be 4:1 (H:V) or flatter [Advisory].

## 5. CORRIDOR AND SYSTEM COORDINATION

This project is part of the US 50 Camino Corridor Safety and Operational Improvements Project which is in the El Dorado County Regional Transportation Plan 2005-2025 and is identified in the Caltrans District 3 Highway 50 Corridor System Management Plan (CSMP) (May 2009). The CSMP defines the existing highway segment of US 50 from Smith Flat interchange to Camino as a 4-lane expressway. The concept (20-year) and ultimate (beyond 20 years) facility will remain as a 4-lane expressway. The Camino project is listed in the Sacramento Area Council of Governments (SACOG) 2035 Metropolitan Transportation Plan and MTIP 2009/12 where it is listed as a key capital project that is critical to corridor mobility.

According to the El Dorado County Bicycle Transportation Plan (January 2005), the El Dorado Trail extends from the western El Dorado County line near Latrobe to Camino. An alignment for the remaining connection from Camino to Lake Tahoe has not been formally determined. This Camino project does not impact or preclude a future Class I bike path connection to the El Dorado Trail from Parkway Drive to Snows Road.

The El Dorado Trail is a Class I bicycle/pedestrian recreational facility that extends from the City of Placerville to Los Trampas Drive. According to the County Bicycle Transportation Plan, as funding becomes available, extension of the facility is planned along the south side of US 50 from Placerville to Fuji Court, near Snows Road. North of US 50, currently, there are limited or no shoulders along Carson Road but Class II bike lanes are planned on Carson Road from Placerville to Pollock Pines.

## 6. ALTERNATIVES

## 6A. VIABLE ALTERNATIVES

A detailed screening process was used to develop alternatives that improve the safety and operations of the Camino Corridor. Three alternatives are presented, including the 'No Build' alternative, and are described below. See Attachment B for the Alternatives Layouts, Profiles, and Typical Sections.

- Alternative A No Build
- Alternative C1 Mainline Median Barrier and Pondorado Undercrossing
- Alternative C2 Mainline Median Barrier Extends Past Upper Carson Road and Pondorado Undercrossing

#### ENGINEERING FEATURES Features Common to All 'Build' Alternatives

- <sup>3</sup>⁄<sub>4</sub> access to Still Meadows Road from US 50 through right-in/right-out, and left turn pocket from westbound US 50.
- US 50 would maintain acceleration and deceleration lanes at Still Meadows Road, Paul Bunyon Road/Five Mile Road, Camino Heights Drive, Lower Carson Road/Sierra Blanca Road, and Upper Carson Road. Outside shoulders would be 8-ft on US 50 where there are acceleration/decelerations lanes; shoulders would be widened to 12-feet in other locations for safety and maintenance.
- Re-stripe 12-ft wide traveled lanes and turn lanes
- US 50 inside shoulders would be 5-ft with Type 60 concrete median barrier.
- Mainline US 50 pavement would be widened from 0 to 16-ft for the median and shoulders. The pavement would be overlayed with 2-inch asphalt concrete (Type A) and widened pavement sections would be 6-inch hot mix asphalt (Type A) and 12-inch Class 2 aggregate base, similar to 2001-2003 Caltrans RRR project.
- Widened sections of US 50 would have 4 to 12-ft retaining walls with aesthetic treatment or 2:1 (H:V) side slopes at end conditions.
- All driveways and intersection access would remain open but left turn movements may be prohibited at some intersections due to new median barrier on US 50. Affected driveways and intersections would be slightly re-graded to conform with the widened US 50 pavement within state right-of-way.

## Alternative A - No Build

Under the 'No-Build' alternative, no project would be constructed. US 50 and the local roads in Camino would maintain existing conditions. (See existing conditions for traffic noted in Section 4 - 'Deficiencies.') The 'No Build' alternative does not fulfill the need and purpose of the project.

<u>Alternative C1 – Mainline Median Barrier and Pondorado Undercrossing</u> Under 'Alternative C1,' safety improvements include the widening of US 50 for the installation of Type 60 concrete median barrier from Still Meadows Road (PM 22.0) to approximately 700 feet west of Upper Carson Road (PM 24.7). A partial median access opening (westbound, left turn only) at Still Meadows Road would be maintained.

In order to mitigate for changed north-south access along US 50 for Camino area drivers, the intersection at Pondorado Road would be improved on the south side of US 50 to allow vehicles to turn right-in/right-out from US 50. A 1400-ft eastbound auxiliary lane on US 50 would exit at Pondorado Road which connects to Vista Tierra Drive at an all-way stop controlled three-way intersection. Pondorado Road would be extended in a northeasterly direction via an undercrossing (PM 24.0) at US 50 with connection to Carson Road on the north side of US 50. Carson Road would be realigned and improved to accommodate traffic in this area. Pondorado Road is designed at a 25 mph design speed and is designed to be compliant with Americans with Disabilities Act with sidewalks for pedestrians and shoulders for bicycles per El Dorado County Department of Transportation roadway standards. Future design phases should incorporate the latest County roadway standards.

A portion of the El Dorado Irrigation District (EID) main ditch would need to be relocated near the proposed undercrossing. Coordination with the EID is required for the design of the 48-inch culverts crossing US 50 and Pondorado Road to ensure that the culverts have sufficient capacity for storm drain runoff, but also possible 40-cfs flow in the event that the Pollock Pines Treatment Plant needs to be bypassed.

## <u>Alternative C2 – Mainline Median Barrier Extends Past Upper Carson</u> <u>Road and Pondorado Undercrossing</u>

At a Stakeholder Advisory Committee (SAC) meeting on November 5, 2008, the SAC suggested eliminating the left turn movement from Upper Carson Road to eastbound US 50. At peak periods, the traffic volumes could make left turn movements difficult for drivers, creating extended traffic delays at the intersection. In response to the committee, 'Alternative C2' was developed as a modification to 'Alternative C1.' 'Alternative C2' proposes to extend the concrete median barrier approximately 100-ft further east along US 50 to close the median at Upper Carson Road (PM 24.8) and restripe and conform mainline pavement to approximately 1,500-ft east of Upper Carson Road. Westbound right in/right out access would be maintained at Upper Carson Road. Eastbound traffic may access Upper Carson Road from the Pondorado Road exit to access the new undercrossing.

#### NON-STANDARD DESIGN FEATURES

See Table 8 above for highway improvement areas of the project that have horizontal curve radii less than the mandatory minimum standard of 1,625-feet

in accordance with Highway Design Manual Table 203.2 [Mandatory] at 65 mph, the posted speed limit in the corridor.

In order to avoid highway realignment of US 50, preparation of a mandatory design exception fact sheet would be required in the PA/ED phase for Alternatives C1, and C2 which propose improvements along US 50 at these locations.

An Advisory Design Exception Fact Sheet would be prepared in the PA/ED phase for the non-standard 2:1 (H:V) side slopes per Highway Design Manual 304.1 which requires 4:1 or flatter embankment (fill) slopes for new construction, widening, or where slopes are otherwise being modified. Based on a May 25, 2001 Preliminary Geotechnical Report prepared for the US 50 Camino Freeway Conversion Draft Project Report (EA 03-367400), new cut and fill slopes of 1.5:1 (H:V) may be considered to match the existing slopes. Retaining walls along the north and south sides of US 50 along the west half of the project would minimize right of way impacts.

#### STRUCTURES AND CONSTRUCTION STAGING

The Pondorado Road Undercrossing, shown in Alternatives C1 and C2, is proposed to be a single span, cast-in-place, rigid frame box girder bridge with a clear span of 57 feet and a length of approximately 140 feet. Due to the high skew, and for ease of construction, the undercrossing is proposed to be built following the Pondorado Road profile. The US 50 pavement section of asphalt concrete and a variable thickness of aggregate base will be placed directly on top of the structure. The fill height on top of the structure varies from one to three feet. See Attachment H-Structure Advance Planning Study.

The structure is proposed to be founded on spread footings. There is currently no subsurface geotechnical information available for this site, though the adjacent freeway structures are supported on either spread footings or large diameter shafts. A spread footing would be the most cost effective foundation system if it is feasible.

As shown on the Construction Staging drawing (See Attachment H-Construction Staging and Attachment I-Transportation Management Plan Data Sheet), the undercrossing is proposed to be constructed in three stages. In the first stage, east bound and westbound traffic would be shifted south and north, respectively, using temporary pavement and embankments, allowing for construction of the middle portion of the undercrossing. During Stage 2, the northern portion of the undercrossing would be completed while two-way traffic is shifted to the south. Finally, during Stage 3, the southern portion of the undercrossing would be completed with two-way traffic shifted to the north. Temporary shoring and temporary bulkeads would be required during the stage construction. It is assumed that sheet piling can be used for this purpose. The girders of the rigid frame box girder are proposed to run perpendicular to Pondorado Road. This results in a triangular area of unused deck on either end of the undercrossing. It is proposed that these areas be separated from US 50 traffic with a modified Type 732 barrier and that cable railing be provided on the outer edges for safety.

The alternate to a rigid frame structure following the Pondorado Road profile would be to stage construct a single-span overcrossing with sloped embankments from Pondorado Road that follows the superelevated US 50 profile. The alternative structure would require significantly more bridge area and would likely also require lowering the profile grade of Pondorado Road. The feasibility of this alternative could potentially be cost prohibitive and was not further developed into an Advanced Planning Study for this PSR-PDS. Additional structure types should be considered in the PA/ED phase of this project. The rigid fram structure is not the only type of structure to be considered.

The location of the proposed undercrossing would require the relocation of an existing EID ditch and pipeline which currently pass beneath US 50. It is proposed the ditch and pipeline be relocated to the east, prior to construction of the undercrossing.

## STORMWATER AND BEST MANAGEMENT PRACTICES

For Alternatives C1, and C2, the design of 2:1 (H:V) roadway cut and fill slopes are proposed in order to reduce the right of way impacts to local residences and businesses. An Advisory Design Exception Fact Sheet would be prepared in the PA/ED phase for the non-standard 2:1 or 1.5:1 (H:V) side slopes per Highway Design Manual 304.1 which requires 4:1 or flatter embankment (fill) slopes for new construction, widening, or where slopes are otherwise being modified. Retaining walls along the north and south sides of US 50 along the west half of the project would minimize right of way impacts. The range of capital cost and right of way impact from earthwork and retaining walls is provided in the project cost estimate for planning purposes. This is a planning level assessment of potential area of impact during construction and final implementation. These are not detailed impact limits.

Native trees may exist within the right of way of the project limits and alternatives. Mitigation and highway planting may be required if these trees will be removed as a result of the project. Construction site and design pollution prevention Best Management Practices (BMPs) shall be considered for erosion control and slope protection measures. See Attachment G-Storm Water Data Report and Attachment J-Landscape Architecture Assessment Sheet.

#### **RIGHT-OF-WAY**

The project is in an area with mostly mixed residential and some commercial uses. The properties required for the project include improved and vacant

parcels. The right of way requirements provided are acquisitions, but temporary construction easements may be necessary. The project requires partial acquisitions to accommodate the road widening and slopes. Parcels having existing direct access to US 50 will retain their abutter's rights. None of the acquisitions will result in excess land. No right of way mitigation costs are anticipated at this time.

Additional retaining walls were added to keep the project improvements within the existing right of way which would reduce right of way impacts and costs. These additional retaining walls and associated costs are included in the Preliminary Cost Estimate Summary. See Attachment K-Right of Way Data Sheet.

## TRAFFIC OPERATIONS AND SAFETY

The PDT agreed to analysis years of 2015 (opening year) and 2035 (design year). Operations on US 50 for east-west through traffic do not significantly change by 2015 or 2035. Delays for left turns onto US 50 increase significantly by 2035 under the 'no build' condition.

*Opening Year 2015* - For the 2015 Fall-Spring Midweek PM Peak Hour, all movements for all Alternatives operate at a satisfactory LOS (D or better). For the 2015 Summer Friday Peak Hour, all movements would operate at a satisfactory LOS for the two build alternatives (C1, and C2). For Alternative A, the northbound left turn at Still Meadows Road will operate at LOS F.

**Design Year 2035** - Alternative C2 is the only alternative that will operate at a satisfactory LOS for all movements in the Fall-Spring midweek PM and Summer Friday Peak Hour conditions in 2035.

For the Fall-Spring midweek 2035 scenario, Alternative A ("no build") operations will be LOS F for the northbound left turns at Still Meadows Road and the northbound left turns at Paul Bunyon Road. Alternatives A, and C1 will have LOS F for the southbound left turn from Upper Carson Road. The US 50 eastbound left turns to Upper Carson Road have the right of way before the southbound left turns; therefore, the southbound left turns have to wait longer for a gap. This delay is so high that vehicles that want to enter US 50 eastbound might divert to Carson Road through Camino and to the Cedar Grove interchange. Alternative C2 would not have any LOS F movements because left turn movements onto US 50 would be prohibited and traffic would then be diverted to the undercrossing.

For the Summer Friday PM 2035 peak hour conditions, there will be longer delay at some locations. For Alternative A, operations will be LOS F for the northbound right and left turns at Still Meadows Road, the northbound left turns at Paul Bunyon Road, and the southbound left turns at Upper Carson Road. Delays will be highest at Still Meadows Road, where northbound queues may be long enough to block the northbound right turns, causing delay for the right turn movement. With this projected delay for the northbound left turn, some frustrated drivers could likely make a right turn onto eastbound US 50, and make a U-turn turn at Paul Bunyon Road onto westbound US 50. Similarly, at Upper Carson Road, vehicles wanting to enter US 50 eastbound might divert to Carson Road through Camino and to the Cedar Grove interchange.

Under Alternative C1 there would be just one movement at LOS F for the southbound left turns at Upper Carson Road. Queues will occasionally back up to Carson Road. This delay is so high that vehicles wanting to enter US 50 eastbound might divert to either the proposed undercrossing or Carson Road through Camino and to the Cedar Grove interchange. All other movements in Alternative C1 will operate at LOS C or better.

Under Alternative C2, all intersections operate at LOS C or better.

#### **Diverted Vehicles**

Alternative C1 does not relieve the large southbound left turn delay at Upper Carson Road to eastbound US 50. Alternative C2 eliminates this delay without introducing much out of direction travel because the vehicles redirected from the US 50 eastbound left turn to Upper Carson Road can instead exit US 50 at Sierra Blanca Road/Pondorado Road to the proposed undercrossing and then take Carson Road to arrive at the same destination. Similarly, most of the vehicles redirected from the southbound left turn movement from Upper Carson to eastbound US 50 would instead take Carson Road to the Pondorado Road undercrossing and enter US 50 from the south side of the highway at Pondorado Road. The small increase in travel time due to taking the local roads is offset by eliminating a large delay for drivers looking for gaps to make a left turn onto US 50.

#### Accident Rates

Table 7 indicates that with the implementation of Alternatives C1, or C2, a certain number of accidents could have potentially been prevented. These conclusions can be made based on the elimination of certain turning movements and the collision history that indicates the type of collision that occurred at each specified location.

Based on this evaluation, all of the build alternatives are expected to reduce the average rate of potential accidents. Alternative C2 is the only alternative that is expected to reduce the average rate to meet the state average rate.

Table 7 - Accident Rate - Number of Accidents That Could Potentially Have Been Prevented –   2003 to 2007					
Intersection	No Project	Alternative C1	Alternative C2		
Still Meadows Rd		5	5		
Paul Bunyon Rd		2	2		
Camino Heights Dr		2	2		
Lower Carson Rd		6	6		
Upper Carson Rd		0	5		
Total Preventable		15	20		
Total Accidents	183	168	163		
Scenario Average Rate	0.76	0.69	0.67		
State Average Rate	0.67	0.67	0.67		
Source: California Department of Transportation, 2008 and DKS Associates, 2009					

Table 7 Accident Rate - Number of Accidents That Could Potentially Have Been Prevented

## **6B. REJECTED ALTERNATIVES**

#### Alternative B – Mainline Median Barrier and Auxiliary Road

Under 'Alternative B,' safety improvements include the widening of US 50 for the installation of Type 60 concrete median barrier from Still Meadows Road (PM 22.0) to approximately 700 feet west of Upper Carson Road (PM 24.7). An opening in the median barrier would be maintained for the intersection at Camino Heights Drive and partial access (westbound, left turn only) at Still Meadows Road.

In order to mitigate for changed access for local US 50 traffic, an eastbound auxiliary road is proposed at Camino Heights Drive to allow vehicles turnaround access to westbound US 50. The auxiliary road is preceded by a 600-ft eastbound auxiliary lane on mainline US 50 before it diverges onto a separate auxiliary road. A left turn lane from the auxiliary road onto Camino Heights Drive directs vehicles back to US 50. The auxiliary road location was identified as a midpoint location along the corridor to minimize out of direction travel and effectively serve more drivers.

Alternative B was not approved by Caltrans under its current configuration based on the following reasons:

- The off-ramp/auxiliary road configuration that is currently a part of the design creates an unexpected move for drivers.
- The turning movements required by Alternative B do not meet driver expectations, are not something that drivers would be accustomed to in a rural area, and could create confusion with regard to driver expectations.

Alternatives to the off-ramp/auxiliary road configuration would impact the local traffic operations on Camino Heights Drive and the current connecting local road system by bringing freeway traffic into the residential areas to make U-turn or circuitous movements back to US 50. See Attachment M – Rejected Alternative.

## 7. COMMUNITY INVOLVEMENT

A Public Open House was conducted on June 25, 2008, to kick-off the PID phase of the project with the members of the general public. The purpose of the meeting was to present the project status, the process and expected outcomes of the study, and the general purpose and need for the project. The open house provided attendees with an opportunity to ask questions and provide input on the general project study area and concerns for consideration in the study (see Appendix-Open House Meeting #1 Summary).

A Stakeholder Advisory Committee (SAC) was formulated during the Camino Area Parallel Capacity/Safety Study (August 2007) project and was re-engaged for this phase of the project. The goal of working with the SAC was to ensure that community values and interests were considered and represented in the alternatives development and evaluation process for this study (see Appendix-SAC membership).

The Project Team met with the SAC in July 2008 to discuss their role on the project, the alternatives development process, including the Purpose and Need for the project, and the process for evaluating and determining the most viable solutions. Each alternative that would be developed was scored against eight individual criteria. These criteria included: safety; access; traffic operations/congestion; alternative transportation options; consistency with land use/regional transportation plans; community impacts; environmental impacts; and cost, phasing, and implementability (see Appendix-Alternative Screening Matrix). The SAC reviewed and provided input to the Purpose and Need and the evaluation criteria.

The Project Team met again with the SAC in November 2008 to review and discuss approximately 25 alternatives that had been suggested over the past several years, including a few new concepts the Project Team had developed. The team presented the 16 alternatives (Alternatives A<sup>1</sup> through P) that would be "stand-alone" solutions. The remaining alternatives (approximately ten) were "concepts" that could be supplemental to any of the "stand-alone" solutions. A full description of each alternative was provided along with potential benefits, issues, a preliminary drawing, and the score/ranking of each alternative (see Appendix-Alternatives Descriptions). The meeting concluded with a consensus

<sup>&</sup>lt;sup>1</sup> Alternative A during the community process was defined as a "Barrier Separation with Traffic Signal at Camino Heights Drive. The PSR description of Alternative A is the "no build".

that Alternatives A, B, C, and P should be further evaluated and that all other alternatives be eliminated from further analysis.

Following further evaluation of Alternatives A, B, C, and P, the Project Team met with the SAC in December 2008 to screen down these four alternatives. There was interest by the SAC to move all four alternatives forward. After a discussion of each alternative, the meeting concluded with a consensus to further evaluate Alternatives A, B, and C, and eliminating P. The Project Team suggested that Caltrans opinion be considered for each of the remaining four alternatives before final elimination. The SAC and the Project Team agreed to continue with all four alternatives to the next level of Caltrans review.

In February 2009, the Project Team met with the SAC for the final meeting to discuss the remaining four alternatives and review accident data and forecasting. The Project Team shared with the SAC that Caltrans opinion was to move forward with Alternatives B and C, and that Alternatives A and P did not meet the Purpose and Need for the project. The conclusion of this final SAC meeting was for the Project Team to carry Alternatives B and C into the PSR analysis and eliminate Alternatives A and P based on Caltrans feedback and a majority agreement from the SAC.

At the November 2008 SAC meeting, a member of the SAC requested consideration of eliminating the left turn movement from Upper Carson Road to eastbound US 50. At peak periods, the traffic volumes could make left turn movements difficult for drivers, creating extended traffic delays and a safety concern for drivers at the intersection. In response to the SAC, 'Alternative C2' was developed as a modification to 'Alternative C1' by proposing to extend the concrete median barrier section and continuing further east along US 50, to close the access opening at Upper Carson Road and connecting the existing concrete barrier, approximately 100 feet east of Upper Carson Road.

An Open House was held on July 21, 2009 to present the status of the Draft PSR-PDS to the public during which two alternatives, C1 and C2, were presented as the alternatives that would be carried forward in the PSR-PDS.

On August 6, 2009, a presentation was made by EDCTC staff to the EDCTC Board. The public had an opportunity to comment on the project at the meeting.

## 8. ENVIRONMENTAL DETERMINATION/DOCUMENT

All build alternatives (Alternatives C1, and C2) for the proposed project are expected to have impacts associated with; noise, biological resources, cultural resources, hydrology, and water quality. All alternatives are also expected to require a 401 certification, 404 permit, and 1602 permit. Alternatives C1 and C2 will have impacts associated with business relocations.

Any of the build alternatives will require an Initial Study or Focused Initial Study with Negative Declaration, or Mitigated Negative Declaration to satisfy the CEQA requirement. An Environmental Assessment with Finding of No Significant Impact will be required for any of the build alternatives to satisfy the NEPA requirment.

Cost estimates for anticipated permits, studies and mitigation fees are included in the cost estimates for each of the build alternatives. See Attachment D for the Preliminary Environmental Analysis Report.

#### 9. FUNDING

## 9A. CAPITAL COST

**Capital Cost Estimate for the Alternative Identified for Programming in the 2010 STIP** 

	Range for Total Cost	Local/ Regional	State/ Federal	Other
R/W	\$2-3M			
Construction	\$20-23M			
Total	\$22-\$26M			

#### **Capital Outlay Estimate**

See attached "ready to sign" cooperative agreement for cooperative features. The current proposal is to program STIP funds; however, the project could be funded by any combination of funds.

## 9B. CAPITAL SUPPORT ESTIMATE FOR THE PROGRAMMABLE ALTERNATIVE IN THE 2010 STIP

	PROJECT SUPPORT COMPONENTS					
	PA/ED 0 Phase	Design 1 Phase	R/W 2 Phase	Construction 3 Phase	Total	
Total \$'s	\$1,500,000	\$2,270,000	\$681,000	\$3,178,000	\$7,629,000	

## **10. SCHEDULE**

HQ Milestones	Delivery Date (Month, Day, Year)	
Begin Environmental	12/1/2010	
Notice of Intent (NOI)	2/1/2011	
Circulate DED	12/1/2012	
PA/ED	6/1/2013	
Regular Right of Way	12/1/2013	
Project PS&E	12/1/2014	
Right of Way Certification	12/1/2014	
Ready to List	2/1/2015	
Approve Contract	4/1/2015	
Contract Acceptance	10/1/2016	
End Project	12/1/2016	

<sup>#</sup>Planning purposes only.

## **11. FHWA COORDINATION**

The project will be developed consistent with federal-aid funding and FHWA requirements.

## **12. PROJECT PERSONEL**

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#### **13. REFERENCES**

DKS Associates, Alternative Traffic and Safety Analysis, US 50 Camino Corridor Study, July 9, 2009 Caltrans District 3, Highway 50 Corridor System Management Plan, May 2009 SACOG, Metropolitan Transportation Improvement Program 2009/12, Adopted August 21, 2008 SACOG, Metropolitan Transportation Plan 2035, March 20, 2008. EDCTC, Camino Area Parallel Access/Safety Study, August 2007. Caltrans, Route 50 Freeway Conversion Project Preliminary Draft Project Report, June 2003 Caltrans, State Route 50 Freeway Conversion Project Smith Flat to Comino Project Status update, October 3, 2002 El Dorado County Bicycle Transportation Plan, January 2005

## **14. LIST OF ATTACHMENTS**

- A LOCATION MAP
- B ALTERNATIVES (LAYOUTS, PROFILES, TYPICAL SECTIONS)
- C PRELIMINARY COST ESTIMATE SUMMARY
- D PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT
- E TRAFFIC STUDY
- F DRAINAGE REPORT
- G STORM WATER DATA REPORT
- H STRUCTURE ADVANCE PLANNING STUDY
- I TRANSPORTATION MANAGEMENT PLAN DATA SHEET
- J LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
- K RIGHT OF WAY DATA SHEET
- L INITIAL SITE ASSESSMENT
- M REJECTED ALTERNATIVE

#### **15. APPENDIX**

COMMUNITY INVOLVEMENT/ALTERNATIVES DEVELOPMENT PROCESS