Chapter 19
Transportation

19.0 Summary Comparison of Alternatives

A summary comparison of important transportation impacts is provided in Figure 19-0. This figure provides information on the magnitude of the most pertinent and quantifiable transportation impacts that are expected to result from all alternatives. Important impacts to consider include impacts on levels of service, exacerbation of unacceptable pavement conditions, disruption of marine traffic due to use of barges for construction, and increased traffic volumes during implementation of restoration measures.

As depicted in Figure 19-0, each alternative, including the No Action Alternative, would result in unacceptable level of service conditions on roadway segments in and around the water conveyance facilities construction site. Among action alternatives, the greatest number of roadway segments would be affected under Alternatives 1C, 2C, 6C, and 9, each affecting 56 separate roadway segments. Among action alternatives, Alternative 5A would affect the smallest number of roadway segments, 33 segments. Alternatives 4 and 4A would affect 38 segments, while Alternative 2D would affect 45 roadway segments.

Each alternative, including the No Action Alternative, would result in an increase in the number of roadway segments with exacerbation of unacceptable pavement conditions. The greatest exacerbation would result under the No Action Alternative, with 61 roadway segments affected. Among action alternatives, Alternatives 1B, 2B, and 6B would result in the greatest exacerbation, 48 segments. The least exacerbation would result under Alternative 2D, 41 segments. Alternatives 4 and 4A would exacerbate conditions on 46 segments, while Alternative 5A would result in slightly fewer exacerbated segments, 42.

Each alternative, with the exception of the No Action Alternative, would require use of barges and unloading facilities. The greatest number of barge unloading facilities would be needed under Alternative 4, at eight facilities. The smallest number of barge facilities would be needed under Alternatives 1B, 1C, 2B, 2C, 6B, 6C, and 9, with only one unloading facility. Alternatives 4A, 2D, and 5A would each require two unloading facilities.

Alternatives 1A, 2A, 3, 5, 6A, 7, and 8, would require the smallest number of barge trips, 3,000 barge trips. Alternatives 4, 4A, 2D, and 5A would require the most barge trips, 5,500 barge trips.

						Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
ID*	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Hourly Volume Range (6AM to 7PM)	Hours Operating Worse Than LOS Threshold	Hourly Volume Range (6AM to 7PM)	Hours Operating Worse Than LOS Threshold	Hourly Volume Range (6AM to 7PM)	Hours Operating Worse Than LOS Threshold
CT 39	**SR 12**	**Beck Ave**	**Sunset Ave/ Grizzly Island Rd**	**C**	**5,060**	**2,408 to 3,573**	**–**	**3,137 to 4,655**	**–**	**3,757 to 5,275**	**2 (3–5PM)**
CT 40	SR 12	Sunset Ave/ Grizzly Island Rd	Walters Rd/ Lawler Ranch Pkwy	C	5,060	1,607 to 2,353	–	2,121 to 3,106	–	2,741 to 3,726	–
CT 41	**SR 12**	**Walters Rd/ Lawler Ranch Pkwy**	**SR 113**	**C**	**790**	**627 to 1,075**	**10 (6–8AM; 9–1PM; 2–6PM)**	**828 to 1,419**	**13 (6AM–7PM)**	**1,448 to 2,039**	**13 (6AM–7PM)**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**C**	**790**	**1,073 to 1,544**	**13 (6AM–7PM)**	**1,416 to 2,038**	**13 (6AM–7PM)**	**2,036 to 2,658**	**13 (6AM–7PM)**
CT 43	**SR 12 (Rio Vista Bridge)**	**SR 84 (River Rd)**	**SR 160 (River Rd)**	**C**	**970**	**1,135 to 1,685**	**13 (6AM–7PM)**	**1,498 to 2,224**	**13 (6AM–7PM)**	**2,118 to 2,844**	**13 (6AM–7PM)**
CT 44	**SR 12**	**SR 160 (River Rd)**	**Sacramento Co./SJ Co. Line**	**C**	**790**	**704 to 1,030**	**12 (6AM–6PM)**	**873 to 1,277**	**13 (6AM–7PM)**	**988 to 1,392**	**13 (6AM–7PM)**
CT 45	**SR 12**	**Sacramento Co./SJ Co. Line**	**I-5**	**C**	**790**	**773 to 1,164**	**12 (6AM–6PM)**	**853 to 1,284**	**13 (6AM–7PM)**	**968 to 1,399**	**13 (6AM–7PM)**
CT 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**C**	**4,400**	**2,508 to 4,632**	**2 (3–5PM)**	**3,108 to 5,741**	**6 (7–9AM; 2–6PM)**	**3,418 to 6,051**	**7 (6–9AM; 1–6PM)**
CT 47	**I-80 WB**	**SR 113**	**Pedrick Rd**	**C**	**4,400**	**3,068 to 4,191**	**–**	**3,563 to 4,867**	**4 (7–8AM; 3–6PM)**	**3,873 to 5,177**	**6 (6–9AM; 3–6PM)**
CT 48	**SR 113**	**I-80**	**Dixon City Limits**	**C**	**1,920**	**569 to 1,341**	**–**	**569 to 1,341**	**–**	**1,189 to 1,961**	**2 (4–6PM)**
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**C**	**680**	**174 to 294**	**–**	**216 to 365**	**–**	**836 to 985**	**13 (6AM–7PM)**
CT 50		**Vasco Rd**	**Byron Hwy (Old SR 4)**	D	1,600	442 to 733	–	–	–	–	–

41% increase

Impact TRANS-4: Disruption of Marine Traffic during Construction

NEPA Effects: Under Alternative 4, commercial barges would be used to transport precast tunnel segment liners from the ports to temporary barge unloading facilities near construction sites. The tunnel segment linerswould then be unloaded and trucked to the construction sites. Temporary barge unloading facilities for construction materials are planned at the following locations.

- Venice Island
- Bacon Island
- Victoria Island
- Clifton Court Forebay
- Glannvale Tract on Snodgrass Slough near the proposed intermediate forebay
- Bouldin Island on San Joaquin River
- Mandeville Island at the intersection of Middle River and San Joaquin River

Approximately 11,800 barge trips are projected to carry tunnel segment linersfrom ports to the sites listed above via the Sacramento River under Alternative 4, averaging approximately 4 roundtrips per day during construction of CM1 for up to 5.5 years. Although barges are relatively slow and have less maneuverability than smaller vessels, commercial barge operators on the Sacramento River are required to operate in compliance with navigational guidelines. The majority of commercial barge activity in the Delta travels from the San Francisco Bay to the Sacramento area via the SRDWSC (Delta Protection Commission 2012).

Alternative 4 would avoid direct effects on this barge traffic because the alternative features would be located along the Sacramento River (not the Deep Water Channel) and no modifications to the Deep Water Channel would be required. The barge unloading facility by Venice Island would not be expected to interfere with navigation to the Port of Stockton because it would be outside the main channel and would be designed to facilitate barge operations. The barge unloading facilities would be temporary and removed following construction. Increased barge traffic related to delivery of tunnel segment lineres to the alternative work site would average up to 4 roundtrips per day for up to 5.5 years and is not anticipated to cause impediments to the passage of other vessels. There is 135 feet of open air clearance at the Antioch UPRR bridge and 144 feet at the Rio Vista bridge, and additional raising of draw bridges in the study area would not be required. Wrong

Although some in-water work would be necessary for construction of the intakes, Clifton Court Forebay, and a portion of the tunnel segment, the Sacramento River would remain open to boat traffic at all times during construction. The intake cofferdams would extend into the river channel up to 60 feet, depending on location. The width of the river near the intakes (approximately 500–700 feet) would therefore allow for passage of the types of boats typically observed on the Sacramento River (channel width during construction 380–580 feet). (Refer to Chapter 15, *Recreation*, for additional discussion of the effects of intake construction on boating.). This potential effect is not considered adverse because construction of Alternative 4 would not require modification to existing deep water channels, interfere with Port of Stockton navigation, or substantially increase the volume of barge movement within the study area, such that existing marine traffic would be disrupted (on average, 4 roundtrips per day for up to 5.5 years throughout the alignment). As noted in Chapter 15, *Recreation*, Impact REC-3, temporary barge unloading facilities would occupy between 200 to 1,000 feet of riverbank, depending on the location. Based on

Appendix 19A

Bay Delta Conservation Plan
Construction Traffic Impact Analysis

It should be noted that the 2008 counts were factored up based on historical yearly growth rates from the previous ten (10) years from 1998 to 2008 to determine 2009 traffic volume estimates. The 2012 traffic counts were used directly in the baseline conditions analysis and not adjusted down to determine 2009 traffic volumes. Baseline condition LOS results were compared to the public agency LOS thresholds identified in traffic impact study guidelines, general plans, or equivalent plans. For Caltrans facilities, the LOS threshold used for the analysis was consistent with the "concept facility LOS" described in relevant Transportation Concept Reports (TCRs) and Corridor System Management Plans (CSMPs)[1]. The *Guide for the Preparation of Traffic Impact Studies* (Caltrans, December 2002) states that when a State facility currently operates at an unacceptable LOS (e.g., LOS F), the existing measure of effectiveness should be maintained.

The following were additional key assumptions relevant to the traffic operations analysis.

- All construction employees are expected to generate two trips per day – one arriving to the construction site and one departing the construction site.
- To model a reasonable "worst-case" scenario, all construction truck and employee trips are assigned to the roadway network for each analysis hour
- Material delivery to transport materials and equipment to the construction site
- Barge traffic will not require additional raises of the SR 12 bridge

Roadway Physical Conditions

Roadways may experience physical impacts from the project (i.e., truck traffic causing pavement deterioration) that require mitigation. Typically, physical roadway impacts are not evaluated for construction traffic because of the temporary nature of construction activities. This project has a much longer construction period than a typical construction project and truck trips in particular could contribute to pavement deterioration on study area roadways that were either not designed to accommodate truck traffic or have poor existing pavement condition.

Chapter 610 of the Caltrans Highway Design Manual (2009) provides guidance on pavement engineering considerations including roadway rehabilitation techniques to extend the life of pavement. As stated in Chapter 613.1, "pavements are engineered to carry the truck traffic loads expected during the pavement design life. Truck traffic…is the primary factor affecting pavement design life and its serviceability." Further, information obtained from local jurisdictions suggests that some roadways identified as potential construction site access routes do not have adequate engineered pavement sections to withstand construction traffic, particularly heavy vehicles.

[1]The bibliography contains each TCR and CSMP that was used in this study.