Chapter 19
Transportation

19.3 Environmental Consequences

19.3.3 Effects and Mitigation Approaches

19.3.3.2 Alternative 1A–Dual Conveyance with Pipeline/Tunnel and Intakes 1–5 (15,000 cfs; Operational Scenario A)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: As shown in Table 19-8, under BPBG conditions, a total of ~~23~~ 25 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8, construction associated with Alternative 1A would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~33~~ 47 roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 1A would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on ~~**10**~~ **22** roadway segments (~~33~~ 47 minus the ~~23~~ 25 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation (LOS) impacts.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-8 because construction associated with Alternative 1A would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 1A would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at ~~**10**~~ **22** roadway segments (~~33~~ 47 minus the ~~23~~ 25 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to

avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

Table 19-8. Level of Service for Pipeline/Tunnel Alternatives (1A, 2A, 3, 5, 6A, 7, and 8)

						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
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./San Joaquin Co. Line	D	1,600	385 to 656	-	~~477~~485 to ~~813~~827	-	1,~~049~~435 to 1,~~385~~777	~~-~~6 (6-9AM; 3-6PM)
BRE 01	Brentwood Blvd (old SR 4)[1]	Delta Rd (Oakley City Limits)	Balfour Rd	C	970	586 to 1,516	11 (7–9AM; 10AM–7PM)	-	-	-	-
				D	1,760	-	-	~~598~~599 to 1,~~547~~549	-	1,~~170~~549 to 2,~~119~~499	~~9 (8–9AM; 11AM~~12 (7AM–7PM)
BRE 02	Brentwood Blvd (old SR 4)[1]	Balfour Rd	Brentwood City Limits (South)	C	1,920	369 to 1,013		-	-	-	
				D	3,540	-	-	~~301~~374 to ~~825~~1,026	-	~~873~~1,324 to 1,~~397~~976	-
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	D	3,540	437 to 1,300	-	~~437~~551 to 1,~~300~~638	-	~~437~~591 to 1,~~300~~678	-
CC 01	Bethel Island Rd	Oakley City Limits	End	D	1,600	124 to 330	-	~~124~~156 to ~~330~~416	-	~~124~~196 to ~~330~~456	-
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	D	1,600	90 to 297	-	~~90~~113 to ~~297~~374	-	~~90~~153 to ~~297~~414	-
CC 03	Old SR 4[1]	Brentwood City Limits (South)	Marsh Creek Rd	C	790	1,133 to 1,682	13 (6AM–7PM)	-	-	-	-
				D	1,600	-	-	1,~~320~~332 to 1,~~959~~977	4 (7–8AM; 3–6PM)	~~1,892~~2,282 to 2,~~531~~927	13 (6AM–7PM)
CC 04	Byron Hwy	Delta Rd	Old SR 4	D	1,410	108 to 240	-	~~108~~109 to ~~240~~243	-	~~108~~149 to ~~240~~283	-

						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
CC 05	Byron Hwy	SR 4	Contra Costa Co./ Alameda Co. Line	D	1,600	483 to 907	-	~~599~~609 to 1,~~125~~143	-	1,~~171~~559 to ~~1,697~~2,093	~~3 (8-9AM; 3-4PM; 5-6PM)~~11 (6-10AM; 12-7PM)
CT 01	I-5 NB	Florin Rd	Pocket Rd	F	6,060	2,589 to 5,820	-	~~2,987~~3,168 to ~~6,714~~7,121	1 (7–8AM)	3,~~216~~548 to ~~6,943~~7,501	~~1~~2 (7–~~8AM~~9AM)
CT 02	I-5 SB	Florin Rd	Pocket Rd	F	6,060	1,647 to 5,705	-	1,~~870~~972 to 6,~~479~~831	2 (4–6PM)	2,~~099~~352 to ~~6,708~~7,211	2 (4–6PM)
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	F	6,060	2,359 to 5,156	-	2,~~359~~710 to 5,~~156~~924	-	2,~~359~~750 to 5,~~156~~964	-
CT 04	I-5 SB	Pocket Rd	Laguna Blvd	F	6,060	1,543 to 5,243	-	1,~~543~~790 to ~~5,243~~6,083	~~-1~~ (5-6PM)	1,~~543~~830 to ~~5,243~~6,123	~~-1~~ (5-6PM)
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,820 to 3,339	-	~~1,820~~2,137 to 3,~~339~~921	-	~~1,820~~2,177 to 3,~~339~~961	-
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,254 to 3,332	-	1,~~254~~469 to 3,~~332~~903	-	1,~~254~~509 to 3,~~332~~943	-
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,504 to 2,162	-	1,~~751~~808 to 2,~~517~~599	-	2,~~102~~393 to ~~2,868~~3,184	-
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,217 to 2,236	-	1,~~425~~474 to 2,~~619~~707	-	~~1,776~~2,509 to ~~2,970~~3,292	-
CT 09	I-5 NB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,414 to 1,851	-	1,~~623~~749 to 2,~~125~~289	-	2,~~056~~469 to ~~2,558~~3,009	-
CT 10	I-5 SB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,207 to 1,964	-	1,~~405~~494 to 2,~~285~~432	-	~~1,838~~2,214 to ~~2,718~~3,152	-
CT 11	I-5 NB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,312 to 1,720	-	1,~~561~~619 to 2,~~047~~122	-	~~1,912~~2,204 to 2,~~398~~707	-
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,111 to 1,813	-	1,~~322~~371 to 2,~~158~~237	-	1,~~673~~956 to 2,~~509~~822	-
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	C	2,880	1,374 to 1,803	-	1,~~649~~814 to 2,~~164~~380	-	1,~~730~~949 to 2,~~245~~515	-
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	C	2,880	1,128 to 1,894	-	1,~~354~~489 to 2,~~273~~500	-	1,~~435~~624 to 2,~~354~~635	-

						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 15	I-5 NB	Peltier Rd	Turner Rd	C	2,880	1,421 to 1,885	-	1,~~421~~876 to ~~1,885~~2,488	-	1,~~421~~916 to 1,~~885~~528	-
CT 16	I-5 SB	Peltier Rd	Turner Rd	C	2,880	1,145 to 1,974	-	1,~~145~~511 to ~~1,974~~2,606	-	1,~~145~~551 to ~~1,974~~2,646	-
CT 17	I-5 NB	Turner Rd	SR 12	C	2,880	1,288 to 1,985	-	1,~~623~~825 to 2,~~501~~745	-	1,~~698~~700 to 2,~~576~~620	-
CT 18	I-5 SB	Turner Rd	SR 12	C	2,880	1,124 to 1,482	-	1,~~416~~484 to 1,~~867~~956	-	1,~~491~~609 to ~~1,942~~2,081	-
CT 19	I-5 NB	SR 12	Eight Mile Rd	C	4,400	1,533 to 2,267	-	1,~~870~~962 to 2,~~766~~902	-	~~1,945~~2,087 to ~~2,841~~3,027	-
CT 20	I-5 SB	SR 12	Eight Mile Rd	C	4,400	1,243 to 2,070	-	1,~~516~~591 to 2,~~525~~650	-	1,~~591~~716 to 2,~~600~~775	-
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	D	5,410	1,937 to 3,452	-	~~1,937~~2,479 to ~~3,452~~4,419	-	~~1,937~~2,519 to ~~3,452~~4,459	-
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	D	5,410	1,817 to 2,760	-	~~1,817~~2,326 to ~~2,760~~3,533	-	~~1,817~~2,366 to ~~2,760~~3,573	-
CT 23	SR 160 (Freeport Blvd)	Sacramento City Limits	Freeport Bridge	E	1,740	136 to 476	-	~~153~~164 to ~~536~~574	-	~~611~~924 to ~~994~~1,334	-
CT 24	SR 160 (Freeport Blvd/ River Rd)	Freeport Bridge	Scribner Rd	E	1,740	94 to 180	-	94 to 180	-	~~552~~854 to ~~638~~940	-
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	E	1,740	41 to 125	-	41 to 125	-	~~499~~801 to ~~583~~885	-
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	E	1,740	105 to 170	-	~~124~~129 to ~~201~~208	-	~~826~~1,294 to ~~903~~1,373	-
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	E	1,740	69 to 122	-	~~77~~79 to ~~136~~140	-	~~779~~1,244 to ~~838~~1,305	-
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	E	1,740	75 to 150	-	~~81~~84 to ~~163~~167	-	~~783~~1,249 to ~~865~~1,332	-
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	E	1,740	78 to 128	-	~~97~~102 to ~~161~~168	-	~~799~~1,267 to ~~863~~1,333	-
CT 30	SR 160 (River Rd)	Walnut Grove Bridge	A St (Isleton)	E	1,740	173 to 465	-	173 to 465	-	1,~~038~~608 to 1,~~330~~900	~~-~~3 (2-5PM)

						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 31	SR 160	A St (Isleton)	SR 12	E	1,740	193 to 378	-	193 to 378	-	1,~~058~~628 to 1,~~243~~813	~~-~~3 (3-6PM)
CT 32	SR 160	SR 12	Brannan Island Rd	F	1,740	530 to 894	-	~~578~~592 to ~~975~~999	-	1,~~578~~542 to 1,~~975~~949	~~4 (6-7AM;~~ 3 (3–6PM)
CT 33	SR 84 (Jefferson Blvd)	West Sacramento City Limits	Courtland Rd	B	200	40 to 169	-	46 to ~~194~~196	-	~~618~~996 to ~~766~~1,146	13 (6AM–7PM)
CT 34	SR 84 (Courtland Rd/ Ryer Ave)	Courtland Rd	Cache Slough Ferry	C	680	10 to 25	-	~~10~~11 to ~~25~~28	-	~~10~~51 to ~~25~~68	-
CT 35	I-80 EB	Suisun Valley Rd	SR 12	C	8,350	3,079 to 6,994	-	~~3,880~~4,064 to ~~8,812~~9,232	3 (3-6PM)	4,~~380~~894 to ~~9,312~~10,062	~~3 (3-6PM~~5 (2-7PM)
CT 36	I-80 WB	Suisun Valley Rd	SR 12	C	8,350	5,751 to 8,892	2 (6–8AM)	7,~~246~~591 to 11,~~204~~737	8 (6 ~~(6-9AM; 3~~–10AM; 2–6PM)	~~7,746~~8,421 to ~~11,704~~12,567	~~9 (6-10AM; 1-6PM)~~13 (6AM–7PM)
CT 37	SR 12 EB	I-80	Beck Ave	C	2,880	528 to 1,847	-	~~676~~708 to 2,~~364~~475	-	1,~~176~~538 to ~~2,864~~3,305	~~-~~4 (3-7PM)
CT 38	SR 12 WB	I-80	Beck Ave	C	2,880	829 to 1,625	-	1,~~061~~111 to 2,~~080~~178	-	1,~~561~~941 to ~~2,580~~3,008	~~-~~2 (6-8PM)
CT 39	SR 12	Beck Ave	Sunset Ave/ Grizzly Island Rd	C	5,060	2,408 to 3,573	-	3,~~046~~183 to 4,~~519~~772	-	4,~~046~~348 to 5,~~519~~887	~~2 (4-6PM~~5 (12-1PM; 3-7PM)
CT 40	SR 12	Sunset Ave/ Grizzly Island Rd	Walters Rd/ Lawler Ranch Pkwy	C	5,060	1,607 to 2,353	-	2,~~057~~153 to 3,~~012~~153	-	3,~~057~~318 to 4,~~012~~318	-
CT 41	SR 12	Walters Rd/ Lawler Ranch Pkwy	SR 113	C	790	627 to 1,075	10 (6–8AM; 9–1PM; 2–6PM)	~~803~~840 to 1,~~376~~441	13 (6AM–7PM)	~~1,803~~2,005 to 2,~~376~~606	13 (6AM–7PM)
CT 42	SR 12	SR 113	SR 84 (River Rd)	C	790	1,073 to 1,544	13 (6AM–7PM)	1,~~373~~438 to ~~1,976~~2,069	13 (6AM–7PM)	2,~~373~~603 to ~~2,976~~3,234	13 (6AM–7PM)

						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 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,~~453~~521 to 2,~~157~~258	13 (6AM–7PM)	2,~~453~~686 to 3,~~157~~423	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)	~~845~~887 to 1,~~236~~298	13 (6AM–7PM)	~~995~~1,137 to 1,~~386~~548	13 (6AM–7PM)
CT 45	SR 12	Sacramento Co./ SJ Co. Line	I-5	C	790	773 to 1,164	12 (6AM–6PM)	~~840~~859 to 1,~~264~~294	13 (6AM–7PM)	~~990~~1,109 to 1,~~414~~544	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~~151 to 5,~~741~~820	6 (7–9AM; 2–6PM)	3,~~394~~626 to 6,~~027~~295	9 (7 ~~(7–~~9AM; ~~1–6PM~~12-7PM)
CT 47	I-80 WB	SR 113	Pedrick Rd	C	4,400	3,068 to 4,191	-	3,~~563~~599 to 4,~~867~~916	4 (7–8AM; 3–6PM)	~~3,849~~4,074 to 5,~~153~~391	9 (6 ~~(6–9AM; 3~~–10AM; 1–6PM)
CT 48	SR 113	I-80	Dixon City Limits	C	1,920	569 to 1,341	-	569 to 1,341	-	1,~~141~~519 to ~~1,913~~2,291	~~-~~9 (8-9AM; 11AM-7PM)
CT 49	SR 113	Dixon City Limits	SR 12	C	680	174 to 294	-	~~216~~219 to ~~365~~370	-	~~788~~1,169 to ~~937~~1,320	13 (6AM–7PM)
CT 50	SR 4 (Marsh Creek Rd)[2]	Vasco Rd	Byron Hwy (Old SR 4)	D	1,600	442 to 733	-	-	-	-	-
				C	790	-	-	~~548~~557 to ~~909~~924	2 (4–6PM)	1,~~120~~507 to 1,~~481~~874	13 (6AM–7PM)
CT 51	SR 4	Marsh Creek Rd	Discovery Bay Blvd	D	1,600	554 to 1,224	-	~~654~~661 to 1,~~445~~460	-	1,~~226~~611 to 2,~~017~~410	~~11~~ ~~(8AM~~13 (6AM–7PM)
CT 52	SR 4	Discovery Bay Blvd	Tracy Blvd	C	790	412 to 746	-	412 to 746	-	~~984~~1,362 to 1,~~318~~696	13 (6AM–7PM)
CT 53	SR 4 (Charter Way)	Tracy Blvd	I-5	D	1,410	867 to 1,492	1 (4–5PM)	867 to 1,492	1 (4–5PM)	1,~~439~~817 to 2,~~064~~442	13 (6AM–7PM)
CT 54	I-5 NB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	2,552 to 4,815	-	3,~~201~~244 to 6,~~039~~121	-	3,~~487~~719 to 6,~~325~~596	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 55	I-5 SB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	4,550 to 5,913	-	5,~~747~~826 to 7,~~468~~572	~~2~~3 (7–8AM; ~~5~~4–6PM)	6,~~033~~301 to ~~7,754~~8,047	~~4~~5 (7–8AM; 2-~~3PM; 4 -~~6PM)
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	D	5,410	2,430 to 4,586	-	3,~~159~~208 to ~~5,962~~6,054	3 (3–6PM)	3,~~445~~683 to 6,~~248~~529	4 (2–6PM)
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	D	5,410	4,333 to 5,631	3 (7–8AM; 4–6PM)	5,~~633~~720 to 7,~~320~~433	13 (6AM–7PM)	~~5,919~~6,195 to 7,~~606~~908	13 (6AM–7PM)
CT 58	I-205 EB	I-580	Mountain House Pkwy	C	4,400	1,350 to 5,071	4 (3–7PM)	1,~~629~~647 to 6,~~118~~188	5 (2–7PM)	~~1,915~~2,122 to 6,~~404~~663	5 (2–7PM)
CT 59	I-205 WB	I-580	Mountain House Pkwy	C	4,400	1,873 to 4,867	2 (6–8AM)	2,~~270~~296 to 5,~~898~~967	3 (6–9AM)	2,~~556~~771 to 6,~~184~~442	~~3~~4 (6-~~9AM~~10AM)
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	C	4,400	1,431 to 5,068	4 (3–7PM)	1,~~803~~832 to 6,~~386~~487	5 (2–7PM)	2,~~089~~307 to 6,~~672~~962	~~5~~ ~~(2~~6 (1–7PM)
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	C	4,400	1,875 to 4,117	-	2,~~363~~400 to 5,~~187~~270	2 (6-8AM)	2,~~649~~875 to 5,~~473~~745	~~3~~4 (6-~~9AM~~10AM)
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	D	5,410	1,525 to 4,200	-	1,~~891~~952 to 5,~~208~~376	-	~~1,983~~2,107 to 5,~~300~~531	~~-~~1 (4-5PM)
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	D	5,410	1,852 to 3,079	-	2,~~296~~371 to 3,~~818~~941	-	2,~~388~~526 to ~~3,910~~4,096	-
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	D	5,410	1,511 to 4,182	-	1,~~874~~934 to 5,~~186~~353	-	~~1,966~~2,089 to 5,~~278~~508	~~-~~3 (3-6PM)
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	D	5,410	2,083 to 3,446	-	2,~~583~~666 to 4,~~273~~411	-	2,~~675~~821 to 4,~~365~~566	-
ISL 01	A St/4th St/ Jackson Blvd.	SR 160	Isleton City Limits	D	1,410	17 to 75	-	17 to 75	-	~~17~~57 to ~~75~~115	-
OAK 01	Main Street (Old SR 4)[1]	SR 160	Cypress Rd	C	1,920	752 to 1,663		-	-	-	
				D	3,540	-	-	~~882~~893 to 1,~~951~~975	-	1,~~454~~843 to 2,~~523~~925	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
OAK 02	Main Street (Old SR 4)[1]	Cypress Rd	Delta Rd (Oakley City Limits)	C	970	722 to 1,335	10 (7–9AM; 11AM-7PM)	-	-	-	-
				D	1,760	-	-	~~939~~953 to 1,~~736~~762	~~-~~1 (3-4PM)	1,~~511~~903 to 2,~~308~~712	~~11 (7-9AM; 10AM~~13 (6AM-7PM)
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	D	1,600	304 to 764	-	~~304~~383 to ~~764~~963	-	~~304~~423 to ~~764~~1,003	-
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	D	1,410	140 to 367	-	~~140~~176 to ~~367~~462	-	~~140~~216 to ~~367~~502	-
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	D	1,410	155 to 334	-	~~155~~158 to ~~334~~340	-	~~155~~198 to ~~334~~380	-
SAC 01	Pocket Rd	I-5	Freeport Blvd (Old SR 160)	D	3,540	789 to 2,191	-	789 to 2,191	-	1,~~247~~549 to 2,~~649~~951	-
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	D	1,760	152 to 492	-	~~176~~192 to ~~571~~620	-	~~634~~952 to 1,~~029~~380	-
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	D	1,410	98 to 346	-	~~98~~121 to ~~346~~428	-	~~98~~161 to ~~346~~468	-
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	D	1,410	77 to 137		~~82~~87 to ~~146~~154	-	~~947~~1,387 to 1,~~011~~454	~~-~~9 (6-7AM; 8-10AM; 11AM-12PM; 2-7PM)
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	D	1,410	10 to 29	-	12 to ~~34~~35	-	~~714~~1,177 to ~~736~~1,200	-
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	D	1,410	19 to 38	-	20 to 40	-	~~722~~1,185 to ~~742~~1,205	-
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	D	1,410	41 to 71	-	~~41~~42 to ~~71~~73	-	~~41~~82 to ~~71~~113	-
SC 06	Twin Cities Rd	River Rd	I-5	D	1,410	130 to 248	-	~~135~~139 to ~~257~~264	-	~~297~~409 to ~~419~~534	-
SC 07	Twin Cities Rd	I-5	Franklin Blvd	D	1,410	141 to 318	-	~~141~~166 to ~~318~~374	-	~~141~~206 to ~~318~~414	-

						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
SC 08	Sutter Slough Bridge Rd	Sacramento Co./ Yolo Co. Line	Paintersville Bridge	D	1,410	51 to 113	-	~~63~~64 to ~~140~~142	-	~~635~~1,014 to ~~712~~1,092	-
SC 09	River Rd (Sac Co.)	Paintersville Bridge	Twin Cities Rd	D	1,410	85 to 134	-	~~86~~87 to ~~136~~138	-	~~161~~212 to ~~211~~263	-
SC 10	River Rd (Sac Co.)	Twin Cities Rd	Walnut Grove Bridge	D	1,600	223 to 365	-	~~231~~238 to ~~378~~390	-	~~393~~508 to ~~540~~660	-
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./ SJ Co. Line	D	1,410	175 to 332	-	~~183~~190 to ~~347~~360	-	~~345~~460 to ~~509~~630	-
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	D	1,410	61 to 283	-	61 to 283	-	~~142~~196 to ~~364~~418	-
SC 13	Race Track Rd/ Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	D	1,410	17 to 34	-	18 to ~~35~~37	-	~~99~~153 to ~~116~~172	-
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	D	1,410	14 to 39	-	14 to 39	-	~~14~~54 to ~~39~~79	-
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	D	1,410	4 to 53	-	~~4~~5 to ~~53~~67	-	~~4~~45 to ~~53~~107	-
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	D	1,410	16 to 52	-	~~16~~20 to ~~52~~66	-	~~16~~60 to ~~52~~106	-
SJ 01	Walnut Grove Rd	Sacramento Co./ SJ Co. Line	I-5	C	790	141 to 232	-	~~147~~153 to ~~242~~251	-	~~309~~423 to ~~404~~521	-
SJ 02	Peltier Rd	Blossom Rd	I-5	C	680	8 to 23	-	8 to 23	-	~~8~~48 to ~~23~~63	-
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	C	790	108 to 209	-	108 to 209	-	~~292~~413 to ~~393~~514	-
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	C	790	69 to 171	-	~~84~~87 to ~~209~~215	-	~~268~~392 to ~~393~~520	-
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	D	1,600	521 to 824	-	~~646~~656 to 1,~~022~~038	-	1,~~218~~606 to 1,~~594~~988	~~-~~13 (6AM-7PM)
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	D	1,410	190 to 298	-	~~236~~239 to ~~370~~375	-	~~808~~1,189 to ~~942~~1,325	-
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	D	3,540	418 to 769	-	~~543~~552 to 1,~~000~~015	-	1,~~115~~502 to 1,~~572~~965	-
STK 01	Eight Mile Rd	Stockton City Limits	I-5	E	1,870	309 to 769	-	~~309~~389 to ~~769~~969	-	~~309~~429 to ~~769~~1,006	-

						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
TRA 01	Tracy Blvd	Tracy City Limits	I-205	E	1,870	309 to 759	-	~~377~~389 to ~~926~~956	-	~~561~~694 to 1,~~110~~261	-
WS 01	Harbor Blvd	Industrial Blvd	US 50	D	3,540	1,140 to 2,317	-	1,~~374~~394 to 2,~~793~~832	-	~~1,946~~2,344 to 3,~~365~~782	~~-~~3 (7-8AM; 4-6PM)
WS 02	Industrial Blvd/ Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	C	1,920	773 to 1,858	-	~~959~~974 to 2,~~304~~341	2 (7–8AM; 5–6PM)	1,~~531~~924 to ~~2,876~~3,291	~~9 (7–9AM; 12–~~13 (6AM–7PM)
WS 03	Jefferson Blvd (Old SR 84)	Lake Washington Blvd	Southport Pkwy	C	1,920	546 to 1,718	-	~~665~~675 to 2,~~094~~125	1 (5–6PM)	1,~~237~~625 to ~~2,666~~3,075	~~6~~11 (7–9AM; ~~3~~ 11AM–7PM)
WS 04	Jefferson Blvd (Old SR 84)	Southport Pkwy	West Sacramento City Limits	C	680	42 to 146	-	~~50~~51 to ~~174~~176	-	~~622~~1,001 to ~~746~~1,126	~~5 (7–9AM; 2–3PM; 4–6PM)~~13 (6AM-7PM)
YOL 01	River Rd (Yolo Co.)	Freeport Bridge	Courtland Rd	C	680	74 to 249	-	~~74~~79 to ~~249~~266	-	~~74~~119 to ~~249~~306	-
YOL 02	River Rd (Yolo Co.)	Courtland Rd	Sacramento Co./ Yolo Co. Line	C	680	25 to 63	-	~~31~~32 to ~~78~~79	-	~~603~~982 to ~~650~~1,029	~~-~~13 (6AM-7PM)
YOL 03	Courtland Rd	SR 84 (Jefferson Blvd)	River Rd	C	680	28 to 77	-	35 to ~~95~~97	-	~~607~~985 to ~~667~~1,047	~~-~~13 (6AM-7PM)

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

* Segment IDs correspond to the segment IDs mapped on Figures 19-2a through 19-2c.

Notes:

Facility is analyzed as a Caltrans facility under Baseline Conditions and a local facility under Baseline Plus Construction Conditions – roadway is relinquished to local jurisdiction after Baseline Year (2009). LOS Threshold is LOS C under Baseline Conditions and changes to LOS D under Baseline Plus Construction Conditions.

Facility is analyzed as a local facility under Baseline Conditions and a Caltrans facility under Baseline Plus Construction Conditions – roadway is adopted as a State facility after Baseline Year (2009). LOS Threshold is LOS D under Baseline Conditions and changes to LOS C under Baseline Plus Construction Conditions.

1

***CEQA Conclusion*:** Construction under Alternative 1A would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-8). As shown in Table 19-8, traffic volumes during construction of Alternative 1A would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Prior to construction, the BDCP proponents will be responsible for project management and may contract with one or more construction management firms to assist in ensuring that construction contractors' crews and schedules are coordinated and that the plans and specifications are being followed. The BDCP proponents will also ensure development of site-specific construction traffic management plans (TMPs) that address the specific steps to be taken before, during, and after construction to minimize traffic impacts, including the mitigation measures and environmental commitments identified in this EIR/EIS. This will include potential expansion of the study area identified in this EIR/EIS to capture all potentially significantly affected roadway segments.

The BDCP proponents will be responsible for developing the TMPs in consultation with the applicable transportation entities, including the following.

- Caltrans for state and federal roadway facilities;
- local agencies for local roads;
- transit providers;
- rail operators;
- the U.S. Coast Guard;
- city and county parks departments; and
- the California Department of Parks and Recreation (DPR).

The BDCP proponents will also ensure that the TMPs are implemented prior to beginning construction at a site, including in-water construction sites. If necessary to minimize unexpected operational impacts or delays experienced during real-time construction, the BDCP proponents will also be responsible for modifying the traffic management plan to reduce these effects.

Each TMP will address the following, as needed. Implementation of this measure will ensure operational traffic impacts and delays experienced during construction will be minimized to the greatest extent feasible.

- Signage warning of roadway surface conditions such as loose gravel, steel plates or similar conditions that could be hazardous to road cycling activity on roadways open to bicycle traffic.
- Signage and barricades to be used around the work sites.
- In-water work areas will be indicated by buoys, signage, or other effective means to warn boaters of their presence and restrict access. Warning devices and signage (e.g., "boats keep out" or "no wake zone" labeled buoys) will be in compliance with the U.S. Coast Guard Private Aid to Navigation requirements (U.S. Coast Guard 2012) and effective during non-daylight hours and periods of dense fog.
- Use of flag people or temporary traffic signals/signage as necessary to slow or detour traffic.
- Notifications for the public, emergency providers, cycling organizations, bike shops, and schools, the U.S. Coast Guard, boating organizations, marinas, city and county parks departments, and DPR, where applicable, describing construction activities that could affect transportation and water navigation.
- Outreach (via public meetings and/or flyers and other advertisements)
- Procedures for construction area evacuation in the case of an emergency declared by county or other local authorities.
- Alternate access routes via detours and bridges to maintain continual circulation for local travelers in and around construction zones, including bicycle riders, pedestrians, and boaters, where applicable.
- Description of construction staging areas, material delivery routes, and specification of construction vehicle travel hour limits.
- Notifications to commercial and leisure boating community of proposed barge operations in the waterways, including posting notices at Delta marinas and public launch ramps. This information will provide details regarding construction site location(s), construction schedules, and identification of no-wake zone, speed restricted zones, and/or detours, where applicable.
- No-wake zone and speed-restrictions will be established as part of development of the site-specific plans and will be determined to protect the safety of construction workers and recreationists.
- Designation of areas where nighttime construction will occur.
- Plans to relocate school bus drop-off and pick-up locations if they will be affected during construction.
- Scheduling for oversized material deliveries to the work site and haul routes.
- Provisions that direct haulers are to pull over in the event of an emergency. If an emergency vehicle is approaching on a narrow two-way roadway, specify measures to ensure that appropriate maneuvers will be conducted by the construction vehicles to allow continual access for the emergency vehicles at the time of an emergency.
- Control for any temporary road closure, detour, or other disruption to traffic circulation, including any temporary partial water channel closures.

- Designated offsite vehicle staging and parking areas.
- Posted information for contact in case of emergency or complaint.
- Daily construction time windows during which construction is restricted or rail operations would need to be suspended for any activity within railroad rights of way.
- Coordination with rail providers (BNSF Railway, Amtrak, and UPRR) to develop alternative interim transportation modes (e.g., trucks or buses) that could be used to provide freight and/or passenger service during any longer term railroad closures.
- Coordination with transit providers (SCT, Tri-Delta, Rio Vista, and Greyhound Bus Lines) to develop, where feasible, daily construction time windows during which transit operations would not be either detoured or significantly slowed.
- Routinely post information to the 511.org website regarding construction delays and detours.
- Other actions to be identified and developed as may be needed by the construction manager/resident engineer to ensure that temporary impacts on transportation facilities are minimized.
- Implement maximum 45 mph speed limit on Hood Franklin Road west of Interstate 5. Include signage: "Caution: entering sensitive wildlife area."
- Further reduce speed limit in both directions to 35 mph from ½ mile west of Interstate 5 to 1 mile west of Interstate 5. Add sign at Visitor Center entrance stating that facilities are for SLNWR visitors only.
- Add a right hand turn lane on Hood Franklin Road at the entrance of the Stone Lakes Visitor Center.
- Reduce speed limit to 35 mph on Lambert Road from 1 ½ miles west of Interstate 5 to 2 ¼ miles west of Interstate 5. Include signage: "Caution: entering sensitive wildlife area."

As additional mitigation to minimize delays to transit vehicles due to projected traffic congestion and to encourage use of alternative modes of travel, including transit, the BDCP proponents are required to develop a Transportation Demand Management (TDM) program for construction contractor's crews to reduce the number of project trips. The program shall include and implement any combination of measures that would reduce the proposed project's trips and associated parking demand. The measures include:

- Promote ride sharing programs by methods that may include designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles.
- Provide public transit incentives such as fully-subsidized or low-cost monthly transit passes.
- Provide shuttle service and/or funding for a shuttle for residents that are outside of walking distance from a transit line.
- Offering a parking cash out program.

The plan also includes more passive measures to further reduce trips:

- Addition of pedestrian and bicycle facilities;

- Provision of carpool/vanpool/ride-matching services;
- Provision of transportation information for contractors;
- Provision of a transportation information center.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: Construction truck traffic may damage roadway surfaces. During construction, various materials would be transported to and from the construction areas in load-bearing trucks. As shown in Table 19-10, construction of Alternative 1A would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of ~~43~~ 46 roadway segments (~~see~~ table entries in **bold** type). Figure 19-~~4~~4a shows all of the study roadway segments that could experience substantial pavement condition effects.

Table 19-10. Pavement Conditions for Pipeline/Tunnel Alternatives (1A, 2A, 3, 5, 6A, 7, and 8)

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./ San Joaquin Co. Line	Acceptable	Yes	No
BRE 01	Brentwood Blvd (old SR 4)	Delta Rd (Oakley City Limits)	Balfour Rd	Acceptable	Yes	No
BRE 02	Brentwood Blvd (old SR 4)	Balfour Rd	Brentwood City Limits (South)	Acceptable	Yes	No
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	Acceptable	~~No~~Yes	No
CC 01	**Bethel Island Rd**	**Oakley City Limits**	**End**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CC 02	**Balfour Rd**	**Brentwood City Limits**	**Byron Hwy**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CC 03	**Old SR 4**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	**Deficient**	**Yes**	**Yes**
CC 04	Byron Hwy	Delta Rd	Old SR 4	Acceptable	~~No~~Yes	No
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./ Alameda Co. Line**	**Deficient**	**Yes**	**Yes**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	Deficient	No	No
CT 04	I-5 SB	Pocket Rd	Laguna Blvd	Deficient	No	No
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	Deficient	No	No
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	Deficient	No	No
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	Yes	No
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	Yes	No
CT 09	**I-5 NB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 10	**I-5 SB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 11	**I-5 NB**	**Twin Cities Rd**	**Walnut Grove Rd**	**Deficient**	**Yes**	**Yes**
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	Acceptable	Yes	No
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 15	I-5 NB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 16	I-5 SB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 17	I-5 NB	Turner Rd	SR 12	Acceptable	Yes	No
CT 18	I-5 SB	Turner Rd	SR 12	Acceptable	Yes	No
CT 19	**I-5 NB**	**SR 12**	**Eight Mile Rd**	**Deficient**	**Yes**	**Yes**
CT 20	I-5 SB	SR 12	Eight Mile Rd	Acceptable	Yes	No
CT 21	**I-5 NB**	**Eight Mile Rd**	**Hammer Ln**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	Acceptable	~~No~~Yes	No
CT 23	**SR 160 (Freeport Blvd)**	**Sacramento City Limits**	**Freeport Bridge**	**Deficient**	**Yes**	**Yes**
CT 24	**SR 160 (Freeport Blvd/River Rd)**	**Freeport Bridge**	**Scribner Rd**	**Deficient**	**Yes**	**Yes**
CT 25	**SR 160 (River Rd)**	**Scribner Rd**	**Hood Franklin Rd**	**Deficient**	**Yes**	**Yes**
CT 26	**SR 160 (River Rd)**	**Hood Franklin Rd**	**Lambert Rd**	**Deficient**	**Yes**	**Yes**
CT 27	**SR 160 (River Rd)**	**Lambert Rd**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	Not Applicable	Yes	No
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	Acceptable	Yes	No
CT 30	**SR 160 (River Rd)**	**Walnut Grove Bridge**	**A St (Isleton)**	**Deficient**	**Yes**	**Yes**
CT 31	**SR 160**	**A St (Isleton)**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 32	**SR 160**	**SR 12**	**Brannan Island Rd**	**Deficient**	**Yes**	**Yes**
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**Deficient**	**Yes**	**Yes**
CT 34	SR 84 (Courtland Rd/Ryer Ave)	Courtland Rd	Cache Slough Ferry	Deficient	No	No
CT 35	I-80 EB	Suisun Valley Rd	SR 12	Acceptable	Yes	No
CT 36	I-80 WB	SR 12	Suisun Valley Rd	Acceptable	Yes	No
CT 37	SR 12 EB	I-80	Beck Ave	Acceptable	Yes	No
CT 38	SR 12 WB	Beck Ave	I-80	Acceptable	Yes	No
CT 39	SR 12	Beck Ave	Sunset Ave/Grizzly Island Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
CT 40	SR 12	Sunset Ave/Grizzly Island Rd	Walters Rd/Lawler Ranch Pkwy	Acceptable	Yes	No
CT 41	**SR 12**	**Walters Rd/Lawler Ranch Pkwy**	**SR 113**	**Deficient**	**Yes**	**Yes**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**Deficient**	**Yes**	**Yes**
CT 43	SR 12 (Rio Vista Bridge)	SR 84 (River Rd)	SR 160 (River Rd)	Not Applicable	Yes	No
CT 44	**SR 12**	**SR 160 (River Rd)**	**Sacramento Co./SJ Co. Line**	**Deficient**	**Yes**	**Yes**
CT 45	**SR 12**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**Deficient**	**Yes**	**Yes**
CT 47	I-80 WB	Pedrick Rd	SR 113	Acceptable	Yes	No
CT 48	SR 113	I-80	Dixon City Limits	Acceptable	Yes	No
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 50	SR 4 (Marsh Creek Rd)	Vasco Rd	Byron Hwy (Old SR 4)	Acceptable	Yes	No
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**Deficient**	**Yes**	**Yes**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**Deficient**	**Yes**	**Yes**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 54	**I-5 NB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 58	I-205 EB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 59	I-205 WB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
ISL 01	A St/4th St/Jackson Blvd.	SR 160	Isleton City Limits	Deficient	No	No
OAK 01	**Main Street (Old SR 4)**	**SR 160**	**Cypress Rd**	**Deficient**	**Yes**	**Yes**

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
OAK 02	**Main Street (Old SR 4)**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	**Deficient**	**Yes**	**Yes**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	Acceptable	No	No
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	Deficient	No	No
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	Deficient	No	No
SAC 01	**Pocket Rd**	**I-5**	**Freeport Blvd (Old SR 160)**	**Deficient**	**Yes**	**Yes**
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	Acceptable	Yes	No
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	Not Applicable	No	No
SC 02	**Hood Franklin Rd**	**SR 160 (River Rd)**	**I-5**	**Deficient**	**Yes**	**Yes**
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	Acceptable	Yes	No
SC 04	**Lambert Rd**	**Herzog Rd**	**Franklin Blvd**	**Deficient**	**Yes**	**Yes**
SC 05	**Franklin Blvd**	**Lambert Rd**	**Twin Cities Rd**	**Deficient**	**No**	**No**
SC 06	Twin Cities Rd	River Rd	I-5	Acceptable	Yes	No
SC 07	Twin Cities Rd	I-5	Franklin Blvd	Deficient	No	No
SC 08	**Sutter Slough Bridge Rd**	**Sacramento Co./Yolo Co. Line**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
SC 09	**River Rd (Sac Co.)**	**Paintersville Bridge**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
SC 10	**River Rd (Sac Co.)**	**Twin Cities Rd**	**Walnut Grove Bridge**	**Deficient**	**Yes**	**Yes**
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./SJ Co. Line	Acceptable	Yes	No
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	Acceptable	Yes	No
SC 13	**Race Track Rd/Tyler Island Rd**	**Walnut Grove Rd**	**Southern End of Tyler Island**	**Deficient**	**Yes**	**Yes**
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	Deficient	No	No
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	Acceptable	No	No
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	Acceptable	No	No
SJ 01	**Walnut Grove Rd**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
SJ 02	Peltier Rd	Blossom Rd	I-5	Deficient	No	No
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	Acceptable	Yes	No
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	Acceptable	Yes	No
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	Acceptable	Yes	No
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	Acceptable	Yes	No
STK 01	Eight Mile Rd	Stockton City Limits	I-5	Deficient	No	No
TRA 01	**Tracy Blvd**	**Tracy City Limits**	**I-205**	**Deficient**	**Yes**	**Yes**
WS 01	Harbor Blvd	Industrial Blvd	US 50	Acceptable	Yes	No
WS 02	Industrial Blvd/ Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	Acceptable	Yes	No
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**Deficient**	**Yes**	**Yes**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**Deficient**	**Yes**	**Yes**
YOL 01	River Rd (Yolo Co.)	Freeport Bridge	Courtland Rd	Deficient	No	No
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./ Yolo Co. Line**	**Deficient**	**Yes**	**Yes**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**Deficient**	**Yes**	**Yes**

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

As shown in Table 19-10, construction during Alternative 1A would contribute to substantial deterioration of pavement conditions of ~~43~~ 46 roadway segments that would exceed applicable thresholds summarized in Table 19-7. Damage to roadway pavement is expected throughout the study area (Figure 19-~~4~~4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided. Collectively, these measures include stipulations to limit/prohibit construction activity on deficient roadways and improve the physical condition of affected segments.

***CEQA Conclusion*:** Construction traffic would result in a significant impact ~~to~~on pavement conditions. As shown in Table 19-10, construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the ~~43~~ 46 locations shown. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-8: Increased Traffic Volumes and Delays during Operations and Maintenance

NEPA Effects: Maintaining and operating BDCP facilities could affect roadway operations in the vicinity by increasing vehicle trips. However, operations and maintenance activities would only require minimal labor. Consistent with the assumptions used for the air quality/GHG analyses in Chapter 22, *Air Quality and Greenhouse Gases,* of this EIR/EIS, it was estimated that routine operations and maintenance activities and yearly maintenance activities would require the crews and equipment identified in Tables 19-14 and 19-15.

Table 19-14. Routine O&M Assumptions for Alternatives 1A-C, 2B-C, and 6A-C

Crew Type	Number of Employees	Crew Truck (3)	Equipment (number)
Maintenance	5	Crew Truck (3) Foreman Truck (1)	Compressor (1) Welder (1)
		Supervisor Truck (1)	Generator (1)
Management	3	Crew Truck (4)	-
Repair	8	Crew Truck (4) Foreman Truck (1)	Backhoe (1) Compressor (1) Welder (1)
		Dump Truck (1)	Generator (1)
		Crew Truck (2)	Offroad truck (1)
Operating	9		

Table 19-15. Yearly Maintenance Assumptions for Alternatives 1A-C, 2B-C, 3, 4, 5, 6A-C, 7, and 8

~~O&M Type~~	~~Number of Employees~~	~~Vehicles (number)~~	~~Equipment (number)~~
~~Annual Inspections~~	~~6~~	~~1 crew truck~~	~~Crane (1)~~
~~Tunnel Dewatering~~	~~18 (sediment crew)~~ ~~11 (inspection crew)~~	~~1 crew truck~~	~~Crane (2)~~

O&M Type	Number of Employees	Vehicles (number)	Equipment (number)
Annual Inspections	6 (inspection crew)	Crew truck (2)	Crane (1) Compressor (1)
		Electric vehicle (4) [a]	Generator (1) Electric ROV (1)[a]
Sediment Removal	11 (sediment crew)	Crew truck (4)	Suction Dredge (1)
		Dump truck (5)	Loader (1) Crane (1)
Tunnel Dewatering	18 (inspection crew)	Crew truck (6)	Crane (1) Electric Dewater Pumps (5)[a] Air pumps (4) Skid-steer loader (1) Compressor (1) Generator (1) Man-lift (1) Water truck (1)

[a] Emissions associated with these vehicles are included in the electricity analysis

The analysis of socioeconomic effects took a different approach to estimating O&M employment, based on use of the IMPLAN model (refer to Chapter 16, *Socioeconomics*, for additional information). The O&M activities are likely to be less labor intensive than shown in Table 19-16 because IMPLAN

considers direct, indirect, and induced demand outside the Delta. The information is offered here to provide the possible range of O&M employment.

Table 19-16. O&M Employment

~~Alternative~~Alignment	Direct Employment	Total Employment
~~1A~~Pipeline/Tunnel	187	269
~~1B~~East alignment	204	294
~~1C~~West alignment	187	269
Modified Pipeline/Tunnel	129	183
~~9~~Through Delta / Separate Corridors	121	177

Source: Chapter 16, *Socioeconomics*.

O&M activities would occur along the entire alternative alignment. Even assuming ~~the higher~~the total employment ~~range~~figures in Table 19-16, given the limited number of workers involved and the large number of work sites, it is not anticipated that routine operations and maintenance activities or major inspections would result in substantial increases of traffic volumes or roadway congestion. The intake design includes parking for employees during operations and maintenance. The small amount of added vehicle trips for facility maintenance and operations would not substantially contribute to traffic volumes and increase roadway congestion. The effect of increased traffic volumes and delays during operations would not be adverse.

CEQA Conclusion: Given the limited number of workers involved and the large number of work sites (~~see~~ Tables 19-14, 19-15, and 19-16), it is not anticipated that routine operations and maintenance activities or major inspections would result in substantial increases of traffic volumes or roadway congestion. The impact of increased traffic volumes and delays during operations would therefore be less than significant. No mitigation is required.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed water conveyance facilities under Alternative 1A would be similar to those described for Alternative 4. Although Alternative 1A includes two additional intakes (Alternative 1A includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Intakes constructed under Alternative 1A would be on-bank facilities that could encroach into the existing river cross section and would involve construction activities in the Sacramento River, at the northern end of the Delta. As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics.

Construction of the conveyance facilities under Alternative 1A would involve construction of intakes in the water and facilities on the land. Construction activities included in Alternative 1A would require excavation, grading, or stockpiling at project facility sites or at temporary worksites. These activities would result in temporary and long-term changes to drainage patterns, paths and facilities that would, in turn, cause changes in drainage flow rates, directions and velocities.

Site grading needed to construct any of the proposed facilities has the potential to block, reroute, or temporarily detain and impound surface water in existing drainages, which would result in slight increases and decreases in flow rates, velocities, and water surface elevations. Changes in drainage depths would vary depending on the specific conditions at each of the temporary work sites. As drainage paths would be blocked by construction activities, the temporary ponding of drainage water could occur and result in decreases in drainage flow rates downstream of the new facilities, increases in water surface elevations, and decreases in velocities upstream of the new facilities. These temporary changes in drainage would be minimized, and in some cases avoided, by construction of new or modified drainage facilities, as described in the Chapter 3, *Description of Alternatives*. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation.

Removal of groundwater during construction (dewatering) would be required for excavation activities. Groundwater removed during construction would be treated as necessary (see Chapter 3, *Description of Alternatives*, and Chapter 7, *Groundwater*), and discharged to local drainage channels or rivers. This would result in a small localized increase in flows and water surface elevations in the receiving channels. The increase in flows and water surface elevations in the receiving channels and rivers would not affect navigation. Alternative 1A includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the east bank of the Sacramento River between Clarksburg and Walnut Grove. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. Any decrease in surface water elevations downstream of the cofferdams would be negligible and would not adversely affect navigation. Under existing regulations, USACE, CVFPB, and DWR would require installation of setback levees or other measures to maintain existing flow capacity in the Sacramento River during construction and operations, which would prevent unacceptable increases in river water surface elevations under flood-flow conditions, reverse flow areas, areas of high velocities that could result in scour, and reflection of flood waves towards other levees. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

In total, the facilities constructed under Alternative 1A would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 1A creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 1A.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected from construction of the water conveyance facilities (either localized or downstream of the

intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 1A would be identical to those described for Alternative 4, despite the fact that Alternative 1A includes five intakes (two more than Alternative 4) and despite the fact that Alternative 1A has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

With respect to Alternative 1A, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 1A, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow

velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 1A would be similar to those described for Alternative 4. Although Alternative 1A includes two additional intakes (Alternative 1A includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 1A would be similar to those described for Alternative 4. Although Alternative 1A includes a greater number of barge fleeting facilities (six compared to five for Alternative 4), the effects to sedimentation caused by construction of the facilities is highly localized, and therefore, the greater number of barge facilities would not result in a greater level of impacts on navigation.

Alternative 1A includes six barge unloading facilities to be built on or near the tunnel alignment at riverbank locations about 5–6 miles apart (except on Woodward Canal) (See Mapbook Figure 15-1). The facilities would be built on the following waterways: Sacramento River, North Fork Mokelumne River, San Joaquin River, Middle River, and Woodward Canal (which would have two facilities). The temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the barge landings would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 1A, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction and operation of the barge facilities under Alternative 1A would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 1A would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 1A would be similar to those described for Alternative 4. Although Alternative 1A includes two additional intakes (Alternative 1A includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 1A would be similar to those described for alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 1A. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, and 4 only.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 1A would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 1A facilities.

NEPA Effects: Alternative 1A in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 1A in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.3 Alternative 1B—Dual Conveyance with East Alignment and Intakes 1–5 (15,000 cfs; Operational Scenario A)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: As shown in Table 19-17, under BPBG conditions, a total of ~~19~~ 20 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-17, construction associated with Alternative 1B would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total ~~39~~ 48 roadway

segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 1B would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on ~~**20**~~ **28** roadway segments (~~39~~ 48 minus the ~~19~~ 20 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation effects.

Table 19-17. Level of Service for East Alignment Alternatives (1B, 2B, and 6B)

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./ San Joaquin Co. Line	D	1,600	385 to 656	-	~~416~~431 to ~~708~~735	-	~~798~~956 to 1,~~090~~260	-
BRE 01	Brentwood Blvd (old SR 4)[1]	Delta Rd (Oakley City Limits)	Balfour Rd	C	970	586 to 1,516	11 (7–9AM; 10AM–7PM)	-	-	-	-
				D	1,760	-	-	~~590~~592 to 1,~~526~~531	-	1,~~080~~262 to 2,~~016~~201	~~7~~9 (8–9AM; ~~12–6PM~~11–7PM)
BRE 02	Brentwood Blvd (old SR 4)[1]	Balfour Rd	Brentwood City Limits (South)	C	1,920	369 to 1,013	-	-	-	-	
				D	3,540	-	-	~~346~~371 to ~~950~~1,019	-	~~836~~1,041 to 1,~~440~~689	-
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	D	3,540	437 to 1,300	-	~~437~~489 to 1,~~300~~456	-	~~437~~554 to 1,~~300~~521	-
CC 01	Bethel Island Rd	Oakley City Limits	End	D	1,600	124 to 330	-	~~124~~139 to ~~330~~370	-	~~124~~204 to ~~330~~435	-
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	D	1,600	90 to 297	-	~~90~~101 to ~~297~~333	-	~~90~~166 to ~~297~~398	-
CC 03	Old SR 4[1]	Brentwood City Limits (South)	Marsh Creek Rd	C	790	1,133 to 1,682	13 (6AM–7PM)	-	-	-	-
				D	1,600	-	-	1,~~220~~245 to 1,~~811~~848	3 (3–6PM)	1,~~710~~915 to 2,~~301~~518	13 (6AM–7PM)
CC 04	Byron Hwy	Delta Rd	Old SR 4	D	1,410	108 to 240	-	~~108~~109 to ~~240~~241	-	~~108~~174 to ~~240~~306	-
CC 05	Byron Hwy	SR 4	Contra Costa Co./ Alameda Co. Line	D	1,600	483 to 907	-	~~522~~541 to ~~980~~1,016	-	~~904~~1,066 to 1,~~362~~541	-
CT 01	I-5 NB	Florin Rd	Pocket Rd	F	6,060	2,589 to 5,820	-	2,~~842~~914 to 6,~~389~~552	1 (7–8AM)	3,~~309~~554 to ~~6,856~~7,192	1 (7–8AM)

						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 02	I-5 SB	Florin Rd	Pocket Rd	F	6,060	1,647 to 5,705	-	1,~~789~~830 to 6,~~198~~338	2 (4–6PM)	2,~~256~~470 to 6,~~665~~978	2 (4–6PM)
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	F	6,060	2,359 to 5,156	-	2,~~359~~557 to 5,~~156~~588	-	2,~~359~~622 to 5,~~156~~653	-
CT 04	I-5 SB	Pocket Rd	Laguna Blvd	F	6,060	1,543 to 5,243	-	1,~~543~~682 to 5,~~243~~716	-	1,~~543~~747 to 5,~~243~~781	-
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,820 to 3,339	-	1,~~820~~999 to 3,~~339~~667	-	~~1,820~~2,064 to 3,~~339~~732	-
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,254 to 3,332	-	1,~~254~~375 to 3,~~332~~653	-	1,~~254~~440 to 3,~~332~~718	-
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,504 to 2,162	-	1,~~637~~675 to 2,~~353~~408	-	2,~~107~~315 to ~~2,823~~3,048	-
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,217 to 2,236	-	1,~~329~~361 to 2,~~442~~501	-	~~1,799~~2,001 to ~~2,912~~3,141	-
CT 09	I-5 NB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,414 to 1,851	-	1,~~560~~602 to 2,~~043~~097	-	2,~~342~~672 to ~~2,825~~3,167	-
CT 10	I-5 SB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,207 to 1,964	-	1,~~333~~369 to 2,~~169~~227	-	2,~~115~~439 to ~~2,951~~3,297	-
CT 11	I-5 NB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,312 to 1,720	-	1,485 to 1,946	-	1,~~762~~865 to 2,~~223~~326	-
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,111 to 1,813	-	1,257 to 2,052	-	1,~~534~~637 to 2,~~329~~432	-
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	C	2,880	1,374 to 1,803	-	1,~~594~~621 to 2,~~091~~128	-	1,~~714~~786 to 2,~~211~~293	-
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	C	2,880	1,128 to 1,894	-	1,~~308~~331 to 2,~~197~~235	-	1,~~428~~496 to 2,~~317~~400	-
CT 15	I-5 NB	Peltier Rd	Turner Rd	C	2,880	1,421 to 1,885	-	1,677 to 2,224	-	1,~~848~~912 to 2,~~395~~459	-
CT 16	I-5 SB	Peltier Rd	Turner Rd	C	2,880	1,145 to 1,974	-	1,351 to 2,329	-	1,~~522~~586 to 2,~~500~~564	-
CT 17	I-5 NB	Turner Rd	SR 12	C	2,880	1,288 to 1,985	-	1,~~494~~520 to 2,~~303~~342	-	1,~~614~~685 to 2,~~423~~507	-

						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 18	I-5 SB	Turner Rd	SR 12	C	2,880	1,124 to 1,482	-	1,~~304~~326 to 1,~~719~~749	-	1,~~424~~491 to 1,~~839~~914	-
CT 19	I-5 NB	SR 12	Eight Mile Rd	C	4,400	1,533 to 2,267	-	1,~~717~~748 to 2,~~539~~584	-	~~1,980~~2,108 to 2,~~802~~944	-
CT 20	I-5 SB	SR 12	Eight Mile Rd	C	4,400	1,243 to 2,070	-	1,~~392~~417 to 2,~~318~~360	-	1,~~655~~777 to 2,~~581~~720	-
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	D	5,410	1,937 to 3,452	-	2,~~169~~208 to 3,~~866~~935	-	2,~~366~~478 to 4,~~063~~205	-
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	D	5,410	1,817 to 2,760	-	2,~~035~~071 to 3,~~091~~146	-	2,~~232~~341 to 3,~~288~~416	-
CT 23	SR 160 (Freeport Blvd)	Sacramento City Limits	Freeport Bridge	E	1,740	136 to 476	-	~~145~~149 to ~~506~~521	-	1,~~077~~424 to 1,~~438~~796	-1 (5-6PM)
CT 24	SR 160 (Freeport Blvd/ River Rd)	Freeport Bridge	Scribner Rd	E	1,740	94 to 180	-	94 to 180	-	1,~~026~~369 to 1,~~112~~455	-
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	E	1,740	41 to 125	-	41 to 125	-	~~973~~1,316 to 1,~~057~~400	-
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	E	1,740	105 to 170	-	~~116~~119 to ~~188~~192	-	~~1,570~~2,104 to 1,~~642~~2,177	-13 (6AM-7PM)
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	E	1,740	69 to 122	-	~~72~~74 to ~~128~~130	-	~~1,526~~2,059 to ~~1,582~~2,115	-13 (6AM-7PM)
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	E	1,740	75 to 150	-	~~77~~79 to ~~154~~157	-	~~1,531~~2,064 to ~~1,608~~2,142	-13 (6AM-7PM)
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	E	1,740	78 to 128	-	~~89~~92 to ~~147~~152	-	~~1,925~~2,592 to ~~1,983~~2,652	13 (6AM–7PM)
CT 30	SR 160 (River Rd)	Walnut Grove Bridge	A St (Isleton)	E	1,740	173 to 465	-	173 to 465	-	2,~~117~~823 to ~~2,409~~3,115	13 (6AM–7PM)
CT 31	SR 160	A St (Isleton)	SR 12	E	1,740	193 to 378	-	193 to 378	-	2,~~137~~843 to ~~2,322~~3,028	13 (6AM–7PM)
CT 32	SR 160	SR 12	Brannan Island Rd	F	1,740	530 to 894	-	~~549~~559 to ~~926~~942	-	~~2,709~~3,509 to 3,~~086~~892	13 (6AM–7PM)

						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 33	SR 84 (Jefferson Blvd)	West Sacramento City Limits	Courtland Rd	B	200	40 to 169	-	~~42~~43 to ~~177~~181	-	~~424~~568 to ~~559~~706	13 (6AM–7PM)
CT 34	SR 84 (Courtland Rd/ Ryer Ave)	Courtland Rd	Cache Slough Ferry	C	680	10 to 25	-	~~10~~11 to ~~25~~27	-	~~10~~76 to ~~25~~92	-
CT 35	I-80 EB	Suisun Valley Rd	SR 12	C	8,350	3,079 to 6,994	-	3,~~510~~633 to ~~7,973~~8,253	-	~~4,591~~5,108 to 9,~~054~~728	~~3 (3–6PM~~5 (2–7PM)
CT 36	I-80 WB	Suisun Valley Rd	SR 12	C	8,350	5,751 to 8,892	2 (6–8AM)	6,~~556~~786 to 10,~~137~~493	~~2~~3 (6–~~8AM~~9AM)	~~7,637~~8,261 to 11,~~218~~968	~~8 (6–10AM; 2–6PM)~~12 (6AM–PM)
CT 37	SR 12 EB	I-80	Beck Ave	C	2,880	528 to 1,847	-	~~612~~634 to 2,~~143~~216	-	~~1,693~~2,109 to 3,~~224~~691	~~4 (3~~7 (12–7PM)
CT 38	SR 12 WB	I-80	Beck Ave	C	2,880	829 to 1,625	-	~~962~~995 to 1,~~885~~950	-	2,~~043~~470 to ~~2,966~~3,425	~~2~~3 (6–~~8AM~~9AM)
CT 39	SR 12	Beck Ave	Sunset Ave/ Grizzly Island Rd	C	5,060	2,408 to 3,573	-	2,~~772~~864 to 4,~~114~~249	-	~~4,932~~5,814 to ~~6,274~~7,199	~~10 (7–9AM; 11AM–~~13 (6AM-7PM)
CT 40	SR 12	Sunset Ave/ Grizzly Island Rd	Walters Rd/ Lawler Ranch Pkwy	C	5,060	1,607 to 2,353	-	1,~~864~~928 to 2,~~729~~824	-	4,~~024~~878 to ~~4,889~~5,774	~~-~~9 (7-8AM; 11-7PM)
CT 41	SR 12	Walters Rd/ Lawler Ranch Pkwy	SR 113	C	790	627 to 1,075	10 (6-8AM; 9-1PM; 2-6PM)	~~727~~752 to 1,~~247~~290	12 (6AM–6PM)	~~2,887~~3,702 to ~~3,407~~4,240	13 (6AM–7PM)
CT 42	SR 12	SR 113	SR 84 (River Rd)	C	790	1,073 to 1,544	13 (6AM–7PM)	1,~~245~~288 to 1,~~791~~853	13 (6AM–7PM)	~~3,405~~4,238 to ~~3,951~~4,803	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,~~317~~362 to ~~1,955~~2,022	13 (6AM–7PM)	~~3,477~~4,312 to 4,~~115~~972	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)	~~774~~788 to 1,~~133~~154	12 (6AM–6PM)	~~905~~968 to 1,~~264~~334	13 (6AM–7PM)

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 45	SR 12	Sacramento Co./ SJ Co. Line	I-5	C	790	773 to 1,164	12 (6AM–6PM)	~~806~~813 to 1,~~214~~224	13 (6AM–7PM)	~~937~~993 to 1,~~345~~404	13 (6AM–7PM)
CT 46	I-80 EB	SR 113	Pedrick Rd	C	4,400	2,508 to 4,632	2 (3–5PM)	2,~~765~~851 to 5,~~107~~266	~~3~~ (~~3–~~5 (7-8AM; 2-6PM)	3,~~064~~261 to 5,~~406~~676	~~5~~6 (7–~~8AM~~9AM; 2–6PM)
CT 47	I-80 WB	SR 113	Pedrick Rd	C	4,400	3,068 to 4,191	-	3,~~280~~351 to 4,~~481~~578	2 (4–6PM)	3,~~579~~761 to 4,~~780~~988	4 (7–8AM; 3–6PM)
CT 48	SR 113	I-80	Dixon City Limits	C	1,920	569 to 1,341	-	569 to 1,341	-	1,~~167~~389 to ~~1,939~~2,161	5 (12-1PM; 2 (~~4~~–6PM)
CT 49	SR 113	Dixon City Limits	SR 12	C	680	174 to 294	-	~~188~~195 to ~~318~~329	-	~~786~~1,015 to ~~916~~1,149	13 (6AM–7PM)
CT 50	SR 4 (Marsh Creek Rd)[2]	Vasco Rd	Byron Hwy (Old SR 4)	D	1,600	442 to 733	-	-	-	-	-
				C	790	-	-	~~477~~495 to ~~792~~821	~~1~~2 (4–~~5PM~~6PM)	1,~~515~~915 to ~~1,830~~2,241	13 (6AM–7PM)
CT 51	SR 4	Marsh Creek Rd	Discovery Bay Blvd	D	1,600	554 to 1,224	-	~~601~~614 to 1,~~327~~357	-	~~1,639~~2,034 to 2,~~365~~777	13 (6AM–7PM)
CT 52	SR 4	Discovery Bay Blvd	Tracy Blvd	C	790	412 to 746	-	412 to 746	-	1,~~450~~832 to ~~1,784~~2,166	13 (6AM–7PM)
CT 53	SR 4 (Charter Way)	Tracy Blvd	I-5	D	1,410	867 to 1,492	1 (4–5PM)	867 to 1,492	1 (4–5PM)	~~1,905~~2,287 to 2,~~530~~912	13 (6AM–7PM)
CT 54	I-5 NB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	2,552 to 4,815	-	2,~~855~~941 to 5,~~386~~549	-	3,~~374~~651 to ~~5,905~~6,259	-
CT 55	I-5 SB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	4,550 to 5,913	-	5,~~108~~268 to 6,~~639~~846	-	5,~~627~~978 to 7,~~158~~556	~~-~~3 (7-8AM; 4-6PM)
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	D	5,410	2,430 to 4,586	-	2,~~770~~867 to 5,~~228~~411	~~-~~1 (3-4PM)	3,~~289~~577 to ~~5,747~~6,121	~~3~~ (~~34~~ (2–6PM)
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	D	5,410	4,333 to 5,631	3 (7–8AM; 4–6PM)	~~4,940~~5,113 to 6,~~419~~645	~~8~~9 (6–9AM; ~~1~~12–6PM)	5,~~459~~823 to ~~6,938~~7,355	13 (6AM–7PM)

						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 58	I-205 EB	I-580	Mountain House Pkwy	C	4,400	1,350 to 5,071	4 (3–7PM)	1, ~~480~~517 to 5,~~560~~699	4 (3–7PM)	1,~~671~~777 to 5,~~751~~959	~~4~~ ~~(3~~5 (2–7PM)
CT 59	I-205 WB	I-580	Mountain House Pkwy	C	4,400	1,873 to 4,867	2 (6–8AM)	2,~~058~~111 to 5,~~348~~486	3 (6–9AM)	2,~~249~~371 to 5,~~539~~746	3 (6–9AM)
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	C	4,400	1,431 to 5,068	4 (3–7PM)	1,~~574~~631 to 5,~~575~~778	5 (2–7PM)	1,~~765~~891 to ~~5,766~~6,038	5 (2–7PM)
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	C	4,400	~~1~~2,875 to 4,117	-	2,~~063~~138 to 4,~~529~~693	1 (6–7AM)	2,~~254~~398 to 4,~~720~~953	~~1~~2 (6–~~7AM~~8AM)
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	D	5,410	1,525 to 4,200	-	1,~~678~~739 to 4,~~620~~788	-	2,~~006~~189 to ~~4,948~~5,238	-
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	D	5,410	1,852 to 3,079	-	2,~~037~~111 to 3,~~387~~510	-	2,~~365~~561 to 3,~~715~~960	-
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	D	5,410	1,511 to 4,182	-	1,~~662~~723 to 4,~~600~~767	-	~~1,990~~2,173 to ~~4,928~~5,217	-
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	D	5,410	2,083 to 3,446	-	2,~~291~~375 to 3,~~791~~928	-	2,~~619~~825 to 4,~~119~~378	-
ISL 01	A St/4th St/ Jackson Blvd.	SR 160	Isleton City Limits	D	1,410	17 to 75	-	17 to 75	-	~~17~~82 to ~~75~~140	-
OAK 01	Main Street (Old SR 4)[1]	SR 160	Cypress Rd	C	1,920	752 to 1,663	-	-	-	-	
				D	3,540	-	-	~~795~~817 to 1,~~759~~807	-	1,~~285~~487 to 2,~~249~~477	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
OAK 02	Main Street (Old SR 4)[1]	Cypress Rd	Delta Rd (Oakley City Limits)	C	970	722 to 1,335	10 (7–9AM; 11AM–7PM)	-	-	-	-
				D	1,760	-	-	~~823~~852 to 1,~~522~~575	-	1,~~313~~522 to 2,~~012~~245	~~5~~ ~~(8~~11 (7–9AM; ~~2–6PM~~11AM–7PM)
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	D	1,600	304 to 764	-	~~304~~340 to ~~764~~856	-	~~304~~405 to ~~764~~921	-
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	D	1,410	140 to 367	-	~~140~~157 to ~~367~~411	-	~~140~~222 to ~~367~~476	-
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	D	1,410	155 to 334	-	~~155~~157 to ~~334~~337	-	~~155~~222 to ~~334~~402	-
SAC 01	Pocket Rd	I-5	Freeport Blvd (Old SR 160)	D	3,540	789 to 2,191	-	789 to 2,191	-	~~1,721~~2,064 to 3,~~123~~466	-
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	D	1,760	152 to 492	-	~~164~~170 to ~~531~~551	-	1,~~096~~445 to 1,~~463~~826	~~-~~2 (3-4PM; 5-6PM)
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	D	1,410	98 to 346	-	~~98~~109 to ~~346~~384	-	~~626~~174 to ~~874~~449	-
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	D	1,410	77 to 137		~~80~~81 to ~~142~~145	-	~~1,534~~2,066 to 1,~~596~~2,130	13 (6AM–7PM)
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	D	1,410	10 to 29	-	11 to ~~31~~32	-	~~347~~471 to ~~367~~492	-
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	D	1,410	19 to 38	-	~~19~~20 to 39	-	~~355~~480 to ~~375~~499	-
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	D	1,410	41 to 71	-	41 to 72	-	~~377~~501 to ~~408~~532	-
SC 06	Twin Cities Rd	River Rd	I-5	D	1,410	130 to 248	-	~~133~~134 to ~~253~~255	-	~~241~~284 to ~~361~~405	-
SC 07	Twin Cities Rd	I-5	Franklin Blvd	D	1,410	141 to 318	-	~~151~~152 to ~~340~~344	-	~~487~~612 to ~~676~~804	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
SC 08	Sutter Slough Bridge Rd	Sacramento Co./ Yolo Co. Line	Paintersville Bridge	D	1,410	51 to 113	-	~~55~~57 to ~~122~~127	-	~~437~~582 to ~~504~~652	-
SC 09	River Rd (Sac Co.)	Paintersville Bridge	Twin Cities Rd	D	1,410	85 to 134	-	~~85~~86 to ~~134~~136	-	~~85~~151 to ~~134~~201	-
SC 10	River Rd (Sac Co.)	Twin Cities Rd	Walnut Grove Bridge	D	1,600	223 to 365	-	~~228~~230 to ~~373~~377	-	~~336~~380 to ~~481~~527	-
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./ SJ Co. Line	D	1,410	175 to 332	-	182 to 345	-	~~341~~402 to ~~504~~565	-
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	D	1,410	61 to 283	-	61 to 283	-	~~61~~126 to ~~283~~348	-
SC 13	Race Track Rd/ Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	D	1,410	17 to 34	-	~~17~~18 to ~~34~~35	-	~~17~~83 to ~~34~~100	-
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	D	1,410	14 to 39	-	14 to 39	-	~~14~~79 to ~~39~~104	-
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	D	1,410	4 to 53	-	4 to ~~53~~59	-	~~4~~69 to ~~53~~124	-
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	D	1,410	16 to 52	-	~~16~~18 to ~~52~~58	-	~~16~~83 to ~~52~~123	-
SJ 01	Walnut Grove Rd	Sacramento Co./ SJ Co. Line	I-5	C	790	141 to 232	-	146 to 241	-	~~647~~831 to ~~742~~926	-13 (6AM-7PM)
SJ 02	Peltier Rd	Blossom Rd	I-5	C	680	8 to 23	-	8 to 23	-	~~350~~478 to ~~365~~493	-
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	C	790	108 to 209	-	108 to 209	-	~~764~~1,003 to ~~865~~1,104	~~6 (6-7AM; 2-~~13 (6AM-7PM)
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	C	790	69 to 171	-	~~75~~77 to ~~185~~192	-	~~731~~972 to ~~841~~1,087	~~8 (9-11AM; 12-1PM; 2-~~13 (6AM-7PM)
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	D	1,600	521 to 824	-	~~563~~584 to ~~890~~923	-	~~945~~1,109 to 1,~~272~~448	-
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	D	1,410	190 to 298	-	~~205~~213 to ~~322~~334	-	~~587~~738 to ~~704~~859	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	D	3,540	418 to 769	-	~~477~~493 to ~~877~~907	-	~~859~~1,018 to 1,~~259~~432	-
STK 01	Eight Mile Rd	Stockton City Limits	I-5	E	1,870	309 to 769	-	~~340~~346 to ~~846~~861	-	~~734~~886 to 1,~~240~~401	-
TRA 01	Tracy Blvd	Tracy City Limits	I-205	E	1,870	309 to 759	-	~~334~~346 to ~~820~~850	-	~~990~~1,241 to 1,~~476~~745	-
WS 01	Harbor Blvd	Industrial Blvd	US 50	D	3,540	1,140 to 2,317	-	1,~~218~~257 to 2,~~476~~555	-	1,~~600~~782 to ~~2,858~~3,080	-
WS 02	Industrial Blvd/ Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	C	1,920	773 to 1,858	-	~~835~~866 to 2,~~007~~081	1 (5–6PM)	1,~~217~~391 to 2,~~389~~606	~~3~~5 (7–~~8AM~~9AM; 4–~~6PM~~7PM)
WS 03	Jefferson Blvd (Old SR 84)	Lake Washington Blvd	Southport Pkwy	C	1,920	546 to 1,718	-	~~586~~606 to 1,~~843~~906	-	~~968~~1,131 to 2,~~225~~431	3 (~~8~~7–9AM; ~~4–6PM~~3–7PM)
WS 04	Jefferson Blvd (Old SR 84)	Southport Pkwy	West Sacramento City Limits	C	680	42 to 146	-	~~45~~46 to ~~155~~160	-	~~427~~571 to ~~537~~685	~~-~~1 (8-9AM)
YOL 01	River Rd (Yolo Co.)	Freeport Bridge	Courtland Rd	C	680	74 to 249	-	~~74~~76 to ~~249~~257	-	~~74~~141 to ~~249~~322	-
YOL 02	River Rd (Yolo Co.)	Courtland Rd	Sacramento Co./ Yolo Co. Line	C	680	25 to 63	-	~~27~~28 to ~~68~~71	-	~~409~~553 to ~~450~~596	-
YOL 03	Courtland Rd	SR 84 (Jefferson Blvd)	River Rd	C	680	28 to 77	-	~~30~~31 to ~~83~~86	-	~~412~~556 to ~~465~~611	-

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

[1] Facility is analyzed as a Caltrans facility under Baseline Conditions and a local facility under Baseline Plus Construction Conditions – roadway is relinquished to local jurisdiction after Baseline Year (2009). LOS Threshold is LOS C under Baseline Conditions and changes to LOS D under Baseline Plus Construction Conditions.

[2] Facility is analyzed as a local facility under Baseline Conditions and a Caltrans facility under Baseline Plus Construction Conditions – roadway is adopted as a State facility after Baseline Year (2009). LOS Threshold is LOS D under Baseline Conditions and changes to LOS C under Baseline Plus Construction Conditions.

1

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-17 because construction associated with Alternative 1B would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 1B would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at ~~**20**~~ **28** roadway segments (~~39~~ 48 minus the ~~19~~ 20 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: Construction truck traffic may damage roadway surfaces. During construction, various materials would be transported to and from the construction areas in load-bearing trucks. As shown in Table 19-18, construction of Alternative 1B would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of ~~**46**~~ **48** roadway segments (~~see~~ table entries in **bold** type). Figure 19-4a shows all of the study roadway segments that could experience substantial pavement condition effects.

Table 19-18. Pavement Condition for East Alignment Alternatives (1B, 2B, and 6B)

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Project Results in Construction Trips Added to Roadway	Project Results in Impact on Deficient Roadway
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./San Joaquin Co. Line	Acceptable	Yes	No
BRE 01	Brentwood Blvd (old SR 4)	Delta Rd (Oakley City Limits)	Balfour Rd	Acceptable	Yes	No
BRE 02	Brentwood Blvd (old SR 4)	Balfour Rd	Brentwood City Limits (South)	Acceptable	Yes	No
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	Acceptable	~~No~~Yes	No
CC 01	Bethel Island Rd	Oakley City Limits	End	Deficient	No	No
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	Deficient	No	No
CC 03	**Old SR 4**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	**Deficient**	**Yes**	**Yes**
CC 04	Byron Hwy	Delta Rd	Old SR 4	Acceptable	No	No
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./ Alameda Co. Line**	**Deficient**	**Yes**	**Yes**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	Deficient	No	No
CT 04	I-5 SB	Pocket Rd	Laguna Blvd	Deficient	~~No~~Yes	No
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	Deficient	No	No
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	Deficient	No	No
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	Yes	No
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	Yes	No
CT 09	**I-5 NB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 10	**I-5 SB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 11	**I-5 NB**	**Twin Cities Rd**	**Walnut Grove Rd**	**Deficient**	**Yes**	**Yes**
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	Acceptable	Yes	No
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Project Results in Construction Trips Added to Roadway	Project Results in Impact on Deficient Roadway
CT 15	I-5 NB	Peltier Rd	Turner Rd	Acceptable	Yes	No
CT 16	I-5 SB	Peltier Rd	Turner Rd	Acceptable	Yes	No
CT 17	I-5 NB	Turner Rd	SR 12	Acceptable	Yes	No
CT 18	I-5 SB	Turner Rd	SR 12	Acceptable	Yes	No
CT 19	**I-5 NB**	**SR 12**	**Eight Mile Rd**	**Deficient**	**Yes**	**Yes**
CT 20	I-5 SB	SR 12	Eight Mile Rd	Acceptable	Yes	No
CT 21	**I-5 NB**	**Eight Mile Rd**	**Hammer Ln**	**Deficient**	**Yes**	**Yes**
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	Acceptable	Yes	No
CT 23	**SR 160 (Freeport Blvd)**	**Sacramento City Limits**	**Freeport Bridge**	**Deficient**	**Yes**	**Yes**
CT 24	**SR 160 (Freeport Blvd/River Rd)**	**Freeport Bridge**	**Scribner Rd**	**Deficient**	**Yes**	**Yes**
CT 25	**SR 160 (River Rd)**	**Scribner Rd**	**Hood Franklin Rd**	**Deficient**	**Yes**	**Yes**
CT 26	**SR 160 (River Rd)**	**Hood Franklin Rd**	**Lambert Rd**	**Deficient**	**Yes**	**Yes**
CT 27	**SR 160 (River Rd)**	**Lambert Rd**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	Not Applicable	Yes	No
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	Acceptable	Yes	No
CT 30	**SR 160 (River Rd)**	**Walnut Grove Bridge**	**A St (Isleton)**	**Deficient**	**Yes**	**Yes**
CT 31	**SR 160**	**A St (Isleton)**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 32	**SR 160**	**SR 12**	**Brannan Island Rd**	**Deficient**	**Yes**	**Yes**
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**Deficient**	**Yes**	**Yes**
CT 34	SR 84 (Courtland Rd/Ryer Ave)	Courtland Rd	Cache Slough Ferry	Deficient	No	No
CT 35	I-80 EB	Suisun Valley Rd	SR 12	Acceptable	Yes	No
CT 36	I-80 WB	SR 12	Suisun Valley Rd	Acceptable	Yes	No
CT 37	SR 12 EB	I-80	Beck Ave	Acceptable	Yes	No
CT 38	SR 12 WB	Beck Ave	I-80	Acceptable	Yes	No
CT 39	SR 12	Beck Ave	Sunset Ave/Grizzly Island Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Project Results in Construction Trips Added to Roadway	Project Results in Impact on Deficient Roadway
CT 40	SR 12	Sunset Ave/Grizzly Island Rd	Walters Rd/Lawler Ranch Pkwy	Acceptable	Yes	No
CT 41	**SR 12**	**Walters Rd/Lawler Ranch Pkwy**	**SR 113**	**Deficient**	**Yes**	**Yes**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**Deficient**	**Yes**	**Yes**
CT 43	SR 12 (Rio Vista Bridge)	SR 84 (River Rd)	SR 160 (River Rd)	Not Applicable	Yes	No
CT 44	**SR 12**	**SR 160 (River Rd)**	**Sacramento Co./SJ Co. Line**	**Deficient**	**Yes**	**Yes**
CT 45	**SR 12**	**Sacramento Co./ SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**Deficient**	**Yes**	**Yes**
CT 47	I-80 WB	Pedrick Rd	SR 113	Acceptable	Yes	No
CT 48	SR 113	I-80	Dixon City Limits	Acceptable	Yes	No
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 50	SR 4 (Marsh Creek Rd)	Vasco Rd	Byron Hwy (Old SR 4)	Acceptable	Yes	No
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**Deficient**	**Yes**	**Yes**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**Deficient**	**Yes**	**Yes**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 54	**I-5 NB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 58	I-205 EB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 59	I-205 WB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
ISL 01	A St/4th St/Jackson Blvd.	SR 160	Isleton City Limits	Deficient	No	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Project Results in Construction Trips Added to Roadway	Project Results in Impact on Deficient Roadway
OAK 01	**Main Street (Old SR 4)**	**SR 160**	**Cypress Rd**	**Deficient**	**Yes**	**Yes**
OAK 02	**Main Street (Old SR 4)**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	**Deficient**	**Yes**	**Yes**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	Acceptable	No	No
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	Deficient	No	No
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	Deficient	No	No
SAC 01	**Pocket Rd**	**I-5**	**Freeport Blvd (Old SR 160)**	**Deficient**	**Yes**	**Yes**
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	Acceptable	Yes	No
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	Not Applicable	No	No
SC 02	**Hood Franklin Rd**	**SR 160 (River Rd)**	**I-5**	**Deficient**	**Yes**	**Yes**
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	Acceptable	Yes	No
SC 04	**Lambert Rd**	**Herzog Rd**	**Franklin Blvd**	**Deficient**	**Yes**	**Yes**
SC 05	**Franklin Blvd**	**Lambert Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
SC 06	Twin Cities Rd	River Rd	I-5	Acceptable	Yes	No
SC 07	**Twin Cities Rd**	**I-5**	**Franklin Blvd**	**Deficient**	**Yes**	**Yes**
SC 08	**Sutter Slough Bridge Rd**	**Sacramento Co./ Yolo Co. Line**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
SC 09	**River Rd (Sac Co.)**	**Paintersville Bridge**	**Twin Cities Rd**	**Deficient**	~~**No**~~**Yes**	~~**No**~~**Yes**
SC 10	**River Rd (Sac Co.)**	**Twin Cities Rd**	**Walnut Grove Bridge**	**Deficient**	**Yes**	**Yes**
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./SJ Co. Line	Acceptable	Yes	No
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	Acceptable	No	No
SC 13	Race Track Rd/Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	Deficient	No	No
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	Deficient	No	No
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	Acceptable	No	No
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	Acceptable	No	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Project Results in Construction Trips Added to Roadway	Project Results in Impact on Deficient Roadway
SJ 01	**Walnut Grove Rd**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
SJ 02	**Peltier Rd**	**Blossom Rd**	**I-5**	**Deficient**	**Yes**	**Yes**
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	Acceptable	Yes	No
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	Acceptable	Yes	No
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	Acceptable	Yes	No
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	Acceptable	Yes	No
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	Acceptable	Yes	No
STK 01	**Eight Mile Rd**	**Stockton City Limits**	**I-5**	**Deficient**	**Yes**	**Yes**
TRA 01	**Tracy Blvd**	**Tracy City Limits**	**I-205**	**Deficient**	**Yes**	**Yes**
WS 01	Harbor Blvd	Industrial Blvd	US 50	Acceptable	Yes	No
WS 02	Industrial Blvd/Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	Acceptable	Yes	No
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**Deficient**	**Yes**	**Yes**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**Deficient**	**Yes**	**Yes**
YOL 01	**River Rd (Yolo Co.)**	**Freeport Bridge**	**Courtland Rd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./Yolo Co. Line**	**Deficient**	**Yes**	**Yes**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**Deficient**	**Yes**	**Yes**

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

As shown in Table 19-18, construction during Alternative 1B would contribute to substantial deterioration of pavement conditions on ~~46~~ 48 roadway segments that would exceed applicable thresholds summarized in Table 19-7. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided. Collectively, these measures include stipulations to limit/prohibit construction activity on deficient roadways and improve the physical condition of affected segments.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the ~~46~~ 48 locations shown in Table 19-18. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 1B would be similar to those described for Alternative 4. Although Alternative 1B includes two additional intakes (Alternative 1B includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 1B construction would include potential alterations to drainage patterns, stream courses, and runoff, and the potential for slightly increased surface water elevations in the rivers and streams during construction of facilities located within the waterway.

Alternative 1B includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the east bank of the Sacramento River between Clarksburg and Walnut Grove. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will

occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

In total, Alternative 1B would have potential impacts associated with alterations to drainage patterns, stream courses, and runoff, and the potential for slightly increased surface water elevations in the rivers and streams from construction of facilities located within the waterway, as described under Alternative 1A. Construction and operations under Alternative 1B would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 1B creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water elevations under Alternative 1B.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 1B would be identical to those described for Alternative 4, despite the fact that Alternative 1B includes five intakes (two more than Alternative 4) and despite the fact that Alternative 1B has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

With respect to Alternative 1B, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake

operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 1B, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 1B would be similar to those described for Alternative 4. Although Alternative 1B includes two additional intakes (Alternative 1B includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, Environmental Commitments, including the commitment to Develop and Implement Erosion and Sediment Control Plans to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, Erosion and Sediment Control Plan, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 1B would be similar in type to those described for Alternative 4; however, the effect would be less because Alternative 1B includes fewer temporary barge unloading facilities.

Alternative 1B includes a temporary barge unloading facility to be built on Fourteenmile Slough, at the junction of the slough and the San Joaquin River (Mapbook Figure 15-2). The facility would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facility would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and

unloading materials; and vehicles and other machinery. Construction of the facility would involve piles.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 1B, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction and operation of the barge facilities under Alternative 1B would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 1B would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 1B would be similar to those described for Alternative 4. Although Alternative 1B includes two additional intakes (Alternative 1B includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 1B would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 1B. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 1B would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 1B facilities.

NEPA Effect: Alternative 1B in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 1B in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.4 Alternative 1C—Dual Conveyance with West Alignment and Intakes W1–W5 (15,000 cfs; Operational Scenario A)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: As shown in Table 19-21, under BPBG conditions, a total of ~~19~~ 20 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-21, construction associated with Alternative 1C would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 56 roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 1C would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on ~~37~~ **36** roadway segments (56 minus the ~~19~~ 20 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation effects.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-21 because construction associated with Alternative 1C would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 1C would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at ~~37~~ 36 roadway segments (56 minus the ~~19~~ 20 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, including all segments studied in West Sacramento and Yolo County.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

Table 19-21. Level of Service for West Alignment Alternatives (1C, 2C, and 6C)

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
ALA 01	**Byron Hwy**	**Contra Costa Co./ Alameda Co. Line**	**Alameda Co./San Joaquin Co. Line**	**D**	**1,600**	**385 to 656**	**-**	**~~416~~431 to ~~708~~735**	**-**	**1,~~491~~356 to 1,~~522~~660**	**~~6 (6-10AM; 3-7PM~~ (7-8AM; 4-6PM)**
BRE 01	**Brentwood Blvd (old SR 4)[1]**	**Delta Rd (Oakley City Limits)**	**Balfour Rd**	C	970	586 to 1,516	11 (7–9AM; 10AM–7PM)	-	-	-	-
				D	**1,760**	**-**	**-**	**~~590~~592 to 1,~~526~~531**	**-**	**1,~~665~~517 to 2,~~601~~456**	**12 (7AM-7PM)**
BRE 02	Brentwood Blvd (old SR 4)[1]	Balfour Rd	Brentwood City Limits (South)	C	1,920	369 to 1,013	-	-	-	-	
				D	3,540	-	-	~~346~~371 to ~~950~~1,019	-	1,~~421~~296 to ~~2,025~~1,944	-
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	D	3,540	437 to 1,300	-	~~481~~489 to 1,~~430~~456	-	774 to 1,~~723~~711	-
CC 01	Bethel Island Rd	Oakley City Limits	End	D	1,600	124 to 330	-	139 to 370	-	~~291~~269 to ~~522~~500	-
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	D	1,600	90 to 297	-	~~99~~101 to ~~327~~333	-	~~392~~356 to ~~620~~588	-
CC 03	**Old SR 4[1]**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	C	790	1,133 to 1,682	13 (6AM–7PM)	-	-	-	-
				D	**1,600**	**-**	**-**	**1,~~220~~245 to 1,~~811~~848**	**3 (3–6PM)**	**2,~~295~~170 to 2,~~886~~773**	**13 (6AM-7PM)**

						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
CC 04	Byron Hwy	Delta Rd	Old SR 4	D	1,410	108 to 240	-	~~106~~109 to ~~236~~241	-	~~732~~649 to ~~862~~781	-
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./ Alameda Co. Line**	**D**	**1,600**	**483 to 907**	**-**	**~~522~~541 to ~~980~~1,016**	**-**	**1,~~597~~466 to ~~2,055~~1,941**	**~~12~~7 (6-~~11AM; 12~~9AM; 3-7PM)**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**F**	**6,060**	**2,589 to 5,820**	**-**	**2,~~842~~914 to 6,~~389~~552**	**1 (7–8AM)**	**3,~~894~~824 to 7,~~441~~462**	**2 (7-9AM)**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**F**	**6,060**	**1,647 to 5,705**	**-**	**1,~~789~~830 to 6,~~198~~338**	**2 (4–6PM)**	**2,~~841~~740 to 7,~~250~~248**	**2 (4-6PM)**
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	F	6,060	2,359 to 5,156	-	2,~~513~~557 to 5,~~492~~588	-	2,~~839~~837 to 5,~~818~~868	-
CT 04	I-5 SB	Pocket Rd	Laguna Blvd	F	6,060	1,543 to 5,243	-	1,~~651~~682 to 5,~~611~~716	-	1,~~977~~962 to 5,~~937~~996	-
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,820 to 3,339	-	1,~~820~~999 to 3,~~339~~667	-	~~1,820~~2,054 to 3,~~339~~722	-
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,254 to 3,332	-	1,~~254~~375 to 3,~~332~~653	-	1,~~254~~430 to 3,~~332~~708	-
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,504 to 2,162	-	1,~~504~~675 to 2,~~162~~408	-	1,~~504~~730 to 2,~~162~~463	-
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,217 to 2,236	-	1,~~217~~361 to 2,~~236~~501	-	1,~~217~~416 to 2,~~236~~556	-
CT 09	I-5 NB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,414 to 1,851	-	1,602 to 2,097	-	1,~~678~~667 to 2,~~173~~162	-
CT 10	I-5 SB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,207 to 1,964	-	1,369 to 2,227	-	1,~~445~~434 to 2,~~303~~292	-
CT 11	I-5 NB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,312 to 1,720	-	1,~~446~~485 to 1,~~896~~946	-	2,~~172~~110 to 2,~~622~~571	-

						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 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,111 to 1,813	-	1,~~225~~257 to ~~1,999~~2,052	-	1,~~951~~882 to 2,~~725~~677	-
CT 13	**I-5 NB**	**Walnut Grove Rd**	**Peltier Rd**	**C**	**2,880**	**1,374 to 1,803**	**-**	**1,~~566~~621 to 2,~~055~~128**	**-**	**2,~~449~~381 to 2,~~938~~888**	**1 (4-5PM)**
CT 14	**I-5 SB**	**Walnut Grove Rd**	**Peltier Rd**	**C**	**2,880**	**1,128 to 1,894**	**-**	**1,~~286~~331 to 2,~~159~~235**	**-**	**2,~~169~~091 to ~~3,042~~2,995**	**2 (3-5PM)**
CT 15	I-5 NB	Peltier Rd	Turner Rd	C	2,880	1,421 to 1,885	-	1,~~421~~677 to ~~1,885~~2,224	-	1,~~421~~732 to ~~1,885~~2,279	-
CT 16	I-5 SB	Peltier Rd	Turner Rd	C	2,880	1,145 to 1,974	-	1,~~145~~351 to ~~1,974~~2,329	-	1,~~145~~406 to ~~1,974~~2,384	-
CT 17	I-5 NB	Turner Rd	SR 12	C	2,880	1,288 to 1,985	-	1,520 to 2,342	-	1,~~879~~830 to 2,~~701~~652	-
CT 18	I-5 SB	Turner Rd	SR 12	C	2,880	1,124 to 1,482	-	1,326 to 1,749	-	1,~~685~~636 to 2,~~108~~059	-
CT 19	I-5 NB	SR 12	Eight Mile Rd	C	4,400	1,533 to 2,267	-	1,748 to 2,584	-	1,~~900~~878 to 2,~~736~~714	-
CT 20	I-5 SB	SR 12	Eight Mile Rd	C	4,400	1,243 to 2,070	-	1,417 to 2,360	-	1,~~569~~547 to 2,~~512~~490	-
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	D	5,410	1,937 to 3,452	-	~~1,937~~2,208 to 3,~~452~~935	-	~~1,937~~2,263 to 3,~~452~~990	-
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	D	5,410	1,817 to 2,760	-	~~1,817~~2,071 to ~~2,760~~3,146	-	~~1,817~~2,126 to ~~2,760~~3,201	-
CT 23	**SR 160 (Freeport Blvd)**	**Sacramento City Limits**	**Freeport Bridge**	**E**	**1,740**	**136 to 476**	**-**	**~~145~~149 to ~~506~~521**	**-**	**~~2,246~~1,959 to 2,~~607~~331**	**13 (6AM-7PM)**

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 24	SR 160 (Freeport Blvd/ River Rd)	Freeport Bridge	Scribner Rd	E	1,740	94 to 180	-	94 to 180	-	~~94~~149 to ~~180~~235	-
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	E	1,740	41 to 125	-	41 to 125	-	~~41~~96 to ~~125~~180	-
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	E	1,740	105 to 170	-	~~105~~119 to ~~170~~192	-	~~105~~174 to ~~170~~247	-
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	E	1,740	69 to 122	-	~~69~~74 to ~~122~~130	-	~~69~~129 to ~~122~~185	-
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	E	1,740	75 to 150	-	~~77~~79 to ~~154~~157	-	1,~~528~~329 to 1,~~605~~407	-
CT 29	**SR 160**	**Paintersville Bridge**	**Walnut Grove Bridge**	**E**	**1,740**	**78 to 128**	**-**	**~~89~~92 to ~~147~~152**	**-**	**~~3,265~~2,827 to ~~3,323~~2,887**	**13 (6AM-7PM)**
CT 30	**SR 160 (River Rd)**	**Walnut Grove Bridge**	**A St (Isleton)**	**E**	**1,740**	**173 to 465**	**-**	**173 to 465**	**-**	**~~3,349~~2,908 to 3,~~641~~200**	**13 (6AM-7PM)**
CT 31	**SR 160**	**A St (Isleton)**	**SR 12**	**E**	**1,740**	**193 to 378**	**-**	**193 to 378**	**-**	**~~3,369~~2,928 to 3,~~554~~113**	**13 (6AM-7PM)**
CT 32	**SR 160**	**SR 12**	**Brannan Island Rd**	**F**	**1,740**	**530 to 894**	**-**	**~~549~~559 to ~~926~~942**	**-**	**3,~~725~~294 to ~~4,102~~3,677**	**13 (6AM-7PM)**
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**B**	**200**	**40 to 169**	**-**	**~~42~~43 to ~~177~~181**	**-**	**1,~~926~~668 to ~~2,061~~1,806**	**13 (6AM-7PM)**
CT 34	SR 84 (Courtland Rd/ Ryer Ave)	Courtland Rd	Cache Slough Ferry	C	680	10 to 25	-	11 to ~~26~~27	-	~~239~~211 to ~~254~~227	-
CT 35	**I-80 EB**	**Suisun Valley Rd**	**SR 12**	**C**	**8,350**	**3,079 to 6,994**	**-**	**3,~~510~~633 to ~~7,973~~8,253**	**-**	**5,~~100~~003 to 9,~~563~~623**	**4 (2-6PM)**

						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 36	**I-80 WB**	**Suisun Valley Rd**	**SR 12**	**C**	**8,350**	**5,751 to 8,892**	**2 (6–8AM)**	**6,~~556~~786 to 10,~~137~~493**	**2 (6–8AM)**	**8,~~146~~156 to 11,~~727~~863**	**12 (6AM-6PM)**
CT 37	**SR 12 EB**	**I-80**	**Beck Ave**	**C**	**2,880**	**528 to 1,847**	**-**	**~~612~~634 to 2,~~143~~216**	**-**	**2,~~202~~004 to 3,~~733~~586**	**~~8~~ ~~(11AM~~5 ~~(2~~-7PM)**
CT 38	**SR 12 WB**	**I-80**	**Beck Ave**	**C**	**2,880**	**829 to 1,625**	**-**	**~~962~~995 to 1,~~885~~950**	**-**	**2,~~552~~365 to 3,~~475~~320**	**~~43~~ (6-~~10AM~~9AM)**
CT 39	**SR 12**	**Beck Ave**	**Sunset Ave/ Grizzly Island Rd**	**C**	**5,060**	**2,408 to 3,573**	**-**	**2,~~772~~864 to 4,~~114~~249**	**-**	**5,~~948~~599 to ~~7,290~~6,984**	**13 (6AM-7PM)**
CT 40	**SR 12**	**Sunset Ave/ Grizzly Island Rd**	**Walters Rd/ Lawler Ranch Pkwy**	**C**	**5,060**	**1,607 to 2,353**	**-**	**1,~~864~~928 to 2,~~729~~824**	**-**	**~~5,040~~4,663 to 5,~~905~~559**	**~~12 (6-9AM; 10AM-7PM)~~3 (3-6PM)**
CT 41	**SR 12**	**Walters Rd/ Lawler Ranch Pkwy**	**SR 113**	**C**	**790**	**627 to 1,075**	**10 (6–8AM; 9–1PM; 2–6PM)**	**~~727~~752 to 1,~~247~~290**	**12 (6AM–6PM)**	**3,~~903~~487 to 4,~~423~~025**	**13 (6AM-7PM)**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**C**	**790**	**1,073 to 1,544**	**13 (6AM–7PM)**	**1,~~245~~288 to 1,~~791~~853**	**13 (6AM–7PM)**	**4,~~421~~023 to 4,~~967~~588**	**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,~~317~~362 to ~~1,955~~2,022**	**13 (6AM–7PM)**	**4,~~493~~097 to ~~5,131~~4,757**	**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)**	**788 to 1,154**	**12 (6AM–6PM)**	**1,~~658~~538 to ~~2,024~~1,904**	**13 (6AM-7PM)**
CT 45	**SR 12**	**Sacramento Co./ SJ Co. Line**	**I-5**	**C**	**790**	**773 to 1,164**	**12 (6AM–6PM)**	**813 to 1,224**	**13 (6AM–7PM)**	**1,~~683~~563 to ~~2,094~~1,974**	**13 (6AM-7PM)**

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**C**	**4,400**	**2,508 to 4,632**	**2 (3–5PM)**	**2,~~765~~851 to 5,~~107~~266**	**~~3~~ (~~3–~~5 (7–8AM; 2-6PM)**	**3,~~303~~316 to 5,~~645~~731**	**6 (7-9AM; 2-6PM)**
CT 47	**I-80 WB**	**SR 113**	**Pedrick Rd**	**C**	**4,400**	**3,068 to 4,191**	**-**	**3,~~280~~351 to 4,~~481~~578**	**2 (4–6PM)**	**3,~~818~~816 to 5,~~019~~043**	**5 (6-8AM; 3-6PM)**
CT 48	**SR 113**	**I-80**	**Dixon City Limits**	**C**	**1,920**	**569 to 1,341**	**-**	**569 to 1,341**	**-**	**1,~~644~~494 to 2,~~416~~266**	**~~11~~ (~~78~~ (8-9AM; ~~10AM~~12-7PM)**
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**C**	**680**	**174 to 294**	**-**	**~~188~~195 to ~~318~~329**	**-**	**1,~~263~~120 to 1,~~393~~254**	**13 (6AM-7PM)**
CT 50	**SR 4 (Marsh Creek Rd)[2]**	**Vasco Rd**	**Byron Hwy (Old SR 4)**	**D**	**1,600**	**442 to 733**	**-**	**-**	**-**	-	-
				C	**790**	**-**	**-**	**~~477~~495 to ~~792~~821**	**~~12~~ (4–~~5PM~~6PM)**	**1,~~552~~420 to 1,~~867~~746**	**13 (6AM-7PM)**
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**D**	**1,600**	**554 to 1,224**	**-**	**~~601~~614 to 1,~~327~~357**	**-**	**1,~~676~~539 to 2,~~402~~282**	**~~13~~ (~~6AM~~12 (7AM-7PM)**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**C**	**790**	**412 to 746**	**-**	**412 to 746**	**-**	**1,~~487~~337 to 1,~~821~~671**	**13 (6AM-7PM)**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**D**	**1,410**	**867 to 1,492**	**1 (4–5PM)**	**867 to 1,492**	**1 (4–5PM)**	**1,~~942~~792 to 2,~~567~~417**	**13 (6AM-7PM)**
CT 54	I-5 NB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	2,552 to 4,815	-	2,~~855~~941 to 5,~~386~~549	-	3,~~393~~406 to ~~5,924~~6,014	-
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**D**	**7,280**	**4,550 to 5,913**	**-**	**5,~~108~~268 to 6,~~639~~846**	**-**	**5,~~646~~733 to 7,~~177~~311**	**~~-~~2 (7-8AM; 5-6PM)**

						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 56	**I-5 NB**	**SR 4 (Charter Way)**	**Eighth Street**	**D**	**5,410**	**2,430 to 4,586**	**-**	**2,~~770~~867 to 5,~~228~~411**	**~~-~~1 (3-4PM)**	**3,~~308~~332 to 5,~~766~~876**	**3 (3-6PM)**
CT 57	**I-5 SB**	**SR 4 (Charter Way)**	**Eighth Street**	**D**	**5,410**	**4,333 to 5,631**	**3 (7–8AM; 4–6PM)**	**~~4,940~~5,113 to 6,~~419~~645**	**~~8~~9 (6–9AM; ~~1~~12–6PM)**	**5,~~478~~578 to ~~6,957~~7,110**	**13 (6AM-7PM)**
CT 58	**I-205 EB**	**I-580**	**Mountain House Pkwy**	**C**	**4,400**	**1,350 to 5,071**	**4 (3–7PM)**	**1,~~480~~517 to 5,~~560~~699**	**4 (3–7PM)**	**~~2,018~~1,982 to 6,~~098~~164**	**5 (2-7PM)**
CT 59	**I-205 WB**	**I-580**	**Mountain House Pkwy**	**C**	**4,400**	**1,873 to 4,867**	**2 (6–8AM)**	**2,~~058~~111 to 5,~~348~~486**	**3 (6–9AM)**	**2,~~596~~576 to 5,~~886~~951**	**3 (6-9AM)**
CT 60	**I-205 EB**	**Mountain House Pkwy**	**Eleventh St**	**C**	**4,400**	**1,431 to 5,068**	**4 (3–7PM)**	**1,~~574~~631 to 5,~~575~~778**	**5 (2–7PM)**	**2,~~112~~096 to 6,~~113~~243**	**5 (2-7PM)**
CT 61	**I-205 WB**	**Mountain House Pkwy**	**Eleventh St**	**C**	**4,400**	**1,875 to 4,117**	**-**	**2,~~063~~138 to 4,~~529~~693**	**1 (6–7AM)**	**2,~~601~~603 to 5,~~067~~158**	**2 (6-8AM)**
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	D	5,410	1,525 to 4,200	-	1,~~525~~739 to 4,~~200~~788	-	1,~~525~~794 to 4,~~200~~843	-
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	D	5,410	1,852 to 3,079	-	~~1,852~~2,111 to 3,~~079~~510	-	~~1,852~~2,166 to 3,~~079~~565	-
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	D	5,410	1,511 to 4,182	-	1,~~511~~723 to 4,~~182~~767	-	1,~~511~~778 to 4,~~182~~822	-
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	D	5,410	2,083 to 3,446	-	2,~~083~~375 to 3,~~446~~928	-	2,~~083~~430 to 3,~~446~~983	-
ISL 01	A St/4th St/ Jackson Blvd.	SR 160	Isleton City Limits	D	1,410	17 to 75	-	17 to 75	-	~~17~~72 to ~~75~~130	-
OAK 01	Main Street (Old SR 4)1	SR 160	Cypress Rd	C	1,920	752 to 1,663	-	-	-	-	-
				D	3,540	-	-	~~795~~817 to 1,~~759~~807	-	1,~~870~~742 to 2,~~834~~732	-

						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
OAK 02	**Main Street (Old SR 4)[1]**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	C	970	722 to 1,335	10 (7–9AM; 11AM–7PM)	-	-	-	-
				D	**1,760**	**-**	**-**	**~~823~~852 to 1,~~522~~575**	**-**	**1,~~898~~777 to 2,~~597~~500**	**13 (6AM-7PM)**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	D	1,600	304 to 764	-	340 to 856	-	~~906~~830 to 1,~~422~~346	-
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	D	1,410	140 to 367	-	157 to 411	-	~~309~~287 to ~~563~~541	-
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	D	1,410	155 to 334	-	~~129~~157 to ~~278~~337	-	~~755~~697 to ~~904~~877	-
SAC 01	**Pocket Rd**	**I-5**	**Freeport Blvd (Old SR 160)**	**D**	**3,540**	**789 to 2,191**	**-**	**789 to 2,191**	**-**	**2,~~890~~599 to 4,~~292~~001**	**~~6~~ (8 (~~7~~-9AM; ~~12~~-7PM)**
SAC 02	**Freeport Blvd (Old SR 160)**	**Pocket Rd**	**Sacramento City Limits**	**D**	**1,760**	**152 to 492**	**-**	**~~164~~170 to ~~531~~551**	**-**	**~~2,265~~1,980 to 2,~~632~~361**	**13 (6AM-7PM)**
SC 01	**Freeport Bridge**	**River Rd**	**SR 160 (Freeport Blvd)**	**D**	**1,410**	**98 to 346**	**-**	**~~105~~109 to ~~371~~384**	**-**	**~~2,206~~1,919 to 2,~~472~~194**	**13 (6AM-7PM)**
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	D	1,410	77 to 137		~~77~~81 to ~~137~~145	-	~~77~~136 to ~~137~~200	-
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	D	1,410	10 to 29	-	~~10~~11 to ~~29~~32	-	~~10~~66 to ~~29~~87	-
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	D	1,410	19 to 38	-	~~19~~20 to ~~38~~39	-	~~19~~75 to ~~38~~94	-
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	D	1,410	41 to 71	-	41 to ~~71~~72	-	~~41~~96 to ~~71~~127	-

						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
SC 06	**Twin Cities Rd**	**River Rd**	**I-5**	**D**	**1,410**	**130 to 248**	**-**	**~~133~~134 to ~~253~~255**	**-**	**1,~~584~~384 to 1,~~704~~505**	**13 (6AM-~~7PM~~9AM; 11AM-12PM; 2-6PM)**
SC 07	Twin Cities Rd	I-5	Franklin Blvd	D	1,410	141 to 318	-	~~141~~152 to ~~318~~344	-	~~141~~207 to ~~318~~399	-
SC 08	**Sutter Slough Bridge Rd**	**Sacramento Co./ Yolo Co. Line**	**Paintersville Bridge**	**D**	**1,410**	**51 to 113**	**-**	**~~55~~57 to ~~122~~127**	**-**	**~~3,231~~2,792 to ~~3,298~~2,862**	**13 (6AM-7PM)**
SC 09	River Rd (Sac Co.)	Paintersville Bridge	Twin Cities Rd	D	1,410	85 to 134	-	86 to ~~135~~136	-	1,~~537~~336 to 1,~~586~~386	~~13 (6AM-7PM).~~
SC 10	River Rd (Sac Co.)	Twin Cities Rd	Walnut Grove Bridge	D	1,600	223 to 365	-	230 to 377	-	~~382~~360 to ~~529~~507	-
SC 11	**Walnut Grove Rd/River Rd**	**Walnut Grove Bridge**	**Sacramento Co./ SJ Co. Line**	**D**	**1,410**	**175 to 332**	**-**	**~~179~~182 to ~~340~~345**	**-**	**1,~~943~~702 to 2,~~104~~865**	**13 (6AM-7PM)**
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	D	1,410	61 to 283	-	61 to 283	-	~~61~~116 to ~~283~~338	-
SC 13	Race Track Rd/ Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	D	1,410	17 to 34	-	~~17~~18 to ~~34~~35	-	~~17~~73 to ~~34~~90	-
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	D	1,410	14 to 39	-	14 to 39	-	~~14~~69 to ~~39~~94	-
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	D	1,410	4 to 53	-	4 to ~~53~~59	-	~~4~~59 to ~~53~~114	-
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	D	1,410	16 to 52	-	~~16~~18 to ~~52~~58	-	~~16~~73 to ~~52~~113	-

						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
SJ 01	**Walnut Grove Rd**	**Sacramento Co./ SJ Co. Line**	**I-5**	**C**	**790**	**141 to 232**	**-**	**~~145~~146 to ~~238~~241**	**-**	**1,~~909~~666 to ~~2,002~~1,761**	**13 (6AM-7PM)**
SJ 02	Peltier Rd	Blossom Rd	I-5	C	680	8 to 23	-	8 to 23	-	~~8~~63 to ~~23~~78	-
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	C	790	108 to 209	-	108 to 209	-	~~108~~163 to ~~209~~264	-
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	C	790	69 to 171	-	~~69~~77 to ~~171~~192	-	~~69~~132 to ~~171~~247	-
SJ 05	**Byron Hwy**	**Alameda Co./San Joaquin Co. Line**	**Mountain House Pkwy**	**D**	**1,600**	**521 to 824**	**-**	**~~563~~584 to ~~890~~923**	**-**	**1,~~638~~509 to 1,~~965~~848**	**13 (~~6AM~~6-9AM; ~~2~~-7PM)**
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	D	1,410	190 to 298	-	**~~205~~**213 to **~~322~~**334	-	1,~~280~~138 to 1,~~397~~259	-
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	D	3,540	418 to 769	-	~~477~~493 to ~~877~~907	-	1,~~552~~418 to 1,~~952~~832	-
STK 01	Eight Mile Rd	Stockton City Limits	I-5	E	1,870	309 to 769	-	~~309~~346 to ~~769~~861	-	~~309~~401 to ~~769~~916	-
TRA 01	Tracy Blvd	Tracy City Limits	I-205	E	1,870	309 to 759	-	~~309~~346 to ~~759~~850	-	~~309~~401 to ~~759~~905	-
WS 01	**Harbor Blvd**	**Industrial Blvd**	**US 50**	**D**	**3,540**	**1,140 to 2,317**	**-**	**1,~~218 to~~257to 2,~~476~~555**	**-**	**~~3,102~~2,882 to 4,~~360~~180**	**~~10~~6 (7-~~10AM; 12~~9AM; ~~3~~-7PM)**
WS 02	**Industrial Blvd/ Lake Washington Blvd**	**Harbor Blvd**	**Jefferson Blvd (Old SR 84)**	**C**	**1,920**	**773 to 1,858**	**-**	**~~835~~866 to 2,~~007~~081**	**1 (5-6PM)**	**2,~~719~~491 to 3,~~891~~706**	**13 (6AM-7PM)**

						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
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**C**	**1,920**	**546 to 1,718**	**-**	**~~586~~606 to 1,~~843~~906**	**-**	**2,~~470~~231 to 3,~~727~~531**	**13 (6AM-7PM)**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**C**	**680**	**42 to 146**	**-**	**~~45~~46 to ~~155~~160**	**-**	**1,~~929~~671 to ~~2,039~~1,785**	**13 (6AM-7PM)**
YOL 01	**River Rd (Yolo Co.)**	**Freeport Bridge**	**Courtland Rd**	**C**	**680**	**74 to 249**	**-**	**76 to ~~254~~257**	**-**	**~~2,177~~1,886 to 2,~~355~~067**	**13 (6AM-7PM)**
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./ Yolo Co. Line**	**C**	**680**	**25 to 63**	**-**	**~~27~~28 to ~~68~~71**	**-**	**~~3,203~~2,763 to ~~3,244~~2,806**	**13 (6AM-7PM)**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**C**	**680**	**28 to 77**	**-**	**~~30~~31 to ~~83~~86**	**-**	**1,~~914~~656 to 1,~~967~~711**	**13 (6AM-7PM)**

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

Notes: Facility is analyzed as a Caltrans facility under Baseline Conditions and a local facility under Baseline Plus Construction Conditions – roadway is relinquished to local jurisdiction after Baseline Year (2009). LOS Threshold is LOS C under Baseline Conditions and changes to LOS D under Baseline Plus Construction Conditions.

Facility is analyzed as a local facility under Baseline Conditions and a Caltrans facility under Baseline Plus Construction Conditions – roadway is adopted as a State facility after Baseline Year (2009). LOS Threshold is LOS D under Baseline Conditions and changes to LOS C under Baseline Plus Construction Conditions.

1

CEQA Conclusion: Construction under Alternative 1C would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~21~~7). As shown in Table 19-21, traffic volumes during construction of Alternative 1C would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: The effect under Alternative 1C would be similar to the effects under Alternatives 1A and 1B, but greater in magnitude because of the higher amount of truck traffic. As shown in Table 19-22, Alternative 1C would cause physical condition thresholds (~~see~~ Table 19-7) to be exceeded on a total of **43** roadway segments (~~see~~ entries in **bold** text). Figure 19-4a shows all of the study roadway segments that could experience substantial pavement condition effects.

Table 19-22. Pavement Conditions for West Alignment Alternatives (1C, 2C, and 6C)

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./ San Joaquin Co. Line	Acceptable	Yes	No
BRE 01	Brentwood Blvd (old SR 4)	Delta Rd (Oakley City Limits)	Balfour Rd	Acceptable	Yes	No
BRE 02	Brentwood Blvd (old SR 4)	Balfour Rd	Brentwood City Limits (South)	Acceptable	Yes	No
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	Acceptable	Yes	No
CC 01	**Bethel Island Rd**	**Oakley City Limits**	**End**	**Deficient**	**Yes**	**Yes**
CC 02	**Balfour Rd**	**Brentwood City Limits**	**Byron Hwy**	**Deficient**	**Yes**	**Yes**
CC 03	**Old SR 4**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	**Deficient**	**Yes**	**Yes**
CC 04	Byron Hwy	Delta Rd	Old SR 4	Acceptable	Yes	No
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./ Alameda Co. Line**	**Deficient**	**Yes**	**Yes**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 03	**I-5 NB**	**Pocket Rd**	**Laguna Blvd**	**Deficient**	**Yes**	**Yes**
CT 04	**I-5 SB**	**Pocket Rd**	**Laguna Blvd**	**Deficient**	**Yes**	**Yes**
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	Deficient	No	No
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	Deficient	No	No
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	~~No~~Yes	No
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	~~No~~Yes	No
CT 09	**I-5 NB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 10	**I-5 SB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 11	**I-5 NB**	**Twin Cities Rd**	**Walnut Grove Rd**	**Deficient**	**Yes**	**Yes**
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	Acceptable	Yes	No
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 15	I-5 NB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 16	I-5 SB	Peltier Rd	Turner Rd	Acceptable	No	No
CT 17	I-5 NB	Turner Rd	SR 12	Acceptable	Yes	No
CT 18	I-5 SB	Turner Rd	SR 12	Acceptable	Yes	No
CT 19	**I-5 NB**	**SR 12**	**Eight Mile Rd**	**Deficient**	**Yes**	**Yes**
CT 20	I-5 SB	SR 12	Eight Mile Rd	Acceptable	Yes	No
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	Deficient	No	No
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	Acceptable	No	No
CT 23	**SR 160 (Freeport Blvd)**	**Sacramento City Limits**	**Freeport Bridge**	**Deficient**	**Yes**	**Yes**
CT 24	SR 160 (Freeport Blvd/River Rd)	Freeport Bridge	Scribner Rd	Deficient	No	No
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	Deficient	No	No
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	Deficient	No	No
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	Deficient	No	No
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	Not Applicable	Yes	No
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	Acceptable	Yes	No
CT 30	**SR 160 (River Rd)**	**Walnut Grove Bridge**	**A St (Isleton)**	**Deficient**	**Yes**	**Yes**
CT 31	**SR 160**	**A St (Isleton)**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 32	**SR 160**	**SR 12**	**Brannan Island Rd**	**Deficient**	**Yes**	**Yes**
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**Deficient**	**Yes**	**Yes**
CT 34	**SR 84 (Courtland Rd/ Ryer Ave)**	**Courtland Rd**	**Cache Slough Ferry**	**Deficient**	**Yes**	**Yes**
CT 35	I-80 EB	Suisun Valley Rd	SR 12	Acceptable	Yes	No
CT 36	I-80 WB	SR 12	Suisun Valley Rd	Acceptable	Yes	No
CT 37	SR 12 EB	I-80	Beck Ave	Acceptable	Yes	No
CT 38	SR 12 WB	Beck Ave	I-80	Acceptable	Yes	No
CT 39	SR 12	Beck Ave	Sunset Ave/Grizzly Island Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 40	SR 12	Sunset Ave/Grizzly Island Rd	Walters Rd/Lawler Ranch Pkwy	Acceptable	Yes	No
CT 41	**SR 12**	**Walters Rd/Lawler Ranch Pkwy**	**SR 113**	**Deficient**	**Yes**	**Yes**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**Deficient**	**Yes**	**Yes**
CT 43	SR 12 (Rio Vista Bridge)	SR 84 (River Rd)	SR 160 (River Rd)	Not Applicable	Yes	No
CT 44	**SR 12**	**SR 160 (River Rd)**	**Sacramento Co./SJ Co. Line**	**Deficient**	**Yes**	**Yes**
CT 45	**SR 12**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**Deficient**	**Yes**	**Yes**
CT 47	I-80 WB	Pedrick Rd	SR 113	Acceptable	Yes	No
CT 48	SR 113	I-80	Dixon City Limits	Acceptable	Yes	No
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 50	SR 4 (Marsh Creek Rd)	Vasco Rd	Byron Hwy (Old SR 4)	Acceptable	Yes	No
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**Deficient**	**Yes**	**Yes**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**Deficient**	**Yes**	**Yes**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 54	**I-5 NB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 58	I-205 EB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 59	I-205 WB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	Acceptable	~~No~~Yes	No
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	Acceptable	No	No
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	Acceptable	No	No
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	Acceptable	No	No
ISL 01	**A St/4th St/Jackson Blvd.**	**SR 160**	**Isleton City Limits**	**Deficient**	**No**	**No**

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
OAK 01	**Main Street (Old SR 4)**	**SR 160**	**Cypress Rd**	**Deficient**	**Yes**	**Yes**
OAK 02	**Main Street (Old SR 4)**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	**Deficient**	**Yes**	**Yes**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	Acceptable	Yes	No
OAK 04	**Bethel Island Rd**	**Cypress Rd**	**Oakley City Limits**	**Deficient**	**Yes**	**Yes**
OAK 05	**Delta Rd**	**Main Street (Old SR 4)**	**Byron Hwy**	**Deficient**	**Yes**	**Yes**
SAC 01	**Pocket Rd**	**I-5**	**Freeport Blvd (Old SR 160)**	**Deficient**	**Yes**	**Yes**
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	Acceptable	Yes	No
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	Not Applicable	Yes	No
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	Deficient	No	No
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	Acceptable	No	No
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	Deficient	No	No
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	Deficient	No	No
SC 06	Twin Cities Rd	River Rd	I-5	Acceptable	Yes	No
SC 07	Twin Cities Rd	I-5	Franklin Blvd	Deficient	No	No
SC 08	**Sutter Slough Bridge Rd**	**Sacramento Co./Yolo Co. Line**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
SC 09	**River Rd (Sac Co.)**	**Paintersville Bridge**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
SC 10	**River Rd (Sac Co.)**	**Twin Cities Rd**	**Walnut Grove Bridge**	**Deficient**	**Yes**	**Yes**
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./SJ Co. Line	Acceptable	Yes	No
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	Acceptable	No	No
SC 13	Race Track Rd/Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	Deficient	No	No
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	Deficient	No	No
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	Acceptable	No	No
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	Acceptable	No	No
SJ 01	**Walnut Grove Rd**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
SJ 02	Peltier Rd	Blossom Rd	I-5	Deficient	No	No
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	Acceptable	No	No
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	Acceptable	No	No
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	Acceptable	Yes	No
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	Acceptable	Yes	No
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	Acceptable	Yes	No
STK 01	Eight Mile Rd	Stockton City Limits	I-5	Deficient	No	No
TRA 01	Tracy Blvd	Tracy City Limits	I-205	Deficient	No	No
WS 01	Harbor Blvd	Industrial Blvd	US 50	Acceptable	Yes	No
WS 02	Industrial Blvd/Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	Acceptable	Yes	No
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**Deficient**	**Yes**	**Yes**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**Deficient**	**Yes**	**Yes**
YOL 01	**River Rd (Yolo Co.)**	**Freeport Bridge**	**Courtland Rd**	**Deficient**	**Yes**	**Yes**
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./ Yolo Co. Line**	**Deficient**	**Yes**	**Yes**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**Deficient**	**Yes**	**Yes**

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

As shown in Table 19-22, construction during Alternative 1C would contribute to substantial deterioration of pavement conditions on **43** roadway segments that would exceed applicable thresholds summarized in Table 19-7. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided. Collectively, these measures include stipulations to limit/prohibit construction activity on deficient roadways and improve the physical condition of affected segments.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 1C would be similar to those described for Alternative 4. Although Alternative 1C includes two additional intakes (Alternative 1C includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation. Alternative 1C includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the bank of the Sacramento River between Clarksburg and Walnut Grove. The planned locations of the intakes are generally the same as those proposed for Alternative 1A, as described previously, with the exception that intake facilities would be constructed on the west side of the river rather than the east side. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 1C would have potential impacts associated with alterations to drainage patterns, stream courses, and runoff, and the potential for slightly increased surface water elevations in the rivers and streams during construction and operations of facilities located within the waterway, as described for Alternative 1A. Construction under Alternative 1C would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on

navigation. Although the increase in surface water elevations in rivers and streams under Alternative 1C creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 1C.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 1C would be identical to those described for Alternative 4, despite the fact that Alternative 1C includes five intakes (two more than Alternative 4) and despite the fact that Alternative 1C has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

With respect to Alternative 1C, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would

be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 1C, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 1C would be similar to those described for Alternative 4. Although Alternative 1C includes two additional intakes (Alternative 1C includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following

construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 1C would be similar in type to those described for Alternative 4; however, the effect would be less because Alternative 1C includes fewer temporary barge unloading facilities.

Alternative 1C includes two barge unloading facilities to be built on Cache Slough and the Sacramento River (Mapbook Figure 15-3). The facilities would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facilities would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the facilities would involve piles at each location.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 1C, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 1C would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 1C would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 1C would be similar to those described for Alternative 4. Although Alternative 1C includes two additional intakes (Alternative 1C includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 1C would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 1C. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effect: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 1C would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 1C facilities.

NEPA Effects: Alternative 1C in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 1C in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.5 Alternative 2A—Dual Conveyance with Pipeline/Tunnel and Five Intakes (15,000 cfs; Operational Scenario B)

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: Construction truck traffic may damage roadway surfaces. During construction, various materials would be transported to and from the construction areas in load-bearing trucks. As shown in Table 19-10, construction of Alternative 2A would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of **46~~43~~** roadway segments. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the 46~~43~~ locations shown in Table 19-10. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 2A would be similar to those described for Alternative 4. Although Alternative 2A includes two additional intakes (Alternative 2A includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation. Alternative 2A would include the construction of five fish-screened intakes on the west bank of the Sacramento River. Alternative 2A, however, could potentially entail two different intake and intake pumping plant locations. As an alternative to Intakes 1–5, intake locations 1, 2, 3, 6, and 7 are being considered. Unlike the other intakes, Intakes 6 and 7 would be downstream of Sutter and Steamboat Sloughs. Construction of the intakes would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area.

Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 2A would result in alterations to drainage patterns, stream courses, and runoff, and potential for slightly increased surface water elevations in the rivers and streams during construction of facilities located within the waterway, as described for Alternative 1A. Construction under Alternative 2A would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 2A creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 2A.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected from construction of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 2A would be identical to those described for Alternative 4, despite the fact that Alternative 2A includes five intakes (two more than Alternative 4) and despite the fact that Alternative 2A has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

With respect to Alternative 2A, operation of Intakes 1, 2, 3, 4, and 5, or Intakes 1, 2, 3, 6, and 7 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 2A, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 2A would be similar to those described for Alternative 4. Although Alternative 2A includes two additional intakes (Alternative 2A includes five intakes compared to three for Alternative 4), the effects to

sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 or Intakes 1, 2, 3, 6, and 7 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, Environmental Commitments, including the commitment to Develop and Implement Erosion and Sediment Control Plans to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, Erosion and Sediment Control Plan, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 2A would be similar to those described for Alternative 4. Although Alternative 2A includes a greater number of barge fleeting facilities (six compared to five for Alternative 4), the effects to sedimentation caused by construction of the facilities is highly localized, and therefore, the greater number of barge facilities would not result in a greater level of impacts on navigation.

Alternative 2A includes six barge unloading facilities to be built on or near the tunnel alignment similar to those described for Alternative 1A. The facilities would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facilities would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the facilities would involve piles at each location.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 2A, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 2A would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 2A would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 2A would be similar to those described for Alternative 4. Although Alternative 2A includes two additional intakes

(Alternative 2A includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 2A would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Under Alternative 2A, an operable barrier would be placed at the head of Old River at the confluence with the San Joaquin River. The potential navigation impacts from construction and operations of Head of Old River barrier would be identical to those described for Alternative 4.

Alternative 2A proposes work at the Head of Old River including the construction of fish and flow control gates as well as a small boat lock to allow recreational boat passage. An analysis of potential impacts of this work on navigation was completed in 2005 by Jones and Stokes (South Delta Improvements Program Vol I: Environmental Impact Statement/Environmental Impact Report. Draft. October. (J&S 020533.02.) State Clearinghouse #2002092065. Sacramento, CA.) ("SDIP EIS/EIR"). The SDIP EIS/R analyzed whether the proposed barrier/gates facility and locks would cause a change in south Delta flows or water level, river flows or surface water elevations that would result in substantial changes to existing recreational or commercial boating activity and opportunities.

The changes in access to Delta waterways by boats and other vessels during construction and operation of the gates, during channel dredging activities, and attributable to changes in water levels/depths were addressed. Most of the waterways in the immediate project vicinity are public waterways navigable by recreational craft, including rowboats, large houseboats, and cabin cruisers. These waterways are also navigable by smaller commercial vessels, including towing and salvage vessels, clamshell dredges, dredges for repair and maintenance of levees and channels, and pile-driving vessels. Boat access points in the project area include River's End Marina, located on the south side of the DMC, at the confluence with Old River; Tracy Oasis Marina Resort, located on the east side of Tracy Boulevard and the north side of Old River; and possibly at Heinbockle Harbor, located at Tracy Boulevard, on the south side of Grant Line/Fabian and Bell Canal.

According to a California Department of Parks and Recreation (DPR) survey, minimal boat launching and use occurs in the project area. The channels within the project area are too small to accommodate large commercial vessels, and because the channels are also part of an existing temporary barriers project, larger vessels cannot use these channels when the barriers are in place. A boat lock at the proposed facility would ensure boat access upstream of the gate regardless of gate operations. In this regard, upstream boat access could improve over current conditions. Additionally, from June 16 through September 30, the gates will be open and no boat lock operations will be necessary.

With respect to both recreational and commercial navigation, and based on analysis provided in the SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14, 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will be less than significant (p. 5.8-15. 5.8-19, 5.8-22), impact on non-recreational boaters due to temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on recreation as a result of constructing and operating any of the alternatives will not be significant (p. 7.4-1).

Construction of the operable barrier could result in increased sedimentation near the gates. Maintenance dredging around the gate would be necessary to clear out sediment deposits. Dredging around the gates would be conducted using a sealed clamshell dredge. Depending on the rate of sedimentation, maintenance would occur every 3 to 5 years. A formal dredging plan with further details on specific maintenance dredging activities will be developed prior to dredging activities. Guidelines related to dredging activities, including compliance with in-water work windows and turbidity standards are described further in Appendix 3B, *Environmental Commitments*, under *Disposal and Reuse of Spoils, Reusable Tunnel Material (RTM), and Dredged Material*. These activities would ensure that sedimentation would not result in an adverse impact on navigation.

NEPA Effects: With respect to construction and operations of the Head of Old River Barrier, Alternative 2A would have no adverse effect on either commercial or recreational navigation activities.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, construction and operations of the Head of Old River barrier will not have a significant impact on navigation.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 2A would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 2A facilities.

NEPA Effects: Alternative 2A in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 2A in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.6 Alternative 2B—Dual Conveyance with East Alignment and Five Intakes (15,000 cfs; Operational Scenario B)

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities would be slightly higher for Alternative 2B compared to Alternative 1B due to the addition of an operable barrier at the head of Old River. As shown in Table 19-18, construction of Alternative 1B would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of **48~~46~~** roadway segments (~~see table~~ entries in bold type). Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the 48~~46~~ locations shown in Table 19-18. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or

encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 2B would be similar to those described for Alternative 4. Although Alternative 2B includes two additional intakes (Alternative 2B includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Alternative 2B would include the construction of five fish-screened intakes on the west bank of the Sacramento River. Alternative 2B, however, could potentially entail two different intake and intake pumping plant locations. As an alternative to Intakes 1–5, intake locations 1, 2, 3, 6, and 7 are being considered. Unlike the other intakes, Intakes 6 and 7 would be downstream of Sutter and Steamboat Sloughs. Construction of the intakes would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 2B would have potential impacts associated with alterations to drainage patterns, stream courses, and runoff, and the potential for slightly increased surface water elevations in the rivers and streams during construction of facilities located within the waterway, as described under Alternative 1A. Construction under Alternative 2B would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 2B creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 2B.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction of the water conveyance facilities (either localized or downstream of

the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 2B would be identical to those described for Alternative 4, despite the fact that Alternative 2B includes five intakes (two more than Alternative 4) and despite the fact that Alternative 2B has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

With respect to Alternative 2B, operation of Intakes 1, 2, 3, 4, and 5, or Intakes 1, 2, 3, 6, and 7 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 2B, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow

velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 2B would be similar to those described for Alternative 4. Although Alternative 2B includes two additional intakes (Alternative 2B includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 or Intakes 1, 2, 3, 6, and 7 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 2B would be similar in type to those described for Alternative 4; however, the effect would be less because Alternative 2B includes only one temporary barge unloading facility.

Like alternative 1B, Alternative 2B includes a temporary barge unloading facility to be built on Fourteenmile Slough, at the junction of the slough and the San Joaquin River (Mapbook Figure 15-2). The facility would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facility would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the facility would involve piles.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 2B, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 2B would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 2B would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 2B would be similar to those described for Alternative 4. Although Alternative 2B includes two additional intakes (Alternative 2B includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 2B would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Under Alternative 2B, an operable barrier would be placed at the head of Old River at the confluence with the San Joaquin River. The potential navigation impacts from construction and operations of Head of Old River barrier would be identical to those described for Alternative 4.

Alternative 2B proposes work at the Head of Old River including the construction of fish and flow control gates as well as a small boat lock to allow recreational boat passage. An analysis of potential impacts of this work on navigation was completed in 2005 by Jones and Stokes (South Delta Improvements Program Vol I: Environmental Impact Statement/Environmental Impact Report. Draft. October. (J&S 020533.02.) State Clearinghouse #2002092065. Sacramento, CA.) ("SDIP EIS/EIR"). The SDIP EIS/R analyzed whether the proposed barrier/gates facility and locks would cause a change in south Delta flows or water level, river flows or surface water elevations that would result in substantial changes to existing recreational or commercial boating activity and opportunities.

The changes in access to Delta waterways by boats and other vessels during construction and operation of the gates, during channel dredging activities, and attributable to changes in water levels/depths were addressed. Most of the waterways in the immediate project vicinity are public waterways navigable by recreational craft, including rowboats, large houseboats, and cabin cruisers. These waterways are also navigable by smaller commercial vessels, including towing and salvage vessels, clamshell dredges, dredges for repair and maintenance of levees and channels, and pile-driving vessels. Boat access points in the project area include River's End Marina, located on the south side of the DMC, at the confluence with Old River; Tracy Oasis Marina Resort, located on the east side of Tracy Boulevard and the north side of Old River; and possibly at Heinbockle Harbor, located at Tracy Boulevard, on the south side of Grant Line/Fabian and Bell Canal.

According to a California Department of Parks and Recreation (DPR) survey, minimal boat launching and use occurs in the project area. The channels within the project area are too small to accommodate large commercial vessels, and because the channels are also part of an existing temporary barriers project, larger vessels cannot use these channels when the barriers are in place. A boat lock at the proposed facility would ensure boat access upstream of the gate regardless of gate operations. In this regard, upstream boat access could improve over current conditions. Additionally, from June 16 through September 30, the gates will be open and no boat lock operations will be necessary.

With respect to both recreational and commercial navigation, and based on analysis provided in the SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14, 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will be less than significant (p. 5.8-15. 5.8-19, 5.8-22), impact on non-recreational boaters due to temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on recreation as a result of constructing and operating any of the alternatives will not be significant (p. 7.4-1).

Construction of the operable barrier could result in increased sedimentation near the gates. Maintenance dredging around the gate would be necessary to clear out sediment deposits. Dredging around the gates would be conducted using a sealed clamshell dredge. Depending on the rate of sedimentation, maintenance would occur every 3 to 5 years. A formal dredging plan with further details on specific maintenance dredging activities will be developed prior to dredging activities.

Guidelines related to dredging activities, including compliance with in-water work windows and turbidity standards are described further in Appendix 3B, *Environmental Commitments*, under *Disposal and Reuse of Spoils, Reusable Tunnel Material (RTM), and Dredged Material*. These activities would ensure that sedimentation would not result in an adverse impact on navigation.

NEPA Effects: With respect to construction and operations of the Head of Old River Barrier, Alternative 2B would have no adverse effect on either commercial or recreational navigation activities.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, construction and operations of the Head of Old River barrier will not have a significant impact on navigation.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 2B would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 2B facilities.

NEPA Effects: Alternative 2B in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 2B in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.7 Alternative 2C—Dual Conveyance with West Alignment and Intakes W1–W5 (15,000 cfs; Operational Scenario B)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The number of vehicles generated by construction activities would be slightly higher for Alternative 2C due to the addition of an operable barrier at the head of Old River. As shown in Table 19-21, under BPBG conditions, a total of 2019 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As shown in Table 19-21, construction associated with Alternative 2C would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 56 roadway segments under BPBGPP conditions (see entries in **bold** type). Alternative 2C would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **3637** roadway segments (56 minus the 2019 that

would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation effects.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-21 because construction associated with Alternative 2C would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 2C would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at **36~~37~~** roadway segments (56 minus the 19 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, including all segments studied in West Sacramento and Yolo County.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 2C would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~21~~7). As shown in Table 19-21, traffic volumes during construction of Alternative 2C would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 2C would be similar to those described for Alternative 4. Although Alternative 2C includes two additional intakes (Alternative 2C includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by

construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Alternative 2C includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the bank of the Sacramento River between Clarksburg and Walnut Grove. The planned locations of the intakes are generally the same as those proposed for Alternative 1A, as described previously, with the exception that intake facilities would be constructed on the west side of the river rather than the east side. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 2C would have potential impacts associated with alterations to drainage patterns, stream courses, and runoff, and potential for slightly increased surface water elevations in the rivers and streams from the construction of facilities located within the waterway, as described under Alternative 1A. Construction under Alternative 2C would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 2C creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 2C.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected from construction of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 2C would be identical to those described for Alternative 4, despite the fact that Alternative 2C includes five intakes (two more than Alternative 4) and despite the fact that Alternative 2C has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

With respect to Alternative 2C, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 2C, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered

environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 2C would be similar to those described for Alternative 4. Although Alternative 2C includes two additional intakes (Alternative 2C includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 2C would be similar in type to those described for Alternative 4; however, the effect would be less because Alternative 2C includes fewer temporary barge unloading facilities.

Alternative 2C includes two barge unloading facilities to be built on Cache Slough and the Sacramento River (Mapbook Figure 15-3). The facilities would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facilities would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the facilities would involve piles at each location.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 2C, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 2C would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 2C would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 2C would be similar to those described for Alternative 4. Although Alternative 2C includes two additional intakes (Alternative 2C includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 2C would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Under Alternative 2C, an operable barrier would be placed at the head of Old River at the confluence with the San Joaquin River. The potential navigation impacts from construction and operations of Head of Old River barrier would be identical to those described for Alternative 4.

Alternative 2C proposes work at the Head of Old River including the construction of fish and flow control gates as well as a small boat lock to allow recreational boat passage. An analysis of potential impacts of this work on navigation was completed in 2005 by Jones and Stokes (South Delta Improvements Program Vol I: Environmental Impact Statement/Environmental Impact Report. Draft. October. (J&S 020533.02.) State Clearinghouse #2002092065. Sacramento, CA.) ("SDIP

EIS/EIR"). The SDIP EIS/R analyzed whether the proposed barrier/gates facility and locks would cause a change in south Delta flows or water level, river flows or surface water elevations that would result in substantial changes to existing recreational or commercial boating activity and opportunities.

The changes in access to Delta waterways by boats and other vessels during construction and operation of the gates, during channel dredging activities, and attributable to changes in water levels/depths were addressed. Most of the waterways in the immediate project vicinity are public waterways navigable by recreational craft, including rowboats, large houseboats, and cabin cruisers. These waterways are also navigable by smaller commercial vessels, including towing and salvage vessels, clamshell dredges, dredges for repair and maintenance of levees and channels, and pile-driving vessels. Boat access points in the project area include River's End Marina, located on the south side of the DMC, at the confluence with Old River; Tracy Oasis Marina Resort, located on the east side of Tracy Boulevard and the north side of Old River; and possibly at Heinbockle Harbor, located at Tracy Boulevard, on the south side of Grant Line/Fabian and Bell Canal.

According to a California Department of Parks and Recreation (DPR) survey, minimal boat launching and use occurs in the project area. The channels within the project area are too small to accommodate large commercial vessels, and because the channels are also part of an existing temporary barriers project, larger vessels cannot use these channels when the barriers are in place. A boat lock at the proposed facility would ensure boat access upstream of the gate regardless of gate operations. In this regard, upstream boat access could improve over current conditions. Additionally, from June 16 through September 30, the gates will be open and no boat lock operations will be necessary.

With respect to both recreational and commercial navigation, and based on analysis provided in the SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14, 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will be less than significant (p. 5.8-15. 5.8-19, 5.8-22), impact on non-recreational boaters due to temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on recreation as a result of constructing and operating any of the alternatives will not be significant (p. 7.4-1).

Construction of the operable barrier could result in increased sedimentation near the gates. Maintenance dredging around the gate would be necessary to clear out sediment deposits. Dredging around the gates would be conducted using a sealed clamshell dredge. Depending on the rate of sedimentation, maintenance would occur every 3 to 5 years. A formal dredging plan with further details on specific maintenance dredging activities will be developed prior to dredging activities. Guidelines related to dredging activities, including compliance with in-water work windows and turbidity standards are described further in Appendix 3B, *Environmental Commitments*, under *Disposal and Reuse of Spoils, Reusable Tunnel Material (RTM), and Dredged Material*. These activities would ensure that sedimentation would not result in an adverse impact on navigation.

NEPA Effects: With respect to construction and operations of the Head of Old River Barrier, Alternative 2C would have no adverse effect on either commercial or recreational navigation activities.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as

explained above, construction and operation of the Head of Old River operable barrier will not have a significant impact on navigation.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 2C would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 2C facilities.

NEPA Effects: Alternative 2C in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 2C in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.8 Alternative 3—Dual Conveyance with Pipeline/Tunnel and Intakes 1 and 2 (6,000 cfs; Operational Scenario A)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities would be lower compared to Alternative 1A due to the reduction in the number of intakes (approximately 60% reduction). Localized impacts in the vicinity of Intakes 3, 4, and 5 would not occur.

As shown in Table 19-8, under BPBG conditions, a total of 25~~23~~ roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8, construction associated with Alternative 3 would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 47~~33~~ roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 3 would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **22~~10~~** roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation effects.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-8 because construction associated with Alternative 3 would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 3 would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at **22~~10~~** roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS

threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 3 would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~8~~7). As shown in Table 19-8, traffic volumes during construction of Alternative 3 would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 3 would be similar to those described for Alternative 4. Although Alternative 3 includes one less intakes (Alternative 3 includes two intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the number of intakes would not substantially change the analysis. Nevertheless, because Alternative 3 includes less intakes, the effects to surface elevations caused by intakes would likely be less than those described for Alternative 4.

Alternative 3 includes the construction of two fish-screened intakes (Intakes 1 and 2) on the east bank of the Sacramento River. Construction for Intakes 1 and 2 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites

due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 3 would result in alterations to drainage patterns, stream courses, and runoff, and potential for slightly increased surface water elevations in the rivers and streams from construction of facilities located within the waterway, similar in type but to a lesser extent than described for Alternative 1A. Construction of the facilities under Alternative 3 would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 3 creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 3.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 3 would be similar in type to those described for Alternative 4; however, the effect will likely be much less under Alternative 3 because Alternative 3 includes two intakes (one less than Alternative 4) and because Alternative 3 has a 6,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). In any event, the hydraulic modeling scenario and analysis for changes in surface water elevations included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs). Again, because

Alternative 3 includes only two intakes, and only 9,000 cfs capacity, the imp[act would be much less than described for Alternative 4.

With respect to Alternative 3, operation of Intakes 1 and 2 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 3, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 3 would be similar in type to those described for Alternative 4; however, the impacts would be less under Alternative 3 because Alternative 3 includes one less intake (Alternative 3 includes two intakes compared to three for Alternative 4). In any event, the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the lower number of intakes does not substantially change the analysis.

Construction for Intakes 1 and 2 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 3 would be similar to those described for Alternative 4. Although Alternative 3 includes a greater number of barge fleeting facilities (six compared to five for Alternative 4), the effects to sedimentation caused by construction of the facilities is highly localized, and therefore, the greater number of barge facilities would not result in a greater level of impacts on navigation.

Because it includes fewer intakes, Alternative 3 would involve fewer temporary barge fleeting facilities than Alternative 4. The temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the barge landings would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 3, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 3 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 3 would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 3 would be similar in type to those described for Alternative 4; however, the impacts under Alternative 3 would be less because Alternative 3 includes one less intake (Alternative 3 includes two intakes compared to three for Alternative 4). In any event, the effects to sedimentation during operation of the proposed intakes under Alternative 3 would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 3. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 3 would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 3 facilities.

NEPA Effects: Alternative 3 in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 3 in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel and Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)

A total of three intakes would be constructed under Alternative 4. For the purposes of this analysis, Alternative 4 was assumed to include Intakes 2, 3, and 5. This alternative would also include an intermediate forebay, and ~~the conveyance facility would be a buried pipeline~~tunnel conveyance system (~~see~~ Figures 3-9 and 3-10 in Chapter 3, *Description of Alternatives*).

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: As shown in Table 19-25, under BPBG conditions, a total of 23 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-25, construction associated with Alternative 4 would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~36~~ 38 roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type).[1] Alternative 4 would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on ~~**13**~~ **15** roadway segments (~~36~~ 38 minus the 23 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3b shows the study roadway segments that could experience substantial roadway operation (LOS) impacts.

[1] The modeled traffic volumes in Table 19-25 represent a reasonable "worst-case" scenario, where all construction truck and employee trips are assigned to the roadway network for each analysis hour. Increased traffic volumes on roadway segments would vary according to the time of day, construction schedule, and intensity of construction activity. Please refer to Section 19.3.1, *Methods for Analysis*, for additional information.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-25 because construction associated with Alternative 4 would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 4 would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at ~~13~~ 15 roadway segments (~~36~~ 38 minus the 23 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, I-5, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento. Minor delays and congestion may also be created during temporary realignment of Byron Highway/South Pacific Railroad, which is needed to construct the siphon connecting the new approach canal and Jones PP approach canal.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

Table 19-25. Level of Service for Modified Pipeline/Tunnel Alternative 4

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./San Joaquin Co. Line	D	1,600	385 to 656	-	477 to 813	-	1,~~057~~097 to 1,~~393~~433	-
BRE 01	**Brentwood Blvd (old SR 4)[1]**	**Delta Rd (Oakley City Limits)**	**Balfour Rd**	C	970	586 to 1,516	11 (7-9AM; 10AM-7PM)	-	-	-	-
				D	**1,760**	**-**	**-**	**598 to 1,547**	**-**	**1,~~178~~218 to 2,~~127~~167**	**9 (8-9AM; 11-7PM)**
BRE 02	Brentwood Blvd (old SR 4)[1]	Balfour Rd	Brentwood City Limits (South)	C	1,920	369 to 1,013	-	-	-	-	-
				D	3,540	-	-	~~301~~373 to ~~825~~1,025	-	~~881~~993 to 1,~~405~~645	-
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	D	3,540	437 to 1,300	-	~~533~~542 to 1,~~586~~612	-	~~885~~922 to 1,~~938~~992	-
CC 01	Bethel Island Rd	Oakley City Limits	End	D	1,600	124 to 330	-	~~124~~154 to ~~330~~409	-	~~124~~239 to ~~330~~494	-
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	D	1,600	90 to 297	-	~~90~~112 to ~~297~~368	-	~~90~~197 to ~~297~~453	-
CC 03	**Old SR 4[1]**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	C	790	1,133 to 1,682	13 (6AM-7PM)	-	-	-	-
				D	**1,600**	**-**	**-**	**1,320 to 1,959**	**4 (7-8AM; 3-6PM)**	**1,~~900~~940 to 2,~~539~~579**	**13 (6AM-7PM)**

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
CC 04	Byron Hwy	Delta Rd	Old SR 4	D	1,410	108 to 240	-	~~108~~109 to ~~240~~243	-	~~108~~194 to ~~240~~328	-
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./ Alameda Co. Line**	**D**	**1,600**	**483 to 907**	**-**	**599 to 1,125**	**-**	**1,~~179~~219 to 1,~~705~~745**	**~~3~~ ~~(84~~ (~~7~~-9AM; 3-4PM; 5-6PM)**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**F**	**6,060**	**2,589 to 5,820**	**-**	**~~2987~~3,131 to ~~6,714~~7,039**	**1 (7-8AM)**	**3,~~364~~336 to 7,~~091~~244**	**1 (7-8AM)**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**F**	**6,060**	**1,647 to 5,705**	**-**	**1,~~870~~952 to 6,~~479~~761**	**2 (4-6PM)**	**2,~~247~~157 to 6,~~856~~966**	**2 (4-6PM)**
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	F	6,060	2,359 to 5,156	-	2,~~359~~688 to 5,~~156~~876	-	2,~~359~~793 to 5,~~156~~981	-
CT 04	**I-5 SB**	**Pocket Rd**	**Laguna Blvd**	**F**	**6,060**	**1,543 to 5,243**	**-**	**1,~~543~~775 to ~~5,243~~6,031**	**-**	**1,~~543~~880 to ~~5,243~~6,136**	**-1 (5-6PM)**
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,820 to 3,339	-	~~1,820~~2,118 to 3,~~339~~885	-	~~1,820~~2,223 to 3,~~339~~990	-
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,254 to 3,332	-	1,~~254~~456 to 3,~~332~~868	-	1,~~254~~561 to 3,~~332~~973	-

						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 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,504 to 2,162	-	1,~~751~~789 to 2,~~517~~572	-	2,~~210~~279 to ~~2,976~~3,062	-
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,217 to 2,236	-	1,~~425~~458 to 2,~~619~~678	-	1,~~884~~948 to 3,~~078~~168	-
CT 09	I-5 NB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,414 to 1,851	-	1,~~644~~728 to 2,~~152~~262	-	~~2,021~~1,933 to 2,~~529~~467	-
CT 10	I-5 SB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,207 to 1,964	-	1,~~405~~476 to 2,~~285~~402	-	1,~~782~~681 to 2,~~662~~607	-
CT 11	I-5 NB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,312 to 1,720	-	1,~~561~~600 to 2,~~047~~097	-	2,~~020~~090 to 2,~~506~~587	-
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,111 to 1,813	-	1,~~322~~355 to 2,~~158~~211	-	1,~~781~~845 to 2,~~617~~701	-
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	C	2,880	1,374 to 1,803	-	1,~~704~~786 to 2,~~236~~344	-	1,~~812~~901 to 2,~~344~~459	-
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	C	2,880	1,128 to 1,894	-	1,~~399~~466 to 2,~~349~~462	-	1,~~507~~581 to 2,~~457~~577	-
CT 15	I-5 NB	Peltier Rd	Turner Rd	C	2,880	1,421 to 1,885	-	1,~~421~~847 to ~~1,885~~2,451	-	1,~~421~~952 to ~~1,885~~2,556	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 16	I-5 SB	Peltier Rd	Turner Rd	C	2,880	1,145 to 1,974	-	1,~~145~~489 to ~~1,974~~2,566	-	1,~~145~~594 to ~~1,974~~2,671	-
CT 17	I-5 NB	Turner Rd	SR 12	C	2,880	1,288 to 1,985	-	1,~~623~~674 to 2,~~501~~581	-	1,~~664~~779 to 2,~~542~~686	-
CT 18	I-5 SB	Turner Rd	SR 12	C	2,880	1,124 to 1,482	-	1,~~416~~461 to 1,~~867~~927	-	1,~~457~~566 to ~~1,908~~2,032	-
CT 19	I-5 NB	SR 12	Eight Mile Rd	C	4,400	1,533 to 2,267	-	1,~~870~~932 to 2,~~766~~856	-	~~1,911~~2,037 to 2,~~807~~961	-
CT 20	I-5 SB	SR 12	Eight Mile Rd	C	4,400	1,243 to 2,070	-	1,~~516~~566 to 2,~~525~~608	-	1,~~557~~671 to 2,~~566~~713	-
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	D	5,410	1,937 to 3,452	-	~~1,937~~2,441 to ~~3,452~~4,350	-	~~1,937~~2,546 to ~~3,452~~4,455	-
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	D	5,410	1,817 to 2,760	-	~~1,817~~2,289 to ~~2,760~~3,478	-	~~1,817 to~~ 2,~~760~~394to 3,583	-
CT 23	SR 160 (Freeport Blvd)	Sacramento City Limits	Freeport Bridge	E	1,740	136 to 476	-	~~153~~162 to ~~536~~566	-	~~906~~572 to ~~1,289~~976	-

						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 24	SR 160 (Freeport Blvd/ River Rd)	Freeport Bridge	Scribner Rd	E	1,740	94 to 180	-	94 to 180	-	~~847~~504 to ~~933~~590	-
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	E	1,740	41 to 125	-	41 to 125	-	~~794~~451 to ~~878~~535	-
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	E	1,740	105 to 170	-	~~124~~127 to ~~201~~206	-	~~1,042~~747 to ~~1,119~~826	-
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	E	1,740	69 to 122	-	~~77~~79 to ~~136~~139	-	~~995~~699 to ~~1,054~~759	-
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	E	1,740	75 to 150	-	~~81~~83 to ~~163~~166	-	~~999~~703 to ~~1,081~~786	-
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	E	1,740	78 to 128	-	~~97~~100 to ~~161~~166	-	~~1,015~~720 to ~~1,079~~786	-
CT 30	SR 160 (River Rd)	Walnut Grove Bridge	A St (Isleton)	E	1,740	173 to 465	-	173 to 465	-	~~1,091~~793 to 1,~~383~~085	-
CT 31	SR 160	A St (Isleton)	SR 12	E	1,740	193 to 378	-	193 to 378	-	~~1,111~~813 to ~~1,296~~998	-
CT 32	SR 160	SR 12	Brannan Island Rd	F	1,740	530 to 894	-	~~578~~587 to ~~975~~991	-	1,~~658~~207 to ~~2,055~~1,611	~~9 (6-10AM; 2-7PM)~~ -
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**B**	**200**	**40 to 169**	**-**	**46 to 194**	**-**	**~~626~~666 to ~~774~~814**	**13 (6AM-7PM)**

						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 34	SR 84 (Courtland Rd/ Ryer Ave)	Courtland Rd	Cache Slough Ferry	C	680	10 to 25	-	~~10~~11 to ~~25~~28	-	~~10~~126 to ~~25~~143	-
CT 35	**I-80 EB**	**Suisun Valley Rd**	**SR 12**	**C**	**8,350**	**3,079 to 6,994**	**-**	**~~3,880~~4,003 to ~~8,812~~9,092**	**3 (3-6PM)**	**4,~~421~~493 to 9,~~353~~582**	**~~3~~ (~~34~~2-6PM)**
CT 36	**I-80 WB**	**Suisun Valley Rd**	**SR 12**	**C**	**8,350**	**5,751 to 8,892**	**~~28~~ (6-~~8AM~~10AM; 2-6PM)**	**7,~~246~~476 to 11,~~204~~560**	**6 (6-9AM; 3-6PM)**	**7,~~787~~966 to ~~11,745~~12,050**	**~~9~~10 (6-~~10AM~~11AM; 1-6PM)**
CT 37	**SR 12 EB**	**I-80**	**Beck Ave**	**C**	**2,880**	**528 to 1,847**	**-**	**~~676~~697 to 2,~~364~~438**	**-**	**1,~~217~~187 to 2,~~905~~928**	**2 (5-7PM)**
CT 38	SR 12 WB	I-80	Beck Ave	C	2,880	829 to 1,625	-	1,~~061~~094 to 2,~~080~~145	-	1,~~602~~584 to 2,~~621~~635	-
CT 39	**SR 12**	**Beck Ave**	**Sunset Ave/ Grizzly Island Rd**	**C**	**5,060**	**2,408 to 3,573**	**-**	**3,~~046~~137 to 4,~~519~~655**	**-**	**~~4,086~~3,757 to 5,~~559~~275**	**2 (3 ~~(3-6PM-~~5PM)**
CT 40	SR 12	Sunset Ave/ Grizzly Island Rd	Walters Rd/ Lawler Ranch Pkwy	C	5,060	1,607 to 2,353	-	2,~~057~~121 to 3,~~012~~106	-	~~3,097~~2,741 to ~~4,052~~3,726	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 41	**SR 12**	**Walters Rd/ Lawler Ranch Pkwy**	**SR 113**	**C**	**790**	**627 to 1,075**	**10 (6-8AM; 9-1PM; 2-6PM)**	**~~803~~828 to 1,~~376~~419**	**13 (6AM-7PM)**	**1,~~843~~448 to 2,~~416~~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,~~373~~416 to ~~1,976~~2,038**	**13 (6AM-7PM)**	**2,~~413~~036 to ~~3,016~~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,~~453~~498 to 2,~~157~~224**	**13 (6AM-7PM)**	**2,~~493~~118 to ~~3,197~~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)**	**~~845~~873 to 1,~~236~~277**	**13 (6AM-7PM)**	**~~926~~988 to 1,~~317~~392**	**13 (6AM-7PM)**
CT 45	**SR 12**	**Sacramento Co./ SJ Co. Line**	**I-5**	**C**	**790**	**773 to 1,164**	**12 (6AM–6PM)**	**~~840~~853 to 1,~~264~~284**	**13 (6AM-7PM)**	**~~921~~968 to 1,~~345~~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,~~398~~418 to 6,~~031~~051**	**7 (~~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,~~853~~873 to 5,~~157~~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,~~149~~189 to 1,~~921~~961**	**~~1~~ (~~5~~2 (4-6PM)**
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**C**	**680**	**174 to 294**	**-**	**216 to 365**	**-**	**~~796~~836 to ~~945~~985**	**13 (6AM-7PM)**

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
				D	1,600	442 to 733	-	-	-	-	-
CT 50	**SR 4 (Marsh Creek Rd)[2]**	**Vasco Rd**	**Byron Hwy (Old SR 4)**	**C**	**790**	**-**	**-**	**548 to 909**	**2 (4-6PM)**	**1,~~128~~168 to 1,~~489~~529**	**13 (6AM-7PM)**
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**D**	**1,600**	**554 to 1,224**	**-**	**654 to 1,445**	**-**	**1,~~234~~274 to 2,~~025~~065**	**11 (8AM-7PM)**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**C**	**790**	**412 to 746**	**-**	**412 to 746**	**-**	**~~992~~1,032 to 1,~~326~~366**	**13 (6AM-7PM)**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**D**	**1,410**	**867 to 1,492**	**1 (4-5PM)**	**867 to 1,492**	**1 (4-5PM)**	**1,~~447~~487 to 2,~~072~~112**	**13 (6AM-7PM)**
CT 54	I-5 NB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	2,552 to 4,815	-	3,201 to 6,039	-	3,~~781~~821 to 6,~~619~~659	-
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**D**	**7,280**	**4,550 to 5,913**	**-**	**5,747 to 7,468**	**2 (7-8AM; 5-6PM)**	**6,~~327~~367 to 8,~~048~~088**	**5 (7-8AM; 2-6PM)**
CT 56	**I-5 NB**	**SR 4 (Charter Way)**	**Eighth Street**	**D**	**5,410**	**2,430 to 4,586**	**-**	**3,159 to 5,962**	**3 (3-6PM)**	**3,~~739~~779 to 6,~~542~~582**	**4 (2-6PM)**
CT 57	**I-5 SB**	**SR 4 (Charter Way)**	**Eighth Street**	**D**	**5,410**	**4,333 to 5,631**	**3 (7-8AM; 4-6PM)**	**5,633 to 7,320**	**13 (6AM-7PM)**	**6,~~213~~253 to 7,~~900~~940**	**13 (6AM-7PM)**
CT 58	**I-205 EB**	**I-580**	**Mountain House Pkwy**	**C**	**4,400**	**1,350 to 5,071**	**4 (3-7PM)**	**1,629 to 6,118**	**5 (2-7PM)**	**1,~~919~~939 to 6,~~408~~428**	**5 (2-7PM)**

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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 59	**I-205 WB**	**I-580**	**Mountain House Pkwy**	**C**	**4,400**	**1,873 to 4,867**	**2 (6-8AM)**	**2,270 to 5,898**	**3 (6-9AM)**	**2,~~560~~580 to 6,~~188~~208**	**3 (6-9AM)**
CT 60	**I-205 EB**	**Mountain House Pkwy**	**Eleventh St**	**C**	**4,400**	**1,431 to 5,068**	**4 (3-7PM)**	**1,803 to 6,386**	**5 (2-7PM)**	**2,~~093~~113 to 6,~~676~~696**	**5 (2-7PM)**
CT 61	**I-205 WB**	**Mountain House Pkwy**	**Eleventh St**	**C**	**4,400**	**1,875 to 4,117**	**-**	**2,363 to 5,187**	**2 (6-8AM)**	**2,~~653~~673 to 5,~~477~~497**	**3 (6-9AM)**
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	D	5,410	1,525 to 4,200	-	1,~~769~~922 to ~~4,872~~5,292	-	1,~~833~~967 to ~~4,936~~5,337	-
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	D	5,410	1,852 to 3,079	-	2,~~148~~334 to 3,~~572~~880	-	2,~~212~~379 to 3,~~636~~925	-
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	D	5,410	1,511 to 4,182	-	1,~~753~~904 to ~~4,851~~5,269	-	1,~~817~~949 to ~~4,915~~5,314	-
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	D	5,410	2,083 to 3,446	-	2,~~416~~625 to ~~3,997~~4,342	-	2,~~480~~670 to 4,~~061~~387	-
ISL 01	A St/4th St/ Jackson Blvd.	SR 160	Isleton City Limits	D	1,410	17 to 75	-	17 to 75	-	~~17~~62 to ~~75~~120	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
OAK 01	Main Street (Old SR 4)[1]	SR 160	Cypress Rd	C	1,920	752 to 1,663	-	-	-	-	-
				D	3,540	-	-	882 to 1,951	-	1,~~462~~502 to 2,~~531~~571	-
OAK 02	**Main Street (Old SR 4)[1]**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	**C**	**970**	**722 to 1,335**	**10 (7-9AM; 11AM-7PM)**	**-**	**-**	**-**	**-**
				D	**1,760**	**-**	**-**	**939 to 1,736**	**-**	**1,~~519~~559 to 2,~~316~~356**	**~~11 (7-9AM; 10AM~~12 (7AM-7PM)**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	D	1,600	304 to 764	-	~~304~~377 to ~~764~~947	-	~~304~~422 to ~~764~~992	-
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	D	1,410	140 to 367	-	~~140~~174 to ~~367~~455	-	~~140~~219 to ~~367~~500	-
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	D	1,410	155 to 334	-	~~155~~157 to ~~334~~339	-	~~155~~202 to ~~334~~384	-
SAC 01	Pocket Rd	I-5	Freeport Blvd (Old SR 160)	D	3,540	789 to 2,191	-	789 to 2,191	-	1,~~542~~199 to 2,~~944~~601	-
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	D	1,760	152 to 492	-	~~176~~188 to ~~571~~610	-	~~929~~598 to 1,~~324~~020	-
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	D	1,410	98 to 346	-	~~98~~119 to ~~346~~421	-	~~98~~164 to ~~346~~466	-
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	D	1,410	77 to 137		~~84~~86 to ~~150~~153	-	~~1,002~~706 to ~~1,068~~773	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	D	1,410	10 to 29	-	12 to ~~34~~35	-	~~930~~632 to ~~952~~655	-
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	D	1,410	19 to 38	-	20 to 40	-	~~938~~640 to ~~958~~660	-
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	D	1,410	41 to 71	-	42 to ~~72~~73	-	~~960~~662 to ~~990~~693	-
SC 06	Twin Cities Rd	River Rd	I-5	D	1,410	130 to 248	-	~~134~~138 to ~~255~~263	-	~~512~~543 to ~~633~~668	-
SC 07	Twin Cities Rd	I-5	Franklin Blvd	D	1,410	141 to 318	-	~~141~~164 to ~~318~~370	-	~~141~~209 to ~~318~~415	-
SC 08	Sutter Slough Bridge Rd	Sacramento Co./ Yolo Co. Line	Paintersville Bridge	D	1,410	51 to 113	-	63 to 140	-	~~643~~683 to ~~720~~760	-
SC 09	River Rd (Sac Co.)	Paintersville Bridge	Twin Cities Rd	D	1,410	85 to 134	-	~~85~~87 to ~~134~~138	-	~~85~~132 to ~~134~~183	-
SC 10	River Rd (Sac Co.)	Twin Cities Rd	Walnut Grove Bridge	D	1,600	223 to 365	-	~~230~~237 to ~~377~~388	-	~~608~~642 to ~~755~~793	-
SC 11	Walnut Grove Rd/ River Rd	Walnut Grove Bridge	Sacramento Co./ SJ Co. Line	D	1,410	175 to 332	-	~~185~~188 to ~~351~~357	-	~~401~~418 to ~~567~~587	-
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	D	1,410	61 to 283	-	61 to 283	-	~~61~~106 to ~~283~~328	-
SC 13	Race Track Rd/ Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	D	1,410	17 to 34	-	~~17~~18 to ~~34~~36	-	~~17~~63 to ~~34~~81	-
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	D	1,410	14 to 39	-	14 to 39	-	~~14~~59 to ~~39~~84	-

						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
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	D	1,410	4 to 53	-	~~4~~5 to ~~53~~66	-	~~4~~50 to ~~53~~111	-
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	D	1,410	16 to 52	-	~~16~~20 to ~~52~~64	-	~~16~~65 to ~~52~~109	-
SJ 01	Walnut Grove Rd	Sacramento Co./ SJ Co. Line	I-5	C	790	141 to 232	-	~~149~~152 to ~~245~~250	-	~~365~~382 to ~~461~~480	-
SJ 02	Peltier Rd	Blossom Rd	I-5	C	680	8 to 23	-	8 to 23	-	~~8~~53 to ~~23~~68	-
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	C	790	108 to 209	-	108 to 209	-	~~460~~483 to ~~561~~584	-
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	C	790	69 to 171	-	~~84~~86 to ~~209~~212	-	~~436~~461 to ~~561~~587	-
SJ 05	**Byron Hwy**	**Alameda Co./San Joaquin Co. Line**	**Mountain House Pkwy**	**D**	**1,600**	**521 to 824**	**-**	**646 to 1,022**	**-**	**1,~~226~~266 to 1,~~602~~642**	**~~14~~ (7-8AM; 3-6PM)**
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	D	1,410	190 to 298	-	236 to 370	-	~~816~~856 to ~~950~~990	-
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	D	3,540	418 to 769	-	543 to 1,000	-	1,~~123~~163 to 1,~~580~~620	-
STK 01	Eight Mile Rd	Stockton City Limits	I-5	E	1,870	309 to 769	-	~~309~~383 to ~~769~~954	-	~~309~~428 to ~~769~~999	-
TRA 01	Tracy Blvd	Tracy City Limits	I-205	E	1,870	309 to 759	-	~~377~~383 to ~~926~~941	-	~~729~~758 to 1,~~278~~316	-
WS 01	Harbor Blvd	Industrial Blvd	US 50	D	3,540	1,140 to 2,317	-	1,374 to 2,793	-	1,~~954~~994 to 3,~~373~~413	-

ID	Segment	From	To	LOS Threshold	LOS Hourly Volume Threshold	Baseline Conditions		Baseline Plus Background Growth Conditions		BPBGPP Conditions	
						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
WS 02	**Industrial Blvd/ Lake Washington Blvd**	**Harbor Blvd**	**Jefferson Blvd (Old SR 84)**	**C**	**1,920**	**773 to 1,858**	**-**	**959 to 2,304**	**2 (7-8AM; 5-6PM)**	**1,~~539~~579 to 2,~~884~~924**	**9 (7-9AM; 12-7PM)**
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**C**	**1,920**	**546 to 1,718**	**-**	**665 to 2,094**	**1 (5-6PM)**	**1,~~245~~285 to 2,~~674~~714**	**6 (7-9AM; 3-7PM)**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**C**	**680**	**42 to 146**	**-**	**50 to 174**	**-**	**~~630~~670 to ~~754~~794**	**~~6 (7-9AM; 2-6PM)~~12 (7AM-7PM)**
YOL 01	River Rd (Yolo Co.)	Freeport Bridge	Courtland Rd	C	680	74 to 249	-	~~74~~79 to ~~249~~265	-	~~74~~124 to ~~249~~310	-
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./ Yolo Co. Line**	**C**	**680**	**25 to 63**	**-**	**31 to 78**	**-**	**~~611~~651 to ~~658~~698**	**~~-~~2 (8-9AM; 5-6PM)**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**C**	**680**	**28 to 77**	**-**	**35 to 95**	**-**	**~~615~~655 to ~~675~~715**	**~~-~~4 (7-8AM; 3-6PM)**

						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

Source: Appendix 19A, Bay Delta Conservation Plan Construction Traffic Impact Analysis

* Segment IDs correspond to the segment IDs mapped on Figures 19-2a through 19-2c.

Notes:

1 Facility is analyzed as a Caltrans facility under Baseline Conditions and a local facility under Baseline Plus Construction Conditions – roadway is relinquished to local jurisdiction after Baseline Year (2009). LOS Threshold is LOS C under Baseline Conditions and changes to LOS D under Baseline Plus Construction Conditions.

2 Facility is analyzed as a local facility under Baseline Conditions and a Caltrans facility under Baseline Plus Construction Conditions – roadway is adopted as a State facility after Baseline Year (2009). LOS Threshold is LOS D under Baseline Conditions and changes to LOS C under Baseline Plus Construction Conditions.

3 Modified pipeline/tunnel (Alternative 4) construction traffic estimates for construction of the pipelines, intermediate Forebay, intermediate outlet are based on construction features shared with the pipeline/tunnel alternatives. This analysis does not reflect potential reductions in construction traffic associated with the modified pipeline/tunnel for these features due to differences in the scale of construction activity. Traffic volumes for all other construction features (e.g., intakes, pumping plants) are based on estimates specific to the modified pipeline/tunnel alignment.

1

***CEQA Conclusion*:** Construction under Alternative 4 would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~25~~7). As shown in Table 19-25, traffic volumes during construction of Alternative 4 would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact through development of TMPs that would minimize traffic impacts, limiting construction activities during commute hours and by working with affected state, regional, or local agencies to alleviate road congestion issues.~~;~~ but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement identified in the mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Prior to construction, the BDCP proponents will be responsible for project management and may contract with one or more construction management firms to assist in ensuring that construction contractors' crews and schedules are coordinated and that the plans and specifications are being followed. The BDCP proponents will also ensure development of site-specific construction traffic management plans (TMPs) that address the specific steps to be taken before, during, and after construction to minimize traffic impacts, including the mitigation measures and environmental commitments identified in this EIR/EIS. This will include potential expansion of the study area identified in this EIR/EIS to capture all potentially significantly affected roadway segments.

The BDCP proponents will be responsible for developing the TMPs in coordination with the applicable jurisdictions, including Caltrans for state and federal facilities and local agencies for local roads, transit providers, rail operators, and commercial barge operators, the U.S. Coast Guard, boating organizations, marinas, city and county parks departments, and the California Department of Parks and Recreation (DPR), where applicable. The BDCP proponents will also ensure that the TMPs are implemented prior to beginning construction at a site, including in-water construction sites. If necessary to minimize unexpected operational impacts or delays experienced during real-time construction, the BDCP proponents will also be responsible for modifying the traffic management plan to reduce these effects.

Each TMP will address the following, as needed. Implementation of this measure will ensure operational traffic impacts and delays experienced during construction will be minimized to the greatest extent feasible.

- Signage warning of roadway surface conditions such as loose gravel, steel plates or similar conditions that could be hazardous to road cycling activity on roadways open to bicycle traffic.
- Signage and barricades to be used around the work sites.
- In-water work areas will be indicated by buoys, signage, or other effective means to warn boaters of their presence and restrict access. Warning devices and signage (e.g., "boats keep

out" or "no wake zone" labeled buoys) will be in compliance with the U.S. Coast Guard Private Aid to Navigation requirements (U.S. Coast Guard 2012) and effective during non-daylight hours and periods of dense fog.

- Use of flag people or temporary traffic signals/signage as necessary to slow or detour traffic.
- Notifications for the public, emergency providers, cycling organizations, bike shops, and schools, the U.S. Coast Guard, boating organizations, marinas, city and county parks departments, and DPR, where applicable, describing construction activities that could affect transportation and water navigation.
- Outreach (via public meetings and/or flyers and other advertisements)
- Procedures for construction area evacuation in the case of an emergency declared by county or other local authorities.
- Alternate access routes via detours and bridges to maintain continual circulation for local travelers in and around construction zones, including bicycle riders, pedestrians, and boaters, where applicable.
- Description of construction staging areas, material delivery routes, and specification of construction vehicle travel hour limits.
- Notifications to commercial and leisure boating community of proposed barge operations in the waterways, including posting notices at Delta marinas and public launch ramps. This information will provide details regarding construction site location(s), construction schedules, and identification of no-wake zone, speed restricted zones, and/or detours, where applicable.
- No-wake zone and speed-restrictions will be established as part of development of the site-specific plans and will be determined to protect the safety of construction workers and recreationists.
- Designation of areas where nighttime construction will occur.
- Plans to relocate school bus drop-off and pick-up locations if they will be affected during construction.
- Scheduling for oversized material deliveries to the work site and haul routes.
- Provisions that direct haulers are to pull over in the event of an emergency. If an emergency vehicle is approaching on a narrow two-way roadway, specify measures to ensure that appropriate maneuvers will be conducted by the construction vehicles to allow continual access for the emergency vehicles at the time of an emergency.
- Control for any temporary road closure, detour, or other disruption to traffic circulation, including any temporary partial water channel closures.
- Designated offsite vehicle staging and parking areas.
- Posted information for contact in case of emergency or complaint.
- Daily construction time windows during which construction is restricted or rail operations would need to be suspended for any activity within railroad rights of way.

- Coordination with rail providers (BNSF Railway, Amtrak, and UPRR) to develop alternative interim transportation modes (e.g., trucks or buses) that could be used to provide freight and/or passenger service during any longer term railroad closures.
- Coordination with transit providers (SCT, Tri-Delta, Rio Vista, and Greyhound Bus Lines) to develop daily construction time windows during which transit operations would not be either detoured or significantly slowed.
- Routinely post information to the 511.org website regarding construction delays and detours.
- Other actions to be identified and developed as may be needed by the construction manager/ resident engineer to ensure that temporary impacts on transportation facilities are minimized.

As additional mitigation to minimize delays to transit vehicles due to projected traffic congestion and to encourage use of alternative modes of travel, including transit, the BDCP proponents are required to develop a Transportation Demand Management (TDM) program for construction contractor's crews to reduce the number of project trips. The program shall include and implement any combination of measures that would reduce the proposed project's trips and associated parking demand. The measures include:

- Promote ride sharing programs by methods that may include designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles.
- Provide public transit incentives such as fully-subsidized or low-cost monthly transit passes.
- Provide shuttle service and/or funding for a shuttle for residents that are outside of walking distance from a transit line.
- Offering a parking cash out program.

The plan also includes more passive measures to further reduce trips:

- Addition of pedestrian and bicycle facilities;
- Provision of carpool/vanpool/ride-matching services;
- Provision of transportation information for contractors;
- Provision of a transportation information center.

Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on Congested Roadway Segments

Where feasible, limit construction activity to fit within available reserve capacity or shift construction activity to hours with more reserve capacity so as to achieve acceptable LOS conditions (~~see~~ Table 19-7). The BDCP proponents will include in the bid specifications a requirement that the contractor submit a proposal for a process for determining when the hours of construction can feasibly be limited to avoid operational deficiencies on identified roadway segments as specified in Table 19-9.

Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation Agreements to Enhance Capacity of Congested Roadway Segments

Prior to commencement of construction activities substantially affecting transportation facilities, the BDCP proponents will make a good faith effort to enter into mitigation agreements with affected state, regional, or local agencies ("affected agencies") to verify the location, extent, timing, and fair share cost to be paid for ~~capacity enhancements~~reducing congestion to the identified roadway segments specified in Table 19-9.

Implementation of this measure is intended to provide funding from BDCP proponents sufficient to provide their fair share of the cost of ~~capacity expansion~~reducing congestion so that traffic operating conditions (i.e., LOS) on study area roadways do not operate at a level of service or delay that is worse than the pre-project conditions (to the extent feasible in light of costs, logistics, and other factors). The BDCP proponents will include in the bid specifications requirements that the contractor(s) ensure that all enhancements are conducted in compliance with applicable standards of affected agencies and with any applicable mitigation agreements, as described below.

In attempting in good faith to enter into mitigation agreements with affected agencies, BDCP proponents shall be guided by the following principles. The BDCP proponents shall be responsible for their fair share costs of all feasible ~~capacity-expanding physical improvements~~temporary congestion reducing programs and improvements jointly determined by BDCP proponents and the affected agencies to be necessary, feasible, and available to reduce the severity of the BDCP's temporary, significant construction-related transportation impacts. Fair share calculations shall account not only for traffic levels as they existed at the time of the public release of the BDCP Draft EIR/EIS, but also for "background growth" between that time frame and the commencement of BDCP construction activities, as well as any probable future projects in the affected agency or neighboring agencies that will likely contribute to the need for, and directly benefit from, ~~increased capacity~~temporary congestion reduction.

The BDCP proponents' contribution toward such improvements may take any, or some combination, of the following forms:

1) Construction of improvements, which may be subject to fee credits and/or reimbursement, coordinated by the affected agency, from other fee-paying development projects if available with respect to improvements that would also benefit such fee-paying development projects;

2) The payment of impact fees to the affected agency in amounts that constitute the BDCP proponents' fair share contributions to the construction of the required improvements, consistent with the affected agency's Capital Improvement Program ("CIP") or other funding program that meets the definition of a "reasonable plan for mitigation" under CEQA case law (i.e., a plan that ensures that (i) the fees collected from the BDCP proponents will be used for their intended purposes, and (ii) the improvements will actually be built within a reasonable period of time);

3) The payment of adopted regional impact fees that would provide funding for transportation facilities that are affected by multiple agencies, except where the BDCP proponents' payments of other fees or construction of improvements within the affected agency will create credit against the payment of regional impact fees;

4) The payment of impact fees to the affected agency in amounts that constitute the BDCP proponents' fair share contributions to the construction of improvements within other agencies and not the affected agency, which payments to the affected agency and transmittal of fees to other agency would occur through one or more enforceable agreements, provided that for each required improvement there is a reasonable plan for mitigation that ensures that (i) the fees collected from the BDCP proponents will be used for their intended purposes, and (ii) the improvements will actually be built within a reasonable period of time; and/or

5) The payment of impact fees to the California Department of Transportation ("Caltrans") in amounts that constitute the BDCP proponents' fair share contributions to the construction of improvements on federal or state highways or freeways needed in part because of the BDCP, to be made available to Caltrans if and when Caltrans, DWR, and any other the affected agency enter into an enforceable agreement consistent with state law, provided that, for each required improvement, Caltrans has a reasonable mitigation plan that ensures that (i) the fees collected from the BDCP proponents will be used for their intended purposes, and (ii) the improvements will actually be built within a reasonable period of time.

In order to obtain the most fair, accurate, and up-to-date calculations of the BDCP proponents' fair share of the costs of required improvements, the agreement(s) reached between BDCP proponents and the affected agency or agencies shall also provide for the following: (i) that the traffic models to be used be ~~operated by transportation consultant~~ mutually acceptable to both BDCP proponents and the affected agency or agencies; and (ii) that the calculations account for (A) newly approved projects cumulatively that contribute to transportation-related impacts and that therefore should contribute to the funding of necessary improvements, and (B) up-to-date cost calculations for the construction of needed improvements based on recent changes in the costs of materials, labor, and other inputs.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: As shown in Table 19-26, construction of Alternative 4 would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of ~~42~~ 46 roadway segments. Damage to roadway pavement is expected throughout the study area (Figure 19-4b) on various local and state roads, as well as on a few interstates.

Table 19-26. Pavement Conditions for Modified Pipeline/Tunnel Alternative 4

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
ALA 01	Byron Hwy	Contra Costa Co./Alameda Co. Line	Alameda Co./ San Joaquin Co. Line	Acceptable	Yes	No
BRE 01	Brentwood Blvd (old SR 4)	Delta Rd (Oakley City Limits)	Balfour Rd	Acceptable	Yes	No
BRE 02	Brentwood Blvd (old SR 4)	Balfour Rd	Brentwood City Limits (South)	Acceptable	Yes	No
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	Acceptable	Yes	No
CC 01	**Bethel Island Rd**	**Oakley City Limits**	**End**	**Deficient**	**No**	**No**
CC 02	**Balfour Rd**	**Brentwood City Limits**	**Byron Hwy**	**Deficient**	**No**	**No**
CC 03	**Old SR 4**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	**Deficient**	**Yes**	**Yes**
CC 04	Byron Hwy	Delta Rd	Old SR 4	Acceptable	~~No~~Yes	No
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./Alameda Co. Line**	**Deficient**	**Yes**	**Yes**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**Deficient**	**Yes**	**Yes**
CT 03	**I-5 NB**	**Pocket Rd**	**Laguna Blvd**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CT 04	**I-5 SB**	**Pocket Rd**	**Laguna Blvd**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CT 05	**I-5 NB**	**Laguna Blvd**	**Elk Grove Blvd**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CT 06	**I-5 SB**	**Laguna Blvd**	**Elk Grove Blvd**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	Yes	No
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	Yes	No
CT 09	**I-5 NB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 10	**I-5 SB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 11	**I-5 NB**	**Twin Cities Rd**	**Walnut Grove Rd**	**Deficient**	**Yes**	**Yes**
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 15	I-5 NB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 16	I-5 SB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 17	I-5 NB	Turner Rd	SR 12	Acceptable	Yes	No
CT 18	I-5 SB	Turner Rd	SR 12	Acceptable	Yes	No
CT 19	**I-5 NB**	**SR 12**	**Eight Mile Rd**	**Deficient**	**Yes**	**Yes**
CT 20	I-5 SB	SR 12	Eight Mile Rd	Acceptable	Yes	No
CT 21	**I-5 NB**	**Eight Mile Rd**	**Hammer Ln**	**Deficient**	**No**	**No**
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	Acceptable	~~No~~Yes	No
CT 23	**SR 160 (Freeport Blvd)**	**Sacramento City Limits**	**Freeport Bridge**	**Deficient**	**Yes**	**Yes**
CT 24	**SR 160 (Freeport Blvd/River Rd)**	**Freeport Bridge**	**Scribner Rd**	**Deficient**	**Yes**	**Yes**
CT 25	**SR 160 (River Rd)**	**Scribner Rd**	**Hood Franklin Rd**	**Deficient**	**Yes**	**Yes**
CT 26	**SR 160 (River Rd)**	**Hood Franklin Rd**	**Lambert Rd**	**Deficient**	**Yes**	**Yes**
CT 27	**SR 160 (River Rd)**	**Lambert Rd**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	Not Applicable	Yes	No
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	Acceptable	Yes	No
CT 30	**SR 160 (River Rd)**	**Walnut Grove Bridge**	**A St (Isleton)**	**Deficient**	**Yes**	**Yes**
CT 31	**SR 160**	**A St (Isleton)**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 32	**SR 160**	**SR 12**	**Brannan Island Rd**	**Deficient**	**Yes**	**Yes**
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**Deficient**	**Yes**	**Yes**
CT 34	SR 84 (Courtland Rd/Ryer Ave)	Courtland Rd	Cache Slough Ferry	Deficient	No	No
CT 35	I-80 EB	Suisun Valley Rd	SR 12	Acceptable	Yes	No
CT 36	I-80 WB	SR 12	Suisun Valley Rd	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
CT 37	SR 12 EB	I-80	Beck Ave	Acceptable	Yes	No
CT 38	SR 12 WB	Beck Ave	I-80	Acceptable	Yes	No
CT 39	SR 12	Beck Ave	Sunset Ave/Grizzly Island Rd	Acceptable	Yes	No
CT 40	SR 12	Sunset Ave/ Grizzly Island Rd	Walters Rd/ Lawler Ranch Pkwy	Acceptable	Yes	No
CT 41	**SR 12**	**Walters Rd/ Lawler Ranch Pkwy**	**SR 113**	**Deficient**	**Yes**	**Yes**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**Deficient**	**Yes**	**Yes**
CT 43	SR 12 (Rio Vista Bridge)	SR 84 (River Rd)	SR 160 (River Rd)	Not Applicable	Yes	No
CT 44	**SR 12**	**SR 160 (River Rd)**	**Sacramento Co./SJ Co. Line**	**Deficient**	**Yes**	**Yes**
CT 45	**SR 12**	**Sacramento Co./ San Joaquin Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**Deficient**	**Yes**	**Yes**
CT 47	I-80 WB	Pedrick Rd	SR 113	Acceptable	Yes	No
CT 48	SR 113	I-80	Dixon City Limits	Acceptable	Yes	No
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 50	SR 4 (Marsh Creek Rd)	Vasco Rd	Byron Hwy (Old SR 4)	Acceptable	Yes	No
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**Deficient**	**Yes**	**Yes**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**Deficient**	**Yes**	**Yes**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 54	**I-5 NB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 58	I-205 EB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 59	I-205 WB	I-580	Mountain House Pkwy	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
ISL 01	A St/4th St/Jackson Blvd.	SR 160	Isleton City Limits	Deficient	No	No
OAK 01	**Main Street (Old SR 4)**	**SR 160**	**Cypress Rd**	**Deficient**	**Yes**	**Yes**
OAK 02	**Main Street (Old SR 4)**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	**Deficient**	**Yes**	**Yes**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	Acceptable	No	No
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	Deficient	No	No
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	Deficient	No	No
SAC 01	**Pocket Rd**	**I-5**	**Freeport Blvd (Old SR 160)**	**Deficient**	**Yes**	**Yes**
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	Acceptable	Yes	No
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	Not Applicable	No	No
SC 02	**Hood Franklin Rd**	**SR 160 (River Rd)**	**I-5**	**Deficient**	**Yes**	**Yes**
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	Acceptable	Yes	No
SC 04	**Lambert Rd**	**Herzog Rd**	**Franklin Blvd**	**Deficient**	**Yes**	**Yes**
SC 05	**Franklin Blvd**	**Lambert Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
SC 06	Twin Cities Rd	River Rd	I-5	Acceptable	Yes	No
SC 07	Twin Cities Rd	I-5	Franklin Blvd	Deficient	No	No
SC 08	**Sutter Slough Bridge Rd**	**Sacramento Co./ Yolo Co. Line**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
SC 09	River Rd (Sac Co.)	Paintersville Bridge	Twin Cities Rd	Deficient	No	No
SC 10	**River Rd (Sac Co.)**	**Twin Cities Rd**	**Walnut Grove Bridge**	**Deficient**	**Yes**	**Yes**

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
SC 11	Walnut Grove Rd/ River Rd	Walnut Grove Bridge	Sacramento Co./ San Joaquin Co. Line	Acceptable	Yes	No
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	Acceptable	No	No
SC 13	Race Track Rd/Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	Deficient	No	No
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	Deficient	No	No
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	Acceptable	No	No
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	Acceptable	No	No
SJ 01	**Walnut Grove Rd**	**Sacramento Co./ San Joaquin Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
SJ 02	Peltier Rd	Blossom Rd	I-5	Deficient	No	No
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	Acceptable	Yes	No
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	Acceptable	Yes	No
SJ 05	Byron Hwy	Alameda Co./ San Joaquin Co. Line	Mountain House Pkwy	Acceptable	Yes	No
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	Acceptable	Yes	No
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	Acceptable	Yes	No
STK 01	Eight Mile Rd	Stockton City Limits	I-5	Deficient	No	No
TRA 01	**Tracy Blvd**	**Tracy City Limits**	**I-205**	**Deficient**	**Yes**	**Yes**
WS 01	Harbor Blvd	Industrial Blvd	US 50	Acceptable	Yes	No
WS 02	Industrial Blvd/Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	Acceptable	Yes	No
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**Deficient**	**Yes**	**Yes**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**Deficient**	**Yes**	**Yes**
YOL 01	River Rd (Yolo Co.)	Freeport Bridge	Courtland Rd	Deficient	No	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions: Alternative Results in Construction Trips Added to Roadway	BPBGPP Conditions: Alternative Results in Impact on Deficient Roadway
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./Yolo Co. Line**	**Deficient**	**Yes**	**Yes**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**Deficient**	**Yes**	**Yes**

Source: Appendix 19A, Bay Delta Conservation Plan Construction Traffic Impact Analysis

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

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The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the ~~42~~ 46 locations shown in Table 19-26. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact by prohibiting or limiting construction traffic on already physically deficient roadway segments to the extent feasible as well as improving the condition of affected roadway segments following construction, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Mitigation Measure TRANS-2a: Prohibit Construction Activity on Physically Deficient Roadway Segments

The BDCP proponents will, to the extent feasible, include in the bid specifications prohibitions against construction traffic from using roadway segments with pavement conditions below the thresholds identified in this study (i.e., an IRI rating greater than 170 or a PCI rating worse than 55). Implementation of this measure would prohibit all construction traffic on the physically deficient roadway segments listed in Table 19-26, if feasible.

Mitigation Measure TRANS-2b: Limit Construction Activity on Physically Deficient Roadway Segments

If complete avoidance of physically deficient roadway segments as described in Mitigation Measure TRANS-2a is not feasible, construction activity will be limited to the extent possible on the deficient roadways identified in Table 19-26. Implementation of this measure will reduce continuing deterioration of pavement conditions on the most damaged roadways in the study area. The BDCP proponents will include in the bid specifications requirements that limit the amount of construction traffic on roadway segments with pavement conditions below the thresholds identified in this study (i.e., an IRI rating greater than 170 or a PCI rating worse than 55), if feasible. Trucks would be prohibited and construction traffic would be limited to passenger vehicles on travel routes with pavement conditions worse than the thresholds identified in this study (i.e., an IRI rating greater than 170 or a PCI rating worse than 55).

Mitigation Measure TRANS-2c: Improve Physical Condition of Affected Roadway Segments as Stipulated in Mitigation Agreements or Encroachment Permits

If use of physically deficient roadways cannot be avoided or limited as specified in Mitigation Measures TRANS-2a and TRANS-2b, it may be necessary to improve the deficient roadways identified in Table 19-26 or make other necessary infrastructure improvements, if any, before construction to make them suitable for use during construction. Additionally, all affected roadways would be returned to preconstruction condition or better following construction. Implementation of this measure will ensure that construction activities will not worsen pavement conditions, relative to Existing Conditions.

Prior to construction, the BDCP proponents will make a good faith effort to enter into mitigation agreements with or to obtain encroachment permits from affected agencies to verify what the location, extent, timing, and fair share cost to be paid by the BDCP proponents for any necessary pre- and post-construction physical improvements. The fair share amount would be either the cost to return the affected roadway segment to its preconstruction condition. Repairs may occur before or after construction and may include overlays, other surface treatments, or roadway reconstruction. The flood protection benefits of roadways will also be considered in developing and implementing activities pursuant to this measure.

Pre-construction analyses of existing pavement conditions will be conducted just prior to starting construction for any proposed construction traffic travel routes. The preconstruction pavement analysis will establish the baseline for required improvements and will be based on the PCI or IRI methodologies described in this EIR/EIS or an equivalent method as agreed to by the BDCP proponents and the affected agencies. Relevant flood protection agencies will also be consulted during the design of roadway improvements.

The BDCP proponents will include in the bid specifications stipulations that require the contractor(s) to conduct the pre-construction pavement analysis and conduct all improvements in compliance with applicable standards of affected agencies, as stipulated in the mitigation agreements or encroachment permits.

It is not anticipated that project construction could cause the need for major transportation infrastructure improvements, such as the need to upgrade or repair existing bridges or the need to construct new highway interchanges. To the extent that construction activities could cause the need for such major transportation infrastructure improvements, the BDCP proponents retain the flexibility to seek alternative means of transporting people, equipment, and materials to construction sites, such as via barges, to avoid the need for such major infrastructure improvements, if any.

Impact TRANS-3: Increase in Safety Hazards, Including Interference with Emergency Routes during Construction

NEPA Effects: Alternative 4 would require a heavy volume of materials to be hauled to the construction work zones, increasing the amount of trucks using the transportation system in the study area. The increase in heavy construction traffic on local roadways would increase the potential for safety hazards such as conflicts with recreational and commuter traffic and with farming operations. The increase in heavy construction traffic using emergency routes could result in interference with emergency service response times. Emergency routes in the study area are identified in Table 19-11.

As discussed above and in Chapter 22, *Air Quality and Greenhouse Gases*, construction of Alternative 4 would increase the amount of trucks using the transportation system in the study area. The effects under Alternative 4 would be similar to those described for Alternative 1A. However, Alternative 4 would require temporary realignment of Byron Highway/South Pacific Railroad during construction of the siphon connecting the new approach canal and Jones PP approach canal. Minor delays and congestion created by rerouted traffic could interfere with emergency service response times in the vicinity of Bryon Highway.

The effect of increased safety hazards from increased heavy construction traffic on local roadways and emergency routes would be adverse. Although TRANS-1c will reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement identified in the mitigation agreement(s) is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of increased safety hazards would occur. Accordingly, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction of Alternative 4 would increase the amount of trucks using the transportation system in the study area. The alternative would also require traffic on Byron Highway be rerouted during construction of the siphon connecting the new approach canal and Jones PP approach canal. The increase in heavy truck traffic and potential delays created by realignment of Byron Highway/South Pacific Railroad could interfere with emergency services on designated routes (Table 19-11), resulting in significant safety hazards. This impact would be significant. Mitigation Measure TRANS-1c will reduce the severity of this impact by working with affected state, regional, or local agencies to alleviate road congestion issues, but not to less-than-significant levels. BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement identified in the mitigation agreement(s) is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of increased safety hazards would occur. Accordingly, this effect would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation Agreements to Enhance Capacity of Congested Roadway Segments

Please refer to Mitigation Measure TRANS-1c in Alternative 4, Impact TRANS-1.

Impact TRANS-4: Disruption of Marine Traffic during Construction

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

- ~~SR 160 west of Walnut Grove~~Sacramento River northeast of Walnut Grove

- ~~Venice Island~~Snodgrass Slough near Intermediate Forebay
- ~~Bacon Island~~Little Potato Slough on Bouldin Island
- ~~Woodward Island~~San Joaquin River on Venice Island
- ~~Victoria Island~~Middle River on Mandeville Island
- ~~Tyler Island~~Connection Slough on Bacon Island
- Old River on Victoria Island
- West Canal at Clifton Court Forebay

Approximately 11~~3~~,000 barge trips are projected to carry construction materials from ports to the sites listed above via the Sacramento River under Alternative ~~1A~~4, averaging approximately 8~~1~~ trips per day during construction of CM1 ~~through a 9-year-long construction period~~for up to 5 years. It is likely that under Alternative 4, the estimated number of trips and amount of in-water work would be less than under Alternative 1A because of the reduction in the number of intakes to be constructed. 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 materials to the alternative work site would average ~~less than 1 barge trip per day over the 9-year-long construction period~~up to 8 trips per day for up to 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.

Although some in-water work would be necessary for intake construction, 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 ~~120~~ 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~~, less than 1 additional barge trip per day is expected through the 9-year construction period~~, 8 trips per day for up to 5 years throughout the alignment). As noted in Chapter 15, *Recreation*, Impact REC-3, temporary barge unloading facilities would occupy between 2~~8~~00 to 1~~2~~,000 feet of riverbank, depending on the location. Based on the river channel width, all barge facilities except the San Joaquin River facility could occupy substantial portions of the waterway. However, all barge routes and landing sites will be selected to maximize continuous waterway access and a minimum waterway width greater than 100 feet. Moreover,

Mitigation Measure TRANS-1a would reduce any potential disruptions as it includes stipulations to notify the commercial and leisure boating community of proposed barge operations in the waterways.

***CEQA Conclusion*:** ~~Disruption of Marine Traffic during Construction could result in significant impacts.~~ 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, only 1 additional barge trip per day is expected through the 9-year construction period~~8 trips per day for up to 5 years). Therefore, this impact would be less-than-significant. Moreover, Mitigation Measure TRANS-1a would reduce any potential disruptions as it includes stipulations to notify the commercial and leisure boating community of proposed barge operations in the waterways. Accordingly, the impact of disruption to marine traffic during construction would be less than significant with implementation of Mitigation Measure TRANS-1a. No additional mitigation is required.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1.

Impact TRANS-5: Disruption of Rail Traffic during Construction

NEPA Effects: The proposed Alternative 4 conveyance crosses under the existing BNSF/Amtrak San Joaquin line between Bacon Island and Woodward Island. Maintaining freight and passenger service on the BNSF line is included in the design, and the effect of this crossing would be minimal to non-existent because the proposed conveyance would traverse the railroad in a deep bore tunnel.

As discussed in Impact TRANS-5 under Alternative 1A, the UPRR Tracy Subdivision (branch line) runs parallel to Byron Highway, between the highway and the proposed new forebay (Byron Tract forebay) adjacent to the existing Clifton Court Forebay. The construction impact of the new forebay would be unlikely to disrupt rail service because much of this line has not been in service recently. The UPRR may return it to freight service in the future.

Construction of Alternative 4 would not physically cross or require modification to an existing or proposed railroad. Rather, the water conveyance will cross the BNSF Railway and Amtrak San Joaquin Line well below grade in a deep bore tunnel. Accordingly, construction would not be likely to disrupt rail service. However, if the UPRR Tracy Subdivision branch line is reopened prior to construction, the continuity of rail traffic could be managed, if needed, through implementation of Mitigation Measure TRANS-1a, which includes stipulations to coordinate with rail providers to develop alternative interim transportation modes (e.g., trucks or buses) that could be used to provide freight and/or passenger service during any longer term railroad closures and daily construction time windows during which construction is restricted or rail operations would need to be suspended for any activity within railroad rights of way.

***CEQA Conclusion*:** Construction of Alternative 4 would not physically cross or require modification to an existing or proposed railroad. Rather, the water conveyance will cross the BNSF Railway and Amtrak San Joaquin Line well below grade in a deep bore tunnel. Accordingly, construction would not be likely to disrupt rail service. However, if the UPRR Tracy Subdivision branch line is reopened prior to construction, traffic associated with of the Byron Tract forebay may minimally impact rail

service through vehicle crossing. This impact would therefore be less than significant. Implementation of Mitigation Measure TRANS-1a which includes stipulations to coordinate with rail providers to develop alternative interim transportation modes (e.g., trucks or buses) that could be used to provide freight and/or passenger service during any longer term railroad closures and daily construction time windows during which construction is restricted or rail operations would need to be suspended for any activity within railroad rights of way, would ensure this impact remains less than significant.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1.

Impact TRANS-6: Disruption of Transit Service during Construction

NEPA Effects: Construction of conveyances and other project elements may affect various roadways upon which transit service operates. To the extent that construction detours are necessary and/or significant congestion occurs during lane closures and other construction activities, transit routes and schedules would be affected. Transit service disruptions under Alternative 4 would be similar to the pipeline/tunnel alignment (refer to Impact TRANS-6 in Alternative 1A, Table 19-13).

Construction activities associated with Alternative 4 would decrease LOS below applicable thresholds, as well as temporarily exacerbate already unacceptable LOS conditions along on SR-12 (~~see~~ Table 19-25). Accordingly, tunnel construction could substantially affect operation of the SCT Link/Delta Route, and construction of the shaft adjacent to SR 12 would affect traffic on that facility. Intercity Greyhound bus lines primarily operate on the interstate highway system in this vicinity. To the extent that other roadways affected by Alternative 4 construction also carry Greyhound bus lines, those routes may be affected as well. The effect of disruption to transit service during construction would be adverse. Although Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement identified in the mitigation agreement(s) is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of disruptions to transit service would occur. Therefore, this effect would be adverse.

***CEQA Conclusion*:** Disruption of transit service during construction could result in significant impacts. Construction activities associated with Alternative 4 would decrease LOS below applicable thresholds, as well as temporarily exacerbate already unacceptable LOS conditions along SR-12 (~~see~~ Table 19-25). Accordingly, tunnel construction could significantly affect operation of the SCT Link/Delta Route, and construction of the shaft adjacent to SR 12 would affect traffic on that facility. To the extent that other roadways affected by Alternative 4 construction also carry Greyhound bus lines, those routes may be affected as well. This impact would be significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. Under Mitigation Measure TRANS-1a, the BDCP proponents would coordinate with transit providers to develop, to the extent feasible, daily construction time windows during which transit operations would not be either detoured or significantly slowed, avoiding a substantial disruption of transit service. Additionally, under Mitigation Measure TRANS-1b, construction traffic would be minimized around peak periods, to the extent feasible. Finally, under Mitigation Measure TRANS-1c, the BDCP proponents would make good faith efforts to enter into mitigation agreements

to enhance the capacity of congested roadway segments, likely reducing associated disruptions to transit service. However, the BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement identified in the mitigation agreement(s) is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form disruptions to transit service would occur. Therefore, this impact would be significant and unavoidable. However, such impacts are likely to occur during the middle of the day because construction traffic would be minimized around peak periods.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1.

Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on Congested Roadway Segments

Please refer to Mitigation Measure TRANS-1b in Alternative 4, Impact TRANS-1.

Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation Agreements to Enhance Capacity of Congested Roadway Segments

Please refer to Mitigation Measure TRANS-1c in Alternative 4, Impact TRANS-1.

Impact TRANS-7: Interference with Bicycle Routes during Construction

NEPA Effects: Increased traffic and vehicle delays during construction (~~see~~ Table 19-25) could temporarily disrupt bicycle routes on SR 160/River Road and potentially on SR 12. The effect of disruption to bicycle routes during construction would be adverse. Mitigation Measure TRANS-1a is available to reduce this effect. Under this measure, BDCP proponents would provide alternate access routes via detours or bridges to maintain continual circulation for local travelers in and around construction zones, including bicycle riders; provide signage warning of loose gravel, steel plates, etc. that could be hazardous to road cycling activity on roadways open to bicycle traffic; provide signage, barricades, and flag people as necessary to slow or detour traffic around construction sites; and notify the public, including cycling organizations and bike shops, of construction activities that could affect transportation. Additionally, another project commitment, as described in Appendix 3B, *Environmental Commitments*, and Chapter 15, *Recreation,* could enhance recreational access to areas in the vicinity of the proposed intakes, including enhancement of bicycle and foot access to the Delta and the potential conversion of an abandoned rail line between Sacramento and Walnut Grove into a bicycle path.

***CEQA Conclusion*:** Increased traffic and vehicle delays during construction (~~see~~ Table 19-25) could temporarily disrupt bicycle routes on SR 160/River Road and potentially on SR 12, resulting in a significant impact. However, Mitigation Measure TRANS-1a would reduce the severity of this impact to less-than-significant levels because BDCP proponents would provide alternate access routes via detours or bridges to maintain continual circulation for local travelers in and around construction zones, including bicycle riders; provide signage warning of loose gravel, steel plates, etc. that could be hazardous to road cycling activity on roadways open to bicycle traffic; provide signage, barricades, and flag people as necessary to slow or detour traffic around construction sites; and notify the public, including cycling organizations and bike shops, of construction activities that could

affect transportation. Additionally, another project commitment, as described in Appendix 3B, *Environmental Commitments*, and Chapter 15, *Recreation,* could enhance recreational access to areas in the vicinity of the proposed intakes, including enhancement of bicycle and foot access to the Delta and the potential conversion of an abandoned rail line between Sacramento and Walnut Grove into a bicycle path. Because implementation of this mitigation measure and project commitment would avoid a substantial disruption to bicycle facilities as a result of increased roadway traffic and/or roadway closures, this impact would be less than significant.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1.

Impact TRANS-8: Increased Traffic Volumes and Delays during Operations and Maintenance

NEPA Effects: Maintaining and operating BDCP facilities could affect roadway operations in the vicinity by increasing vehicle trips. However, operations and maintenance activities would only require minimal labor. Consistent with the assumptions used for the air quality/GHG analyses in Chapter 22, *Air Quality and Greenhouse Gases,* of this EIR/EIS, it was estimated that routine operations and maintenance activities and yearly maintenance activities would require the crews and equipment identified in Tables 19-14 and 19-15 (refer to Impact TRANS-8 in Alternative 1A). For comparative purposes, Table 19-16 summarizes direct and indirect employment quantified using the IMPLAN model.

The effect of maintaining and operating the facilities on roadway operations under Alternative 4 would be the same as under Alternative 1A (~~see~~ Tables 19-14, 19-15, and 19-16), but slightly less in magnitude because only three intakes would be operated and maintained and correspondingly fewer employee trips would be anticipated. Like Alternative 1A, O&M activities would occur along the entire alternative alignment. Even assuming the ~~higher~~total employment ~~range~~figure in Table 19-16, given the limited number of workers involved and the large number of work sites, it is not anticipated that routine operations and maintenance activities or major inspections would result in substantial increases of traffic volumes or roadway congestion. The impact of increased traffic volumes and delays during project operations would not be adverse.

***CEQA Conclusion*:** Given the limited number of workers involved and the large number of work sites (~~see~~ Tables 19-14, 19-15, and 19-16), it is not anticipated that routine operations and maintenance activities or major inspections would result in substantial increases of traffic volumes or roadway congestion. The impact of increased traffic volumes and delays during operations would therefore be less than significant. No mitigation is required.

Impact TRANS-9: Permanent Alteration of Transportation Patterns during Operations and Maintenance

NEPA Effects: Due to the buried tunnel configuration, Alternative 4 does not intersect public roadways, state routes, railroads, and bridges except for the intake areas where the SR 160 and Randall Island Road would be permanently rerouted.

Each intake/pumping plant site would require realignment of the levee road (SR 160) adjacent to Intakes 2, 3, and 5. The levee road adjacent to Intake 5 is Randall Island Road. A project study report

(PSR) prepared by the California Department of Transportation (Caltrans) describes the assumptions and requirements for the permanent realignment of SR 160 as follows.

- Offsetting the realigned levee road 200 feet from the existing levee road.
- Use of a two-lane, two-way road, with a total cross-sectional width of 24 feet.
- Use of a maximum speed limit of 60 miles per hour.
- Provide horizontal and vertical alignments per Caltrans Highway Design Manual.
- The realigned levee road will be level, straight, and parallel to the intake for the length adjacent to the intake.
- The realigned levee road will be set at the same elevation as the top of the intake and the pumping plant building pad for the length adjacent to the intake.
- A single cross intersection will be centered on the intake length to provide access to the intake and pumping plant.

Except for the intakes, Alternative 4 does not have surface intersections with public roadways, state routes, or railroads, and would not require bridges. Impacts on public roadways would be limited to the intake areas and would not substantially alter traffic patterns. The design and construction of all project components (i.e., conveyances, intakes, and forebays) would provide for on-going continuity of all rail operations following completion of construction. Structures would be constructed as necessary to provide connectivity across canals (either bridges or siphons) for active railroads to cross without disruption. Water operations would not modify the river stage above the water levels seen in the river today. Therefore, no change would be expected to affect boat traffic associated with changes in water levels. Operations and maintenance of the facilities would not have any substantive impact on barge traffic (or the roadway network) due to operation of moveable bridges. Impediments to boat traffic associated with the intakes would continue for the life of the project, but would not substantially impact boat passage or usage (refer to Chapter 15, *Recreation*, for more discussion of effects on boating.) The effect of permanent alteration of transportation patterns during operations would not be adverse.

***CEQA Conclusion*:** Each intake/pumping plant site constructed under Alternative 4 would require realignment of the levee road (SR 160) adjacent to Intakes 2, 3, and 5. Impacts on public roadways would be limited to the intake areas and would not substantially alter traffic patterns. The design and construction of all project components (i.e., conveyances, intakes, and forebays) would provide for on-going continuity of all rail operations following completion of construction. Impediments to boat traffic associated with the intakes would continue for the life of the project, but would not substantially impact boat passage or usage. Accordingly, the impact of permanent alteration of transportation patterns during operations would be less than significant. No mitigation is required.

Impact TRANS-10: Increased Traffic Volumes during Implementation of CM2–~~CM22~~CM21

NEPA Effects: Habitat restoration and enhancement conservation measures are anticipated to include a number of construction and maintenance activities, including the following.

- Grading, excavation, and placement of fill material.
- Breaching, modification, or removal of existing levees and construction of new levees.

- Modification, demolition, and removal of existing infrastructure (e.g., buildings, roads, fences, electric transmission and gas lines, irrigation infrastructure).
- Construction of new infrastructure (e.g., buildings, roads, fences, electric transmission and gas lines, irrigation infrastructure.
- Removal of existing vegetation and planting/seeding of vegetation.
- Levee maintenance.
- Mowing, burning, and trimming to manage vegetation.

In particular, implementation of CM2 and CM3–CM10 would generate traffic on area roadways during implementation due to transport of construction vehicles, equipment, and employees to and from the sites for the purposes of modifying or installing new facilities, or making changes in operation of existing facilities. Because the specific areas for implementing these conservation measures have not been determined, this effect is evaluated qualitatively.

- Yolo Bypass Fishery Enhancement (CM2)
    - Installing fish ladders and experimental ramps at Fremont Weir or widening the existing fish ladder.
    - Installing fish screens on small Yolo Bypass diversions.
    - Constructing new or replacement operable check-structures at Tule Canal/Toe Drain.
    - Replacing the Lisbon Weir with a fish-passable gate structure.
    - Realigning Lower Putah Creek.
    - Increasing operation of upstream unscreened pumps.
    - Installing operable gates at Freemont Weir.
    - Constructing physical barriers in the Sacramento River.
    - Constructing associated support facilities (operations buildings, parking lots, access facilities such as roads and bridges).
    - Improving levees adjacent to the Fremont Weir Wildlife Area.
    - Replacing agricultural crossings of the Tule Canal/Toe Drain with fish-passable structures such as flat car bridges, earthen crossings with large, open culverts.
    - Grading, removal of existing berms, levees, and water control structures, construction of berms or levees, re-working of agricultural delivery channels, and earthwork or construction of structures to reduce Tule Canal/Toe Drain channel capacities.
- Tidal Habitat Restoration (CM4)
    - Breaching and lowering levees, installing new or modified levees to protect adjacent areas from flooding.
    - Connecting remnant sloughs or channels to improve circulation.
    - Modifying ground elevations to reduce impacts of subsidence to restore freshwater tidal habitat in the Cache Slough, Cosumnes/Mokelumne, West Delta, South Delta, and Suisun Marsh ROAs.

- Seasonally Inundated Floodplain Restoration (CM5)
  - Restoring seasonally inundated floodplain habitat within the north, east, and/or south Delta.
- Channel Margin Habitat Enhancement (CM6)
  - enhancing channel margin habitat on the Sacramento River between Freeport and Walnut Grove, the San Joaquin River between Vernalis and Mossdale, Steamboat and Sutter Sloughs, and the North and South Forks of the Mokelumne River
- Riparian Habitat Restoration (CM7)
  - Restoring riparian habitat in Cosumnes/Mokelumne, east, west, and south Delta
- Grassland Communities Restoration (CM8)
  - Sowing native species using a variety of techniques (e.g., seed drilling, native hay spreading, plugs.
  - Recontouring graded land.
- Vernal Pool Complex Restoration (CM9)
  - Recontouring historical vernal pools and swales to natural bathymetry.
- Nontidal Marsh Restoration (CM10)
  - Grading to establish an elevational gradient to support both open water perennial aquatic habitat intermixed with shallower marsh habitat.
  - Planting and maintaining native marsh vegetation.

For the purposes of the EIR/EIS, it is assumed that during implementation, impacts on roadways could result in circulation delays or the inability to maintain adequate vehicular access in or around construction work zones. Roads and highways in and around Suisun Marsh and the Yolo Bypass could experience increases in traffic volumes, resulting in localized congestion and conflicts with local traffic. These roadways could function as haul routes or to bring construction personnel to the work sites. Maintenance and monitoring of the restoration areas would also generate some vehicle trips. As described in Impact TRANS-3 in Alternative 1A, the following roadways in the Delta subregion are anticipated to be affected.

- Interstate 680
- State Route 12
- Chadbourne Road
- Ramsey Road
- Jacksnipe Road
- Collinsville Road
- Grizzly Island Road
- Gum Tree Road
- Van Sickle Road
- Joyce Island Road

- Branscombe Road
- Potrero Hills Lane
- Scally Road
- Shiloh Road
- Little Honker Bay Road

The effect would vary according to the amount of traffic generated by implementation of the specific conservation measure, the location and timing of the actions called for in the conservation measure, and the roadway and traffic conditions at the time of implementation. The effect of increased traffic volumes during construction and maintenance of CM2–~~CM22~~CM21 would be adverse. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement identified in the mitigation agreement(s) is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Impacts on roadways could result in circulation delays or the inability to maintain adequate vehicular access in or around restoration or enhancement work zones. Roads and highways in and around Suisun Marsh and the Yolo Bypass could experience increases in traffic volumes, resulting in localized congestion and conflicts with local traffic. These roadways could function as haul routes or to bring construction personnel to the work sites. Maintenance and monitoring of the restoration areas would also generate some vehicle trips. The impact of increased traffic volumes during implementation of CM2–~~CM22~~CM21 would be significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement identified in the mitigation agreement(s) is not fully funded and constructed before the project's contribution to the impact is made, a significant impact would occur. Therefore, the project's impacts ~~to~~on roadway segment LOS would be conservatively significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Mitigation Measure TRANS-1a: Implement Site-Specific Construction Traffic Management Plan

Please refer to Mitigation Measure TRANS-1a in Alternative 4, Impact TRANS-1.

Mitigation Measure TRANS-1b: Limit Hours or Amount of Construction Activity on Congested Roadway Segments

Please refer to Mitigation Measure TRANS-1b in Alternative 4, Impact TRANS-1.

Mitigation Measure TRANS-1c: Make Good Faith Efforts to Enter into Mitigation Agreements to Enhance Capacity of Congested Roadway Segments

Please refer to Mitigation Measure TRANS-1c in Alternative 4, Impact TRANS-1.

Impact TRANS-11: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Plans and Policies

NEPA Effects: The potential for inconsistencies with plans or ~~polices~~policies would be similar to the discussion in Alternative 1A, Impact TRANS-11. Construction and implementation of Alternative 4 would be compatible with applicable plans and policies related to transportation and circulation.

***CEQA Conclusion*:** The physical effects are discussed in impacts TRANS-1 through TRANS-10, above and no additional CEQA conclusion is required related to the consistency of the alternative with relevant plans and ~~polices~~policies. The relationship between plans, policies, and regulations and impacts on the physical environment is discussed in Chapter 13, *Land Use,* Section 13.2.3.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. Alternative 4 would result in alterations to drainage patterns, stream courses, and runoff, and potential for slightly increased surface water elevations in the rivers and streams during construction of facilities located within the waterway, as described for Alternative 1A. Construction of the facilities under Alternative 4 would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 4 creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 4.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly

localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction and operation of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The hydraulic modeling scenario for this analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or lower diversion capacity, such as Alternative 4 (three intakes and 9,000 cfs maximum diversion capacity), would have less effects to surface water elevations.

With respect to Alternative 4, operation of Intakes 2, 3 and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8. This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 4, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impeded. There would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments*, including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

Under Alternative 4, five temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the five proposed barge landings would include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the five barge landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 4, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 4 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Under Alternative 4, Clifton Court Forebay would be dredged and redesigned to provide an area where water flowing from the new north Delta facilities will be isolated from water diverted from south Delta channels. While Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Alternative 4 proposes work at the Head of Old River including the construction of fish and flow control gates as well as a small boat lock to allow recreational boat passage. An analysis of potential impacts of this work on navigation was completed in 2005 by Jones and Stokes (*South Delta Improvements Program Vol I: Environmental Impact Statement/Environmental Impact Report*. Draft. October. (J&S 020533.02.) State Clearinghouse #2002092065. Sacramento, CA.) ("SDIP EIS/EIR"). The SDIP EIS/R analyzed whether the proposed barrier/gates facility and locks would cause a change in south Delta flows or water level, river flows or surface water elevations that would result in substantial changes to existing recreational or commercial boating activity and opportunities.

The changes in access to Delta waterways by boats and other vessels during construction and operation of the gates, during channel dredging activities, and attributable to changes in water levels/depths were addressed. Most of the waterways in the immediate project vicinity are public waterways navigable by recreational craft, including rowboats, large houseboats, and cabin cruisers. These waterways are also navigable by smaller commercial vessels, including towing and salvage vessels, clamshell dredges, dredges for repair and maintenance of levees and channels, and pile-

driving vessels. Boat access points in the project area include River's End Marina, located on the south side of the DMC, at the confluence with Old River; Tracy Oasis Marina Resort, located on the east side of Tracy Boulevard and the north side of Old River; and possibly at Heinbockle Harbor, located at Tracy Boulevard, on the south side of Grant Line/Fabian and Bell Canal.

According to a California Department of Parks and Recreation (DPR) survey, minimal boat launching and use occurs in the project area. The channels within the project area are too small to accommodate large commercial vessels, and because the channels are also part of an existing temporary barriers project, larger vessels cannot use these channels when the barriers are in place. A boat lock at the proposed facility would ensure boat access upstream of the gate regardless of gate operations. In this regard, upstream boat access could improve over current conditions. Additionally, from June 16 through September 30, the gates will be open and no boat lock operations will be necessary.

With respect to both recreational and commercial navigation, and based on analysis provided in the SDIP EIS/EIR, boat access impacts during facility construction will be less than significant (p. 5.8-14, 5.8-18, 5.8-21), impacts on navigation caused by water level changes during barrier operation will be less than significant (p. 5.8-15. 5.8-19, 5.8-22), impact on non-recreational boaters due to temporary dredging operation will be less than significant (p. 5.8-16, 5.8-19, 5.8-22), and impacts on recreation as a result of constructing and operating any of the alternatives will not be significant (p. 7.4-1).

Construction of the operable barrier could result in increased sedimentation near the gates. Maintenance dredging around the gate would be necessary to clear out sediment deposits. Dredging around the gates would be conducted using a sealed clamshell dredge. Depending on the rate of sedimentation, maintenance would occur every 3 to 5 years. A formal dredging plan with further details on specific maintenance dredging activities will be developed prior to dredging activities. Guidelines related to dredging activities, including compliance with in-water work windows and turbidity standards are described further in Appendix 3B, *Environmental Commitments*, under *Disposal and Reuse of Spoils, Reusable Tunnel Material (RTM), and Dredged Material*. These activities would ensure that sedimentation would not result in an adverse impact on navigation.

NEPA Effects: With respect to construction and operations of the Head of Old River Barrier, Alternative 4 would have no adverse effect on either commercial or recreational navigation activities

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, construction and operations of the Head of Old River barrier will not have a significant impact on navigation.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 4 would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future

projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 4 facilities.

NEPA Effects: Alternative 4 in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 4 in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.10 Alternative 5—Dual Conveyance with Pipeline/Tunnel and Intake 1 (3,000 cfs; Operational Scenario C)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities for Alternative 5 would be similar to Alternative 1A. The estimate of the number of vehicles generated by construction activities would be lower compared to Alternative 1A due to the reduction in the number of intakes (approximately 80% reduction). Localized impacts in the vicinity of Intakes 2–7 would not occur.

As shown in Table 19-8, under BPBG conditions, a total of 25~~23~~ roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8, construction associated with Alternative 5 would cause LOS thresholds to be exceeded for at least one hour during the 6 AM to 7 PM analysis period on a total of 47~~33~~ roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 5 would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **22~~10~~** roadway segments (3~~47~~3 minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation impacts).

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-8 because construction associated with Alternative 5 would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 5 would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at **22~~10~~** roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete

funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 5 would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-8). As shown in Table 19-8, traffic volumes during construction of Alternative 5 would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: The effects under Alternative 5 would be similar to Alternative 1A but slightly less in magnitude because only one intake would be constructed, with less overall traffic impacts during construction (truck traffic and workers traffic generated by intake construction is reduced by approximately 80% compared to Alternative 1A). Localized impacts in the vicinity of Intakes 2–7 would not occur.

As shown in Table 19-10, construction of Alternative 5 would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of **46~~43~~** roadway segments. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 5 would be similar to those described for Alternative 4. Although Alternative 5 includes two less intakes (Alternative 5 includes one intake compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the number of intakes would not substantially change the analysis. Nevertheless, because Alternative 5 includes less intakes, the effects to surface elevations caused by intakes would likely be less than those described for Alternative 4.

Alternative 5 includes the construction of one fish-screened intake (Intake 1) on the bank of the Sacramento River. Construction for Intake 1 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. In total, construction under Alternative 5 would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 5 creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 5.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected from construction of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result

are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intake will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 5 would be similar in type to those described for Alternative 4; however, the effect will likely be much less under Alternative 5 because Alternative 5 includes one intake (two less than Alternative 4) and because Alternative 5 has a 3,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). In any event, the hydraulic modeling scenario and analysis for changes in surface water elevations included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs). Again, because Alternative 5 includes only one intake, and only 3,000 cfs capacity, the impact would be much less than described for Alternative 4.

With respect to Alternative 5, operation of Intake 1 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 5, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either

localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 5 would be similar in type to those described for Alternative 4; however, the impacts would be less under Alternative 5 because Alternative 5 includes two less intake (Alternative 5 includes one intake compared to three for Alternative 4). In any event, the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the lower number of intakes does not substantially change the analysis.

Construction for Intake 1 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments*, including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered

under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 5 would be similar in type to those described for Alternative 4; however, because Alternative 5 includes a lower number of barge fleeting facilities, the effects to sedimentation caused by construction of the facilities would be much less under alternative 5.

Because it includes fewer intakes, Alternative 5 would involve fewer temporary barge fleeting facilities than Alternative 4. The temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the barge landings would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 5, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction and operation of the barge facilities under Alternative 5 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 5 would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 5 would be similar in type to those described for Alternative 4; however, the impacts under Alternative 5 would be less because Alternative 5 includes two less intake (Alternative 5 includes one intake compared to three for Alternative 4). In any event, the effects to sedimentation during operation of the proposed intakes under Alternative 5 would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 5. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 5 would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 5 facilities.

NEPA Effects: Alternative 5 in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 5 in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.11 Alternative 6A—Isolated Conveyance with Pipeline/Tunnel and Intakes 1–5 (15,000 cfs; Operational Scenario D)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities for Alternative 6A would be the same as Alternatives 1A, assuming that discontinuing the use of the SWP and CVP south Delta export facilities would not generate any significant traffic or close off existing roadways.

As shown in Table 19-8, under BPBG conditions, a total of 25~~23~~ roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8, construction associated with Alternative 6A would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 47~~33~~ roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 6A would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **22~~10~~** roadway segments (47~~33~~ minus the 22~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation impacts.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-8 because construction associated with Alternative 6A would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 6A would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at 22~~10~~ roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 6A would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-8). As shown in Table 19-8, traffic volumes during construction of Alternative 6A would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: Construction truck traffic may damage roadway surfaces. During construction, various materials would be transported to and from the construction areas in load-bearing trucks. As shown in Table 19-10, construction of Alternative 6A would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of **46~~43~~** roadway segments. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not

necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the 4643 locations shown in Table 19-10. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 6A would be similar to those described for Alternative 4. Although Alternative 6A includes two additional intakes (Alternative 6A includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Alternative 6A includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the east bank of the Sacramento River between Clarksburg and Walnut Grove. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. In total, construction of water conveyance facilities under Alternative 6A would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on

navigation. Although the increase in surface water elevations in rivers and streams under Alternative 6A creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 6A.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction and operation of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 6A would be identical to those described for Alternative 4, despite the fact that Alternative 6A includes five intakes (two more than Alternative 4) and despite the fact that Alternative 6A has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

Unlike Alternative 4, this Alternative would be an *isolated conveyance*, no longer involving operation of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish Facility on Old River. The proposed water operations under Alternative 6A would discontinue use of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish Facility on Old River and convey up to 15,000 cfs from the north Delta. However, the north Delta intakes would be the same as Alternative 1A, and the difference in conveyance does not change the analysis of the intakes.

With respect to Alternative 6A, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal

variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 6A, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 6A would be similar to those described for Alternative 4. Although Alternative 6A includes two additional intakes (Alternative 6A includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and

potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments*, including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 6A would be similar to those described for Alternative 4. Although Alternative 6A includes a greater number of barge fleeting facilities due to the higher number of intakes, the effects to sedimentation caused by construction of the facilities is highly localized, and therefore, the greater number of barge facilities would not result in a greater level of impacts on navigation.

Alternative 6A includes six barge unloading facilities to be built on or near the tunnel alignment at riverbank locations about 5–6 miles apart (except on Woodward Canal) (See Mapbook Figure 15-1). The facilities would be built on the following waterways: Sacramento River, North Fork Mokelumne River, San Joaquin River, Middle River, and Woodward Canal (which would have two facilities). The temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the barge landings would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 6A, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 6A would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 6A would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 6A would be similar to those described for Alternative 4. Although Alternative 6A includes two additional intakes (Alternative 6A includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 6A would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the

river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 6A. An operable barrier at the Head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 6A would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 6A facilities.

NEPA Effects: Alternative 6A in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 6A in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.12 Alternative 6B—Isolated Conveyance with East Alignment and Intakes 1–5 (15,000 cfs; Operational Scenario D)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities for Alternative 6B would be similar to Alternative 1B (assuming that discontinuing the use of the SWP and CVP south Delta export facilities would not generate any significant traffic or close off existing roadways).

As shown in Table 19-17, under BPBG conditions, a total of 2019 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-17, construction associated with Alternative 6B would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 4839 roadway segments under BPBGPP conditions (see entries in **bold** type). Alternative 6B would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **2820** roadway segments (4839 minus the 2019 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation effects.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-17 because construction associated with Alternative 2B would cause LOS thresholds (see Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 6B would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at 2820 roadway segments (3489 minus the 2019 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable

LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 6B would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~17~~7). As shown in Table 19-17, traffic volumes during construction of Alternative 2B would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 6B would be similar to those described for Alternative 4. Although Alternative 6B includes two additional intakes (Alternative 6B includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Alternative 6B includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the east bank of the Sacramento River between Clarksburg and Walnut Grove. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. In total, construction under Alternative 6B would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 6B creates a potential

impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 6B.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected from construction of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 6B would be identical to those described for Alternative 4, despite the fact that Alternative 6B includes five intakes (two more than Alternative 4) and despite the fact that Alternative 6B has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

Unlike Alternative 4, this would be an *isolated conveyance*, no longer involving operation of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish Facility on Old River. The proposed water operations under Alternative 6B would discontinue use of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish Facility on Old River and convey up to 15,000 cfs from the north Delta. However, the north Delta intakes would be the same as Alternative 1A, and the difference in conveyance does not change the analysis of the intakes.

With respect to Alternative 6B, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento

River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 6B, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 6B would be similar to those described for Alternative 4. Although Alternative 6B includes two additional intakes (Alternative 6B includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 6B would be similar in type to those described for Alternative 4; however, the effect would be less because Alternative 6B includes fewer temporary barge unloading facilities.

Alternative 6B includes a temporary barge unloading facility to be built on Fourteenmile Slough, at the junction of the slough and the San Joaquin River (Mapbook Figure 15-2). The facility would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facility would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the facility would involve piles.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 6B, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B,

Environmental Commitments, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 6B would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 6B would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 6B would be similar to those described for Alternative 4. Although Alternative 6B includes two additional intakes (Alternative 6B includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 6B would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control

sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 6B. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 6B would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 6B facilities.

NEPA Effects: Alternative 6B in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 6B in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.13 Alternative 6C—Isolated Conveyance with West Alignment and Intakes W1–W5 (15,000 cfs; Operational Scenario D)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities for Alternative 6C would be similar to Alternative 1C. As shown in Table 19-21, under BPBG conditions, a total of 2019 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-821, construction associated with Alternative 6C would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 55 roadway segments under BPBGPP conditions (see entries in **bold** type). Alternative 6C would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **3637** roadway segments (56 minus the 2019 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a above shows the study roadway segments that could experience substantial roadway operation effects.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-21 because construction associated with Alternative 6C would cause LOS thresholds (see Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 6C would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at **3637** roadway segments (56 minus the 2019 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, including all segments studied in West Sacramento and Yolo County.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

temporarily during the time of project constructionThis impact would be temporary, but significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 6C would be similar to those described for Alternative 4. Although Alternative 6C includes two additional intakes (Alternative 6C includes five intakes compared to three for Alternative 4), the effects to surface water elevation caused by

construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Alternative 6C includes the construction of five fish-screened intakes (Intakes 1, 2, 3, 4, and 5) on the bank of the Sacramento River between Clarksburg and Walnut Grove. The planned locations of the intakes are generally the same as those proposed for Alternative 1A, as described previously, with the exception that intake facilities would be constructed on the west side of the river rather than the east side. Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. In total, construction of the facilities under Alternative 6C would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 6C creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 6C.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 6C would be identical to those described for Alternative 4, despite the fact that Alternative 6C includes five intakes (two more than Alternative 4) and despite the fact that Alternative 6C has a 15,000 cfs total conveyance capacity (compared to 9,000 cfs for Alternative 4). This is because the hydraulic modeling scenario and analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative (15,000 cfs).

Unlike Alternative 4, this Alternative would be an *isolated conveyance*, no longer involving operation of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish Facility on Old River. The proposed water operations under Alternative 6A would discontinue use of the existing SWP/CVP south Delta points of diversion at Clifton Court Forebay and the Tracy Fish Facility on Old River and convey up to 15,000 cfs from the north Delta. However, the north Delta intakes would be the same as Alternative 1C, and the difference in conveyance does not change the analysis of the intakes.

With respect to Alternative 6C, operation of Intakes 1, 2, 3, 4, and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. (*Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8.) This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 6C, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impede navigation and there would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 6C would be similar to those described for Alternative 4. Although Alternative 6C includes two additional intakes (Alternative 6C includes five intakes compared to three for Alternative 4), the effects to sedimentation caused by construction of the proposed intakes is highly localized, and therefore, the higher number of intakes would not result in a greater level of impacts on navigation.

Construction for Intakes 1, 2, 3, 4, and 5 would be accomplished using coffer dams at each intake location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental

impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 6C would be similar in type to those described for Alternative 4; however, the effect would be less because Alternative 6C includes fewer temporary barge unloading facilities.

Alternative 6C includes two barge unloading facilities to be built on Cache Slough and the Sacramento River (Mapbook Figure 15-3). The facilities would be used to transfer pipeline construction equipment and materials to and from construction sites and would be removed after construction was completed. The facilities would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the facilities would involve piles at each location.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 6C, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 6C would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 6C would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 6C would be similar to those described for Alternative 4. Although Alternative 6C includes two additional intakes (Alternative 6C includes five intakes compared to three for Alternative 4), the effects to sedimentation during operation of the proposed intakes under Alternative 6C would be similar to those described for Alternative 4 for the reasons described below.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 6C. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 6C would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 6C facilities.

NEPA Effects: Alternative 6C in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 6C in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.14 Alternative 7—Dual Conveyance with Pipeline/Tunnel, Intakes 2, 3, and 5, and Enhanced Aquatic Conservation (9,000 cfs; Operational Scenario E)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: The estimate of the number of vehicles generated by construction activities for Alternative 7 would be the similar to Alternative 1A except only three intakes would be constructed, resulting in a 40% reduction in overall traffic impacts during construction. Localized impacts in the vicinity of Intakes 1, 4, 6, and 7 would not occur.

As shown in Table 19-8, under BPBG conditions, a total of 25~~23~~ roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8, construction associated with Alternative 7 would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of 47~~33~~ roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 7 would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **22~~10~~** roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation impacts.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-8 because construction associated with Alternative 7 would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 7 would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at 22~~10~~ roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 7 would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~8~~7). As shown in Table 19-8, traffic volumes during construction of Alternative 7 would exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: The potential to damage road surfaces during construction under Alternative 7 would be similar to Alternative 1A, except only three intakes would be constructed, resulting in less overall traffic impacts during construction (truck traffic and workers traffic generated by intake construction is reduced by 40% compared to 1A). Localized impacts in the vicinity of Intakes 4 and 5–7 would not occur.

As shown in Table 19-10, construction of Alternative 7 would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~

Table 19-7), on a total of 4643 roadway segments. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the 4643 locations shown in Table 19-10. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 7 would be identical to those described for Alternative 4. The intakes included under Alternative 7 (three intakes with a maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. In total, construction of the facilities under Alternative 7 would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the

increase in surface water elevations in rivers and streams under Alternative 7 creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 7. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 7.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 7 would be identical to those described for Alternative 4.

The hydraulic modeling scenario for this analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or lower diversion capacity, such as Alternative 7 (three intakes and 9,000 cfs maximum diversion capacity), would have less effects to surface water elevations.

With respect to Alternative 7, operation of Intakes 2, 3 and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes), estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8. This river depth has occurred historically and has been adequate to support navigation along the Sacramento River. Additionally, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would

be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 7, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impeded. There would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 7 would be identical to those described for Alternative 4. The intakes included under Alternative 7 (three intakes with a maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments*, including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion

and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 7 would be identical to those described for Alternative 4. Alternative 7 includes the same barge facilities as Alternative 4.

Under Alternative 7, five temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the five proposed barge landings would include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the five barge landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 7, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction and operation of the barge facilities under Alternative 7 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 7 would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 7 would be identical to those described for Alternative 4. The intakes included under Alternative 7 (three intakes with a maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered

under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 7. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 7 would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 7 facilities.

NEPA Effects: Alternative 7 in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 7 in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.15 Alternative 8—Dual Conveyance with Pipeline/Tunnel, Intakes 2, 3, and 5, and Increased Delta Outflow (9,000 cfs; Operational Scenario F)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: As with Alternative 7, the estimate of the number of vehicles generated by construction activities for Alternative 8 would result in a 40% reduction in overall traffic impacts during construction, compared to Alternative 1A, and localized impacts in the vicinity of Intakes 1 and 4 would not occur.

As shown in Table 19-8, under BPBG conditions, a total of 25~~23~~ roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-8, construction associated with Alternative 8 would cause LOS thresholds to be exceeded for at least one hour during the 6 AM to 7 PM analysis period on a total of 47~~33~~ roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 8 would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on **22~~10~~** roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3a shows the study roadway segments that could experience substantial roadway operation impacts.

The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-8 because construction associated with Alternative 8 would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 8 would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at **22~~10~~** roadway segments (47~~33~~ minus the 25~~23~~ that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 8 would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~8~~7). As shown in Table 19-8, traffic volumes during construction of Alternative 8 would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: The impact under Alternative 8 would be less than under Alternative 1A due to the reduction in intakes constructed (estimated 40% reduction in vehicle trips).

As shown in Table 19-10, construction of Alternative 8 would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of **46~~43~~** roadway segments. Damage to roadway pavement is expected throughout the study area (Figure 19-4a) on various local and state roads, as well as on a few interstates. The effect of roadway damage to these segments during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the 46~~43~~ locations shown in Table 19-10. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce the severity of this impact, but not necessarily to less-than-significant levels, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this impact could be significant and unavoidable. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

The potential impacts on navigation caused by changes in surface water elevation during construction of the proposed intakes under Alternative 8 would be identical to those described for Alternative 4. The intakes included under Alternative 8 (three intakes with a maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Intakes and screens have been designed and located on-bank to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each coffer dam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). This represents the highest surface upstream elevation increase after coffer dam removal and during intake operation. Because this maximum increase in elevation is entirely localized, downstream surface elevation changes during intake construction would be insignificant and

changes to river depth and width at any location will be insignificant. As a result, boat passage and river use, including Sacramento River tributaries, will not be affected.

As explained in Chapter 6, *Surface Water*, construction of facilities within or adjacent to waterways could change surface water elevations or runoff characteristics. In total, construction of the facilities under Alternative 8 would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 8 creates a potential impact regarding flooding (which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 8.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

The potential impacts on navigation caused by changes in surface water elevation during operation of the proposed intakes under Alternative 8 would be identical to those described for Alternative 4.

The hydraulic modeling scenario for this analysis included five intakes because that is the maximum number of intakes included under any alternative. The modeling also assumed the highest North Delta diversion capacity allowed under any alternative. Alternatives with fewer intakes and/or lower diversion capacity, such as Alternative 8 (three intakes and 9,000 cfs maximum diversion capacity), would have less effects to surface water elevations.

With respect to Alternative 8, operation of Intakes 2, 3 and 5 may have localized effects on water surface elevation during certain operational regimes and at various river flows. While intake operations and pumping levels are dictated by many factors, Sacramento River diversions are limited during low flows by operational rules. The nature and extent of impacts caused by diversions at an intake are dependent in large part on the location of the intake on the river. To minimize the intake effects on river surface elevations, intakes were designed as on-bank structures and were placed so that river flood and flow characteristic will be minimally altered. Based on hydrologic modelling, even at the lowest river flows (taking into account both seasonal and tidal variations) and at maximum intake operation (full diversions at each of five alternative intakes),

estimates are that boat draft depths of at least 16.5 feet will be maintained within the Sacramento River. *Planning and Design of Navigation Locks* United States Army Corps of Engineers, EM 1110-2-2602 (September 30, 1995) pages 3-8. River depth has occurred historically and has been adequate to support navigation along the Sacramento River, under these same intake divisions/river flows, water surface elevations would be lowered by no more than 0.7 foot, which represents a localized and maximum estimate. Surface elevations downstream of the intakes would be affected less, and during higher river flow and lower intake diversions, river depths would be greater than the minimum estimate.

The minimal changes in surface water elevation anticipated under Alternative 8, even assuming a maximum lowering of 0.7 foot, would not likely expose any currently unexposed natural or man-made features that would affect or impeded. There would be no new snags or obstructions that would impede navigation.

Moreover, even when operating at maximum capacity, the intakes would not alter flows in a way that would affect commercial vessels or recreational watercraft. The intakes are designed to ensure pumping velocities will have minimal impacts on aquatic species. It is unlikely that changes in flow velocity would be perceptible to operators of marine vessels or recreational watercraft and would have no effect on navigation.

Additional information regarding changes to surface water elevations can be found in Chapter 6, *Surface Water*.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 8 would be identical to those described for Alternative 4. The intakes included under Alternative 8 (three intakes with a maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

Construction for Intakes 2, 3, and 5 would be accomplished using coffer dams at each location. Coffer dams will isolate each construction area from the Sacramento River and will be used to de-water the construction area. Construction of coffer dams would require sheet pile driving that would result in incremental suspension of bed sediments. These effects would be temporary and would not have an effect on navigation. Sheet piles at the edge of the levee embankment would likely change eddy currents locally, but rock slope in the transition zone would limit those currents and potential changes to bed load dynamics. As a result, erosion and sedimentation into the Sacramento River during intake construction would be minimal.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

The potential impacts on navigation caused by sedimentation under Alternative 8 would be identical to those described for Alternative 4. Alternative 8 includes the same barge facilities as Alternative 4.

Under Alternative 8, five temporary barge landings would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the five proposed barge landings would include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the five barge landings would involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 8, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B, *Environmental Commitments*, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward

positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 8 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 8 would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

The potential impacts on navigation caused by sedimentation under Alternative 8 would be identical to those described for Alternative 4. The intakes included under Alternative 8 (three intakes with a maximum diversion capacity of 9,000 cfs) are identical to those included under Alternative 4.

Sediment loads are present in the Sacramento River as bed loads or distributed within the water column. The Sacramento River is sediment "starved" for most of the year since upstream reservoirs act as settling basins for suspended sediments. In most cases, sediment load is concentrated on the river bed and this bed load depends on several factors including particle size, particle density and flow velocity. To exclude bed loads from entering intake structures during operation, design criteria for the intakes require that the lowest point of the screen is placed above the river bed in such a way that there is no change in bed sediment erosion/distribution patterns. Additionally, screen locations for this alternative are placed on the outer bends of the river to minimize scour, erosion and sediment loading at those locations. Flow control baffles at intakes would be adjusted to control sedimentation near the screens as needed and air jets at screens are proposed to re-suspend sediments as needed.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

NEPA Effects: Operational criteria and design specifications for intake operations will result in no change to water column or bed load sediment dynamics. Erosion and deposition patterns will change little if any during intake operation. As a result, there will be no adverse effect on navigation either near or downstream of the intake locations.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during operation of the proposed intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Head of Old River Barrier

Operable barriers would not be constructed under Alternative 8. An operable barrier at the head of Old River would be constructed to support operations of Alternatives 2A, 2B, 2C, 2D, 4 and 4A only.

NEPA Effects: No effect.

CEQA Conclusion: No Impact.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 8 would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 8 facilities.

NEPA Effects: Alternative 8 in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 8 in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.3.3.16 Alternative 9—Through Delta/Separate Corridors (15,000 cfs; Operational Scenario G)

Impact TRANS-1: Increased Construction Vehicle Trips Resulting in Unacceptable LOS Conditions

NEPA Effects: As shown in Table 19-27, under BPBG conditions, a total of ~~17~~ 23 roadway segments would exceed LOS for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. As also shown in Table 19-~~8~~27, construction associated with Alternative 9 would cause LOS thresholds to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period on a total of ~~51~~ 56 roadway segments under BPBGPP conditions (~~see~~ entries in **bold** type). Alternative 9 would therefore temporarily exacerbate an already unacceptable LOS under BPBG conditions on ~~**34**~~ **33** roadway segments (~~51~~ 56 minus the ~~17~~ 23 that would already be operating at an unacceptable LOS under BPBG conditions). Figure 19-3b shows the study roadway segments that could experience substantial roadway operation effects.

Table 19-27. Level of Service for Through Delta/Separate Corridors – Alternative 9

						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
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./San Joaquin Co. Line	D	1,600	385 to 656	-	~~416~~470 to ~~708~~800	-	2,~~184~~160 to 2,~~476~~490	13 (6AM-7PM)
BRE 01	Brentwood Blvd (old SR 4)[1]	Delta Rd (Oakley City Limits)	Balfour Rd	C	970	586 to 1,516	11 (7-9AM; 10AM-7PM)	-	-	-	-
				D	1,760	-	-	~~590~~597 to 1,~~526~~544	-	3,~~417~~302 to 4,~~353~~249	13 (6AM-7PM)
BRE 02	Brentwood Blvd (old SR 4)[1]	Balfour Rd	Brentwood City Limits (South)	C	1,920	369 to 1,013	-	-	-	-	-
				D	3,540	-	-	~~346~~373 to ~~950~~1,024	-	3,~~173~~078 to 3,~~777~~729	~~8 (6-7AM; 9AM~~5 (10-11AM; 12-4PM)
BRE 03	Balfour Rd	Brentwood Blvd (Old SR 4)	Brentwood City Limits	D	3,540	437 to 1,300	-	~~437~~533 to 1,~~300~~586	-	~~437~~608 to 1,~~300~~661	-
CC 01	Bethel Island Rd	Oakley City Limits	End	D	1,600	124 to 330	-	~~124~~151 to ~~330~~403	-	~~124~~226 to ~~330~~478	-
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	D	1,600	90 to 297	-	~~90~~110 to ~~297~~362	-	~~90~~185 to ~~297~~437	-
CC 03	Old SR 4[1]	Brentwood City Limits (South)	Marsh Creek Rd	C	790	1,133 to 1,682	13 (6AM-7PM)	-	-	-	-
				D	1,600	-	-	1,~~220~~307 to 1,~~811~~940	~~3 (~~4 (7-8AM; 3-6PM)	4,~~047~~012 to 4,~~638~~645	13 (6AM-7PM)
CC 04	Byron Hwy	Delta Rd	Old SR 4	D	1,410	108 to 240	-	~~108~~109 to ~~240~~243	-	~~108~~184 to ~~240~~318	-

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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
CC 05	Byron Hwy	SR 4	Contra Costa Co./ Alameda Co. Line	D	1,600	483 to 907	-	~~522~~589 to ~~980~~1,107	-	2,~~290~~279 to 2,~~748~~797	13 (6AM-7PM)
CT 01	I-5 NB	Florin Rd	Pocket Rd	F	6,060	2,589 to 5,820	-	~~2,589~~3,095 to ~~5,820~~6,958	~~-~~1 (7-8AM)	~~2,589~~3,170 to ~~5,820~~7,033	~~-~~1 (7-8AM)
CT 02	I-5 SB	Florin Rd	Pocket Rd	F	6,060	1,647 to 5,705	-	1,~~647~~931 to ~~5,705~~6,690	~~-~~2 (4-6PM)	~~1,647~~2,006 to ~~5,705~~6,765	~~-~~2 (4-6PM)
CT 03	I-5 NB	Pocket Rd	Laguna Blvd	F	6,060	2,359 to 5,156	-	2,~~359~~666 to 5,~~156~~828	-	2,~~359~~741 to 5,~~156~~903	-
CT 04	I-5 SB	Pocket Rd	Laguna Blvd	F	6,060	1,543 to 5,243	-	1,~~543~~759 to 5,~~243~~978	-	1,~~543~~834 to ~~5,243~~6,053	-
CT 05	I-5 NB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,820 to 3,339	-	~~1,820~~2,098 to 3,~~339~~848	-	~~1,820~~2,173 to 3,~~339~~923	-
CT 06	I-5 SB	Laguna Blvd	Elk Grove Blvd	F	4,010	1,254 to 3,332	-	1,~~254~~442 to 3,~~332~~832	-	1,~~254~~517 to 3,~~332~~907	-
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,504 to 2,162	-	1,~~504~~770 to 2,~~162~~544	-	1,~~504~~845 to 2,~~162~~619	-
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	F	4,010	1,217 to 2,236	-	1,~~217~~442 to 2,~~236~~648	-	1,~~217~~517 to 2,~~236~~723	-
CT 09	I-5 NB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,414 to 1,851	-	1,~~560~~707 to 2,~~043~~234	-	~~1,980~~2,112 to 2,~~463~~639	-
CT 10	I-5 SB	Hood Franklin Rd	Twin Cities Rd	F	4,010	1,207 to 1,964	-	1,~~333~~458 to 2,~~169~~373	-	1,~~753~~863 to 2,~~589~~778	-
CT 11	I-5 NB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,312 to 1,720	-	1,~~312~~580 to ~~1,720~~2,072	-	1,~~312~~655 to ~~1,720~~2,147	-
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	C	2,880	1,111 to 1,813	-	1,~~111~~339 to ~~1,813~~2,184	-	1,~~111~~414 to ~~1,813~~2,259	-
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	C	2,880	1,374 to 1,803	-	1,~~594~~759 to 2,~~091~~308	-	~~1,967~~2,119 to 2,~~464~~668	-
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	C	2,880	1,128 to 1,894	-	1,~~308~~444 to 2,~~197~~424	-	1,~~681~~804 to 2,~~570~~784	-

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CT 15	I-5 NB	Peltier Rd	Turner Rd	C	2,880	1,421 to 1,885	-	1,~~421~~819 to ~~1,885~~2,413	-	1,~~421~~894 to ~~1,885~~2,488	-
CT 16	I-5 SB	Peltier Rd	Turner Rd	C	2,880	1,145 to 1,974	-	1,~~145 to 1,974~~466to 2,527	-	1,~~145~~541 to ~~1,974~~2,602	-
CT 17	I-5 NB	Turner Rd	SR 12	C	2,880	1,288 to 1,985	-	1,~~443~~649 to 2,~~223~~541	-	1,~~554~~759 to 2,~~334~~651	-
CT 18	I-5 SB	Turner Rd	SR 12	C	2,880	1,124 to 1,482	-	1,~~259~~439 to 1,~~660~~897	-	1,~~370~~549 to ~~1,771~~2,007	-
CT 19	I-5 NB	SR 12	Eight Mile Rd	C	4,400	1,533 to 2,267	-	1,~~656~~901 to 2,~~448~~811	-	~~1,767~~2,011 to 2,~~559~~921	-
CT 20	I-5 SB	SR 12	Eight Mile Rd	C	4,400	1,243 to 2,070	-	1,~~342~~541 to 2,~~236~~567	-	1,~~453~~651 to 2,~~347~~677	-
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	D	5,410	1,937 to 3,452	-	~~1,937~~2,402 to ~~3,452~~4,280	-	~~1,937~~2,477 to ~~3,452~~4,355	-
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	D	5,410	1,817 to 2,760	-	~~1,817~~2,253 to ~~2,760~~3,422	-	~~1,817~~2,328 to ~~2,760~~3,497	-
CT 23	SR 160 (Freeport Blvd)	Sacramento City Limits	Freeport Bridge	E	1,740	136 to 476	-	~~136~~160 to ~~476~~559	-	~~136~~235 to ~~476~~634	-
CT 24	SR 160 (Freeport Blvd/ River Rd)	Freeport Bridge	Scribner Rd	E	1,740	94 to 180	-	94 to 180	-	~~94~~169 to ~~180~~255	-
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	E	1,740	41 to 125	-	41 to 125	-	~~41~~116 to ~~125~~200	-
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	E	1,740	105 to 170	-	~~105~~126 to ~~170~~204	-	~~105~~201 to ~~170~~279	-
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	E	1,740	69 to 122	-	~~69~~78 to ~~122~~137	-	~~69~~153 to ~~122~~212	-
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	E	1,740	75 to 150	-	~~78~~82 to ~~156~~164	-	~~823~~797 to ~~901~~879	-

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CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	E	1,740	78 to 128	-	~~89~~99 to ~~147~~163	-	2,~~593~~494 to 2,~~651~~558	13 (6AM-7PM)
CT 30	SR 160 (River Rd)	Walnut Grove Bridge	A St (Isleton)	E	1,740	173 to 465	-	173 to 465	-	2,~~677~~568 to 2,~~969~~860	13 (6AM-7PM)
CT 31	SR 160	A St (Isleton)	SR 12	E	1,740	193 to 378	-	193 to 378	-	2,~~697~~588 to 2,~~882~~773	13 (6AM-7PM)
CT 32	SR 160	SR 12	Brannan Island Rd	F	1,740	530 to 894	-	~~549~~583 to ~~926~~983	-	~~4,112~~3,993 to 4,~~489~~393	13 (6AM-7PM)
CT 33	SR 84 (Jefferson Blvd)	West Sacramento City Limits	Courtland Rd	B	200	40 to 169	-	~~42~~45 to ~~177~~192	-	2,~~546~~440 to 2,~~681~~587	13 (6AM-7PM)
CT 34	SR 84 (Courtland Rd/ Ryer Ave)	Courtland Rd	Cache Slough Ferry	C	680	10 to 25	-	~~10~~11 to ~~25~~28	-	~~10~~86 to ~~25~~103	-
CT 35	I-80 EB	Suisun Valley Rd	SR 12	C	8,350	3,079 to 6,994	-	3,~~510~~941 to ~~7,973~~8,952	~~-~~3 (3-6PM)	5,~~292~~646 to ~~9,755~~10,657	~~5~~ ~~(~~28 (11AM-7PM)
CT 36	I-80 WB	Suisun Valley Rd	SR 12	C	8,350	5,751 to 8,892	2 (6-8AM)	~~6,556~~7,361 to ~~10,137~~11,382	~~2~~7 (6-~~8AM~~9AM; 2-6PM)	~~8,338~~9,066 to ~~11,919~~13,087	~~12~~13 (6AM-~~6PM~~7PM)
CT 37	SR 12 EB	I-80	Beck Ave	C	2,880	528 to 1,847	-	~~612~~686 to 2,~~143~~401	-	2,~~394~~391 to ~~3,925~~4,106	~~11~~ ~~(7-9AM;~~ ~~10AM~~12 (7AM-7PM)
CT 38	SR 12 WB	I-80	Beck Ave	C	2,880	829 to 1,625	-	~~962~~1,078 to ~~1,885~~2,113	-	2,~~744~~783 to 3,~~667~~818	12 (6AM-6PM)
CT 39	SR 12	Beck Ave	Sunset Ave/ Grizzly Island Rd	C	5,060	2,408 to 3,573	-	~~2,772~~3,091 to 4,~~114~~587	-	6,~~335~~501 to 7,~~677~~977	13 (6AM-7PM)
CT 40	SR 12	Sunset Ave/ Grizzly Island Rd	Walters Rd/ Lawler Ranch Pkwy	C	5,060	1,607 to 2,353	-	~~1,864~~2,089 to ~~2,729~~3,059	-	5,~~427~~499 to 6,~~292~~469	13 (6AM-7PM)

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CT 41	SR 12	Walters Rd/ Lawler Ranch Pkwy	SR 113	C	790	627 to 1,075	10 (6-8AM; 9-1PM; 2-6PM)	~~727~~815 to 1,~~247~~398	~~12~~13 (6AM-~~6PM~~7PM)	4,~~290~~225 to 4,~~810~~808	13 (6AM-7PM)
CT 42	SR 12	SR 113	SR 84 (River Rd)	C	790	1,073 to 1,544	13 (6AM–7PM)	1,~~245~~395 to ~~1,791~~2,007	13 (6AM-7PM)	4,~~808~~805 to 5,~~354~~417	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,~~317~~476 to ~~1,955~~2,191	13 (6AM-7PM)	4,~~880~~886 to 5,~~518~~601	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)	~~746~~859 to 1,~~092~~257	12 (6AM-~~6PM~~7PM)	~~967~~1,074 to 1,~~313~~472	13 (6AM-7PM)
CT 45	SR 12	Sacramento Co./ SJ Co. Line	I-5	C	790	773 to 1,164	12 (6AM–6PM)	~~793~~846 to 1,~~194~~274	13 (6AM-7PM)	1,~~014~~061 to 1,~~415~~489	13 (6AM-7PM)
CT 46	I-80 EB	SR 113	Pedrick Rd	C	4,400	2,508 to 4,632	2 (3-5PM)	~~2,808~~3,066 to 5,~~186~~662	~~3~~ (~~36~~ (7-9AM; 2-6PM)	4,~~590~~771 to ~~6,968~~7,367	13 (6AM-7PM)
CT 47	I-80 WB	SR 113	Pedrick Rd	C	4,400	3,068 to 4,191	-	3,~~316~~528 to 4,~~529~~819	~~2~~ (~~4~~ (7-8AM; 3-~~5PM~~6PM)	5,~~098~~233 to 6,~~311~~524	13 (6AM-7PM)
CT 48	SR 113	I-80	Dixon City Limits	C	1,920	569 to 1,341	-	569 to 1,341	-	~~4,132~~3,979 to 4,~~904~~751	13 (6AM-7PM)
CT 49	SR 113	Dixon City Limits	SR 12	C	680	174 to 294	-	~~188~~212 to ~~318~~359	-	3,~~751~~622 to 3,~~881~~769	13 (6AM-7PM)
CT 50	SR 4 (Marsh Creek Rd)[2]	Vasco Rd	Byron Hwy (Old SR 4)	D	1,600	442 to 733	-	-	-	-	-
				C	790	-	-	~~477~~539 to ~~792~~894	~~1~~2 (4-~~5PM~~6PM)	3,~~304~~244 to 3,~~619~~599	13 (6AM-7PM)
CT 51	SR 4	Marsh Creek Rd	Discovery Bay Blvd	D	1,600	554 to 1,224	-	~~601~~647 to 1,~~327~~430	-	3,~~428~~352 to 4,~~154~~135	13 (6AM-7PM)
CT 52	SR 4	Discovery Bay Blvd	Tracy Blvd	C	790	412 to 746	-	412 to 746	-	3,~~239~~117 to 3,~~573~~451	13 (6AM-7PM)
CT 53	SR 4 (Charter Way)	Tracy Blvd	I-5	D	1,410	867 to 1,492	1 (4-5PM)	867 to 1,492	1 (4-5PM)	3,~~694~~572 to 4,~~319~~197	13 (6AM-7PM)

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CT 54	I-5 NB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	2,552 to 4,815	-	2,8553,158 to 5,386957	-	4,269513 to 6,8007,312	-1 (3-4PM)
CT 55	I-5 SB	SR 4 (Freeway)	SR 4 (Charter Way)	D	7,280	4,550 to 5,913	-	5,108667 to 6,6397,364	-2 (7-8AM; 5-6PM)	6,5227,022 to 8,053719	711 (6-8AM; 19AM; 10AM-6PM)
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	D	5,410	2,430 to 4,586	-	2,7703,110 to 5,228870	-3 (3-6PM)	4,184465 to 6,6427,225	5 (1-6PM12 (7AM-7PM)
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	D	5,410	4,333 to 5,631	3 (7-8AM; 4-6PM)	4,9405,546 to 6,4197,208	8 (6-9AM; 1-6PM)13 (6AM-7PM)	6,354901 to 7,8338,563	13 (6AM-7PM)
CT 58	I-205 EB	I-580	Mountain House Pkwy	C	4,400	1,350 to 5,071	4 (3-7PM)	1,480610 to 5,5606,048	4 (35 (2-7PM)	2,364455 to 6,444893	5 (2-7PM)
CT 59	I-205 WB	I-580	Mountain House Pkwy	C	4,400	1,873 to 4,867	2 (6-8AM)	2,058 to243to 5,348829	3 (6-9AM)	2,9423,088 to 6,232674	4 (6-10AM)
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	C	4,400	1,431 to 5,068	4 (3-7PM)	1,574774 to 5,5756,284	5 (2-7PM)	2,458619 to 6,4597,129	5 (27 (12-7PM)
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	C	4,400	1,875 to 4,117	-	2,063325 to 4,5295,105	12 (6-7AM8AM)	2,9473,170 to 5,413950	35 (6-9AM11AM)
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	D	5,410	1,525 to 4,200	-	1,617891 to 4,4525,208	-	2,300546 to 5,135863	-3 (3-6PM)
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	D	5,410	1,852 to 3,079	-	1,9632,296 to 3,264818	-	2,646951 to 3,9474,473	-
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	D	5,410	1,511 to 4,182	-	1,602874 to 4,4335,186	-	2,285529 to 5,116841	-3 (3-6PM)
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	D	5,410	2,083 to 3,446	-	2,208583 to 3,6534,273	-	2,8913,238 to 4,336928	-

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ISL 01	A St/4th St/ Jackson Blvd.	SR 160	Isleton City Limits	D	1,410	17 to 75	-	17 to 75	-	~~17~~92 to ~~75~~150	-
OAK 01	Main Street (Old SR 4)[1]	SR 160	Cypress Rd	C	1,920	752 to 1,663	-	-	-	-	-
				D	3,540	-	-	~~795~~872 to 1,~~759~~927	-	3,~~622~~577 to 4,~~586~~632	13 (6AM-7PM)
OAK 02	Main Street (Old SR 4)[1]	Cypress Rd	Delta Rd (Oakley City Limits)	C	970	722 to 1,335	10 (7-9AM; 11AM-7PM)	-	-	-	-
				D	1,760	-	-	~~823~~924 to 1,~~522~~709	-	3,~~650~~629 to 4,~~349~~414	13 (6AM-7PM)
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	D	1,600	304 to 764	-	~~304~~371 to ~~764~~932	-	~~304~~446 to ~~764~~1,007	-
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	D	1,410	140 to 367	-	~~140~~171 to ~~367~~448	-	~~140~~246 to ~~367~~523	-
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	D	1,410	155 to 334	-	~~155~~157 to ~~334~~339	-	~~155~~232 to ~~334~~414	-
SAC 01	Pocket Rd	I-5	Freeport Blvd (Old SR 160)	D	3,540	789 to 2,191	-	789 to 2,191	-	~~789~~864 to 2,~~191~~266	-
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	D	1,760	152 to 492	-	~~152~~185 to ~~492~~600	-	~~152~~260 to ~~492~~675	-
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	D	1,410	98 to 346	-	~~98~~118 to ~~346~~415	-	~~98~~193 to ~~346~~490	-
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	D	1,410	77 to 137		~~77~~85 to ~~137~~151	-	~~77~~160 to ~~137~~226	-
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	D	1,410	10 to 29	-	~~10~~12 to ~~29~~34	-	~~10~~87 to ~~29~~109	-
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	D	1,410	19 to 38	-	~~19~~20 to ~~38~~40	-	~~19~~95 to ~~38~~115	-
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	D	1,410	41 to 71	-	~~41~~42 to ~~71~~72	-	~~41~~117 to ~~71~~147	-
SC 06	Twin Cities Rd	River Rd	I-5	D	1,410	130 to 248	-	~~133~~137 to ~~254~~262	-	~~878~~852 to ~~999~~977	-

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SC 07	Twin Cities Rd	I-5	Franklin Blvd	D	1,410	141 to 318	-	~~149~~162 to ~~335~~365	-	~~252~~262 to ~~438~~465	-
SC 08	Sutter Slough Bridge Rd	Sacramento Co./ Yolo Co. Line	Paintersville Bridge	D	1,410	51 to 113	-	~~55~~62 to ~~122~~138	-	2,~~559~~457 to 2,~~626~~533	13 (6AM-7PM)
SC 09	River Rd (Sac Co.)	Paintersville Bridge	Twin Cities Rd	D	1,410	85 to 134	-	~~86~~87 to ~~135~~137	-	~~831~~802 to ~~880~~852	-
SC 10	River Rd (Sac Co.)	Twin Cities Rd	Walnut Grove Bridge	D	1,600	223 to 365	-	~~229~~236 to ~~375~~386	-	~~974~~951 to 1,~~120~~101	-
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./ SJ Co. Line	D	1,410	175 to 332	-	~~181~~187 to ~~343~~355	-	~~926~~902 to 1,~~088~~070	-
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	D	1,410	61 to 283	-	61 to 283	-	~~429~~416 to ~~651~~638	-
SC 13	Race Track Rd/ Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	D	1,410	17 to 34	-	~~17~~18 to ~~34~~36	-	~~17~~93 to ~~34~~111	-
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	D	1,410	14 to 39	-	14 to 39	-	~~14~~89 to ~~39~~114	-
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	D	1,410	4 to 53	-	~~4~~5 to ~~53~~65	-	~~4~~80 to ~~53~~140	-
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	D	1,410	16 to 52	-	~~16~~20 to ~~52~~63	-	~~16~~95 to ~~52~~138	-
SJ 01	Walnut Grove Rd	Sacramento Co./ SJ Co. Line	I-5	C	790	141 to 232	-	~~145~~151 to ~~239~~248	-	~~890~~866 to ~~984~~963	13 (6AM-7PM)
SJ 02	Peltier Rd	Blossom Rd	I-5	C	680	8 to 23	-	8 to 23	-	~~8~~83 to ~~23~~98	-
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	C	790	108 to 209	-	108 to 209	-	1,~~472~~413 to 1,~~573~~514	13 (6AM-7PM)
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	C	790	69 to 171	-	~~72~~84 to ~~178~~209	-	1,~~436~~389 to 1,~~542~~514	13 (6AM-7PM)
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	D	1,600	521 to 824	-	~~563~~636 to ~~890~~1,005	-	2,~~331~~326 to 2,~~658~~695	13 (6AM-7PM)
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	D	1,410	190 to 298	-	~~205~~232 to ~~322~~364	-	1,~~973~~922 to 2,~~090~~054	13 (6AM-7PM)

						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
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	D	3,540	418 to 769	-	~~477~~535 to ~~877~~984	-	2,~~245~~225 to 2,~~645~~674	-
STK 01	Eight Mile Rd	Stockton City Limits	I-5	E	1,870	309 to 769	-	~~309~~377 to ~~769~~938	-	~~309~~452 to ~~769~~1,013	-
TRA 01	Tracy Blvd	Tracy City Limits	I-205	E	1,870	309 to 759	-	~~321~~377 to ~~789~~926	-	1,~~685~~682 to 2,~~153~~231	~~10~~ (~~8AM~~11 (7AM-6PM)
WS 01	Harbor Blvd	Industrial Blvd	US 50	D	3,540	1,140 to 2,317	-	1,~~218~~355 to 2,~~476~~753	-	3,~~722~~750 to ~~4,980~~5,148	13 (6AM-7PM)
WS 02	Industrial Blvd/ Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	C	1,920	773 to 1,858	-	~~835~~943 to 2,~~007~~267	~~1~~ (~~2~~ (7-8AM; 5-6PM)	3,~~339~~338 to 4,~~511~~662	13 (6AM-7PM)
WS 03	Jefferson Blvd (Old SR 84)	Lake Washington Blvd	Southport Pkwy	C	1,920	546 to 1,718	-	~~586~~655 to ~~1,843~~2,062	~~-~~1 (5-6PM)	3,~~090~~050 to 4,~~347~~457	13 (6AM-7PM)
WS 04	Jefferson Blvd (Old SR 84)	Southport Pkwy	West Sacramento City Limits	C	680	42 to 146	-	~~45~~49 to ~~155~~172	-	2,~~549~~444 to 2,~~659~~567	13 (6AM-7PM)
YOL 01	River Rd (Yolo Co.)	Freeport Bridge	Courtland Rd	C	680	74 to 249	-	~~74~~78 to ~~249~~263	-	~~74~~153 to ~~249~~338	-
YOL 02	River Rd (Yolo Co.)	Courtland Rd	Sacramento Co./ Yolo Co. Line	C	680	25 to 63	-	~~27~~31 to ~~68~~77	-	2,~~531~~426 to 2,~~572~~472	13 (6AM-7PM)
YOL 03	Courtland Rd	SR 84 (Jefferson Blvd)	River Rd	C	680	28 to 77	-	~~30~~34 to ~~83~~94	-	2,~~534~~429 to 2,~~587~~489	13 (6AM-7PM)

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*.

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

[1] Facility is analyzed as a Caltrans facility under Baseline Conditions and a local facility under Baseline Plus Construction Conditions – roadway is relinquished to local jurisdiction after Baseline Year (2009). LOS Threshold is LOS C under Baseline Conditions and changes to LOS D under Baseline Plus Construction Conditions.

[2] Facility is analyzed as a local facility under Baseline Conditions and a Caltrans facility under Baseline Plus Construction Conditions – roadway is adopted as a State facility after Baseline Year (2009). LOS Threshold is LOS D under Baseline Conditions and changes to LOS C under Baseline Plus Construction Conditions.

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The decrease in LOS below applicable thresholds during construction would be adverse at the locations identified in Table 19-27 because construction associated with Alternative 9 would cause LOS thresholds (~~see~~ Table 19-7) to be exceeded for at least 1 hour during the 6:00 AM to 7:00 PM analysis period. Alternative 9 would also temporarily exacerbate an already unacceptable LOS under BPBG conditions at ~~34~~ **33** roadway segments (~~51~~ 56 minus the ~~17~~ 23 that would already be operating at an unacceptable LOS under BPBG conditions). While decreases in traffic conditions will occur throughout the study area, the highest concentration of roadway segments below applicable LOS threshold occurs on state roadways, including SR-12, I-80, SR-4, and I-205. Standards will also be exceeded on several local roadways, include all segments studied in West Sacramento and the majority of segments in San Joaquin County.

Mitigation Measures TRANS-1a through TRANS-1c are available to reduce this effect. Collectively, these measures include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternate access routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activity on congested roadways, and enhance roadway conditions. Although TRANS-1a through TRANS-1c would reduce the severity of this effect, the BDCP proponents are not solely responsible for the timing, nature, or complete funding of required improvements. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the effect is made, an adverse effect in the form of unacceptable LOS would occur. Therefore, this effect would be adverse. If, however, all improvements required to avoid adverse effects prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, effects would not be adverse.

***CEQA Conclusion*:** Construction under Alternative 9 would add hourly traffic volumes to study area roadways that would exceed acceptable LOS threshold (Table 19-~~25~~7). As shown in Table 19-27, traffic volumes during construction of Alternative 9 would temporarily exacerbate already unacceptable LOS under BPBG conditions during the 6:00 AM to 7:00 PM analysis period during the time of project construction. This impact would be temporary, but significant. Mitigation Measures TRANS-1a through TRANS-1c would reduce the severity of this impact, but not to less-than-significant levels. The BDCP proponents cannot ensure that the improvements will be fully funded or constructed prior to the project's contribution to the impact. If an improvement that is identified in any mitigation agreement(s) contemplated by Mitigation Measure TRANS-1c is not fully funded and constructed before the project's contribution to the impact is made, a significant impact in the form of unacceptable LOS would occur. Accordingly, this impact would be significant and unavoidable. If, however, all improvements required to avoid significant impacts prove to be feasible and any necessary agreements are completed before the project's contribution to the effect is made, impacts would be less than significant.

Impact TRANS-2: Increased Construction Vehicle Trips Exacerbating Unacceptable Pavement Conditions

NEPA Effects: Construction truck traffic may damage roadway surfaces. During construction, various materials would be transported to and from the construction areas in load-bearing trucks. As shown in Table 19-28, construction of Alternative 9 would contribute to further deterioration of the existing pavement condition, to less than the acceptable PCI or similar applicable threshold (~~see~~ Table 19-7), on a total of ~~32~~ **42** roadway segments (~~see table~~ entries in **bold** type). Figure 19-4b shows the study roadway segments that could experience substantial pavement condition effects.

The effect of roadway damage during construction would be adverse. Mitigation Measures TRANS-2a through TRANS-2c are available to reduce this effect, but not necessarily to a level that would not be adverse, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, an adverse effect in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, adverse effects could be avoided.

***CEQA Conclusion*:** Construction would add trips, exacerbating unacceptable pavement conditions to below acceptable thresholds (Table 19-7) at the ~~36~~ 42 intersections shown in Table 19-28. The impact of roadway damage during construction would be potentially significant. Mitigation Measures TRANS-2a through TRANS-2c would reduce this impact, but not necessarily to a level that would be less than significant, as the BDCP proponents cannot ensure that the agreements or encroachment permits will be obtained from the relevant transportation agencies. If an agreement or encroachment permit is not obtained, a significant impact in the form of deficient pavement conditions would occur. Accordingly, this effect could remain adverse. If, however, mitigation agreement(s) or encroachment permit(s) providing for the improvement or replacement of pavement are obtained and any other necessary agreements are completed, impacts would be reduced to less than significant.

Table 19-28. Pavement Conditions for Through Delta/Separate Corridors – Alternative 9

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
ALA 01	Byron Hwy	Contra Costa Co./ Alameda Co. Line	Alameda Co./San Joaquin Co. Line	Acceptable	Yes	No
BRE 01	Brentwood Blvd (old SR 4)	Delta Rd (Oakley City Limits)	Balfour Rd	Acceptable	Yes	No
BRE 02	Brentwood Blvd (old SR 4)	Balfour Rd	Brentwood City Limits (South)	Acceptable	Yes	No
BRE 03	**Balfour Rd**	**Brentwood Blvd (Old SR 4)**	**Brentwood City Limits**	**Acceptable**	~~No~~**Yes**	~~No~~**Yes**
CC 01	**Bethel Island Rd**	**Oakley City Limits**	**End**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CC 02	Balfour Rd	Brentwood City Limits	Byron Hwy	Deficient	No	No
CC 03	**Old SR 4**	**Brentwood City Limits (South)**	**Marsh Creek Rd**	**Deficient**	**Yes**	**Yes**
CC 04	Byron Hwy	Delta Rd	Old SR 4	Acceptable	No	No
CC 05	**Byron Hwy**	**SR 4**	**Contra Costa Co./Alameda Co. Line**	**Deficient**	**Yes**	**Yes**
CT 01	**I-5 NB**	**Florin Rd**	**Pocket Rd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CT 02	**I-5 SB**	**Florin Rd**	**Pocket Rd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CT 03	**I-5 NB**	**Pocket Rd**	**Laguna Blvd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CT 04	**I-5 SB**	**Pocket Rd**	**Laguna Blvd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CT 05	**I-5 NB**	**Laguna Blvd**	**Elk Grove Blvd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CT 06	**I-5 SB**	**Laguna Blvd**	**Elk Grove Blvd**	**Deficient**	~~No~~**Yes**	~~No~~**Yes**
CT 07	I-5 NB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	~~No~~**Yes**	No
CT 08	I-5 SB	Elk Grove Blvd	Hood Franklin Rd	Acceptable	~~No~~**Yes**	No
CT 09	**I-5 NB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 10	**I-5 SB**	**Hood Franklin Rd**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
CT 11	I-5 NB	Twin Cities Rd	Walnut Grove Rd	Deficient	No	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 12	I-5 SB	Twin Cities Rd	Walnut Grove Rd	Acceptable	No	No
CT 13	I-5 NB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 14	I-5 SB	Walnut Grove Rd	Peltier Rd	Acceptable	Yes	No
CT 15	I-5 NB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 16	I-5 SB	Peltier Rd	Turner Rd	Acceptable	~~No~~Yes	No
CT 17	I-5 NB	Turner Rd	SR 12	Acceptable	Yes	No
CT 18	I-5 SB	Turner Rd	SR 12	Acceptable	Yes	No
CT 19	**I-5 NB**	**SR 12**	**Eight Mile Rd**	**Deficient**	**Yes**	**Yes**
CT 20	I-5 SB	SR 12	Eight Mile Rd	Acceptable	Yes	No
CT 21	I-5 NB	Eight Mile Rd	Hammer Ln	Deficient	No	No
CT 22	I-5 SB	Eight Mile Rd	Hammer Ln	Acceptable	No	No
CT 23	SR 160 (Freeport Blvd)	Sacramento City Limits	Freeport Bridge	Deficient	No	No
CT 24	SR 160 (Freeport Blvd/River Rd)	Freeport Bridge	Scribner Rd	Deficient	No	No
CT 25	SR 160 (River Rd)	Scribner Rd	Hood Franklin Rd	Deficient	No	No
CT 26	SR 160 (River Rd)	Hood Franklin Rd	Lambert Rd	Deficient	No	No
CT 27	SR 160 (River Rd)	Lambert Rd	Paintersville Bridge	Deficient	No	No
CT 28	SR 160 (Paintersville Bridge)	Sutter Slough Bridge Rd	SR 160 (River Rd)	Not Applicable	Yes	No
CT 29	SR 160	Paintersville Bridge	Walnut Grove Bridge	Acceptable	Yes	No
CT 30	**SR 160 (River Rd)**	**Walnut Grove Bridge**	**A St (Isleton)**	**Deficient**	**Yes**	**Yes**
CT 31	**SR 160**	**A St (Isleton)**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 32	**SR 160**	**SR 12**	**Brannan Island Rd**	**Deficient**	**Yes**	**Yes**
CT 33	**SR 84 (Jefferson Blvd)**	**West Sacramento City Limits**	**Courtland Rd**	**Deficient**	**Yes**	**Yes**
CT 34	SR 84 (Courtland Rd/Ryer Ave)	Courtland Rd	Cache Slough Ferry	Deficient	No	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 35	I-80 EB	Suisun Valley Rd	SR 12	Acceptable	Yes	No
CT 36	I-80 WB	SR 12	Suisun Valley Rd	Acceptable	Yes	No
CT 37	SR 12 EB	I-80	Beck Ave	Acceptable	Yes	No
CT 38	SR 12 WB	Beck Ave	I-80	Acceptable	Yes	No
CT 39	SR 12	Beck Ave	Sunset Ave/Grizzly Island Rd	Acceptable	Yes	No
CT 40	SR 12	Sunset Ave/Grizzly Island Rd	Walters Rd/Lawler Ranch Pkwy	Acceptable	Yes	No
CT 41	**SR 12**	**Walters Rd/Lawler Ranch Pkwy**	**SR 113**	**Deficient**	**Yes**	**Yes**
CT 42	**SR 12**	**SR 113**	**SR 84 (River Rd)**	**Deficient**	**Yes**	**Yes**
CT 43	SR 12 (Rio Vista Bridge)	SR 84 (River Rd)	SR 160 (River Rd)	Not Applicable	Yes	No
CT 44	**SR 12**	**SR 160 (River Rd)**	**Sacramento Co./SJ Co. Line**	**Deficient**	**Yes**	**Yes**
CT 45	**SR 12**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 46	**I-80 EB**	**SR 113**	**Pedrick Rd**	**Deficient**	**Yes**	**Yes**
CT 47	I-80 WB	Pedrick Rd	SR 113	Acceptable	Yes	No
CT 48	SR 113	I-80	Dixon City Limits	Acceptable	Yes	No
CT 49	**SR 113**	**Dixon City Limits**	**SR 12**	**Deficient**	**Yes**	**Yes**
CT 50	SR 4 (Marsh Creek Rd)	Vasco Rd	Byron Hwy (Old SR 4)	Acceptable	Yes	No
CT 51	**SR 4**	**Marsh Creek Rd**	**Discovery Bay Blvd**	**Deficient**	**Yes**	**Yes**
CT 52	**SR 4**	**Discovery Bay Blvd**	**Tracy Blvd**	**Deficient**	**Yes**	**Yes**
CT 53	**SR 4 (Charter Way)**	**Tracy Blvd**	**I-5**	**Deficient**	**Yes**	**Yes**
CT 54	**I-5 NB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 55	**I-5 SB**	**SR 4 (Freeway)**	**SR 4 (Charter Way)**	**Deficient**	**Yes**	**Yes**
CT 56	I-5 NB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
CT 57	I-5 SB	SR 4 (Charter Way)	Eighth Street	Acceptable	Yes	No
CT 58	I-205 EB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 59	I-205 WB	I-580	Mountain House Pkwy	Acceptable	Yes	No
CT 60	I-205 EB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 61	I-205 WB	Mountain House Pkwy	Eleventh St	Acceptable	Yes	No
CT 62	I-205 EB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 63	I-205 WB	Grant Line Rd	Tracy Blvd	Acceptable	Yes	No
CT 64	I-205 EB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
CT 65	I-205 WB	Tracy Blvd	MacArthur Dr	Acceptable	Yes	No
ISL 01	A St/4th St/Jackson Blvd.	SR 160	Isleton City Limits	Deficient	No	No
OAK 01	**Main Street (Old SR 4)**	**SR 160**	**Cypress Rd**	**Deficient**	**Yes**	**Yes**
OAK 02	**Main Street (Old SR 4)**	**Cypress Rd**	**Delta Rd (Oakley City Limits)**	**Deficient**	**Yes**	**Yes**
OAK 03	Cypress Rd	Main Street (Old SR 4)	Bethel Island Rd	Acceptable	~~No~~Yes	No
OAK 04	Bethel Island Rd	Cypress Rd	Oakley City Limits	Deficient	No	No
OAK 05	Delta Rd	Main Street (Old SR 4)	Byron Hwy	Deficient	No	No
SAC 01	Pocket Rd	I-5	Freeport Blvd (Old SR 160)	Deficient	No	No
SAC 02	Freeport Blvd (Old SR 160)	Pocket Rd	Sacramento City Limits	Acceptable	No	No
SC 01	Freeport Bridge	River Rd	SR 160 (Freeport Blvd)	Not Applicable	No	No
SC 02	Hood Franklin Rd	SR 160 (River Rd)	I-5	Deficient	No	No
SC 03	Lambert Rd	SR 160 (River Rd)	Herzog Rd	Acceptable	No	No
SC 04	Lambert Rd	Herzog Rd	Franklin Blvd	Deficient	No	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
SC 05	Franklin Blvd	Lambert Rd	Twin Cities Rd	Deficient	No	No
SC 06	Twin Cities Rd	River Rd	I-5	Acceptable	Yes	No
SC 07	**Twin Cities Rd**	**I-5**	**Franklin Blvd**	**Deficient**	**Yes**	**Yes**
SC 08	**Sutter Slough Bridge Rd**	**Sacramento Co./Yolo Co. Line**	**Paintersville Bridge**	**Deficient**	**Yes**	**Yes**
SC 09	**River Rd (Sac Co.)**	**Paintersville Bridge**	**Twin Cities Rd**	**Deficient**	**Yes**	**Yes**
SC 10	**River Rd (Sac Co.)**	**Twin Cities Rd**	**Walnut Grove Bridge**	**Deficient**	**Yes**	**Yes**
SC 11	Walnut Grove Rd/River Rd	Walnut Grove Bridge	Sacramento Co./SJ Co. Line	Acceptable	Yes	No
SC 12	Isleton Rd	River Rd (Walnut Grove)/Isleton Rd Bridge	1.5 miles west of Isleton Rd Bridge	Acceptable	Yes	No
SC 13	Race Track Rd/Tyler Island Rd	Walnut Grove Rd	Southern End of Tyler Island	Deficient	No	No
SC 14	Tyler Island Rd	Southern End of Tyler Island	SR 160 (River Rd)	Deficient	No	No
SC 15	Jackson Slough Rd	Isleton City Limits	SR 12	Acceptable	No	No
SC 16	Jackson Slough Rd	Brannan Island Rd	SR 12	Acceptable	No	No
SJ 01	**Walnut Grove Rd**	**Sacramento Co./SJ Co. Line**	**I-5**	**Deficient**	**Yes**	**Yes**
SJ 02	Peltier Rd	Blossom Rd	I-5	Deficient	No	No
SJ 03	Tracy Blvd	SR 4	Clifton Court Rd	Acceptable	Yes	No
SJ 04	Tracy Blvd	Clifton Court Rd	Tracy City Limits	Acceptable	Yes	No
SJ 05	Byron Hwy	Alameda Co./San Joaquin Co. Line	Mountain House Pkwy	Acceptable	Yes	No
SJ 06	Mountain House Pkwy	Byron Hwy	Arnaudo Blvd	Acceptable	Yes	No
SJ 07	Mountain House Pkwy	Arnaudo Blvd	I-205	Acceptable	Yes	No

Segment ID*	Roadway	From	To	Baseline Year 2009 Conditions	BPBGPP Conditions	
					Alternative Results in Construction Trips Added to Roadway	Alternative Results in Impact on Deficient Roadway
STK 01	**Eight Mile Rd**	**Stockton City Limits**	**I-5**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
TRA 01	**Tracy Blvd**	**Tracy City Limits**	**I-205**	**Deficient**	**Yes**	**Yes**
WS 01	Harbor Blvd	Industrial Blvd	US 50	Acceptable	Yes	No
WS 02	Industrial Blvd/Lake Washington Blvd	Harbor Blvd	Jefferson Blvd (Old SR 84)	Acceptable	Yes	No
WS 03	**Jefferson Blvd (Old SR 84)**	**Lake Washington Blvd**	**Southport Pkwy**	**Deficient**	**Yes**	**Yes**
WS 04	**Jefferson Blvd (Old SR 84)**	**Southport Pkwy**	**West Sacramento City Limits**	**Deficient**	**Yes**	**Yes**
YOL 01	**River Rd (Yolo Co.)**	**Freeport Bridge**	**Courtland Rd**	**Deficient**	**~~No~~Yes**	**~~No~~Yes**
YOL 02	**River Rd (Yolo Co.)**	**Courtland Rd**	**Sacramento Co./Yolo Co. Line**	**Deficient**	**Yes**	**Yes**
YOL 03	**Courtland Rd**	**SR 84 (Jefferson Blvd)**	**River Rd**	**Deficient**	**Yes**	**Yes**

Source: Appendix 19A, *Bay Delta Conservation Plan Construction Traffic Impact Analysis*

* Segment IDs correspond to the roadway segment IDs shown on Figures 19-2a through 19-2c.

Impact TRANS-12: Potential Effects on Navigation From Changes in Surface Water Elevations Caused by Construction of Water Conveyance Facilities

Facilities constructed under Alternative 9 would include two fish-screened intakes along the Sacramento River near Walnut Grove, numerous operable barriers, two diversion pumping plants and other associated facilities, two culvert siphons, three canal segments, new levees, and new channel connections. Some existing channels would also be enlarged under this alternative. Alternative 9 does not include north Delta intakes. Instead, water continues to flow by gravity from the Sacramento River into two existing channels, Delta Cross Channel and Georgiana Slough. Alternative 9 operates in a manner more similar to the No Action Alternative with operational criteria related to minimizing reverse flows in Old and Middle rivers applying only to Middle River and not including San Joaquin River export/inflow ratio criteria.

As explained in Chapter 6, *Surface Water*, construction of the facilities included in Alternative 9 would require excavation, grading, or stockpiling at project facility sites or at temporary work sites. Site grading needed to construct any of the proposed facilities has the potential to block, reroute, or temporarily detain and impound surface water in existing drainages, which would result in increases and decreases in flow rates, velocities, and water surface elevations. Changes in drainage depths would vary depending on the specific conditions at each of the temporary work sites. As drainage paths would be blocked by construction activities, the temporary ponding of drainage water could occur and result in decreases in drainage flow rates downstream of the new facilities, increases in water surface elevations, and decreases in velocities upstream of the new facilities. These changes would not result in a substantial decrease in surface water elevation on any navigable waterways and therefore would not have an adverse effect on navigation.

Removal of groundwater during construction (dewatering) would be required for excavation activities. Groundwater removed during construction would be treated as necessary, and discharged to local drainage channels or rivers. This would result in a localized increase in flows and water surface elevations in the receiving channels. The increase in flows and water surface elevations in the receiving channels would not affect navigation.

Construction of facilities within water bodies would include the installation of cofferdams at each location. Intakes and screens have been designed to minimize changes to river flow characteristics. Nevertheless, some localized water elevation changes will occur upstream and adjacent to each cofferdam at these intake sites due to facility location within the river. These localized surface elevation changes will not exceed an increase of 0.10 feet at any intake location even at high river flows (when surface elevation changes would be expected to be highest). Any decrease in surface water elevations downstream of the cofferdams would be negligible and would not adversely affect navigation. Under existing regulations, USACE, CVFPB, and DWR would require installation of setback levees or other measures to maintain existing flow capacity in the waterways during construction and operations, which would prevent unacceptable increases in river water surface elevations under flood-flow conditions.

In total, Alternative 9 would result in alterations to drainage patterns, stream courses, and runoff, and potential for minimal increased surface water elevations in the rivers and streams during construction of facilities located within the waterway. Construction under Alternative 9 would not result in a substantial decrease in surface water elevations on any navigable waterways and therefore would not have an adverse effect on navigation. Although the increase in surface water elevations in rivers and streams under Alternative 9 creates a potential impact regarding flooding

(which is considered less-than-significant with implementation of Mitigation Measure SW-4) the changes in surface water elevation would not have any adverse effects on navigation. See Chapter 6, *Surface Water*, for additional information regarding changes to surface water under Alternative 9.

NEPA Effects: Water surface changes and potential impacts associated with intake construction are not considered adverse to navigation. Water depth and surface elevations will not be substantially effected during construction and operation of the water conveyance facilities (either localized or downstream of the intake structures). Although some construction activities and in-water features (i.e., cofferdams) may cause minor changes in surface water elevations, these effects are highly localized and surface water elevations would not increase by more than .10 feet at any location, even during flood events. These changes would not result in a substantial decrease in surface water elevations on any navigable waterways. Therefore, surface water changes associated with construction and operation of the water conveyance facilities would not cause an adverse impact on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during construction of the intakes will not have a significant impact on navigation.

Impact TRANS-13: Potential Effects of Navigation from Changes in Surface Elevations Caused by Operation of Intakes

Intake screens under Alternative 9 are designed to be hydrologically neutral. This is in part due to the proposed position of each intake (screen) at the confluence of the Sacramento and the Delta Cross Channel and Georgiana Slough and the fact that flows through the two intakes (screens) is not pumped. However, surface elevations could increase locally and adjacent to the facility. These localized surface elevation changes will not result in a significant decrease in surface water elevation at any location. Since there is no reduction in surface flows, navigation is not expected to be effected by changes in water levels near the intake screen facilities. Similarly, navigation is not expected to be effected by surface water level changes further upstream or downstream from the facilities during operation.

NEPA Effects: Water surface changes and potential impacts associated with intake operation are not considered adverse. Water depth and surface elevations will not be significantly effected (either localized or downstream of the intake structures) and will therefore not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in surface water elevation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in surface water elevation during operation of the intakes will not have a significant impact on navigation.

Impact TRANS-14: Potential Effects on Navigation Caused by Sedimentation From Construction of Intakes

As explained above under the discussion of potential effects to surface elevations during construction of the intakes for Alternative 9, Intake (screen) construction would involve some

excavation, coffer dam installation and potential dewatering. Coffer dam installation with potential sediment accumulation near the facility is likely to result on a temporary basis during construction. Sedimentation that occurs near intakes during construction under Alternative 9 will be localized and short-term and will not have an adverse effect on navigation.

Moreover, potential sedimentation effects will be further minimized by limiting the duration of in-water construction activities and through implementing the environmental commitments described in Appendix 3B, *Environmental Commitments,* including the commitment to *Develop and Implement Erosion and Sediment Control Plans* to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by construction activities following construction. This commitment is related to Avoidance and Minimization Measure (AMM) 4, *Erosion and Sediment Control Plan*, described in BDCP Appendix 3.C. It is anticipated that multiple erosion and sediment control plans will be prepared for construction activities, each taking into account site-specific conditions such as proximity to surface water, erosion potential, drainage, etc. The plans will include all the necessary state requirements regarding erosion control and will implement BMPs for erosion and sediment control that will be in place for the duration of construction activities.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal and will not have an adverse effect on navigation.

NEPA Effects: Construction of coffer dams and intake construction would not have an adverse effect on navigation through increased sedimentation and erosion/deposition in the navigable channel.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation during construction of the intakes will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-15: Potential Effects on Navigation Caused by Sedimentation From Construction of Barge Facilities

Under alternative 9, temporary barge unloading facilities would be constructed at locations adjacent to construction work areas for the delivery of construction materials. Each of the barge landings would likely include in-water and over-water structures, such as piling dolphins, docks, ramps, and possibly conveyors for loading and unloading materials; and vehicles and other machinery. Construction of the landings would likely involve piles at each landing.

To address potential erosion and sedimentation impacts from barge facility construction associated with Alternative 9, the project proponents will ensure that a Barge Operations Plan is developed and implemented for facility construction. The requirements for the Barge Operations Plan are described in Draft EIR/EIS Appendix 3B, *Environmental Commitments*. This commitment is related to AMM7, *Barge Operations Plan*, described in BDCP Appendix 3.C. This plan will be developed and submitted by the construction contractors per standard DWR contract specifications. Erosion control measures during construction activities at project locations are provided in Appendix 3B,

Environmental Commitments, as noted above in the discussion of the intakes. Fleeting facilities will be either docking facilities built through pile and wharves or loaded and unloaded using landward positioned cranes. In either case, through AMM7 and the Environmental Commitments, impacts on sedimentation through construction related activities will be localized and minimal.

Implementation of Mitigation Measure SW-4 (Implement Measures to Reduce Runoff and Sedimentation) will further ensure that impacts from sedimentation are minimal.

***NEPA Effects*:** Construction and operation of the barge facilities under Alternative 9 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation from the temporary barge facilities will not have a significant impact on navigation.

Mitigation Measure SW-4: Implement Measures to Reduce Runoff and Sedimentation

Please refer to Mitigation Measure SW-4 in Alternative 1A, Impact SW-4.

Impact TRANS-16: Potential Effects on Navigation Caused by Sedimentation From Construction of Clifton Court Forebay

Alternative 9 would not involve expansion or modifications to Clifton Court Forebay. Moreover, while Clifton Court Forebay is a "navigable water," use of the forebay is limited to maintenance operations and is not open to commercial or recreational navigation.

NEPA Effects: No effect.

CEQA Conclusion: No impact.

Impact TRANS-17: Potential Effects on Navigation Caused by Sedimentation From Operation of Intakes

Alternative 9 proposes two fish screen facilities along the Sacramento River. A fish-screened intake will be constructed at the head of the Delta Cross Channel and Georgiana Slough. Each of the structures is about 2,500 feet long and is designed to prevent migrating fish species from entering the corridor. These screens will likely impact sediment transport along the Sacramento River near Walnut Grove, particularly the bed load. The sill of the intake will be constructed above the channel thalweg, which will limit the movement of the bed load along the channel. The bed sediment that would have entered into the Delta Cross Channel and Georgiana Slough will stay in the in the Sacramento River. The channel on the downstream of the intake gate will have less sediment loading which may lead to scouring of the levees. However, the potential scouring of the levees would result in minimal sedimentation and would not have an adverse impact on navigation. (See Chapter 10, Soils, for addition information on the potential for bank erosion.) There is also the potential for sediment buildup along the Sacramento River in front of and downstream of each intake structure. However, as explained in Chapter 3, Description of Alternatives, typical maintenance activities associated with river intakes would be performed to ensure that sediment buildup is controlled. These activities may include the following: (1) suction dredging around the intake structures using raft- or barge-mounted equipment and pumping sediment to a landside spoils area; (2) mechanical

excavation around intake structures using track-mounted equipment and a clamshell dragline from the top deck after installing a floating turbidity control curtain to isolate the work area; and (3) dewatering the intake bays to remove sediment buildup using small front-end loading equipment and manual labor. These activities will ensure that sediment accumulation near the intakes would not have an adverse effect on navigation.

NEPA Effects: Construction and operation of the intakes under Alternative 9 would not have an adverse effect on navigation.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation caused by changes in sedimentation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, changes in sedimentation caused by the operable barriers proposed under Alternative 9 will not have a significant impact on navigation.

Impact TRANS-18: Potential Effects on Navigation From Construction and Operations of Operable Barriers

Alternative 9 proposes 14 operable barriers along several channels in the central and south Delta. The construction and operation of the flow control barriers under Alternative 9 will block the natural movement of water through the existing channels. If the bottom of the gate is not matched with the bottom of the channel thalweg, it will alter the movement of bed load, which could lead to significant sediment impacts on some sloughs, such as Threemile Slough (Dinehart, 2002). In general, closing the barriers will create a pool of standing water on either side the gate. The standing water will provide areas for sedimentation which could reduce the channel capacity. Routine inspection of gate facilities and systems under Alternative 9 would occur annually. Some gates may not be required to operate for extended periods and would be operated at least two times per year. Each gate bay would be inspected annually at the end of the wet season for sediment accumulation. Sediment would be removed during the summer. These activities would ensure sedimentation near the operable barriers would not have an adverse effect on navigation.

NEPA Effects: With respect to construction and operations of the operable barriers, Alternative 9 would have no adverse effect on either commercial or recreational navigation activities.

CEQA Conclusion: Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, construction and operations of operable barriers under Alternative 9 barrier will not have a significant impact on navigation.

Impact TRANS-19: Potential Cumulative Effects on Navigation From Construction and Operations of Water Conveyance Facilities

As explained above and with respect to the construction and operation of these facilities, Alternative 9 would not result in an adverse effects to navigation due to water level elevation changes or altered sedimentation patterns. It is highly unlikely that other projects would combine with these impacts of the project to result in cumulative effects on navigation. This is because the minimal effects of these elements of the project on navigation are localized and would combine only with probable future projects if the projects were located immediately adjacent to the project components. There are no

other reasonably foreseeable projects proposed to be located near or adjacent to the planned Alternative 9 facilities.

NEPA Effects: Alternative 9 in combination with other reasonably foreseeable projects would not have a cumulatively adverse effect on navigation.

***CEQA Conclusion*:** Because it does not involve a physical change in the environment, effects to navigation, by themselves, are not considered environmental impacts under CEQA. Any secondary physical environmental impacts that may result are covered under other impacts. Nonetheless, as explained above, Alternative 9 in combination with other reasonably foreseeable projects would not have a cumulatively significant impact on navigation.

19.4 References

19.4.1 Printed References

California Department of Water Resources, 2010. Technical Memorandum – Initial Intake Hydraulic Analyses (April 15, 2010)

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