26. Navigation, Transportation, and Traffic

26.1 Introduction

This chapter describes the existing navigation, transportation, and traffic conditions for the Extended, Secondary, and Primary study areas. Descriptions and maps of these three study areas are provided in Chapter 1 Introduction. The navigation section discusses the physical characteristics of major waterways in the three study areas, with emphasis on the waterways located in Glenn and Colusa counties. The transportation and traffic section focuses on the existing vehicle, rail, and air traffic facilities that are expected to be used during construction and operation of the Sites Reservoir Project (Project) or are located near the Project facility sites.

Permits and authorizations for navigation, transportation, and traffic resources are presented in Chapter 4 Environmental Compliance and Permit Summary. Appendix 4A Environmental Compliance presents the regulatory setting for navigation, transportation, and traffic.

This chapter focuses primarily on the Primary Study Area. Potential impacts in the Secondary and Extended study areas were evaluated and discussed qualitatively, with the exception of the proposed access routes to the Red Bluff Pumping Plant, which are located in the Secondary Study Area within Tehama County. Potential local and regional impacts from constructing, operating, and maintaining the alternatives were described and compared to applicable significance thresholds. Mitigation measures are provided for identified potentially significant impacts, where appropriate.

26.2 Environmental Setting/Affected Environment

26.2.1 Methodology

26.2.1.1 Navigation

Navigable waters for the purposes of this analysis have been defined using both the federal and State codes:

- Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity (33 *Code of Federal Regulations* Part 329).
- Navigable waters are waters which come under the jurisdiction of the United States Corps of Engineers and any other waters within the state with the exception of those privately owned (California Harbor and Navigation Code, Chapter 1).

Major waterways within the Extended, Secondary, and Primary study areas were identified using maps, boating guides from the California Department of Boating and Waterways, and marine highway corridor guides from the U.S. Department of Transportation (USDOT).

26.2.1.2 Transportation and Traffic

Roadway Condition

Pavement condition was determined by driving the roads that are the main access routes to Project facilities within Glenn, Colusa, and Tehama counties. These proposed access routes are presented in Figure 26-1.

The pavement condition categories and criteria for each category are provided in Table 26-1.

Table 26-1
Pavement Condition Categories and Criteria

Pavement Condition	Criteria
Good	Fully paved with very few cracks or potholes that result in desirable driving conditions
Fair	Fully paved with some cracks or potholes that result less-than-desirable driving conditions
Poor	Unpaved or paved with significant cracks and potholes that need to be avoided while driving and result in undesirable driving conditions

Source: Metropolitan Transportation Commission, 1986.

Roadway Classification

Major roadways within the Extended, Secondary, and Primary study areas were identified using Google Maps. For the Primary Study Area and Tehama County, where the only Secondary Study Area construction will occur, at the Red Bluff Pumping Plant, roadway classifications are based on the Glenn County Regional Transportation Plan (RTP) (Glenn County, 2015). Roadway networks are similar across all three counties, and roadway classifications are similarly described in the associated general and transportation plans; however, Glenn County has the most recently developed Plan, an RTP adopted in October 2015, and the most comprehensive information related to roadway classifications and capacities. Therefore, the definitions and maximum daily volumes from the Glenn County RTP have been selected as representative to determine significance thresholds for impacts in the Primary and Secondary study areas. The roadway classifications existing in Glenn County are presented in Table 26-2.

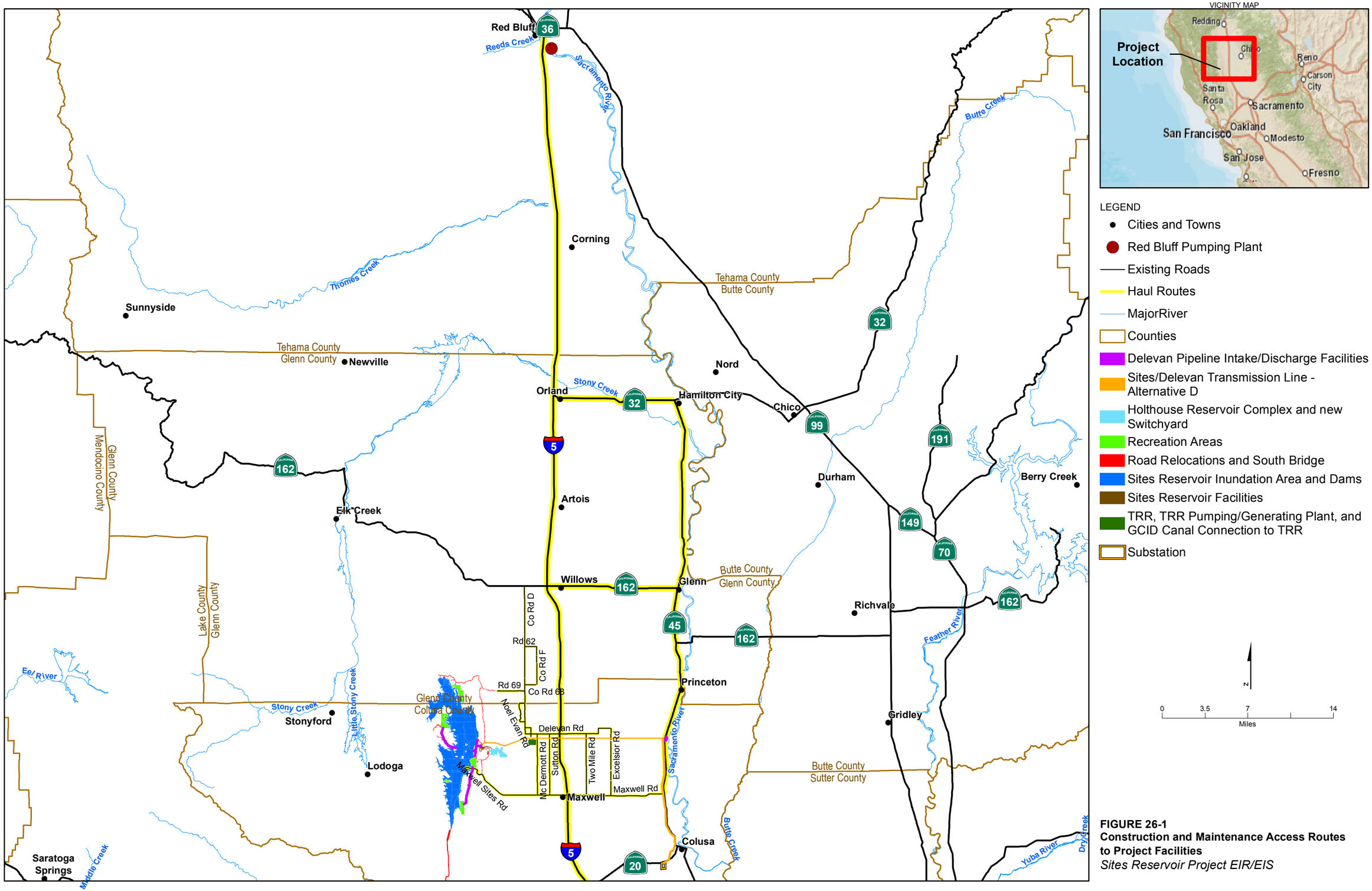

FIGURE 26-1
Construction and Maintenance Access Routes to Project Facilities
Sites Reservoir Project EIR/EIS

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Table 26-2
Roadway Classifications for Glenn County

Roadway Classification	Description
Interstate	Officially designated by the Secretary of Transportation; provides limited access, divided highways to connect traffic between major urban areas.
Urban Principal Arterial	Serves traffic passing through urban area by serving as an extension of a Rural Principal Arterial or a Rural Minor Arterial with potentially significant increases in traffic within the urban area.
Urban Minor Arterial	Serves traffic passing through urban areas by serving as an extension of Rural Minor Arterials into urban area, until volumes significantly increase, or as an extension of Rural Major Collectors that extend through urban areas without significant increase in traffic.
Urban Major Collector	Serves intra-urban traffic of approximately .25 to 1 mile in length, provides connections to roads with higher classifications, and has a small percentage of through traffic.
Urban Minor Collector	Provides local access to adjoining property with trip lengths to roads with higher classifications of .25 mile or less. There is virtually no through traffic.
Rural Principal Arterial	Interstate highway or roadway connecting a principal arterial with cities of 50,000 population or greater, or 2 or more cities with 50,000 population or greater.
Rural Major Collector	Primarily intra-county travel serving smaller communities and countywide trip generators, such as consolidated schools, freeway interchanges, major shipping terminals, major recreational facilities, and concentrations of commercial/industrial activity.
Urban Principal Arterial	Serves traffic passing through urban area by serving as an extension of a Rural Principal Arterial or a Rural Minor Arterial with potentially significant increases in traffic within the urban area.
Rural Minor Collector	Carries traffic from residential subdivisions/settlements, farms, logging operations, and other local area trip generators to higher classification roads.
Rural Local Road	Access to adjoining property, primarily residences, farms, or resource extraction operations.

Source: Glenn County, 2015; Federal Highway Administration (FHWA), 2013.

Roadway Level of Service

Both Glenn County and Colusa County use the level of service (LOS) criteria, as defined by the 2010 Highway Capacity Manual (Transportation Research Board, 2010), to assess the performance of its street and highway system and the capacity of roadways. LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadways geometrics, speed, delay, and maneuverability on roadway and intersection operations. Roadway traffic flow characteristics for different LOS are described in Table 26-3.

Table 26-3
General LOS Criteria for Roadways

Level of Service	V/C	Traffic Flow Characteristics
A	0.00 – 0.60	Free flow; insignificant delays
B	0.61 – 0.70	Stable operation; minimal delays
C	0.71 – 0.80	Stable operation; acceptable delays
D	0.81 – 0.90	Approaching unstable flow; queues develop rapidly but no excessive delays
E	0.91 – 1.00	Unstable operation; significant delays
F	> 1.00	Forced flow; jammed conditions

Note:
V/C = traffic volume (demand) / roadway capacity ratio
Source: Transportation Research Board, 2010.

In January 2016, the Governor's Office of Planning and Research (OPR) released the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (OPR, 2016). The proposal includes recommendations that will change the way that transportation impacts are analyzed under CEQA. One of the most substantial changes to the Guidelines is replacing LOS with vehicle miles travelled (VMT) as the primary metric on transportation impact across the state. The Guidelines are anticipated to be adopted in early 2017, with implementation required statewide in late 2018 or early 2019.

Traffic Operations and Capacity

The baseline conditions for traffic were assumed to be those existing in 2015. Caltrans conducted annual average daily traffic (ADT) surveys in 2015, which include counts for all highways in the Primary and Secondary study areas. For county and local roadways, the most recent available data were collected from Tehama, Glenn, and Colusa county's general plans, and average annual growth rates identified in those plans were applied to the historical traffic data to determine approximate 2015 ADT on representative roadways. Based on this methodology, a 4 percent growth factor was applied to the most recent ADT counts available from Tehama County (2008), while a 3 percent growth factor was applied to Glenn County (1993) counts, and a 2 percent growth factor was applied to those numbers identified in Colusa County's General Plan (Colusa County, 2012). 2015 ADT volumes were estimated for local roadways that would be used to access the Project facilities but did not have information available.

An update to the Glenn County General Plan (Glen County, 1993) began in 2006, but has since been put on hold and an estimate for completion of that update is not available. The Colusa County General Plan was updated in July 2012. For planning-level analysis, Caltrans identifies LOS D as the acceptable mobility criteria. The Glenn County and Colusa County general plans both identify LOS C as the acceptable mobility criteria (Glenn County, 1993; Colusa County, 2012). These criteria were used for the quantitative analysis for roadways within the Primary Study Area. A description of roadway operations for each LOS and the associated criteria for Glenn and Colusa County roadways are presented in Table 26-4.

Some roadways to the Project facility sites may not have vehicle count information available. For these facilities, LOS operational analysis has not been conducted.

Table 26-4
Glenn and Colusa County Average Daily Traffic Level of Service Criteria

Roadway Classification	A	B	C	D	E	F
Interstate	< 25,400	< 41,600	< 58,400	< 71,000	< 79,200	≥ 79,200
Urban Principal Arterial	< 18,000	< 21,000	< 24,000	< 27,000	< 30,000	≥ 30,000
Urban Minor Arterial	< 9,000	< 10,500	< 12,000	< 13,500	< 15,000	≥ 15,000
Urban Major Collector	< 7,620	< 8,890	< 10,160	< 11,430	< 12,700	≥ 12,700
Urban Minor Collector	< 4,800	< 5,600	< 6,400	< 7,200	< 8,000	≥ 8,000
Urban Local Road	< 2,700	< 3,150	< 3,600	< 4,050	< 4,500	≥ 4,500
Rural Principal Arterial	< 2,600	< 5,900	< 10,300	< 16,900	< 20,200	≥ 20,200
Rural Major Collector	< 1,300	< 3,900	< 7,500	< 12,600	< 16,900	≥ 16,900
Rural Minor Arterial	< 1,200	< 3,300	< 6,400	< 11,000	< 15,500	≥ 15,500
Rural Minor Collector	< 1,000	< 3,000	< 5,500	< 8,750	< 11,200	≥ 11,200
Rural Local Road	< 600	< 2,000	< 3,500	< 4,900	< 5,500	≥ 5,500

Source: Glenn County, 2015; FHWA, 2013.

26.2.2 Extended Study Area

26.2.2.1 Navigation

Many navigable waterways with marine traffic varying from commerce to recreation exist in the 39 counties that are included within the Extended Study Area. However, the only Project construction, operation, and maintenance activities that would impact facilities in the Extended Study Area would not have the potential to impact navigable waterways because neither San Luis Reservoir nor the Wildlife Refuges within the Extended Study Area, are considered to be navigable waterways. Therefore, navigation impacts in the Extended Study Area are not discussed further in this chapter.

26.2.2.2 Transportation and Traffic

The Extended Study Area includes an expansive network of major roadways (i.e., interstate freeways [I], U.S. highways [U.S.], and State Routes [SRs]), as well as local roadways. Traffic congestion in these areas can vary considerably depending on the location, season, and time of day. The proposed action alternatives, however, would not result in impacts to transportation or traffic beyond the Secondary Study Area; therefore, impacts in the Extended Study Area are not discussed further in this chapter.

26.2.3 Secondary Study Area

26.2.3.1 Navigation

Similar to the Extended Study Area, marine traffic congestion varies across the waterways in the 22 counties comprising the Secondary Study Area. However, the potential for impacts to occur within this study area would be limited to Colusa, Glenn, and Tehama counties; therefore, discussion is limited to these counties. In the three countries, there are a number of waterways that support small recreational watercraft and sport fishing, particularly on the Sacramento River and its tributaries. Although the Sacramento River supports some commercial navigation, this is limited to the lower Sacramento River, specifically the Sacramento Deep Water Ship Channel in Yuba County. Therefore, for the purposes of this qualitative analysis, navigable waterways in the Secondary Study Area includes the reach of the Sacramento

River that traverse Tehama County, which is where the proposed improvements to the existing Red Bluff Pumping Plant would occur. This segment of the river supports recreational navigation activities.

26.2.3.2 Transportation and Traffic

Within the 22 counties included in the Secondary Study Area, there is potential for impact to transportation and traffic in only three: Colusa, Glenn, and Tehama. The major roadways in these counties are identified in Table 26-5.

Table 26-5
Major Roadways in the Secondary Study Area

County	Major Roadways
Colusa	I-5, SR 16, SR 20, and SR 45
Glenn	I-5, SR 32, SR 45, and SR 162
Tehama	I-5, SR 36, SR 99, SR 20, SR 65, and SR 70

Notes:

I = Interstate Freeway
SR = State Route
U.S. = U.S. Highway

Source: maps.google.com, 2013.

Four roadways in Tehama County were identified as primary access roads to the site of the proposed pump installations at the Red Bluff Pumping Plant, which is the only Project facility located in the Secondary Study Area that would require construction, operation, and maintenance activities. The roadways are listed in Table 26-6, including a summary of their observed characteristics.

Table 26-6
Characteristics of Roadways in Tehama County that Are Main Access Routes to the Proposed Pump Installation Site at the Red Bluff Pumping Plant[a]

Roadway	Number of Lanes	Roadway Condition	Comments
I-5	4	Good[b]	Divided
Antelope Boulevard	4	Good	Has turning lanes
South Main Street	4	Good	Has turning lanes
Diamond Avenue	2	Good	

[a]The expected access route to the proposed pump installation site is as follows: from I-5 southbound, travel south on Diamond Avenue in Red Bluff. From I-5 northbound, travel west on Antelope Boulevard, south on South Main Street, and then south on Diamond Avenue in Red Bluff.

[b]Good roadway condition is defined as fully paved with very few cracks or potholes that result in desirable driving conditions.

Note:

I = Interstate freeway

The primary roadways anticipated to be used to access the Red Bluff Pumping Plant, identified in Table 26-6, were selected as representative road segments; ADTs on these roadways are presented in Table 26-7. The classification and maximum capacity of these roadways is based on the 2015 Glenn County RTP (Glenn County, 2015). Figure 26-1 identifies the proposed access routes relative to the Red Bluff Pumping Plant, which is the only Project facility located within Tehama County.

Table 26-7
ADT for Selected Roads in Tehama County

Roadway	Segment	Roadway Classification	Maximum ADT Capacity[a]	Calculated 2015 ADT[b]	2015 LOS[a]
I-5	Glenn County Line to SR 36	Interstate	79,200	39,500	B
Antelope Boulevard	Gilmore Road to I-5 Junction	Urban Principal Arterial	30,000	19,600	B
South Main Street	Antelope Boulevard to I-5	Urban Principal Arterial	30,000	21,003	C
Diamond Avenue	South Main Street to end of road	Urban Minor Arterial	8,000	6,770	A

[a]Based on 2015 Glenn County RTP LOS criteria presented in Table 26-4.

[b]Acquired from 2015 data or calculated based on most recent available data with a 3 percent average annual growth rate applied.

Notes:

ADT = average daily traffic
I = Interstate freeway
LOS = level of service
SR = State Route

Source: Pagnano, 2011, pers. comm.; Miller, 2017, pers. comm.; Caltrans, 2015; Glenn County 2015.

26.2.4 Primary Study Area

26.2.4.1 Navigation

The major waterway that flows through the Primary Study Area is the Sacramento River, which is regulated by Shasta Dam and is navigable year round. The river is 327 miles long and is considered a navigable river from the mouth of the river at the delta to Keswick Dam, a distance of 301 miles.

The State of California, as covered by the California Constitution, allows for public access to waterways, further empowered by the public trust doctrine. Marine traffic within the Primary Study Area (which is located at the Delevan Pipeline Intake/Discharge Facilities) is recreational, and is limited to motorized and non-motorized watercraft for the purposes of fishing, boating, and additional recreational activities.

Peak flows in the Sacramento River generally occur in the late winter months in Wet years and peak in July in the Dry years due to Shasta Dam releases. Flows during the primary recreation season (May through September) do not vary a great deal across water year types. The river is navigable throughout the recreation season in all water year types, with flows at Bend Bridge and Red Bluff Diversion Dam ranging from approximately 6,000 cubic feet per second (cfs) to 13,000 cfs.

26.2.4.2 Transportation and Traffic

Roadway Traffic Levels and Condition

The Glenn County roadways within the Primary Study Area are considered minor collectors, except County Road 203, which is considered a collector within the city limits of Hamilton. All Colusa County roadways are considered minor collectors.

Table 26-8 describes the routes that are expected to be used to access Project facility sites during Project construction, operation, and maintenance. These routes include existing roads and new permanent roads to be constructed as part of the Project. Figure 3-1 in Chapter 3 Description of the Sites Reservoir Project Alternatives shows the locations of main roads relative to the Project facilities.

Table 26-8
Expected Roadway Access Routes to Project Facilities

Facility #	Project Feature	Access Route
1a	Sites Reservoir Inundation Area (northern area)	• From I-5, travel west on County Road 68, turn south on County Road D, turn west on County Road 69, and continue straight
1b	Sites Reservoir Inundation Area (central area)	• From I-5, travel west on Maxwell Sites Road
1c	Sites Reservoir Inundation Area (southern area)	• From I-5, travel west on Maxwell Sites Road, turn left on Sulphur Gap Road (new permanent), and turn right on Huffmaster Road
2a	Sites Dam	• From I-5, travel west on Maxwell Sites Road
2b	Golden Gate Dam	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, turn left on Eastside Road (new permanent), and turn right on new permanent O&M road • From I-5, travel west on Maxwell Sites Road, turn right on Eastside Road, and turn left on new permanent O&M road
2c	Saddle Dams	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, continue straight on North Road (new permanent) for Saddle Dams 7, 8, and 9, or turn left from North Road onto Saddle Dam Road (new permanent) for Saddle Dams 1, 2, 3, 4, and 5, or turn left from North Road onto new permanent O&M road for Saddle Dam 6, or turn left from County Road 69 onto Eastside Road (new permanent) and turn right on new permanent O&M road for the Golden Gate Saddle Dam (Saddle Dam 10) • From I-5, travel west on Maxwell Sites Road, turn right on Eastside Road and turn left on new permanent O&M road
3a 4a	Saddle Dam Recreation Area Saddle Dam Road	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, continue straight on North Road (new permanent), and turn left on Saddle Dam Road (new permanent)
	Temporary Northern Bypass Road	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, continue straight on North Road to the vicinity of Saddle Dam No. 5, continue west and south-west on the paved temporary bypass road to the intersection with Sites Lodoga Road on the west side of the reservoir
3b 4b	Lurline Headwaters Recreation Area Lurline Road	• From I-5, travel west on Maxwell Sites Road, turn left on Sulphur Gap Road (new permanent)
3c	Antelope Island Recreation Area	• From I-5, travel west on Maxwell Sites Road, turn left on Sulphur Gap Road (new permanent), turn right on Huffmaster Road, and turn left on new temporary construction road
3d 4c	Stone Corral Recreation Area Stone Corral Road	• From I-5, travel west on Maxwell Sites Road, turn right on Eastside Road (new permanent), turn left on Stone Corral Road (new permanent), and turn left on Stone Corral Recreation Area Road (new permanent)

Facility #	Project Feature	Access Route
3e 4d	Peninsula Hills Recreation Area Peninsula Road	• From I-5, travel west on Maxwell Sites Road to Sites Lodoga Road, and turn right on Peninsula Road (new permanent campground spur road) • From I-5, travel west on Maxwell Sites Road, turn right on Eastside Road (new permanent), turn left on Stone Corral Road (new permanent), across the South Bridge (new permanent) onto Sites Lodoga Road, and turn right on Peninsula Road (new permanent campground spur road)
4e	South Bridge	• From I-5, travel west on Maxwell Sites Road, and turn right on Peterson Road to reach central footings (this route is only available if the bridge is constructed before Sites Dam, which will block access on Maxwell Sites Road) • From I-5, travel west on Maxwell Sites Road and continue straight on Sites Lodoga Road to reach the western approach/footings • From I-5, travel west on Maxwell Sites Road, turn right on Eastside Road (new permanent), and turn left on Stone Corral Road to reach the eastern approach/footings
4f	Com Road	• From I-5, travel west on Maxwell Sites Road, turn left on Sulphur Gap Road (new permanent), and turn right on Com Road (new permanent) (option 1) • From I-5, travel west on Maxwell Sites Road, turn left and travel over Sites Dam crest to Com Road (new permanent (option 2)
4g 5 6	Eastside Road Sites Pumping/Generating Plant Field Office Maintenance Yard	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, and turn left on Eastside Road (new permanent) • From I-5, travel west on Maxwell Sites Road and turn right on Eastside Road (new permanent)
4h	Sulphur Gap Road	• From I-5, travel west on Maxwell Sites Road, and turn left on Sulphur Gap Road (new permanent)
4i	North Road	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, continue straight on North Road (new permanent) • From I-5, travel west on Maxwell Sites Road, and turn right on Eastside Road (new permanent) and follow to North Road
7	Holthouse Reservoir Complex	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, turn left on Eastside Road (new permanent), turn left on access road on south side of Funks Reservoir
9 10	Sites Electrical Switchyard Tunnel from Sites Pumping/Generating Plant to Sites Reservoir Inlet/Outlet Structure	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, turn left on Eastside Road (new permanent), and turn left on new permanent O&M road • From I-5, travel west on Maxwell Sites Road, turn right on Eastside Road (new permanent), turn right on new permanent O&M road
11	Sites Reservoir Inlet/Outlet Structure	• From I-5, travel west on Maxwell Sites Road, turn left onto Sulphur Gap Road, to Huffmaster Road, to Peterson Road

Facility #	Project Feature	Access Route
12	GCID Main Canal Facilities Modifications Headgate Modifications Railroad Siphon Modifications	• From I-5, travel east on SR 32 and turn left on County Road 203 • From I-5 northbound, exit County Road 53, immediately turn left onto SR 99, and proceed 1.1 miles north to the intersection with the GCID Main Canal. Turn right at GCID Main Canal; the railroad siphon is approximately 200 feet east of SR 99
13 14 15 16 17	GCID Main Canal Connection to the TRR TRR TRR Pumping/Generating Plant TRR Electrical Switchyard GCID Main Canal Connection to the TRR	• From I-5, travel west on Delevan Road, and turn left on McDermott Road or turn left on Noel Evan Road
18 19 20	TRR Pipeline TRR Pipeline Road Delevan Pipeline Electrical Switchyard	• From I-5, travel west on Delevan Road, turn left on McDermott Road, turn right on temporary construction access road
21a 22a	Delevan Pipeline (western portion) Delevan Overhead Power Line (western portion)	• From I-5, travel west on Delevan Road, then turn left on Sutton Road, McDermott Road, or County Road D
24 21b 22b 22d	Delevan Pipeline Intake/Discharge Facilities Delevan Pipeline (eastern portion) Delevan Overhead Power Line (eastern end) Delevan Overhead Power Line (northern portion of Alternative D north-south alignment on SR 45)	• From I-5, travel east on Maxwell Road, and turn left on SR 45 • From I-5, travel east on SR 162, and turn right on SR 45
21c 22c	Delevan Pipeline (central portion) Delevan Overhead Power Line (central portion)	• From I-5, travel east on Maxwell Road, and turn left on Four Mile Road or Two Mile Road • From I-5, travel east on Delevan Road, and turn right on Four Mile Road or Two Mile Road
22d	Delevan Overhead Power Line (northern portion of Alternative D north-south alignment on SR 45)	• From I-5, travel east on Maxwell Road, and turn left on SR 45
22e	Delevan Overhead Power Line (southern portion of Alternative D north-south alignment on SR 45)	• From I-5, travel east on Maxwell Road, and turn right on SR 45
21d	Delevan Pipeline (far western portion)	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, and turn left on Eastside Road (new permanent) • From I-5, travel west on Maxwell Sites Road, and turn right on Eastside Road (new permanent)

Facility #	Project Feature	Access Route
25	Borrow Areas (Generally Within the Reservoir Inundation Area or Adjacent on Logan Ridge)	• From I-5, travel west on County Road 68, turn left on County Road D, turn right on County Road 69, and turn left on Eastside Road (new permanent) • From I-5, travel west on Maxwell Sites Road, turn left on right on Eastside Road (new permanent) • From I-5, travel west on Maxwell Sites Road, turn left on Sulphur Gap Road (new permanent), turn right on Lurline Road (new permanent, detour during construction), turn right on Huffmaster Road, and travel straight on Peterson Road • From I-5, travel west on Maxwell Sites Road

Notes:

GCID = Glenn Colusa Irrigation District
I = Interstate freeway
O&M = operations and maintenance
SR = State Route

Glenn County

Ten roadways in Glenn County were identified as primary access roads to Project facility sites. The roadways and a summary of their observed characteristics are listed in Table 26-9.

Table 26-9
Characteristics of Roadways in Glenn County that are Main Access Routes to Project Facilities

Roadway	Project Facility # Accessed by Roadway[a]	Number of Lanes	Roadway Condition[b]	Comments
I-5	All Project facilities	4	Good	Divided Interstate
SR 32	12	2	Fair to Good	Through Orland, it is two paved lanes with a center lane and on-street parking in places; two paved lanes east of town with some visible cracks
SR 162	16, 17, 21b, 22b	2	Fair to Good	Through Willows, it is four paved lanes with a center lane; two paved lanes east of town with some visible cracks (some sealed and some not sealed)
County Road 68	1a, 2b, 2c, 3a, 4g, 4i, 5, 6, 7, 8, 9, 10, 21d, 25	2	Poor to Good	Shoulders partially paved; some visible cracks
County Road 69	1a, 2b, 2c, 3a, 4g, 4i, 5, 6, 7, 8, 9, 10, 21d, 25	2	Fair to Good	
County Road D	1a, 2b, 2c, 3a, 4g, 4i, 5, 6, 7, 8, 9, 10, 21a, 21d, 22a, 25	2	Fair to Good	No shoulder at some locations
County Road 203	12	2	Good	No shoulders

[a]Refer to Table 26-8 for the Project facility name associated with each Project facility number.

[b]Roadway Condition: Good = Fully paved with very few cracks or potholes that result in desirable driving conditions.
Fair = Fully paved with some cracks or potholes that result less-than-desirable driving conditions.
Poor = Un-paved or paved with significant cracks and potholes that need to be avoided while driving and result in undesirable driving conditions.

Notes:

I = Interstate freeway
SR = State Route

The primary roadways in Glenn County anticipated to be used to access the Project facilities located in the Primary Study Area were selected as representative road segments. ADTs on these roadways are presented in Table 26-10. The classification and maximum capacity of these roadways is based on the 2015 Glenn County RTP (Glenn County, 2015). Figure 3-1 in Chapter 3 Description of the Sites Reservoir Project Alternatives shows the locations of these roads relative to the Glenn County portion of the Project facility sites. Figure 3-8A identifies the proposed access routes.

Table 26-10
2015 ADT for Selected Roads in Glenn County

Roadway	Segment	Roadway Classification	Maximum ADT Capacity[a]	2015 ADT[b]	2015 LOS[a]
I-5	Glenn/Colusa County Line to County Road 68	Interstate	79,200	26,523	B
I-5	County Road 16 to SR 32 E	Interstate	79,200	26,523	B
SR 32	I-5 to SR 45	Rural Principal Arterial	20,200	10,800	D
SR 162	County Road D to County Road F	Rural Major Collector	16,900	2,600	B
SR 162	County Road F to South Tehama Street	Urban Principal Arterial	30,000	8,700	A
SR 162	South Tehama Street to SR 45	Urban Minor Arterial	15,500	3,050	A
County Road 68	County Road F to I-5	Rural Minor Collector	11,200	227	A
County Road 68	I-5 to County Line/Norman Road	Rural Major Collector	16,900	303	A
County Road 69	County Road D to end of paved road	Rural Local Road	5,500	24	A
County Road D	Glenn/Colusa County Line to County Road 57	Rural Minor Collector	11,200	475	A
County Road 203	SR 32 to County Road 9	Rural Major Collector	16,900	2,209	B
County Road 203	County Road 9 to end of road	Rural Minor Collector	11,200	588	A

[a]Based on 2015 Glenn County RTP LOS criteria presented in Table 26-4.

[b]Acquired from 2015 data or calculated based on data from other years, with an assumed 3 percent average annual growth rate.

Notes:

ADT = average daily traffic
I = Interstate freeway
LOS = level of service
SR = State Route

Source: Thomas, 2011, pers. comm.; Caltrans, 2015; Gomes, 2017, pers. comm.; Glenn County, 2015.

Colusa County

Fourteen roadways in Colusa County were identified as primary access roads to Project facility sites. The roadways and a summary of their observed characteristics are listed in Table 26-11. Figure 3-1 in Chapter 3 Description of the Sites Reservoir Project Alternatives shows the locations of main roads relative to the Colusa County portion of the Project facility sites. Figure 3-8A identifies the proposed access routes.

The proposed Sites Reservoir would be located approximately 10 miles west of the town of Maxwell. Maxwell Sites Road would provide east-to-west access through that Project site. This road experiences higher traffic volumes than other local roadways in the area, particularly on weekends. Travelers use this

road to access East Park Reservoir, the southwest portion of the Mendocino National Forest, and the communities of Stonyford and Lodoga (CALFED Bay-Delta Program, 2000).

Table 26-11
Characteristics of Roadways in Colusa County that are Main Access Routes to Project Facilities

Roadway	Project Facility # Accessed by Roadway[a]	Number of Lanes	Roadway Condition[b]	Comments
I-5	All Project facilities	4	Good	Divided interstate highway.
SR 45 (Colusa County only)	16, 17, 21b, 22b, 22d, 22e	2	Fair to Good	25 mph to 55 mph posted speed limit; unpaved shoulders at some locations.
Maxwell Sites Road	1b, 1c, 2a, 2b, 3b, 3c, 3d, 3e, 4b, 4c, 4d, 4e, 4f, 4g, 4h, 4i, 5, 6, 7, 8, 9, 10, 11, 21b, 21c, 22b, 22c, 23, 24, 25	2	Fair to Good	Narrow shoulders east of Maxwell. Unpaved or no shoulders west of Mills Orchard; 35 mph posted speed limit.
Huffmaster Road	1c, 3c, 11, 25	1½	Poor to Fair	From Maxwell Sites Road intersection south 0.2 mile, the road is cracked, potholed pavement; gravel road south of that point.
Sites Lodoga Road	3e, 4e	2	Poor to Good	Shoulders sometimes absent; 25 mph posted speed limit east of Lodoga Stonyford Road.
Delevan Road	13, 14, 15, 16, 17, 18, 19, 20, 21a, 21c, 22a, 22c	2	Good and Poor to Fair	Paved shoulders are narrow near the canal, and east of Old Hwy 99. Some areas are depressed; some potholes, cracking, and patching. New pavement west of I-5 to McDermott Road. Dirt and below grade west of McDermott Road (possibly being prepared for paving).
Noel Evan Road	13, 14, 15, 16, 17	1	Poor	A gravel canal road.
Sutton Road	21a, 22a	1½ to 2	Poor and Fair to Good	North of Delevan Road: gravel 1.5-lane road (poor condition); south of Delevan Road: paved two-lane road with no shoulders (fair to good condition).
Four Mile Road	21c, 22c	2	Poor to Fair	Dirt and gravel road south of Delevan Road and north of Maxwell Road.
Two Mile Road	21c, 22c	2	Poor to Fair	Dirt and gravel road south of Delevan Road and north of Maxwell Road.
Maxwell Road	21b, 21c, 22b, 22c, 22d, 22e, 23, 24	2	Poor to Good	Narrow shoulders; 35 mph posted speed limit.
McDermott Road	13, 14, 15, 16, 17, 21a, 22a	2	Fair to Good	Narrow or no shoulder. Some patching, some cracking. New pavement north of Delevan Road. Gravel north of Dirks Road.
Peterson Road	4e, 11, 25	2	Poor	Unpaved; dirt and gravel road wide enough for two cars.

[a]Refer to Table 26-8 for the Project facility name associated with each Project facility number.

[b]Roadway Condition: Good = Fully paved with very few cracks or potholes that result in desirable driving conditions.
Fair = Fully paved with some cracks or potholes that result less-than-desirable driving conditions.
Poor = Un-paved or paved with significant cracks and potholes that need to be avoided while driving and result in undesirable driving conditions.

Notes:

I = Interstate freeway
mph = miles per hour
SR = State Route

The primary roadways in Colusa County anticipated to be used to access the Project facilities located in the Primary Study Area were selected as representative road segments, and ADTs on the road segments are presented in Table 26-12. The classification and maximum capacity of these roadways is based on the 2015 Glenn County RTP (Glenn County, 2015).

Table 26-12
2015 ADT for Selected Roads in Colusa County

Roadway	Segment	Roadway Classification	Maximum ADT Capacity[a]	2015 ADT[b]	2015 LOS[a]
I-5	SR 20 to Maxwell Colusa Road	Interstate	79,200	26,500	B
I-5	Delevan Road to Glenn/ Colusa County Line	Interstate	79,200	26,700	B
SR 45	SR 20 to Lurline Ave	Rural Principal Arterial	20,200	7,000	C
SR 45	Lurline Ave to Maxwell Colusa Road	Rural Minor Arterial	15,500	7,100	C
SR 45	Maxwell Colusa Road to County Road P29	Rural Minor Arterial	15,500	2,250	B
SR 45	County Road P29 to Glenn/ Colusa County Line	Rural Minor Arterial	15,500	2,100	B
Maxwell Sites Road	I-5 to Sutton Road	Rural Minor Arterial	15,500	1,071	A
Maxwell Sites Road	Sutton Road to GCID Main Canal	Rural Minor Arterial	15,500	613	A
Maxwell Sites Road	GCID Main Canal to Sites Lodoga Road	Rural Minor Arterial	15,500	462	A
Huffmaster Road	Beginning of road to end of road	Rural Local Road	5,500	N/A	N/A
Sites Lodoga Road	Maxwell Sites Road to Leesville Lodoga Road	Rural Local Road	5,500	485	A
Delevan Road	Four Mile Road to GCID Main Canal	Rural Local Road	5,500	552	A
Noel Evan Road[c]	South from gravel portion of Delevan Road	Rural Local Road	5,500	N/A	N/A
Sutton Road	Maxwell Sites Road to Delevan Road	Rural Local Road	5,500	259	A
Four Mile Road	Maxwell Road to Delevan Road	Rural Local Road	5,500	56	A
Two Mile Road	Delevan Road to Maxwell Colusa Road	Rural Local Road	5,500	97	A
Maxwell Road	I-5 to SR 45	Rural Minor Collector	11,200	2,799	B
McDermott Road	Maxwell Sites Road to Lenahan Road	Rural Local Road	5,500	402	A
Peterson Road[b]	Beginning of road to end of road	Rural Local Road	5,500	N/A	N/A

[a]Based on 2015 Glenn County RTP LOS criteria presented in Table 26-4.

[b]Acquired from 2015 data or calculated based on most recent available data with a 2 percent average annual growth rate applied.

[c]This road provides access to a Project facility site, but because no data are available, it is not included in the impact analysis (N/A).

Notes:

ADT = average daily traffic
I = Interstate freeway
LOS = level of service
SR = State Route

Source: Shantz, 2011; Caltrans, 2015; Glenn County, 2015.

Transit System

Glenn County

The Glenn Transit Service is the public transit operator for Glenn County, administered by the Glenn County Department of Public Works. It offers four types of public transportation services (Nelson/Nyygard Consulting Associates, 2008):

- **Glenn Ride** is the only general fixed-route inter-city transit service in the county, connecting Willows, Artois, Orland, and Hamilton City, as well as Chico in Butte County. Seven trips are provided during the weekdays and three trips are provided on Saturday. No service is provided on Sundays.
- **Glenn Transport (Dial-a-Ride)** is available to senior residents who meet particular eligibility requirements and are unable to use the Glenn Ride bus system. Services are restricted to within a 1.5-mile radius of the City Halls of Orland and Willows, the Leisure Mobile Home Park, the Willows-Glenn Mobile Home Park, and the Huggins/Cannell Drives area. The service operates from 7:30 a.m. to 6:00 p.m. on weekdays and from 9:00 a.m. to 4:00 p.m. on Saturdays.
- **Volunteer Medical Transport** provides transportation service to medical appointments for Glenn County residents who are unable to use Glenn Ride and do not have a personal mode of transportation. Volunteers use their personal vehicles to transport the patients.
- **CalWORKs "Ride to Work"** offers a van service to eligible CalWORKs workers referred by Glenn County Human Resource Agency. Transportation is provided to and from work opportunities.

In fiscal year 2015-16, 52,432 users used the fixed-route services and on-demand services provided by Glenn County; this is down from 61,927 users in 2014-15 (Thomas, 2017, pers. comm.).

Colusa County

Nine vehicles comprise the Colusa County Transit services fleet. The services include:

- Five routes operated on a fixed route and schedule. Pick-ups are arranged on a dial-a-ride basis, with door-to-door service available for ADA passengers.
- Out-of-county medical transportation service provided to Chico, Davis, Lincoln, Marysville, Oroville, Roseville, Sacramento, Willows, Woodland, and Yuba City.
- Trips to/from Yuba City provided on Fridays (bus departs Colusa at 9:30 a.m. and departs Yuba City at 1:30 p.m.).
- Charter trips can be arranged using the available fleet if it does not interfere with regularly scheduled service.

In 2016, public transportation ridership in Colusa County was approximately 48,000, which is consistent with the average number of annual users in 2014 and 2015 (Azevedo, 2017, pers. comm.).

Rail Traffic

Railway Facilities and Operations

The West Valley Line of the California Northern Railroad (CFNR) is located east of the town of Sites, and operates between Davis and Tehama, California. The major commodities carried by CFNR include tomato products, olives, rice, cheese, frozen foods, beer, wine, and wheat, as well as stone, petroleum products, and chemicals. The CFNR does not provide passenger service.

Air Traffic

Air Facilities and Operations

The airfield nearest to the town of Sites is Moller Airport located approximately 8 miles to the east, outside of Maxwell, California. There are eight single engine aircrafts based at Moller Airport. Other nearby airports include Colusa County Airport, Gunnersfield Ranch Airport, Antelope Valley Ranch Airport, Willows-Glenn County Airport, Williams Soaring Center, and Richter Aviation.

26.3 Environmental Impacts/Environmental Consequences

26.3.1 Evaluation Criteria and Significance Thresholds

Significance criteria represent the thresholds that were used to identify whether an impact would be potentially significant. Appendix G of the *CEQA Guidelines* does not include significance criteria for navigation, and suggests the following evaluation criteria for transportation and traffic:

Would the Project:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
- Conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The evaluation criteria used for this impact analysis represent a combination of the Appendix G criteria and professional judgment that considers current regulations, standards, and/or consultation with agencies, knowledge of the area, and the context and intensity of the environmental effects, as required

pursuant to NEPA. For the purposes of this analysis, an alternative would result in a potentially significant impact if it would result in any of the following:

- Conflict with navigation along navigable waterways.
- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Within the Primary Study Area and the Secondary Study Area, where construction would occur at the Red Bluff Pumping Plant, LOS D was considered the significance threshold for Caltrans roadways SR 32, SR 45, SR 162, and I-5. LOS C was considered the significance threshold for Glenn, Colusa, and Tehama county roadways, which includes all other local and regional roadways not managed by Caltrans.

26.3.2 Impact Assessment Assumptions and Methodology

Combinations of Project facilities were used to create Alternatives A, B, C, C_1, and D. In all resource chapters, the Authority and Reclamation described the potential impacts associated with the construction, operation, and maintenance of each of the Project facilities for each of the five action alternatives. Some Project features/facilities and operations (e.g., reservoir size, overhead power line alignments, provision of water for local uses) differ by alternative, and are evaluated in detail within each of the resource areas chapters. As such, the Authority has evaluated all potential impacts with each feature individually, and may choose to select or combine individual features as determined necessary.

Impacts associated with the construction, operation, and maintenance for Alternative C_1 would be the same as Alternative C. Therefore, they are not discussed separately below.

26.3.2.1 Assumptions

The following assumptions were made regarding Project-related construction, operation, and maintenance impacts to navigation, transportation, and traffic:

- Direct Project-related construction, operation, and maintenance activities would occur in the Primary Study Area.
- Direct Project-related operational effects would occur in the Secondary Study Area.

- The only direct Project-related construction activity that would occur in the Secondary Study Area is the installation of two additional pumps into existing bays at the Red Bluff Pumping Plant.
- The only direct Project-related maintenance activity that would occur in the Secondary Study Area is the sediment removal and disposal at the two intake locations (i.e., GCID Main Canal Intake and Red Bluff Pumping Plant).
- No direct Project-related construction or maintenance activities would occur in the Extended Study Area.
- Direct Project-related operational effects that would occur in the Extended Study Area are related to San Luis Reservoir operation; increased reliability of water supply to agricultural, municipal, and industrial water users; and the provision of an alternate Level 4 wildlife refuge water supply. Indirect effects to the operation of certain facilities that are located in the Extended Study Area, and indirect effects to the consequent water deliveries made by those facilities, would occur as a result of implementing the alternatives.
- The existing bank protection located upstream of the proposed Delevan Pipeline Intake/Discharge Facilities would continue to be maintained and remain functional.
- No additional channel stabilization, grade control measures, or dredging in the Sacramento River at or upstream of the Delevan Pipeline Intake/Discharge Facilities would be required.

26.3.2.2 Methodology

Existing conditions and the future No Project/No Action alternatives were assumed to be similar in the Primary Study Area, given the generally rural nature of the area and limited potential for growth and development in Glenn and Colusa counties within the 2030 study period used for this EIR/EIS (as further described in Chapter 2 Alternatives Analysis). As a result, within the Primary Study Area, it is anticipated that the No Project/No Action Alternative would not entail material changes in conditions as compared to the existing conditions baseline.

With respect to the Extended and Secondary study areas, the effects of the proposed action alternatives would be primarily related to changes to available water supplies in the Extended and Secondary study areas and the Project's cooperative operations with other existing large reservoirs in the Sacramento watershed, and the resultant potential impacts and benefits to biological resources, land use, recreation, socioeconomic conditions, and other resource areas. The Department of Water Resources has projected future water demands through 2030 conditions that assume the vast majority of Central Valley Project and State Water Project water contractors would use their total contract amounts, and that most senior water rights users also would fully use most of their water rights. This increased demand, in addition to the projects currently under construction and those that have received approvals and permits at the time of preparation of the EIR/EIS, would constitute the No Project/No Action Condition. As described in Chapter 2 Alternative Analysis, the primary difference in these projected water demands would be in the Sacramento Valley; and, as of the time of preparation of this EIR/EIS, the water demands have expanded to the levels projected to be achieved on or before 2030.

Accordingly, existing conditions and the No Project/No Action alternatives are assumed to be the same for this EIR/EIS. As such, they are referred to as the Existing Conditions/No Project/No Action Condition, which is further discussed in Chapter 2 Alternatives Analysis. The applicable reasonably foreseeable plans, projects, programs, and policies that may be implemented in the future, but that have

not yet been approved, are included as part of the analysis of cumulative impacts in Chapter 35 Cumulative Impacts.

Navigation

When considering Project construction impacts on the navigability of the Sacramento River, a review was conducted of the construction activities and equipment that would be required to construct the Delevan Pipeline Intake/Discharge Facilities. Data regarding the number and types of equipment that would be required to construct, operate, and maintain Project facilities were developed by Project engineers and are included in Chapter 24 Air Quality, Appendix 24A Methodology for Air Quality and GHG Emissions Calculations.

When considering Project operation impacts on the navigability of the Sacramento River, the proposed diversion and release amounts and velocities identified in Chapter 3 Description of the Sites Reservoir Project Alternatives were considered.

Transportation

Most transportation impacts are not measured quantitatively, but, rather, relatively. For the analysis of these impacts, the No Project/No Action Alternative and the action alternatives were compared to Existing Conditions, and impacts were determined based on the criteria defined in Section 26.3.2. Traffic operations impacts were measured quantitatively. Project construction-, operations-, and maintenance-related vehicle trips were added to existing roadways volumes, using data regarding the number and types of equipment and vehicles that would be required to construct, operate, and maintain Project facilities (data were developed by Project engineers).

The roadway volume to capacity ratio was then calculated and the associated LOS was determined. The LOS from the No Project/No Action Alternative and the action alternatives was then compared to Existing Conditions, and impacts were determined based on the defined criteria (Section 26.3.2) and mobility thresholds, as defined by the transportation facilities' governing agency (Section 26.2.1.2).

For analysis purposes, the peak construction period for each Project facility within each alternative was assumed to overlap. Although the overlap of certain construction phases may not be feasible, this approach accounts for unforeseen schedule changes and provides a conservative analysis. Of the Project construction-related trips, construction worker trips would comprise the majority. Construction workers were assumed to commute to construction sites from regional population centers, including Maxwell, Willows, Orland, Williams, Colusa, and from other Northern California counties when specialty trades or skillsets are not available regionally. The number of construction workers required during peak construction of Project facilities varies by alternative, resulting in different trip distributions for each alternative. Project-related construction personnel and highway truck trips are identified in Table 26-13.

To determine impacts to traffic on the local roads, the estimated visitation to Sites Reservoir and its Recreation Areas (developed by Project Economists) was used to estimate the potential distribution of recreation traffic on local roads. The traffic estimate considered a May to September recreation season, which would account for approximately 70 percent of annual recreationists. The traffic estimate also considered more recreation traffic Friday through Sunday than during other days of the week as well as a vehicle occupancy rate of 2.6 persons per vehicle.

Table 26-13
Peak Daily Construction Trips

Facility	Construction Working Days[a]	Highway Truck Equipment Days	Total Highway Truck Trips[b]	Highway Truck Trips per Day	PCE Highway Truck Trips per Day[c]	Maximum Personnel per Day	Total Personnel Trips[d]	Personnel Trips per Day
Sites Reservoir Inundation Area and Dams (Alternative A)	1,523	24,935	124,675	82	**123**	116	353,336	**232**
Sites Reservoir Inundation Area and Dams (Alternatives B, C, and D)	1,523	47,048	235,240	154	**232**	219	667,074	**438**
Recreation Facilities	501	458	2,290	5	**7**	24	24,048	**48**
South Bridge, Gravel & Paved Roads	961	5,011	25,055	26	**39**	106	203,732	**212**
Inlet/Outlet Structure, Tunnel & Sites Pumping Plant	332	3,908	19,540	59	**88**	59	39,176	**118**
Holthouse Reservoir Sediment Removal	114	16	80	1	**1**	38	8,664	**76**
Holthouse Reservoir Modification	566	4,508	22,540	40	**60**	180	203,760	**360**
GCID Main Canal & Headworks	509	680	3,400	7	**10**	29	29,522	**58**
TRR	334	700	3,500	10	**16**	57	38,076	**114**
TRR Pumping Plant	874	1,760	8,800	10	**15**	101	176,548	**202**
TRR & Delevan Pipelines	376	7,582	37,910	101	**151**	61	45,872	**122**
Delevan Intake & P/G Plant	874	1,760	8,800	10	**15**	101	176,548	**202**
Substations, Switchyards & Overhead Power Lines	251	1,362	6,810	27	**41**	70	35,140	**140**
Total Peak Trips per Day					**Alternative A**		**Alternatives B, C, and D**	
PCE Highway Truck Trips per Day[c]					566		675	
Personnel Trips per Day[d]					1,884		2,090	
Total Construction Trips per Day					**2,450**		**2,765**	

Assumptions:

[a]Construction work would be conducted during 5-day work weeks, excluding holidays

[b]Average of 5 highway trips per equipment day

[c]Multiplier of 1.5 to determine PCE

[d]One incoming and one outgoing trip per worker per day

Notes:

GCID = Glenn Colusa Irrigation District
PCE = passenger car equivalent
P/G = Pumping and generating
TRR = Terminal Regulating Reservoir

Source: Appendix 24A Methodology for Air Quality and GHG Emissions Calculations.

26.3.3 Topics Eliminated from Further Analytical Consideration

26.3.3.1 Navigation

San Luis Reservoir is not a navigable waterway, so it is not addressed in the analysis for the Extended Study Area. In addition, none of the creeks, bypasses, and reservoirs that are included in the Secondary Study Area are navigable waterways, so they are also not addressed in this analysis.

The navigation discussion for the Primary Study Area focuses on the Delevan Pipeline Intake/Discharge Facilities (Alternatives A, C, and D) and the Delevan Pipeline Discharge Facilities (Alternative B) because they are the only proposed facilities that could result in impacts to navigation. The other Project facilities that are proposed within the Primary Study Area are, therefore, not addressed in this analysis.

26.3.3.2 Transportation and Traffic

None of the identified airports (Moller Airport, Colusa County Airport, Gunnersfield Ranch Airport, Antelope Valley Ranch Airport, Willows-Glenn County Airport, Williams Soaring Center, and Richter Aviation) are located near the Project facility sites; therefore, Project construction and operation would not affect air traffic patterns. For this reason, air traffic patterns are not discussed in this analysis.

The transportation and traffic discussion for the Secondary Study Area focuses on the installation of two pumps at the Red Bluff Pumping Plant because this is the only location within that study area where construction and maintenance activities would occur that could result in impacts to transportation and traffic. Operational changes within the waterways of the Secondary Study Area would not affect traffic or transportation, and are, therefore, not addressed in this analysis.

26.3.4 Impacts Associated with Alternative A

26.3.4.1 Navigation

Extended Study Area – Alternative A

Construction, Operation, and Maintenance Impacts

Agricultural Water Use, Municipal and Industrial Water Use, and Wildlife Refuge Water Use

Impact Nav-1: Conflict with Navigation along Navigable Waterways

Because there would be no direct Project construction or maintenance occurring in the Extended Study Area, there would be no interruption of marine traffic on the navigable waterways within that study area. Implementation of Alternative A would result in increased water supply reliability to agricultural, municipal, and industrial water users, and the provision of an alternate Level 4 wildlife refuge water supply. This increased availability of water supply would not result in interruption of marine traffic on the navigable waterways within the Extended Study Area. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Secondary Study Area – Alternative A

Construction, Operation, and Maintenance Impacts

Trinity River, Klamath River downstream of the Trinity River, Sacramento River, Feather River, American River, Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay, San Francisco Bay, and Pump Installation at the Red Bluff Pumping Plant

Impact Nav-1: Conflict with Navigation along Navigable Waterways

The only direct Project-related construction that would occur in the Secondary Study Area is the installation of two additional pumps into existing bays at the Red Bluff Pumping Plant on the Sacramento River. This construction activity would not affect the navigational channel of the Sacramento River, and therefore, is not expected to result in interruption of marine traffic along that portion of the Sacramento River. The only direct Project-related maintenance activity that would occur is the removal and disposal of sediment from the existing GCID Main Canal Intake and the Red Bluff Pumping Plant. This activity is expected to occur within the footprint of the Project facilities, and is not expected to affect the navigational channel of the Sacramento River. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Implementation of Alternative A would result in operational changes to the navigable waterways included in the Secondary Study Area. However, these operational changes would fall within the historical range of operation of these waterbodies, resulting in **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Primary Study Area – Alternative A

Construction, Operation, and Maintenance Impacts

Delevan Pipeline Complex

Impact Nav-1: Conflict with Navigation along Navigable Waterways

The cofferdam that would be installed to dewater the Project facility's construction site would extend into the Sacramento River approximately 40 feet from the river bank, compared to a low-flow river channel width of 240 feet. The navigational channel of the Sacramento River would, therefore, be somewhat narrowed during the construction of the Delevan Pipeline Intake/Discharge Facilities, but would not substantially affect the navigability of the Sacramento River at that location either in the short or long term. In addition, typical use is limited to occasional personal water craft use, primarily associated with fishing. This would result in a **less-than-significant impact**, when compared to the Existing Conditions/No Project/No Action Condition.

The existing Maxwell ID Pumping Plant, located immediately upstream of the proposed Delevan Pipeline Intake/Discharge Facilities location, is located in a narrow section of the river and consequently acts as a local flow control point (Reclamation, 2012). Operation of the Delevan Pipeline Intake/Discharge Facilities would not alter flows or impact navigability of the river. In addition, at low flow of 6,000 cfs in the river, the proposed fish screen would extend approximately 40 feet into the 240-foot-wide river channel, which would allow for recreational boat traffic to pass the fish screen structure. Therefore, there would be a **less-than-significant impact,** when compared to the Existing Conditions/No Project/No Action Condition.

26.3.4.2 Transportation and Traffic

Extended Study Area – Alternative A

Construction, Operation, and Maintenance Impacts

Agricultural Water Use, Municipal and Industrial Water Use, Wildlife Refuge Water Use, and San Luis Reservoir

Impact Trans-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Considering all Modes of Transportation

Implementation of Alternative A would result in slight operational changes to San Luis Reservoir, increased water supply reliability to agricultural, municipal, and industrial water users, and the provision of an alternate Level 4 wildlife refuge water supply. These operational changes, however, would not be expected to result in changes to traffic levels. Because there would be no direct Project construction- or maintenance-related vehicle trips occurring in the Extended Study Area, there would be no conflict with plans, ordinances, or policies regarding the transportation systems within the Extended Study Area. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-2: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level of Service Standards and Travel Demand Measures, or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways

As stated in the **Impact Trans-1** discussion, there would be no direct Project construction- or maintenance-related vehicle trips occurring in the Extended Study Area, resulting in no conflict with congestion management program standards or measures within the Extended Study Area. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-3: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses

No direct Project construction- or maintenance-related vehicle trips would occur in the Extended Study Area, and, as a result, there would be no Project-related increase in hazards due to a design feature or incompatible use within the Extended Study Area. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-4: Result in Inadequate Emergency Access

Refer to the **Impact Trans-1** discussion. For those same reasons, there would be no change in emergency access. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-5: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities, or Otherwise Decrease the Performance or Safety of Such Facilities

Refer to the **Impact Trans-1** discussion. For those same reasons, there would be no conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Secondary Study Area – Alternative A

Construction, Operation, and Maintenance Impacts

Pump Installations at the Red Bluff Pumping Plant

Impact Trans-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Considering all Modes of Transportation

The only direct Project-related construction that would occur in the Secondary Study Area is the installation of two additional pumps into existing bays at the Red Bluff Pumping Plant. The only direct Project-related maintenance activity that would occur is the removal of sediment from the existing canal intakes. Neither of these Project-related activities in the Secondary Study Area is expected to result in conflicts with transportation circulation system plans, ordinances, or policies due to the low number of vehicle trips associated with these activities. The study roadways in the Secondary Study Area are operating at LOS C or better, and it is anticipated that less than 10 vehicle trips per year would be required for sediment removal at the two new pumps installed at the existing Red Bluff Pumping Plant. Operation and maintenance would be expected to occur in conjunction with existing facilities, and additional workers to oversee operations would not be required. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-2: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level of Service Standards and Travel Demand Measures, or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways

Refer to the **Impact Trans-1** discussion. For those same reasons, there would be no conflict with congestion management program standards or measures within the Secondary Study Area. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-3: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses

The proposed pump installation would not require the construction or operation of features that would have the potential to create hazards. Construction would occur outside of the public right-of-way (ROW) and will not permanently alter any public roadways or intersections. As a result, there would be no increase in hazards due to a design feature or incompatible use within the Secondary Study Area. Therefore, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-4: Result in Inadequate Emergency Access

It is anticipated that less than 10 vehicle trips per year would be required for sediment removal at the two new pumps installed at the existing Red Bluff Pumping Plant. Because the number of trips is anticipated to limited, disruptions to emergency services would not be expected. Operation and maintenance would be expected to occur in conjunction with existing facilities, and additional workers to oversee operations would not be required. Therefore, because there would be no change in emergency access, there would be **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-5: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities, or Otherwise Decrease the Performance or Safety of Such Facilities

Because the number of vehicle trips required during construction and maintenance of the proposed pump installation are anticipated to be limited, and would not interfere with the performance of or policies related to public transportation, there would be no conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. Therefore, there would be **no impact,** when compared to the Existing Conditions/No Project/No Action Condition.

Primary Study Area – Alternative A

Construction, Operation, and Maintenance Impacts

All Primary Study Area Project Facilities

Within the Primary Study Area, Project construction-related vehicle trips would occur on numerous roadways for the duration of the Project construction period. The total construction period would span approximately 8.5 years; however, the construction time would vary at Project facility and location. Construction details, including duration of construction and number of workers and vehicle trips, are presented by facility in Chapter 24 Air Quality, Appendix 24A Methodology for Air Quality and GHG Emissions Calculations. The proposed access routes to be used during construction, operation, and maintenance of the proposed facilities are presented in Figure 3-8A. The LOS for the roadways leading to the Project facilities prior to and during construction is presented in Table 26-14, and the LOS for the roadways leading to the Project facilities prior to and during operation is presented in Table 26-15. Applicable county, state, and federal regulations, ordinances, and restrictions will be identified and complied with prior to and during construction. The construction contractor will obtain all necessary road permits prior to construction, and comply with all the applicable conditions of approval.

Impact Trans-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Considering all Modes of Transportation

All roadways would continue to operate at an acceptable LOS during Project construction. Traffic levels on roadways would increase during Project construction, particularly before construction activities start and after they end each day, and would result in an increase in traffic congestion. The LOS on County Road 68 between County Road F and I-5, County Road 69 between I-5 and County Road F, County Road D between the Glenn/Colusa County Line and County Road 57, Maxwell Sites Road between the GCID Main Canal and Sites Lodoga Road, and Delevan Road between Four Mile Road and the GCID Main Canal would change from LOS A to LOS B. This increase in vehicle traffic and congestion would result in a **less-than-significant impact** because the LOS criteria for County roadways would not be exceeded, when compared to the Existing Conditions/No Project/No Action Condition.

Table 26-14
Alternative A Construction LOS

Roadway	Segment	2015 ADT[a]	2015 LOS[b]	ADT with Peak Construction Trips	Peak Construction LOS[b]
Glenn County Roadways					
I-5	Glenn/Colusa County Line to County Road 68	26,523	B	27,938	B
I-5	County Road 16 to SR 32 E	26,523	B	27,432	B
SR 32	I-5 to SR 45	10,800	D	10,868	D
SR 162	County Road D to County Road F	2,600	B	2,886	B
SR 162	County Road F to South Tehama Street	8,700	A	8,986	A
SR 162	South Tehama Street to SR 45	3,050	A	3,336	A
County Road 68	County Road D to I-5	227	A	1,413	B
County Road 68	I-5 to County Line/Norman Road	303	A	329	A
County Road 69	County Road D to end of paved road	24	A	1,237	B
County Road D	Glenn/Colusa County Line to County Road 57	475	A	1,599	B
County Road 203	SR 32 to County Road 9	2,209	B	2,259	B
County Road 203	County Road 9 to end of road	588	A	861	A
Colusa County Roadways					
I-5	SR 20 to Maxwell Colusa Road	25,698	B	26,607	B
I-5	Delevan Road to Glenn/Colusa County Line	26,010	B	27,409	B
SR 45	SR 20 to Lurline Ave	7,000	C	7,286	C
SR 45	Lurline Ave to Maxwell Colusa Road	7,100	C	7,386	C
SR 45	Maxwell Colusa Road to County Road P29	2,185	B	2,471	B
SR 45	County Road P29 to Glenn/Colusa County Line	2,393	B	2,679	B
SR 162	County Road D to SR 45	8,800	D	9,086	D
Maxwell Sites Road	I-5 to Sutton Road	1,812	B	2,961	B
Maxwell Sites Road	GCID Main Canal to Sites Lodoga Road	754	A	1,903	B
Huffmaster Road	Beginning of road to end of road	N/A	N/A	519	A

Roadway	Segment	2015 ADT[a]	2015 LOS[b]	ADT with Peak Construction Trips	Peak Construction LOS[b]
Sites Lodoga Road	Maxwell Sites Road to Leesville Lodoga Road	439	A	868	A
Delevan Road	Four Mile Road to GCID Main Canal	500	A	1,016	B
Sutton Road	Maxwell Sites Road to Delevan Road	234	A	414	A
Excelsior Road/ Four Mile Road	Maxwell Road to Delevan Road	51	A	231	A
Pole Line Road/ Two Mile Road	Delevan Road to Maxwell Colusa Road	88	A	268	A
Maxwell Road	I-5 to SR 45	2,535	B	2,821	B
McDermott Road	Maxwell Sites Road to Lenahan Road	364	A	880	A

[a]Acquired from 2015 data or calculated based on most recent available data with a 2 or 3 percent average annual growth rate applied.

[b]Based on 2015 Glenn County RTP LOS criteria presented in Table 26-4.

Notes:

ADT = average daily traffic
I = Interstate freeway
LOS = level of service
N/A = not available
SR = State Route

Source: Azevedo, 2017, pers. comm.; Caltrans, 2015; Glenn County, 2015; Gomes, 2017, pers. comm.

Table 26-15
Alternative A Operations and Maintenance LOS

Roadway	Segment	2015 ADT	2015 LOS[a]	ADT with Peak O&M Trips[b]	Peak O&M LOS[b]
Glenn County Roadways					
I-5	Glenn/Colusa County Line to County Road 68	26,523	B	26,720	B
I-5	County Road 16 to SR 32 E	26,523	B	26,582	B
SR 32	I-5 to SR 45	10,800	D	10,818	D
SR 162	County Road D to County Road F	2,600	B	2,619	B
SR 162	County Road F to South Tehama Street	8,700	A	8,719	A
SR 162	South Tehama Street to SR 45	3,050	A	3,569	A
County Road 68	County Road F to I-5	196	A	393	A
County Road 68	I-5 to County Line/Norman Road	261	A	265	A
County Road 69	County Road D to end of paved road	20	A	217	A
County Road D	Glenn/Colusa County Line to County Road 57	402	A	579	A
County Road 203	SR 32 to County Road 9	1,905	B	1,928	B
County Road 203	County Road 9 to end of road	507	A	530	A

Roadway	Segment	2015 ADT	2015 LOS[a]	ADT with Peak O&M Trips[b]	Peak O&M LOS[b]
Colusa County Roadways					
I-5	SR 20 to Maxwell Colusa Road	25,698	B	25,757	B
I-5	Delevan Road to Glenn/Colusa County Line	26,010	B	26,101	B
SR 45	Maxwell Colusa Road to County Road P29	2,185	A	2,204	A
SR 45	County Road P29 to Glenn/Colusa County Line	2,393	B	2,412	B
Maxwell Sites Road	I-5 to Sutton Road	1,812	B	1,887	B
Maxwell Sites Road	GCID Main Canal to East Side Road	754	A	829	B
East Side Road/ South Bridge	Maxwell Sites Road to Leesville Lodoga Road	439	A	467	A
Delevan Road	Four Mile Road to GCID Main Canal	500	A	529	A
Maxwell Road	I-5 to SR 45	2,535	B	2,554	B

[a]Based on 2015 Glenn County RTP LOS criteria presented in Table 26-4.

[b]Peak O&M trips include peak recreation trips which are anticipated to occur on weekends and holidays during the primary recreation season.

Note:

ADT = average daily traffic
I = Interstate
LOS = level of service
O&M = operations and maintenance
SR = State Route

Source: Azevedo, 2017, pers. comm.; Caltrans, 2015; Glenn County, 2015; Gomes, 2017, pers. comm.

Project operation- and maintenance-related traffic would use the same roads that were used for Project construction, but would require 40 total vehicle trips per day throughout the Primary Study Area, which would not impact the roadway LOS. This would result in a **less-than-significant impact**, when compared to the Existing Conditions/No Project/No Action Condition, due to the low number of vehicle trips associated with Project operation and maintenance.

During Project operation, recreational traffic would use I-5, County Road 68, County Road D, County Road 69, Maxwell Sites Road, Huffmaster Road, and new Project roads to access Sites Reservoir and its recreation areas. Recreational traffic levels on roads leading to these Project facilities are expected to increase from existing levels because recreationists are likely to want to visit the new reservoir and use the new recreational facilities. The expected increase in traffic on these roads could cause an associated temporary or even permanent reduction in recreation traffic on roads leading to other regional reservoirs (i.e., those located in the Secondary Study Area).

For Alternative A, it is estimated that approximately 200,000 recreational visitors per year would visit Sites Reservoir and its recreation areas for all or part of 1 day, once the facilities are operational. There would no overlap between the project construction trips and the anticipated increase in recreation visitors. The number of visitors per day would fluctuate, resulting in varying levels traffic during the recreation season; however, it is anticipated that 70 percent of recreationists would visit during the primary recreation season, May 1 through September 30, and 70 percent of those visitors would visit during weekends and holidays. It is assumed that those estimated 98,000 recreationists would visit the Primary Study Area facilities, with an average of 2.6 persons per vehicle. This would result in an increase of 37,693 total trips, or approximately 820 trips per day, during weekends and holidays in the primary

recreation season. It is also assumed that operations and maintenance personnel would work 365 days per year; therefore, the additional 80 trips from workers traveling to and from Project facilities has also been included in the peak ADT associated with operations and maintenance, presented in Table 26-15.

Impact Trans-2: Conflict with an Applicable Congestion Management Program, Including, but not Limited to, Level of Service Standards and Travel Demand Measures, or Other Standards Established by the County Congestion Management Agency for Designated Roads or Highways.

All of the roadways anticipated to be used to access Project facilities would continue to operate at an acceptable LOS during Project construction and operation of the reservoir. Therefore, impacts would be less than significant, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-3: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses

All Project construction of roadways and bridges within the Primary Study Area would adhere to the appropriate city, county, and State design standards, resulting in **no impact**, when compared to the Existing Conditions/No Project/No Action Condition.

During construction, the use of construction equipment, such as oversize or overweight vehicles, on roadways near Project facility sites could result in unsafe conditions or damage to road surfaces. However, with the implementation of the Construction Equipment, Truck, and Traffic Management measures presented in Chapter 3 Description of the Sites Reservoir Project Alternatives, this impact would be reduced to **less than significant,** when compared to the Existing Conditions/No Project/No Action Condition.

Project operation- and maintenance-related traffic is expected to be minimal and would not be anticipated to cause extensive damage to road surfaces or result in unsafe conditions. Therefore, there would be a **less-than-significant impact** during Project operations and maintenance, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-4: Result in Inadequate Emergency Access

During construction of all Project facilities, the temporary closure of lanes and various roadways would likely occur. Construction of Sites Reservoir and Sites Dam has the potential to cause short-term effects to emergency services response times by eliminating a portion of Maxwell Sites Road and Sites Lodoga Road, which provide access to both sides of the reservoir. However, the South Bridge would be constructed and operating before the portions of these roads are demolished and removed. The new route that includes the South Bridge would be approximately 2 miles longer than the existing route. Access to the west side of the proposed Sites Reservoir from the east side during construction of the South Bridge would be via the existing Maxwell Sites and Sites Lodoga roads, and access to the southern portion of Sites Reservoir during the construction of the South Bridge would be via the existing Huffmaster Road. These access routes would not change from the existing routes. Sulphur Gap Road would also be constructed prior to the demolition and removal of the portion of Huffmaster Road that crosses the proposed Sites Reservoir footprint, to maintain access for nearby residences. Scheduling the construction of the South Bridge and Sulphur Gap Road early in the Project construction period, and not demolishing existing access routes prior to new ones becoming accessible, would maintain emergency access within and across Antelope Valley during Project construction, and allow emergency service providers to maintain acceptable response times. Any road closures will be temporary and short term; and these closures will be coordinated with Caltrans and/or local jurisdictions to reduce the effects of potential

temporary and short-term emergency access. Emergency responders will be notified prior to construction. Ensuring access for emergency vehicles and all applicable local, state, and Federal traffic control measures will be followed to ensure the safety of the local as well as construction traffic.

This would result in a **less-than-significant impact** during Project construction, when compared to the Existing Conditions/No Project/No Action Condition.

During Project operations and maintenance, adequate emergency access would be maintained. Therefore, there would be **no impact** during Project operation and maintenance, when compared to the Existing Conditions/No Project/No Action Condition.

Impact Trans-5: Conflict with Adopted Policies, Plans, or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities, or Otherwise Decrease the Performance or Safety of Such Facilities

Construction of Sites Reservoir and Sites Dam has the potential to cause short-term disruptions to public school bus service by eliminating a portion of Maxwell Sites Road and Sites Lodoga Road, which are part of a bus route for the Maxwell Unified School District. These road closures will be coordinated with the Maxwell Unified School District prior to demolition, and an alternate route would be provided. The South Bridge would be constructed and operating before the portions of these roads are demolished and removed. Bus service would then be provided via the South Bridge, which would be approximately 2 miles longer than the existing route. This would result in a **less-than-significant impact** during Project construction, when compared to the Existing Conditions/No Project/No Action Condition. No other conflicts with policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities would occur with the Project. During project operations, bus service would continue to be provided along the South Bridge, resulting in a **less-than-significant impact**.

During Project maintenance, no conflicts with policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities would occur. Therefore, there would be **no impact** during Project maintenance, when compared to the Existing Conditions/No Project/No Action Condition.

26.3.5 Impacts Associated with Alternative B

26.3.5.1 Navigation

Extended and Secondary Study Areas – Alternative B

Construction, Operation, and Maintenance Impacts

The impacts associated with Alternative B, as they relate to navigable waterways (**Impact Nav-1**), would be the same as described for Alternative A for the Extended and Secondary study areas.

Primary Study Area – Alternative B

Construction, Operation, and Maintenance Impacts

Delevan Pipeline Complex

Impact Nav-1: Conflict with Navigation along Navigable Waterways

The navigational channel of the Sacramento River would be narrowed slightly during the construction of the Delevan Pipeline Discharge Facility, but would not substantially affect the navigability of the Sacramento River at that location. The cofferdam that would be installed to dewater the Project facility's

construction site would extend into the river approximately 5 to 10 feet from the river bank, resulting in a **less-than-significant impact**, when compared to the Existing Conditions/No Project/No Action Condition.

Alternative B operations are not expected to alter the navigable channel of the Sacramento River. Operation of the proposed Delevan Pipeline Discharge Facilities is expected to follow criteria that are set forth by the resource agencies, and as such, releases would be such that they would not adversely affect marine traffic. In addition, the small size of this proposed facility would allow for recreational boat traffic to pass. Therefore, there would be a **less-than-significant impact,** when compared to the Existing Conditions/No Project/No Action Condition.

26.3.5.2 Transportation and Traffic

Extended and Secondary Study Areas – Alternative B

Construction, Operation, and Maintenance Impacts

The impacts associated with Alternative B, as they relate to circulation system performance (**Impact Trans-1**), congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**), would be the same as described for Alternative A for the Extended and Secondary study areas.

Primary Study Area – Alternative B

Construction, Operation, and Maintenance Impacts

Many of the same Project facilities are included in both Alternatives A and B (see Table 3-1 in Chapter 3 Description of the Sites Reservoir Project Alternatives). These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would, therefore, result in the same construction, operation, and maintenance impacts to transportation and traffic. Therefore, unless explicitly discussed below, impacts at all Project facilities are anticipated to be the same as previously discussed for Alternative A. Also consistent with Alternative A, the construction time would vary at Project facility and location, and the total construction period for Alternative B would be the same as described for Alternative A; however, the total number of vehicle trips during that time would increase due to the increased reservoir size. Construction details, including duration of construction and number of workers and vehicle trips, are presented by facility in Chapter 24 Air Quality, Appendix 24A Methodology for Air Quality and GHG Emissions Calculations. The proposed access routes to be used during construction, operation, and maintenance of the proposed facilities are presented in Figure 3-8A in Chapter 3 Description of Sites Reservoir Project Alternatives.

Sites Reservoir Complex

If Alternative B is implemented, the footprints and construction disturbance areas of Sites Reservoir and Dams and South Bridge and Roads would be slightly different from those identified for Alternative A due to the larger reservoir size. However, these differences in the size of the facility footprint, alignment, or construction disturbance area would not change the type of construction, operation, and maintenance activities that were described for Alternative A. They would, therefore, have the same impact on congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) as described for Alternative A.

The changes to facility footprints and construction disturbance areas would, however, result in a different number of ADT with peak construction trips, with an associated change in LOS. The changes associated with implementation of Alternative B, as related to **Impact Trans-1**, are described below.

Delevan Pipeline Complex

If Alternative B is implemented, the footprints and construction disturbance areas of the Delevan Pipeline Intake/Discharge Facilities (that are included in Alternative A) would be replaced by the Delevan Pipeline Discharge Facilities. However, these differences in the size of the facility footprint, alignment, or construction disturbance area would not change the type of construction, operation, and maintenance activities that were described for Alternative A. They would, therefore, have the same impact on congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) as described for Alternative A.

LOS changes associated with implementation of Alternative B, related to **Impact Trans-1**, are described below.

Overhead Power Lines, Substations, and Distribution Lines

If Alternative B is implemented, the footprints and construction disturbance areas of the Sites/Delevan Overhead Power Line would differ from Alternative A. However, these differences in the size of the facility footprint, alignment, or construction disturbance area would not change the type of construction, operation, and maintenance activities that were described for Alternative A. They would, therefore, have the same impact on congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) as described for Alternative A.

LOS changes associated with implementation of Alternative B, related to **Impact Trans-1**, are described below.

Project Buffer

The boundary of the Project Buffer would be the same for Alternatives A and B, but because the footprints of some of the Project facilities that are included in the Project Buffer would differ between the alternatives, the acreage of land within the Project Buffer would also differ. However, this difference in the size of the area included within the buffer would not change the type of construction, operation, and maintenance activities that were described for Alternative A. It would, therefore, have the same impact on congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) as described for Alternative A.

LOS changes associated with implementation of Alternative B, related to **Impact Trans-1**, are described below.

All Other Primary Study Area Project Facilities

Impact Trans-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Considering all Modes of Transportation

When compared to Alternative A, Alternative B would not have construction trips along I-5, SR 162, SR 45, County Road 203, and Maxwell Road related to the intake facilities, but would have construction trips along the same roads related to the Delevan Pipeline Discharge Facilities. Alternative B would also result in an increase in construction trips along I-5, County Road 68, County Road D, County Road 69, Maxwell Sites Road, and Sites Lodoga Road related to the construction of the larger Sites Reservoir. In addition, the Roads associated with this alternative would differ slightly from Alternative A and the Sites/Delevan Overhead Power Line would be shorter for Alternative B than for Alternative A. The roadway LOS for each Project facility prior to and during construction is presented in Table 26-16.

Table 26-16
Alternative B Construction LOS

Roadway	Segment	Calculated 2010 ADT	2010 LOS[a]	ADT with Peak Construction Trips	Peak Construction LOS
Glenn County Roadways					
I-5	Glenn/Colusa County Line to County Road 68	26,523	B	28,043	C
I-5	County Road 16 to SR 32 E	26,523	B	27,431	C
SR 32	I-5 to SR 45	10,800	D	10,868	D
SR 162	County Road D to County Road F	2,600	B	2,780	B
SR 162	County Road F to South Tehama Street	8,700	A	8,880	A
SR 162	South Tehama Street to SR 45	3,050	A	3,230	A
County Road 68	County Road F to I-5	196	A	1,620	B
County Road 68	I-5 to County Line/Norman Road	261	A	300	A
County Road 69	County Road D to end of paved road	20	A	1,448	B
County Road D	Glenn/Colusa County Line to County Road 57	402	A	1,810	B
County Road 203	SR 32 to County Road 9	1,905	B	2,153	B
County Road 203	County Road 9 to end of road	507	A	755	A
Colusa County Roadways					
I-5	SR 20 to Maxwell Colusa Road	25,698	C	26,606	C
I-5	Delevan Road to Glenn/Colusa County Line	26,010	C	27,620	C
SR 45	SR 20 to Lurline Ave	7,000	C	7,202	C
SR 45	Lurline Ave to Maxwell Colusa Road	7,100	C	7,302	C

Roadway	Segment	Calculated 2010 ADT	2010 LOS[a]	ADT with Peak Construction Trips	Peak Construction LOS
SR 45	Maxwell Colusa Road to County Road P29	2,185	B	2,365	B
SR 45	County Road P29 to Glenn/Colusa County Line	2,393	B	2,573	B
Maxwell Sites Road	I-5 to Sutton Road	1,812	B	3,172	C
Maxwell Sites Road	GCID Main Canal to Sites Lodoga Road	754	A	2,114	B
Huffmaster Road	Beginning of road to end of road	N/A	N/A	730	A
Sites Lodoga Road	Maxwell Sites Road to Leesville Lodoga Road	439	A	1,079	B
Delevan Road	Four Mile Road to GCID Main Canal	500	A	1,016	B
Sutton Road	Maxwell Sites Road to Delevan Road	234	A	414	A
Excelsior Road/ Four Mile Road	Maxwell Road to Delevan Road	51	A	231	A
Pole Line Road/ Two Mile Road	Delevan Road to Maxwell Colusa Road	88	A	268	A
Maxwell Road	I-5 to SR 45	2,535	B	2,715	B
McDermott Road	Maxwell Sites Road to Lenahan Road	364	A	880	A

[a]Refer to Table 26-4 for the LOS criteria.

Notes:

ADT = Average Daily Traffic
I = Interstate Freeway
SR = State Route

Source: Shantz, 2011; Caltrans, 2015; Glenn County, 2015; Gomes, 2017, pers. comm.

All roadways would continue to operate at an acceptable LOS. Traffic levels on roadways would increase during Project construction, particularly before construction activities start and after they end each day, and would result in an increase in traffic congestion. The LOS on County Road 68 between County Road F and I-5, County Road 69 between I-5 and County Road F, County Road D between the Glenn/Colusa County Line and County Road 57, Maxwell Sites Road between I-5 and Sutton Road and between the GCID Main Canal and Sites Lodoga Road, Sites Lodoga Road between Maxwell Sites Road and Leesville Lodoga Road, and Delevan Road between Four Mile Road and the GCID Main Canal would change LOS, but would still meet the County roadway criteria of LOS C or better. Therefore, because LOS criteria would not be exceeded, this increase in Project construction-related vehicle traffic and congestion would result in a **less-than-significant impact,** when compared to the Existing Conditions/No Project/No Action Condition.

Traffic levels associated with Project operations and maintenance would increase, when compared to the Existing Conditions/No Project/No Action Condition. Project operation- and maintenance-related traffic would use the same roads that were used for Project construction but would require 40 total vehicles trips per day throughout the Primary Study Area, which would not impact the roadway LOS. This would result

in a **less-than-significant impact**, when compared to the Existing Conditions/No Project/No Action Condition, due to the low number of vehicle trips associated with Project operations and maintenance.

As described for Alternative A, implementation of Alternative B is estimated that, once operational, approximately 200,000 recreation visitors per year would visit Sites Reservoir and its recreation areas for all or part of 1 day, and the increase would primarily occur during weekends and holidays of the primary recreation season, primarily impacting I-5 and Maxwell Sites Road. The recreation-related trips would occur after construction of the Sites Reservoir is complete. There would no overlap between the project construction trips and the anticipated increase in recreation visitors. The peak increase in ADT associated with recreationists visiting Primary Study Area facilities during weekends and holidays in the primary recreation season, approximately 820 ADT, plus the additional 80 trips from workers traveling to and from Project facilities, would be the same as described for Alternative A and presented in Table 26-15. This increase would result in a **less-than-significant impact,** when compared to the Existing Conditions/ No Project/No Action Condition.

26.3.6 Impacts Associated with Alternative C

26.3.6.1 Navigation

Extended, Secondary, and Primary Study Areas – Alternative C

Construction, Operation, and Maintenance Impacts

The impacts associated with Alternative C, as they relate to navigable waterways (**Impact Nav-1**), would be the same as described for Alternative A for the Extended, Secondary, and Primary study areas.

26.3.6.2 Transportation and Traffic

Extended and Secondary Study Areas – Alternative C

Construction, Operation, and Maintenance Impacts

The impacts associated with Alternative C, as they relate to circulation system performance (**Impact Trans-1**), congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**), would be the same as described for Alternative A for the Extended and Secondary study areas.

Primary Study Area – Alternative C

Construction, Operation, and Maintenance Impacts

Many of the same Project facilities are included in both Alternatives A and C (see Table 3-1 in Chapter 3 Description of the Sites Reservoir Project Alternatives). These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would therefore result in the same construction, operation, and maintenance impacts to transportation and traffic. Therefore, unless explicitly discussed below, impacts at all Project facilities are anticipated to be the same as described for Alternative A.

Sites Reservoir Complex

The Alternative C design of the Sites Reservoir Inundation Area, Dams, and South Bridge and Roads is the same as described for Alternative B. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would, therefore have the same impact on circulation system performance (**Impact Trans-1**), congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) as described for Alternative B.

26.3.7 Impacts Associated with Alternative D

26.3.7.1 Navigation

Extended, Secondary, and Primary Study Areas – Alternative D

Construction, Operation, and Maintenance Impacts

The impacts associated with Alternative D, as they relate to navigable waterways (**Impact Nav-1**), would be the same as for Alternative A for the Extended, Secondary, and Primary study areas.

26.3.7.2 Transportation and Traffic

Extended and Secondary Study Areas – Alternative D

Construction, Operation, and Maintenance Impacts

The impacts associated with Alternative D, as they relate to circulation system performance (**Impact Trans-1**), congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**), would be the same as described for Alternative A for the Extended and Secondary study areas.

Primary Study Area – Alternative D

Construction, Operation, and Maintenance Impacts

Many of the same Project facilities are included in Alternatives B, C, and D (see Table 3-1 in Chapter 3 Description of the Sites Reservoir Project Alternatives). These facilities would require the same construction methods and operation and maintenance activities regardless of alternative, and would therefore result in the same construction, operation, and maintenance impacts to circulation system performance (**Impact Trans-1**); congestion management programs (**Impact Trans-2**); design feature hazards or incompatible uses (**Impact Trans-3**); emergency access (**Impact Trans-4**); and adopted transportation policies, plans, or programs (**Impact Trans-5**). Therefore, unless explicitly discussed below, impacts at all Project facilities are anticipated to be the same as described for Alternatives B and C.

Sites Reservoir Complex

The Alternative D design of the Sites Reservoir Inundation Area, Dams, and South Bridge is the same as described for Alternatives B and C. These facilities would require the same construction methods and operation and maintenance activities regardless of alternative. However, Alternative D would include the

development of only two recreation areas (Stone Corral Creek Recreation Area and Peninsula Hills Recreation Area) instead of five recreation areas that would be developed for each of the other alternatives. Alternative D would include a boat ramp at the western side of the reservoir where the existing Sites Lodoga Road would be inundated. Only two recreation areas under Alternative D is not expected to substantially change the potential impacts to transportation resources. As a result of the modified recreation areas, the road segments providing access to Lurline Headwaters Recreation Area required for the other alternatives would not be required. Additionally, Sulphur Gap Road from Maxwell Sites Road to Huffmaster Road would also not be required; however, an additional roadway connecting Huffmaster Road to Leesville Road would be required. The decreased number of recreation areas and slightly modified roadways would not be expected to result in additional impacts related to traffic, as compared to those described for Alternatives B and C and would, therefore, result in the same impacts to circulation system performance (**Impact Trans-1**); congestion management programs (**Impact Trans-2**); design feature hazards or incompatible uses (**Impact Trans-3**); emergency access (**Impact Trans-4**); and adopted transportation policies, plans, or programs (**Impact Trans-5**) as described for Alternatives B and C.

Delevan Pipeline Complex

For Alternative D, the Delevan Pipeline alignment would be approximately 50 to 150 feet south of the alignment for Alternatives A, B, and C. This alignment takes advantage of existing easements to reduce impacts on local landowners. The shift in alignment is not expected to change the potential impacts related to traffic as compared to the other alternatives.

TRR Complex

Under Alternative D, the TRR would be slightly smaller (approximately 80 acres smaller for Alternative D) when compared to all other Project alternatives; however, this would not be expected to change the potential impacts related to traffic as compared to the other alternatives.

Overhead Power Lines and Substations

The Alternative D Delevan Pumping/Generating Plant would receive power through a north-south aligned Sites/Delevan Overhead Power Line along SR 45. The modified route would extend south from Delevan Road, along SR 45, and would connect to a new substation immediately west of the City of Colusa. The total length of the power line would be 1 mile longer than described for Alternatives A, B, and C; however, it would be aligned within an existing transportation and utility corridor. Despite these changes in facility footprint, the Alternative D design would result in the same construction, operation, and maintenance impacts to congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) as identified for the other alternatives. LOS changes associated with implementation of Alternative D, related to **Impact Trans-1**, are described below.

Impact Trans-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System, Considering all Modes of Transportation

SR 45 would continue to operate at an acceptable LOS during Project construction. Traffic levels on this roadway would increase during Project construction, particularly before construction activities start and after they end each day, and would result in an increase in traffic congestion. Construction-related vehicle trips required for construction of the Sites/Delevan Overhead Power Line would not be substantial enough

to cause a decrease in the LOS. Therefore, the LOS on SR 45, would continue to operate at an LOS C despite the increase in construction-related traffic. Therefore, this would result in a **less-than-significant impact,** when compared to the Existing Conditions/No Project/No Action Condition.

Due to the nature of the facility, operation of the proposed Sites/Delevan Overhead Power Line would not result in increased traffic. Maintenance associated with the proposed facility would be minimal and infrequent. Maintenance-related traffic would not impact the LOS on SR 45. This would result in a **less-than-significant impact,** when compared to the Existing Conditions/No Project/No Action Condition, due to the low number of vehicle trips associated with Project operation and maintenance.

Project Buffer

The boundary of the Project Buffer would be the same for all alternatives, but because the footprints of some of the Project facilities that are included in the Project Buffer would differ among the alternatives, the acreage of land within the Project Buffer would also differ. However, these differences in the size of the area included within the buffer would not change the type of construction, operation, and maintenance activities.. Therefore, this facility would result in the same impact on circulation system performance (**Impact Trans-1**), congestion management programs (**Impact Trans-2**), design feature hazards or incompatible uses (**Impact Trans-3**), emergency access (**Impact Trans-4**), and adopted transportation policies, plans, or programs (**Impact Trans-5**) described for the other alternatives.

26.4 Mitigation Measures

26.4.1 Navigation

Because no potentially significant impacts were identified, no mitigation is required or recommended.

26.4.2 Transportation and Traffic

Because no potentially significant impacts were identified, no mitigation is required or recommended. Environmental commitments, including Construction Equipment, Truck, and Traffic Management measures, are included in all Project alternatives, and are discussed in Chapter 3 Description of the Sites Reservoir Project Alternatives.